CAPACITORS FOR POWER ELECTRONICS

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Type AEB

SMT Aluminum Electrolytic Capacitors - High Voltage, 105 °C

Low Impedance and Long Life for High Voltage, High Ripple Current Applications

Type AEB capacitors are it for high voltage applications like input bus capacitors in board mounted miniature AC/DC supplies. The AEB's low impedance in ratings up to 450 Vdc, and long life, make it ideal for power supply input and other high voltage applications. The vertical, cylindrical cases make easy automatic mounting and reflow soldering.

Highlights

- +105 °C, Up to 5000 Hour Load Life
- Capacitance Range: 2.2 µF to 100 µF
- Voltage Range: 160 Vdc to 450 Vdc

Specifications

Operating Temperature: –25 °C to +105 °C
Rated Voltage: 160, 200, 250, 350, 400, 450 Vdc
Capacitance: 2.2 µF to 100 µF
Capacitance Tolerance: ±20% @ 120 Hz and +20 °C
Impedance Ratio (at 120 Hz):

Rated Voltage	160	200	250	350	400	450
Z(-25°C)/Z(+20°C)	2	2	3	5	6	6

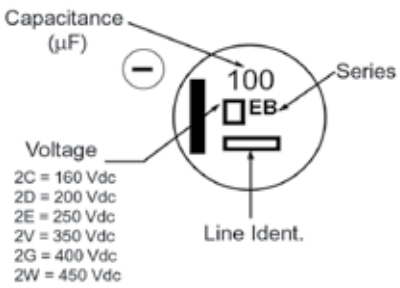
RoHS Compliant

Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

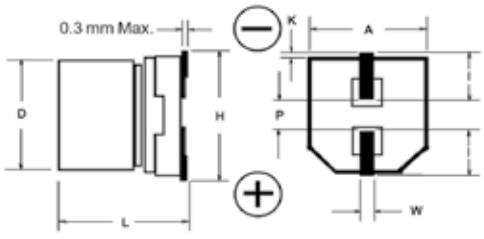
Life Test: 5000 h @ +105 °C, L — S Cases
4000 h @ +105 °C, K Case
3000 h @ +105 ºC, J Case
Δ Capacitance ± 20%
DF: ≤ 200% of limit
DCL: ≤ 100% of limit

Shelf Test: 1000 h @ 105 °C
Δ Capacitance ± 20%
DF: ≤ 200% of limit
DCL: ≤ 100% of limit

AEB Series Marking



Outline Drawing



Case Dimensions

Case Code	D ±0.5	L ±0.5	A ±0.2	H (max)	I (ref)	W	P (ref)	K (mm)
J	10.0	13.5	10.3	12	3.5	0.9 ±0.2	4.6	0.7 ± 0.2
K	10.0	16.5	10.3	12	3.5	0.9 ±0.2	4.6	0.7 ± 0.2
L	12.5	16.5	13.5	15	4.7	0.9 ±0.3	4.4	0.7 ± 0.3
P	16.0	16.5	17.0	19	5.5	1.2 ±0.3	6.7	0.7 ± 0.3
U	16.0	21.5	17.0	19	5.5	1.2 ±0.3	6.7	0.7 ± 0.3
R	18.0	16.5	19.0	21	6.7	1.2 ±0.3	6.7	0.7 ± 0.3
S	18.0	21.5	19.0	21	6.7	1.2 ±0.3	6.7	0.7 ± 0.3

Type AEB

SMT Aluminum Electrolytic Capacitors - High Voltage, 105 °C

Ratings

Cap (µF)	Catalog Part Number	Max. DCL 2 min (µA)	Max. Dissipation Factor @ 120 Hz 20 °C	Max. Impedance @ 100 kHz 20 °C (Ω)	Max. Ripple Current @ 105 °C 100 kHz (mA)	Size (mm) D x L	Quantity Reel
			160 Vdc				
10.0	AEB106M2CJ32T-F	106	0.15	3.00	70	10 x 13.5	250
33.0	AEB336M2CL32T-F	327	0.15	1.80	470	12.5 x 16.5	150
47.0	AEB476M2CP44T-F	461	0.15	1.40	600	16 x 16.5	125
68.0	AEB686M2CU44T-F	663	0.15	0.55	750	16 x 21.5	75
68.0	AEB686M2CR44T-F	663	0.15	0.80	750	18 x 16.5	125
100.0	AEB107M2CS44T-F	970	0.15	0.50	1060	18 x 21.5	75
			200 Vdc				
22.0	AEB226M2DL32T-F	274	0.15	1.80	470	12.5 x 16.5	150
33.0	AEB336M2DP44T-F	406	0.15	1.40	600	16 x 16.5	125
47.0	AEB476M2DR44T-F	574	0.15	0.80	600	18 x 16.5	125
68.0	AEB686M2DU44T-F	826	0.15	0.55	750	16 x 21.5	75
100.0	AEB107M2DS44T-F	1210	0.15	0.50	1060	18 x 21.5	75
			250 Vdc				
10.0	AEB106M2EK32T-F	160	0.15	2.50	88	10 x 16.5	200
22.0	AEB226M2EP44T-F	340	0.15	1.60	560	16 x 16.5	125
33.0	AEB336M2ER44T-F	505	0.15	0.85	560	18 x 16.5	125
47.0	AEB476M2EU44T-F	715	0.15	0.70	710	16 x 21.5	75
68.0	AEB686M2ES44T-F	1030	0.15	0.60	990	18 x 21.5	75
			350 Vdc				
10.0	AEB106M2VP44T-F	220	0.20	3.20	270	16 x 16.5	125
22.0	AEB226M2VR44T-F	472	0.20	1.60	350	18 x 16.5	125
33.0	AEB336M2VU44T-F	703	0.20	1.20	480	16 x 21.5	75
47.0	AEB476M2VS44T-F	997	0.20	1.00	670	18 x 21.5	75
			400 Vdc				
3.3	AEB335M2GJ32T-F	89	0.24	8.00	40	10 x 13.5	250
4.7	AEB475M2GK32T-F	123	0.24	5.50	50	10 x 16.5	200
10.0	AEB106M2GP44T-F	250	0.24	3.60	250	16 x 16.5	125
22.0	AEB226M2GU44T-F	538	0.24	2.20	410	16 x 21.5	75
33.0	AEB336M2GS44T-F	802	0.24	1.20	600	18 x 21.5	75
			450 Vdc				
2.2	AEB225M2WJ32T-F	69	0.24	11.00	29	10 x 13.5	250
3.3	AEB335M2WK32T-F	99	0.24	7.00	41	10 x 16.5	200
4.7	AEB475M2WL32T-F	137	0.24	4.80	49	12.5 x 16.5	150
10.0	AEB106M2WR44T-F	280	0.24	3.00	310	18 x 16.5	125
22.0	AEB226M2WS44T-F	604	0.24	1.80	560	18 x 21.5	75

Part Numbering System

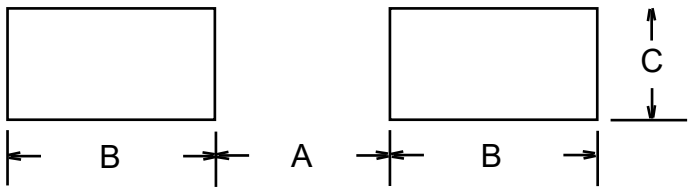
AEB	106	M	2C	J	32T	-F
Type	**Capacitance**	**Capacitance Tolerance**	**Voltage Code**	**Case Code**	**Packaging Information**	**RoHS Compliant**
	105 = 1.0 µF	M = ±20%	2C = 160 Vdc		32 = Carrier tape Width (mm)	
	106 = 10.0 µF		2D = 200 Vdc		T = Tape & Reel	
	107 = 100.0 µF		2E = 250 Vdc		B = bulk	
			2V = 350 Vdc			
			2G = 400 Vdc			
			2W = 450 Vdc			

See the Aluminum SMT Application Guide for Packaging Information.

Type AEB

SMT Aluminum Electrolytic Capacitors - High Voltage, 105 °C

Recommended Land Pattern

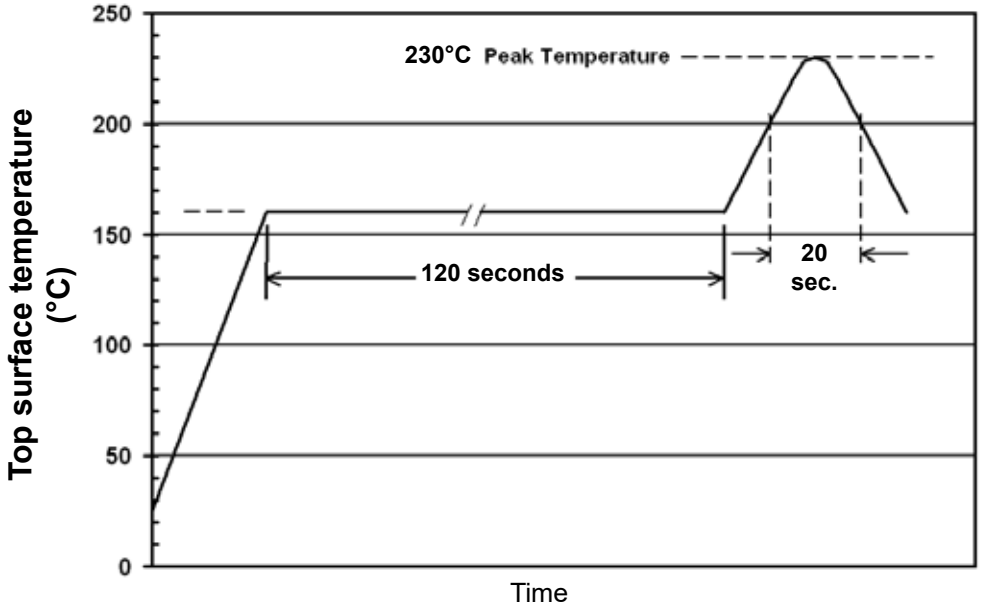


Case Code	Case Dia. (mm)	A (mm)	B (mm)	C (mm)
J	10	4.0	4.5	2.0
K	10	4.0	4.5	2.0
L	12.5	4.0	5.7	2.0
P	16	6.0	6.5	2.5
U	16	6.0	6.5	2.5
R	18	6.0	7.5	2.5
S	18	6.0	7.5	2.5

Ripple Current Correction Factor

Vdc	Ripple Current Correction Factor vs Frequency			
	120 Hz	1kHz	10kHz to 30kHz	30kHz to 100kHz
160 to 250	0.55	0.85	0.90	1.00
350 to 450	0.50	0.80	0.90	1.00

Recommended Reflow Soldering Profile for AEB Series (10 to 18 mm dia.)

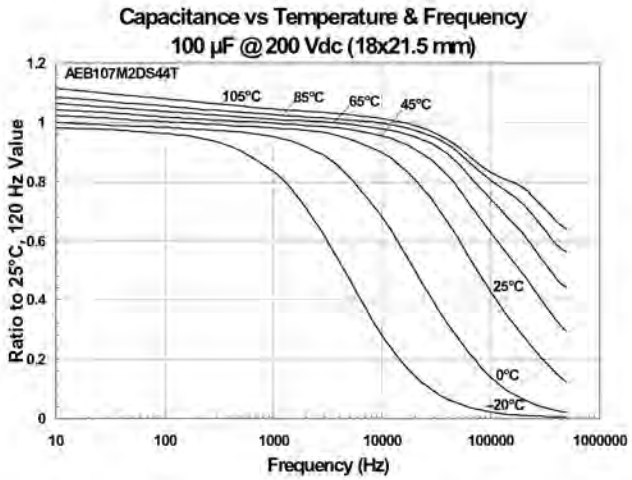


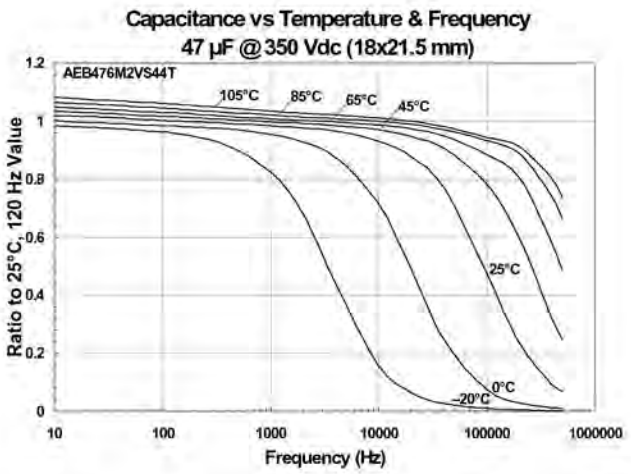
Max. top surface temperature during reflow soldering	**230°C**
Maximum time at peak temperature	**5 seconds**
Maximum time at or above 200°C	**20 seconds**
Number of reflow processes	**1**
Terminal Material	**copper clad iron**

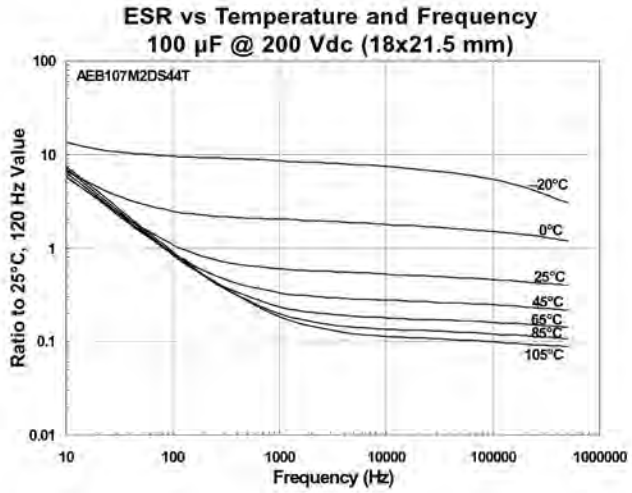
Type AEB

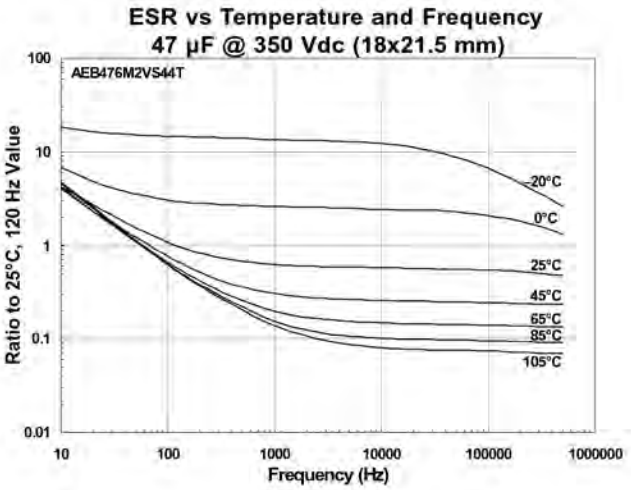
SMT Aluminum Electrolytic Capacitors - High Voltage, 105 °C

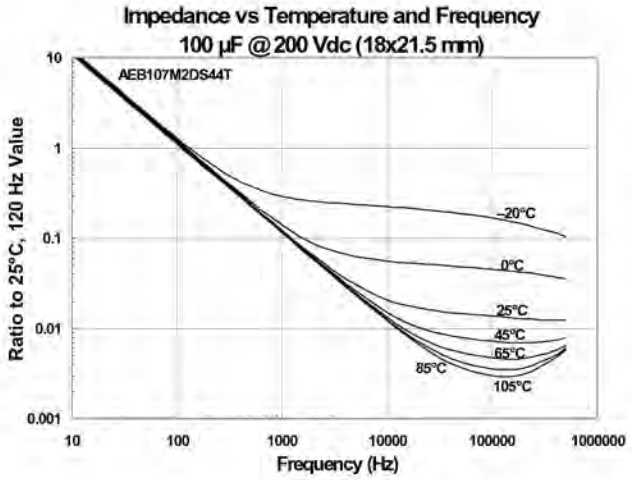
Typical Performance Curves

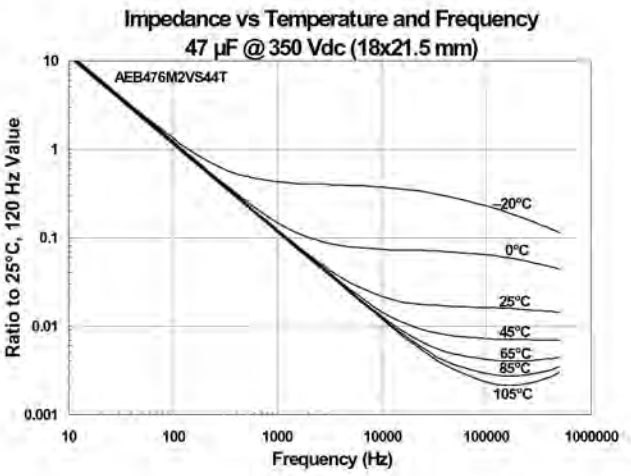












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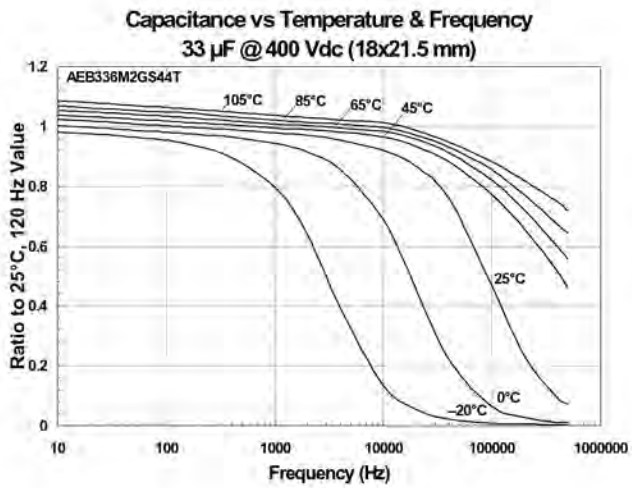
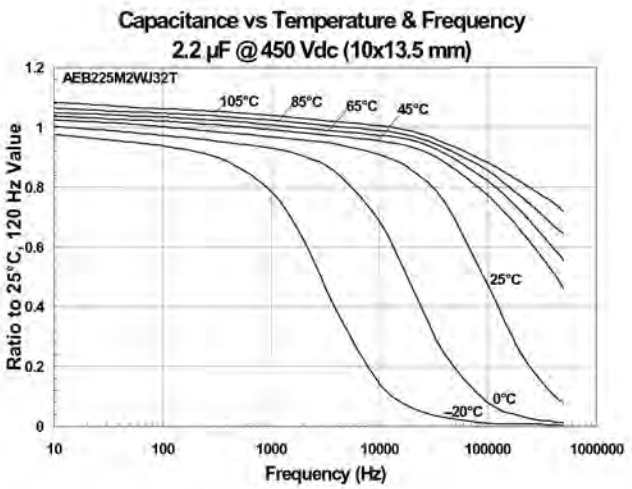
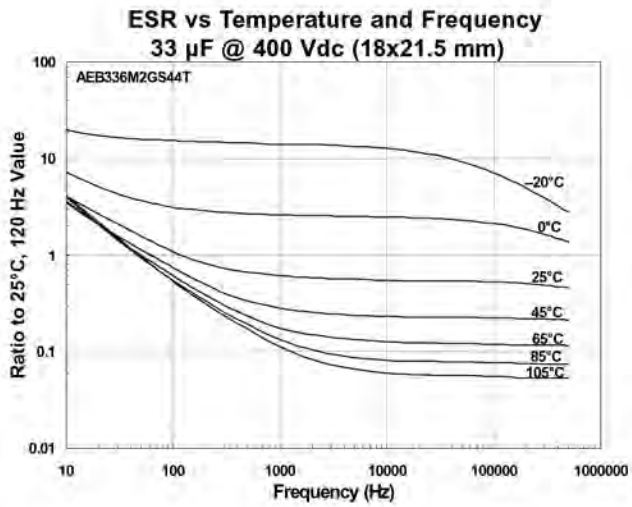
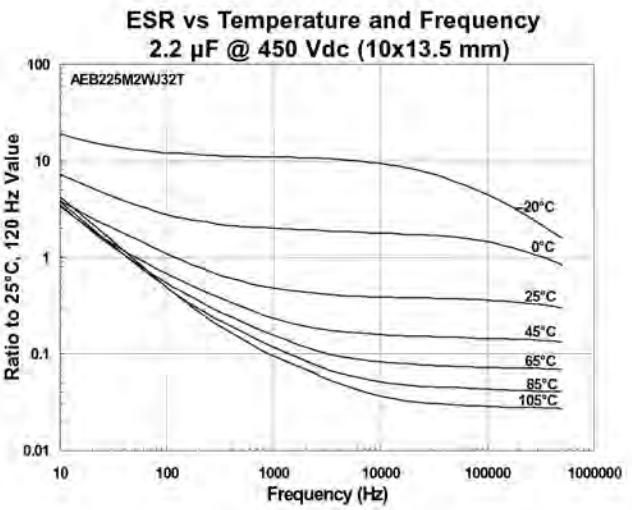
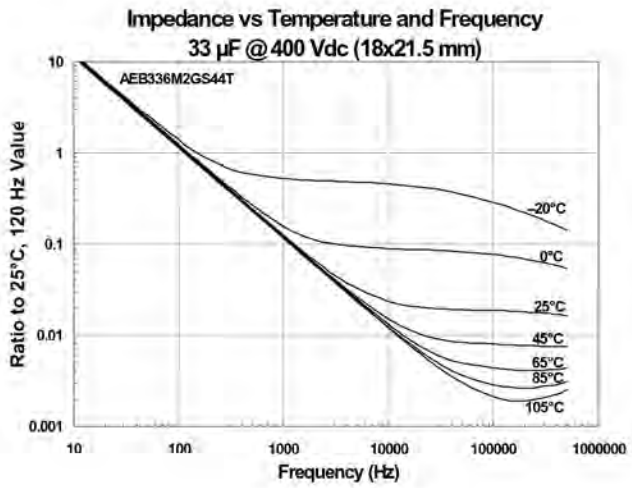
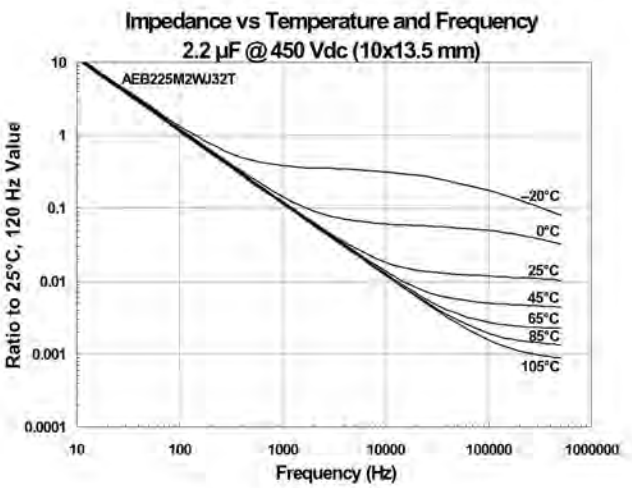






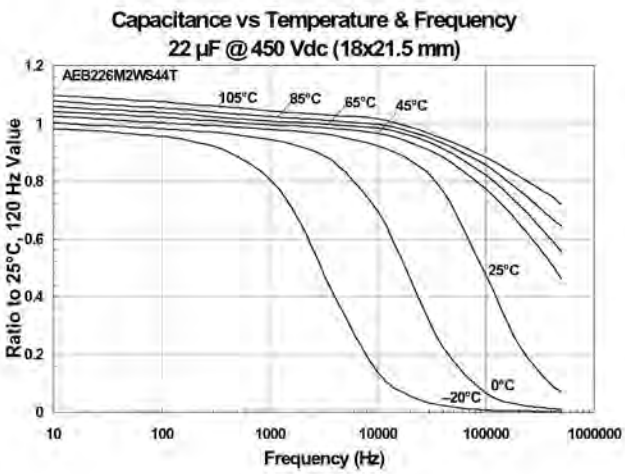


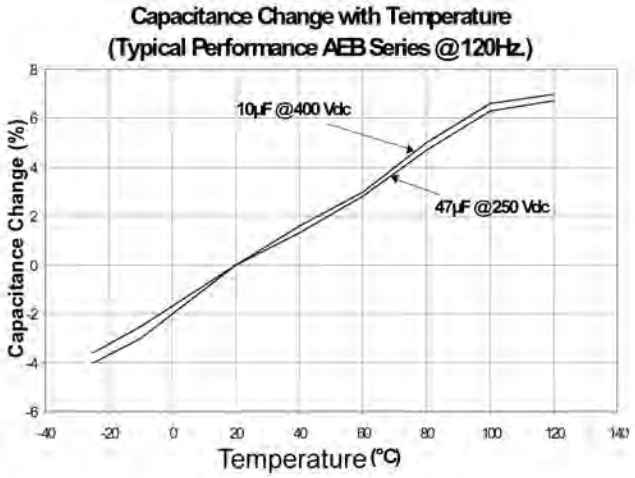


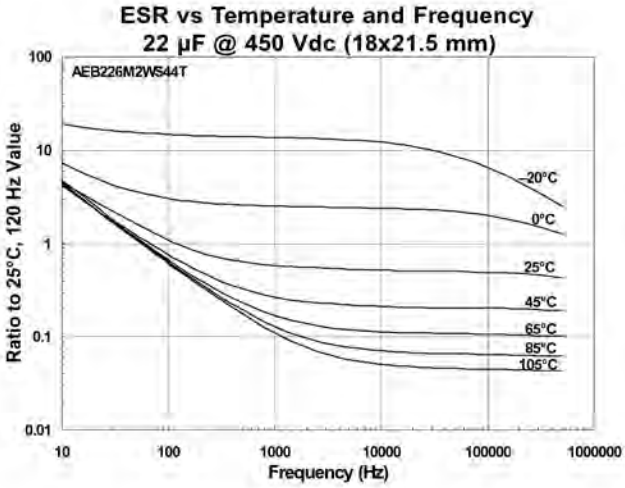


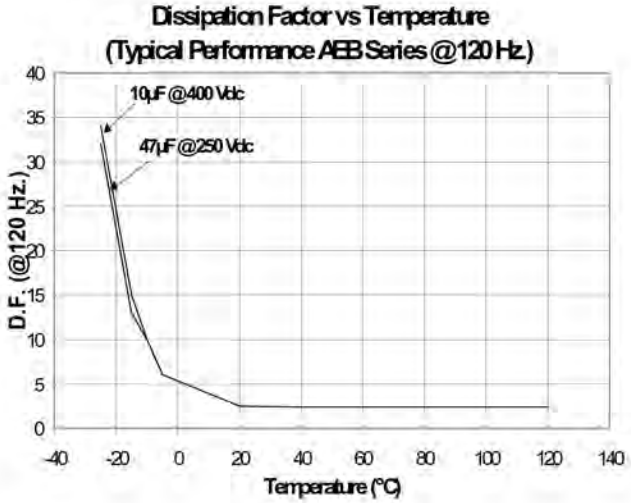
Type AEB

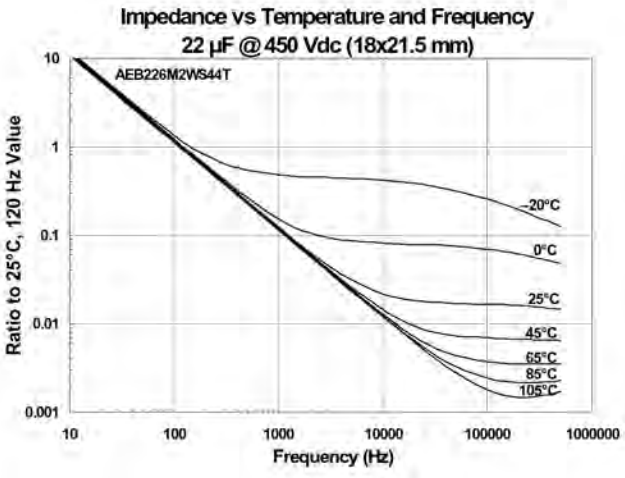
SMT Aluminum Electrolytic Capacitors - High Voltage, 105 °C

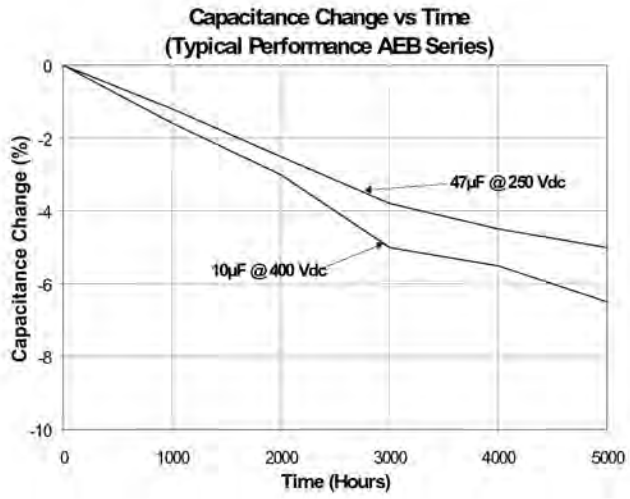












Type AEB

SMT Aluminum Electrolytic Capacitors - High Voltage, 105 °C

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Type AFC –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

Low Impedance and Long-Life for Filtering, Bypassing and Power Supply Decoupling

Type AFC Capacitors are the choice for high-frequency filtering. At 100 kHz, most ratings can handle more than twice the ripple current of type AHA. With solid performance at temperatures down to –55 ° C, Type AFC has more than 90% capacitance retention at –20 ° C and 1 kHz. With low impedance to beyond 100 kHz, it is ideal for higher power DC/DC converters. The vertical cylindrical cases make for easy automatic mounting and reflow soldering, and offer big savings and higher capacitance compared to tantalum capacitors.

Highlights

- +105 °C, Up to 1000 Hour Load Life
- Capacitance Range: 1 µF to 1500 µF
- Voltage Range: 6.3 Vdc to 50 Vdc
- AEC-Q200 Compliant

Specifications

Operating Temperature: –55 °C to +105 °C
Rated Voltage: 6.3, 10, 16, 25 & 50 Vdc
Capacitance: 1.0 µF to 1500 µF
Capacitance Tolerance: ±20% @ 120 Hz and +20 °C
Leakage Current: 0.01 CV or 3 µA @ +20 °C, after two minutes (whichever is greater)
Dissipation Factor: See ratings table
Ripple Current Multiplier: **Frequency**

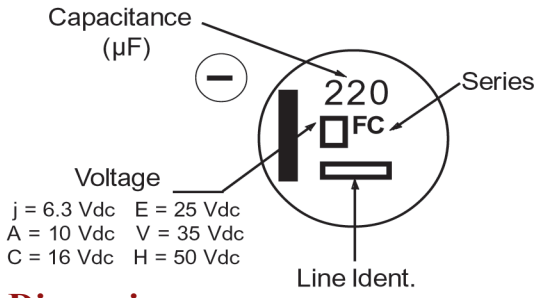
50/60 Hz	120 Hz	1 kHz	10 kHz	100 kHz
0.70	.0.75	0.90	0.95	1.00

Load Life: 1000 h @ +105 °C
Δ Capacitance ±20%
DF: ≤200% of limit
DCL: ≤100% of limit

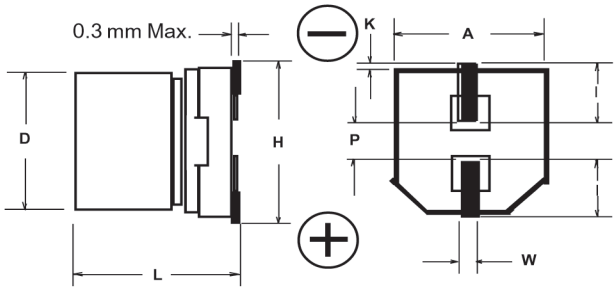
RoHS Compliant

Shelf Life: 1000 h @ +105 °C
Δ Capacitance ±20%
DF: ≤200% of limit
DCL: ≤100% of limit

AFC Series Marking



Outline Drawing



Case Dimensions

Case Code	Dimensions in (mm) D ± 0.5	L	A ± 0.2	H (max)	I (ref)	W	P (ref)	K
B	4.0	5.4 +.1,-.2	4.3	5.5	1.8	0.65 ± 0.1	1.0	0.35 + 0.15/-0.20
C	5.0	5.4 +.1,-.2	5.3	6.5	2.2	0.65 ± 0.1	1.5	0.35 + 0.15/-0.20
D	6.3	5.4 +.1,-.2	6.6	7.8	2.4	0.65 ± 0.1	1.8	0.35 + 0.15/-0.20
E	8.0	6.2 ±.3	8.3	9.5	3.4	0.65 ± 0.1	2.2	0.35 + 0.15/-0.20
F	8.0	10.2 ±.3	8.3	10.0	3.4	0.90 ± 0.2	3.2	0.70 ± 0.20
G	10.0	10.2 ±.3	10.3	12.0	3.5	0.90 ± 0.2	4.6	0.70 ± 0.20

Type AFC –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

Ratings Table

Cap (µF)	Catalog Part Number	Max. DCL 2 min (mA)	Max. Dissipation Factor @ 120 Hz 20 °C	Max. ESR @ 120 Hz20 °C (Ω)	Impedance @ 100 kHz 20 °C (Ω)	Max. Ripple Current @ 105 °C 100 kHz (mA)	Case Code	Size (mm) D x L	Quantity per Reel
6.3 Vdc (8 Vdc Surge)									
22.0	AFC226M06B12T-F	3.0	0.26	19.60	3.00	60	B	4 x 5.4	2000
47.0	AFC476M06C12T-F	3.0	0.26	9.20	1.80	95	C	5 x 5.4	1000
100.0	AFC107M06D16T-F	6.3	0.26	4.30	1.00	140	D	6.3 x 5.4	1000
220.0	AFC227M06E16T-F	13.9	0.26	2.00	0.40	230	E	8 x 6.2	1000
330.0	AFC337M06F24T-F	20.8	0.26	1.30	0.30	450	F	8 x 10.2	500
1000.0	AFC108M06G24T-F	63.0	0.26	0.43	0.15	670	G	10 x 10.2	500
1500.0	AFC158M06G24T-F	94.5	0.26	0.29	0.15	670	G	10 x 10.2	500
10 Vdc (13 Vdc Surge)									
33.0	AFC336M10C12T-F	3.3	0.19	9.60	1.80	95	C	5 x 5.4	1000
100.0	AFC107M10E16T-F	10.0	0.19	3.20	0.40	230	E	8 x 6.2	1000
150.0	AFC157M10E16T-F	15.0	0.19	2.10	0.40	230	E	8 x 6.2	1000
220.0	AFC227M10F24T-F	22.0	0.19	1.40	0.30	450	F	8 x 10.2	500
470.0	AFC477M10G24T-F	47.0	0.19	0.67	0.15	670	G	10 x 10.2	500
1000.0	AFC108M10G24T-F	100.0	0.22	0.36	0.15	670	G	10 x 10.2	500
16 Vdc (20 Vdc Surge)									
10.0	AFC106M16B12T-F	3.0	0.16	26.50	3.00	60	B	4 x 5.4	2000
22.0	AFC226M16C12T-F	3.5	0.16	12.10	1.80	95	C	5 x 5.4	1000
47.0	AFC476M16D16T-F	7.5	0.16	5.70	1.00	140	D	6.3 x 5.4	1000
68.0	AFC686M16E16T-F	10.9	0.16	3.90	0.40	230	E	8 x 6.2	1000
100.0	AFC107M16E16T-F	16.0	0.16	2.70	0.40	230	E	8 x 6.2	1000
220.0	AFC227M16G24T-F	35.2	0.16	1.20	0.15	670	G	10 x 10.2	500
330.0	AFC337M16G24T-F	52.8	0.16	0.80	0.15	670	G	10 x 10.2	500
470.0	AFC477M16G24T-F	75.2	0.16	0.60	0.15	670	G	10 x 10.2	500
680.0	AFC687M16G24T-F	108.8	0.16	0.40	0.15	670	G	10 x 10.2	500
25 Vdc (31 Vdc Surge)									
6.8	AFC685M25B12T-F	3.0	0.14	34.10	3.00	60	B	4 x 5.4	2000
22.0	AFC226M25D16T-F	5.5	0.14	10.60	1.00	140	D	6.3 x 5.4	1000
33.0	AFC336M25D16T-F	8.3	0.14	7.00	1.00	140	D	6.3 x 5.4	1000
47.0	AFC476M25E16T-F	11.8	0.14	4.90	0.40	230	E	8 x 6.2	1000
68.0	AFC686M25F24T-F	17.0	0.14	3.40	0.30	450	F	8 x 10.2	500
100.0	AFC107M25F24T-F	25.0	0.14	2.30	0.30	450	F	8 x 10.2	500
220.0	AFC227M25G24T-F	55.0	0.14	1.10	0.15	670	G	10 x 10.2	500
330.0	AFC337M25G24T-F	82.5	0.14	0.70	0.15	670	G	10 x 10.2	500
470.0	AFC477M25G24T-F	117.5	0.14	0.50	0.15	670	G	10 x 10.2	500
35 Vdc (44 Vdc Surge)									
1.0	AFC105M35B12T-F	3.0	0.12	199.00	3.00	60	B	4 x 5.4	2000
2.2	AFC225M35B12T-F	3.0	0.12	90.40	3.00	60	B	4 x 5.4	2000
3.3	AFC335M35B12T-F	3.0	0.12	60.30	3.00	60	B	4 x 5.4	2000
4.7	AFC475M35B12T-F	3.0	0.12	42.40	3.00	60	B	4 x 5.4	2000
6.8	AFC685M35C12T-F	3.0	0.12	29.30	1.80	95	C	5 x 5.4	1000
10.0	AFC106M35C12T-F	3.5	0.12	19.90	1.80	95	C	5 x 5.4	1000
22.0	AFC226M35D16T-F	7.7	0.12	9.10	1.00	140	D	6.3 x 5.4	1000
33.0	AFC336M35E16T-F	11.6	0.12	6.00	0.40	230	E	8 x 6.2	1000
47.0	AFC476M35E16T-F	16.5	0.12	4.20	0.40	230	E	8 x 6.2	1000
100.0	AFC107M35G24T-F	35.0	0.12	2.00	0.20	670	G	10 x 10.2	500
220.0	AFC227M35G24T-F	77.0	0.12	0.90	0.15	670	G	10 x 10.2	500
330.0	AFC337M35G24T-F	115.5	0.12	0.60	0.15	670	G	10 x 10.2	500
50 Vdc (63 Vdc Surge)									
1.0	AFC105M50B12T-F	3.0	0.12	199.00	5.00	30	B	4 x 5.4	2000
2.2	AFC225M50B12T-F	3.0	0.12	90.50	5.00	30	B	4 x 5.4	2000
3.3	AFC335M50B12T-F	3.0	0.12	60.30	5.00	30	B	4 x 5.4	2000
4.7	AFC475M50C12T-F	3.0	0.12	42.40	3.00	50	C	5 x 5.4	1000
10.0	AFC106M50D16T-F	5.0	0.12	19.90	2.00	70	D	6.3 x 5.4	1000
22.0	AFC226M50E16T-F	11.0	0.12	9.10	0.70	120	E	8 x 6.2	1000
33.0	AFC336M50F24T-F	16.5	0.12	6.00	0.60	300	F	8 x 10.2	500
47.0	AFC476M50G24T-F	23.5	0.12	4.20	0.30	500	G	10 x 10.2	500
100.0	AFC107M50G24T-F	50.0	0.12	2.00	0.30	500	G	10 x 10.2	500
220.0	AFC227M50G24T-F	110.0	0.12	0.90	0.30	500	G	10 x 10.2	500

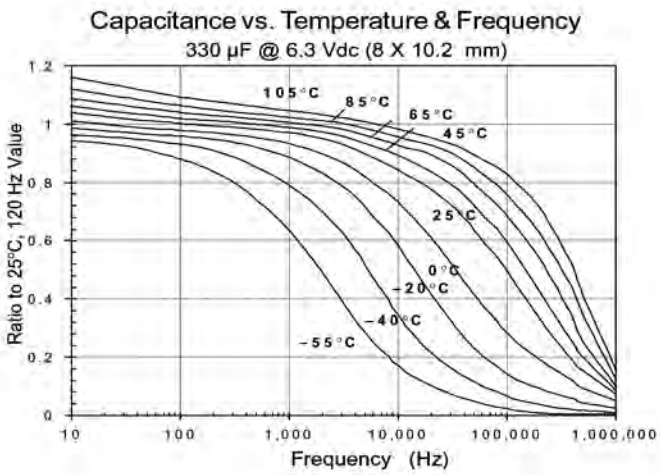
Part Numbering System

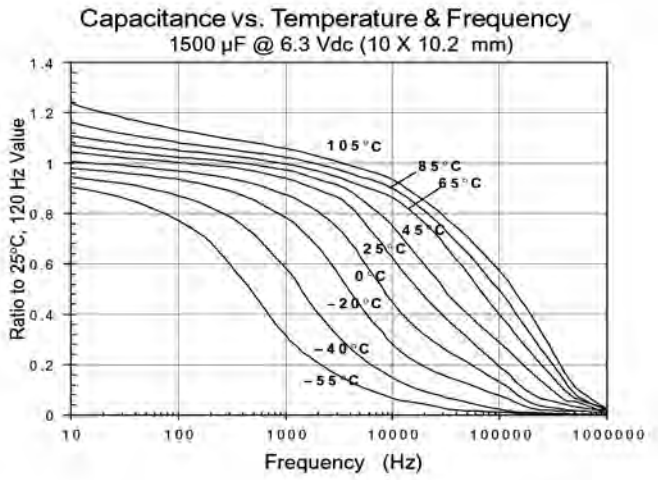
AFC	106	M	16	B	12T	–F
Type	Capacitance	Capacitance Tolerance	Voltage	Case Code	Packaging Information	RoHS Compliant
	105 = 1.0 µF	M = ±20%	06 = 6.3 Vdc 25 = 25 Vdc		12 = Carrier tape Width (mm)	
	106 = 10.0 µF		10 = 10 Vdc 35 = 35 Vdc		T = Tape & Reel	
	107 = 100.0 µF		16 = 16 Vdc 50 = 50 Vdc		B = bulk	
	108 = 1000 µF					

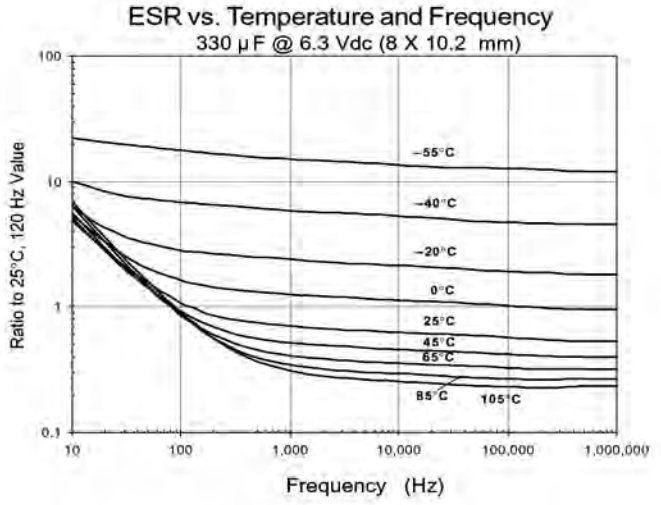
Type AFC –55 °C to 105 °C

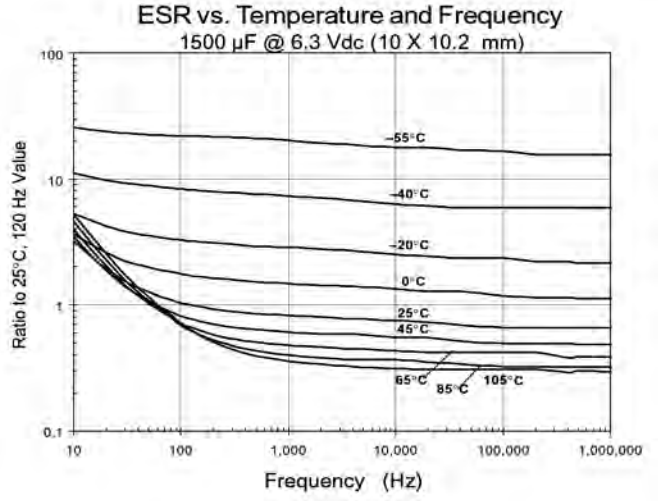
SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C

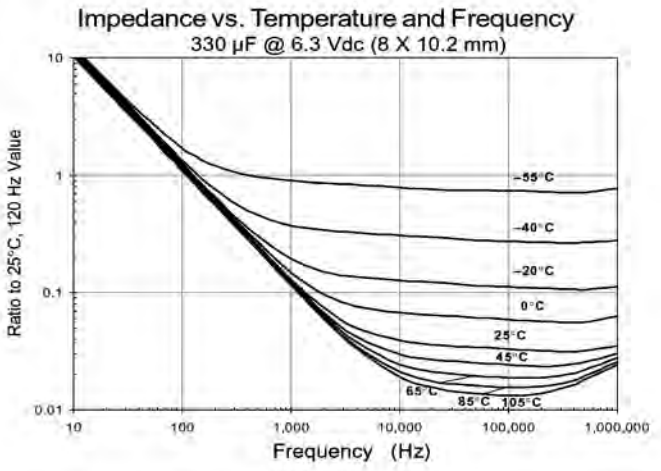
Typical Performance Curves

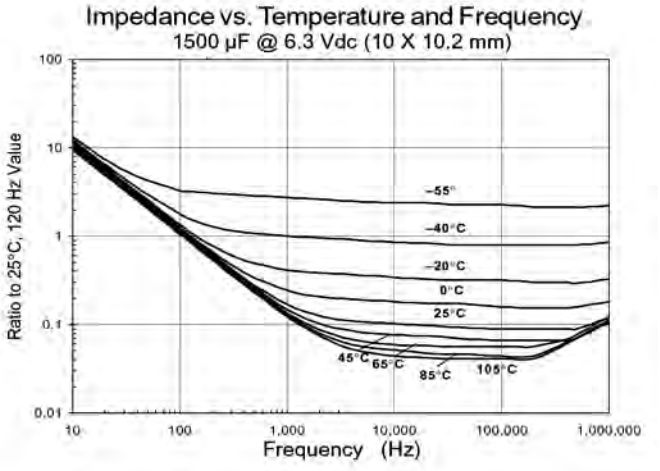




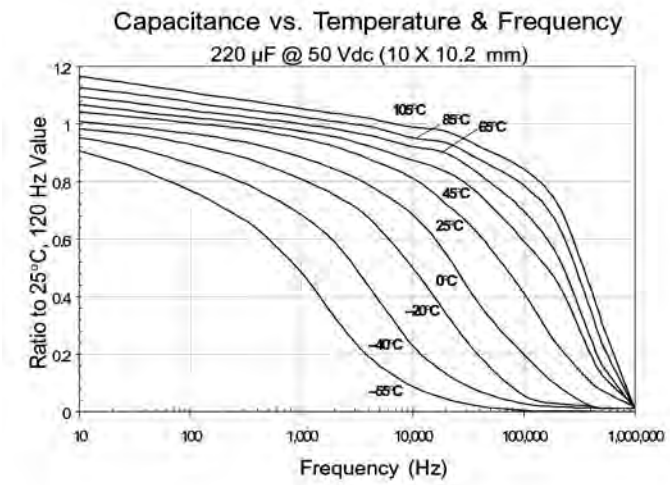


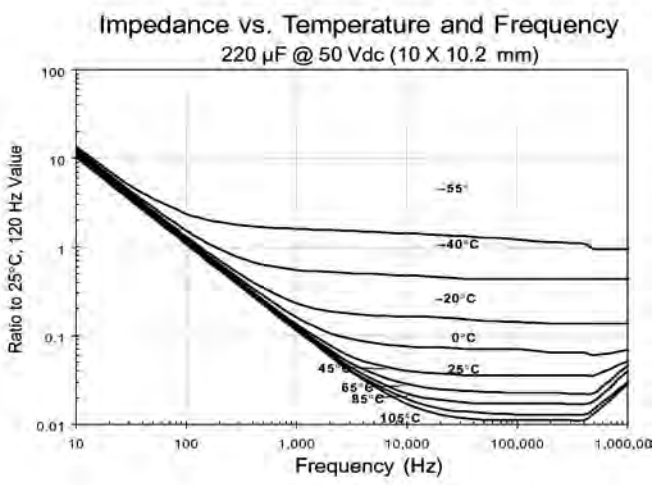


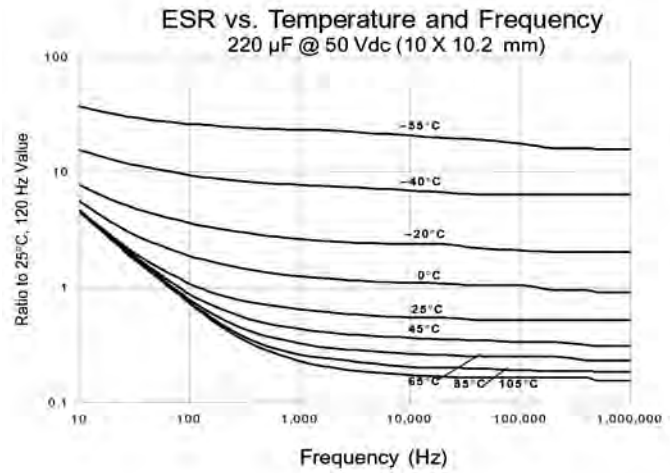


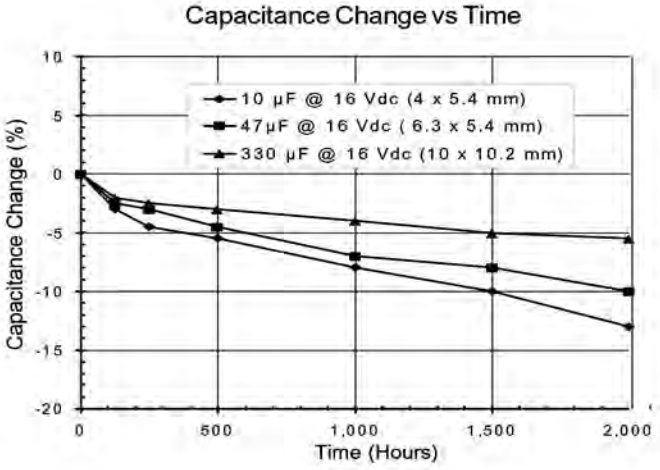


Type AFC –55 °C to 105 °C
SMT Aluminum Electrolytic Capacitors - Low Impedance, 105 °C









Type AFK –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Low Impedance and Long-Life for Filtering, Bypassing and Power Supply Decoupling

Type AFK Capacitors are the best and by a wide margin. With 40% to 60% lower impedance, 30% to 50% smaller case size and more than twice the life compared to low-ESR type AFC, the Type AFK also excels at cold performance down to –55 °C. In addition, this terrific low-impedance performance, approaching low-ESR tantalum capacitors, is at a significant cost savings compared to tantalum. The vertical cylindrical cases facilitate automatic mounting and reflow soldering into the same footprint of like-rated tantalum capacitors except without the need for voltage derating.

Highlights

- +105 °C, Up to 5000 Hour Load Life
- Capacitance Range: 3.3 µF to 6800 µF
- Voltage Range: 6.3 Vdc to 100 Vdc
- AEC-Q200 Compliant

Specifications

Operating Temperature: –55 °C to +105 °C

Rated Voltage: 6.3, 10, 16, 25, 35, 50, 63, 80 & 100 Vdc

Capacitance: 3.3 µF to 6800 µF

Capacitance Tolerance: ±20% @ 120 Hz and +20 °C

Leakage Current: 0.01 CV or 3 µA @ +20 °C, after two minutes (whichever is greater)

Ripple Current Multiplier:

Frequency	50/60 Hz	120 Hz	1 kHz	10 kHz	100 kHz
	0.70	.0.75	0.90	0.95	1.00

Dissipation Factor:

6.3V	10 V	16 V	25 V	35 V	50 V	63 V	80 V	100 V
0.26	0.19	0.16	0.14	0.12	0.1	0.08	0.08	0.07

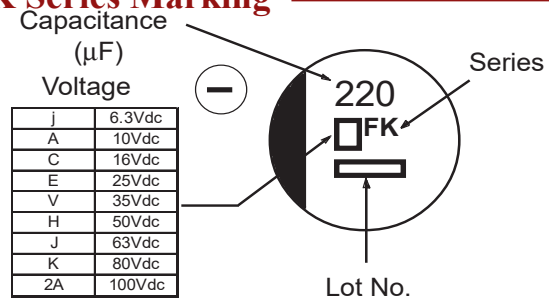
Add 0.02 per 1000 µF for values greater that 1000 µF

Life Test: 2000 h @ 105 °C, 4.0 — 10.0 mm dia.
5000 h @ 105 °C, 12.5 — 18.0 mm dia.
Δ Capacitance ±30%
DF: ≤ 200% of limit
DCL: ≤ 100% of limit

Shelf Test: 1000 h @ 105 °C
Δ Capacitance ±30%
DF: ≤ 200% of limit
DCL: ≤ 100% of limit

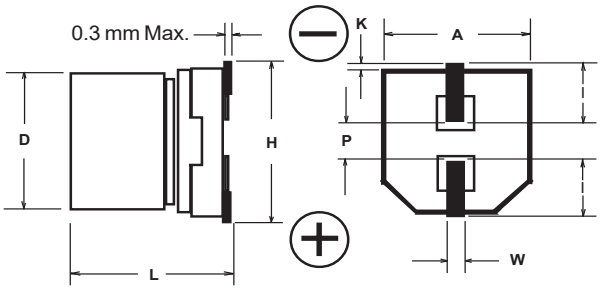
RoHS Compliant

AFK Series Marking



j	6.3Vdc
A	10Vdc
C	16Vdc
E	25Vdc
V	35Vdc
H	50Vdc
J	63Vdc
K	80Vdc
2A	100Vdc

Outline Drawing



Case Dimensions

Case Code	D ± 0.5	L	A ± 0.2	H (max)	I (ref)	W	P (ref)	K (mm)
B	4.0	5.8 ± 0.3	4.3	5.5	1.8	0.65 ±0.1	1.0	0.35 +0.15/–0.20
C	5.0	5.8 ± 0.3	5.3	6.5	2.2	0.65 ±0.1	1.5	0.35 +0.15/–0.20
D	6.3	5.8 ± 0.3	6.6	7.8	2.6	0.65 ±0.1	1.8	0.35 +0.15/–0.20
X	6.3	7.9 ± 0.3	6.6	7.8	2.6	0.65 ±0.1	1.8	0.35 +0.15/–0.20
E	8.0	6.2 ± 0.3	8.3	9.5	3.4	0.65 ±0.1	2.2	0.35 +0.15/–0.20
F	8.0	10.2 ± 0.3	8.3	10.0	3.4	0.90 ±0.2	3.1	0.70 ±0.20
G	10.0	10.2 ± 0.3	10.3	12.0	3.5	0.90 ±0.2	4.6	0.70 ±0.20
H	12.5	13.5 ± 0.5	13.5	15.0	4.7	0.90 ±0.3	4.4	0.70 ±0.30
P	16.0	16.5 ± 0.5	17.0	19.0	5.5	1.2 ±0.3	6.7	0.70 ±0.30
R	18.0	16.5 ± 0.5	19.0	21.0	6.7	1.2 ±0.3	6.7	0.70 ±0.30

Type AFK –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Ratings Table

Cap (µF)	Catalog Part Number	Max. DCL 2 min (µA)	Max. Dissipation Factor @120 Hz/20 °C	Max. ESR @100 kHz/20 °C (Ω)	Impedance @ 100 kHz/20 °C (Ω)	Max. Ripple Current @ 100 kHz/105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
6.3 Vdc (8 Vdc Surge)									
22	AFK226M06B12T-F	3.0	0.26	1.350	1.350	90	B	4 x 5.8	2000
47	AFK476M06B12T-F	3.0	0.26	1.350	1.350	90	B	4 x 5.8	2000
47	AFK476M06C12T-F	3.0	0.26	0.700	0.700	160	C	5 x 5.8	1000
100	AFK107M06C12T-F	6.3	0.26	0.700	0.700	160	C	5 x 5.8	1000
100	AFK107M06D16T-F	6.3	0.26	0.360	0.360	240	D	6.3 x 5.8	1000
220	AFK227M06D16T-F	13.9	0.26	0.360	0.360	240	D	6.3 x 5.8	1000
330	AFK337M06X16T-F	20.8	0.26	0.340	0.340	280	X	6.3 x 7.7	900
330	AFK337M06E16T-F	20.8	0.26	0.260	0.260	300	E	8 x 6.2	1000
470	AFK477M06F24T-F	29.6	0.26	0.160	0.160	600	F	8 x 10.2	500
1000	AFK108M06F24T-F	63.0	0.26	0.160	0.160	600	F	8 x 10.2	500
1500	AFK158M06G24T-F	94.5	0.26	0.080	0.080	850	G	10 x 10.2	500
3300	AFK338M06H32T-F	207.9	0.30	0.060	0.060	1100	H	12.5 x 13.5	200
6800	AFK688M06P44T-F	428.4	0.36	0.035	0.035	1800	P	16 x 16.5	125
10 Vdc (13 Vdc Surge)									
22	AFK226M10B12T-F	3.0	0.19	1.350	1.350	90	B	4 x 5.8	2000
33	AFK336M10B12T-F	3.3	0.19	1.350	1.350	90	B	4 x 5.8	2000
33	AFK336M10C12T-F	3.3	0.19	0.700	0.700	160	C	5 x 5.8	1000
150	AFK157M10D16T-F	15.0	0.19	0.360	0.360	240	D	6.3 x 5.8	1000
220	AFK227M10X16T-F	22.0	0.19	0.340	0.340	280	X	6.3 x 7.7	900
220	AFK227M10E16T-F	22.0	0.19	0.260	0.260	300	E	8 x 6.2	1000
330	AFK337M10F24T-F	33.0	0.19	0.160	0.160	600	F	8 x 10.2	500
470	AFK477M10F24T-F	47.0	0.19	0.160	0.160	600	F	8 x 10.2	500
680	AFK687M10F24T-F	68.0	0.19	0.160	0.160	600	F	8 x 10.2	500
1000	AFK108M10G24T-F	100.0	0.19	0.080	0.080	850	G	10 x 10.2	500
2200	AFK228M10H32T-F	220.0	0.21	0.060	0.060	1100	H	12.5 x 13.5	200
4700	AFK478M10P44T-F	470.0	0.25	0.035	0.035	1800	P	16 x 16.5	125
6800	AFK688M10R44T-F	680.0	0.29	0.033	0.033	2060	R	18 x 16.5	125
16 Vdc (20 Vdc Surge)									
10	AFK106M16B12T-F	3.0	0.16	1.350	1.350	90	B	4 x 5.8	2000
22	AFK226M16B12T-F	3.5	0.16	1.350	1.350	90	B	4 x 5.8	2000
22	AFK226M16C12T-F	3.5	0.16	0.700	0.700	160	C	5 x 5.8	1000
47	AFK476M16C12T-F	7.5	0.16	0.700	0.700	160	C	5 x 5.8	1000
47	AFK476M16D16T-F	7.5	0.16	0.360	0.360	240	D	6.3 x 5.8	1000
68	AFK686M16D16T-F	10.9	0.19	0.360	0.360	240	D	6.3 x 5.8	1000
100	AFK107M16D16T-F	16.0	0.16	0.360	0.360	240	D	6.3 x 5.8	1000
150	AFK157M16X16T-F	24.0	0.16	0.340	0.340	280	X	6.3 x 7.7	900
220	AFK227M16X16T-F	35.2	0.16	0.340	0.340	280	X	6.3 x 7.7	900
220	AFK227M16E16T-F	35.2	0.16	0.260	0.260	300	E	8 x 6.2	1000
330	AFK337M16F24T-F	52.8	0.16	0.160	0.160	600	F	8 x 10.2	500
470	AFK477M16F24T-F	75.2	0.16	0.160	0.160	600	F	8 x 10.2	500
680	AFK687M16G24T-F	108.8	0.16	0.080	0.080	850	G	10 x 10.2	500
1500	AFK158M16H32T-F	240.0	0.16	0.060	0.060	1100	H	12.5 x 13.5	200
3300	AFK338M16P44T-F	528.0	0.20	0.035	0.035	1800	P	16 x 16.5	125
4700	AFK478M16R44T-F	752.0	0.22	0.033	0.033	2060	R	18 x 16.5	125

Type AFK –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Cap (µF)	Catalog Part Number	Max. DCL 2 min (µA)	Max. Dissipation Factor @120 Hz/20 °C	Max. ESR @100 kHz/20 °C (Ω)	Impedance @ 100 kHz/20 °C (Ω)	Max. Ripple Current @ 100 kHz/105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
25 Vdc (31 Vdc Surge)									
10	AFK106M25B12T-F	3.0	0.14	1.350	1.350	90	B	4 x 5.8	2000
22	AFK226M25C12T-F	5.5	0.14	0.700	0.700	160	C	5 x 5.8	1000
33	AFK336M25C12T-F	8.3	0.14	0.700	0.700	160	C	5 x 5.8	1000
33	AFK336M25D16T-F	8.3	0.14	0.360	0.360	240	D	6.3 x 5.8	1000
47	AFK476M25D16T-F	11.8	0.14	0.360	0.360	240	D	6.3 x 5.8	1000
68	AFK686M25D16T-F	17.0	0.14	0.360	0.360	240	D	6.3 x 5.8	1000
100	AFK107M25X16T-F	25.0	0.14	0.340	0.340	280	X	6.3 x 7.7	900
100	AFK107M25E16T-F	25.0	0.14	0.260	0.260	300	E	8 x 6.2	1000
150	AFK157M25F24T-F	37.5	0.14	0.160	0.160	600	F	8 x 10.2	500
220	AFK227M25F24T-F	55.0	0.14	0.160	0.160	600	F	8 x 10.2	500
330	AFK337M25F24T-F	82.5	0.14	0.160	0.160	600	F	8 x 10.2	500
470	AFK477M25G24T-F	117.5	0.14	0.080	0.080	850	G	10 x 10.2	500
1000	AFK108M25H32T-F	250.0	0.14	0.060	0.060	1100	H	12.5 x 13.5	200
1500	AFK158M25P44T-F	375.0	0.14	0.035	0.035	1800	P	16 x 16.5	125
2200	AFK228M25P44T-F	550.0	0.16	0.035	0.035	1800	P	16 x 16.5	125
3300	AFK338M25R44T-F	825.0	0.18	0.033	0.033	2060	R	18 x 16.5	125
35 Vdc (44 Vdc Surge)									
4.7	AFK475M35B12T-F	3.0	0.12	1.350	1.350	90	B	4 x 5.8	2000
10	AFK106M35B12T-F	3.5	0.12	1.350	1.350	90	B	4 x 5.8	2000
10	AFK106M35C12T-F	3.5	0.12	0.700	0.700	160	C	5 x 5.8	1000
22	AFK226M35C12T-F	7.7	0.12	0.700	0.700	160	C	5 x 5.8	1000
33	AFK336M35D16T-F	11.6	0.12	0.360	0.360	240	D	6.3 x 5.8	1000
47	AFK476M35D16T-F	16.5	0.12	0.360	0.360	240	D	6.3 x 5.8	1000
68	AFK686M35X16T-F	23.8	0.12	0.340	0.340	280	X	6.3 x 7.7	900
100	AFK107M35X16T-F	35.0	0.12	0.340	0.340	280	X	6.3 x 7.7	900
100	AFK107M35F24T-F	35.0	0.12	0.160	0.160	600	F	8 x 10.2	500
150	AFK157M35F24T-F	52.5	0.12	0.160	0.160	600	F	8 x 10.2	500
220	AFK227M35F24T-F	77.0	0.12	0.160	0.160	600	F	8 x 10.2	500
330	AFK337M35G24T-F	115.5	0.12	0.080	0.080	850	G	10 x 10.2	500
470	AFK477M35H32T-F	164.5	0.12	0.060	0.060	1100	H	12.5 x 13.5	200
680	AFK687M35H32T-F	238.0	0.12	0.060	0.060	1100	H	12.5 x 13.5	200
1000	AFK108M35P44T-F	350.0	0.12	0.035	0.035	1800	P	16 x 16.5	125
1500	AFK158M35P44T-F	525.0	0.12	0.035	0.035	1800	P	16 x 16.5	125
50 Vdc (63 Vdc Surge)									
4.7	AFK475M50B12T-F	3.0	0.10	2.900	2.900	60	B	4 x 5.8	2000
10	AFK106M50C12T-F	5.0	0.10	1.520	1.520	85	C	5 x 5.8	1000
10	AFK106M50D16T-F	5.0	0.10	0.880	0.880	165	D	6.3 x 5.8	1000
22	AFK226M50D16T-F	11.0	0.10	0.880	0.880	165	D	6.3 x 5.8	1000
33	AFK336M50X16T-F	16.5	0.10	0.680	0.680	195	X	6.3 x 7.7	900
33	AFK336M50E16T-F	16.5	0.10	0.680	0.680	195	E	8 x 6.2	1000
47	AFK476M50X16T-F	23.5	0.10	0.680	0.680	195	X	6.3 x 7.7	900
47	AFK476M50E16T-F	23.5	0.10	0.680	0.680	195	E	8 x 6.2	1000
100	AFK107M50F24T-F	50.0	0.10	0.340	0.340	350	F	8 x 10.2	500

Type AFK –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Cap (µF)	Catalog Part Number	Max. DCL 2 min (µA)	Max. Dissipation Factor @120 Hz/20 °C	Max. ESR @100 kHz/20 °C (Ω)	Impedance @ 100 kHz/20 °C (Ω)	Max. Ripple Current @ 100 kHz/105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
				50 Vdc (63 Vdc Surge)					
150	AFK157M50G24T-F	75.0	0.10	0.180	0.180	670	G	10 x 10.2	500
220	AFK227M50G24T-F	110.0	0.10	0.180	0.180	670	G	10 x 10.2	500
330	AFK337M50H32T-F	165.0	0.10	0.120	0.120	900	H	12.5 x 13.5	200
390	AFK397M50H32T-F	195.0	0.10	0.120	0.120	900	H	12.5 x 13.6	200
470	AFK477M50P44T-F	235.0	0.10	0.073	0.073	1610	P	16 x 16.5	125
560	AFK567M50P44T-F	280.0	0.10	0.073	0.073	1610	P	16 x 16.5	125
680	AFK687M50P44T-F	340.0	0.10	0.073	0.073	1610	P	16 x 16.5	125
1000	AFK108M50P44T-F	500.0	0.10	0.073	0.073	1610	P	16 x 16.5	125
				63 Vdc (75 Vdc Surge)					
4.7	AFK475M63C12T-F	3.0	0.08	3.000	3.000	50	C	5 x 5.8	1000
10	AFK106M63D16T-F	6.3	0.08	1.500	1.500	80	D	6.3 x 5.8	1000
22	AFK226M63X16T-F	13.9	0.08	1.200	1.200	120	X	6.3 x 7.7	900
22	AFK226M63E16T-F	13.9	0.08	1.200	1.200	120	E	8 x 6.2	1000
33	AFK336M63F24T-F	20.8	0.08	0.650	0.650	250	F	8 x 10.2	500
47	AFK476M63F24T-F	29.6	0.08	0.650	0.650	250	F	8 x 10.2	500
68	AFK686M63G24T-F	42.8	0.08	0.350	0.350	400	G	10 x 10.2	500
100	AFK107M63G24T-F	63.0	0.08	0.350	0.350	400	G	10 x 10.2	500
150	AFK157M63H32T-F	94.5	0.08	0.160	0.160	800	H	12.5 x 13.5	200
220	AFK227M63H32T-F	138.6	0.08	0.160	0.160	800	H	12.5 x 13.5	200
470	AFK477M63P44T-F	296.1	0.08	0.082	0.082	1410	P	16 x 16.5	125
680	AFK687M63R44T-F	428.4	0.08	0.080	0.080	1690	R	18 x 16.5	125
				80 Vdc (100 Vdc Surge)					
3.3	AFK335M80C12T-F	3.0	0.08	5.00	5.00	25	C	5 x 5.8	1000
4.7	AFK475M80D16T-F	3.8	0.08	3.00	3.00	40	D	6.3 x 5.8	1000
10.0	AFK106M80X16T-F	8.0	0.08	2.40	2.40	60	X	6.3 x 7.7	900
10.0	AFK106M80E16T-F	8.0	0.08	2.40	2.40	60	E	8 x 6.2	1000
22.0	AFK226M80F24T-F	17.6	0.08	1.30	1.30	130	F	8 x 10.2	500
33.0	AFK336M80F24T-F	26.4	0.08	1.30	1.30	130	F	8 x 10.2	500
47.0	AFK476M80G24T-F	37.6	0.08	0.70	0.70	200	G	10 x 10.2	500
68.0	AFK686M80H32T-F	54.4	0.08	0.32	0.32	500	H	12.5 x 13.5	200
100.0	AFK107M80H32T-F	80.0	0.08	0.32	0.32	500	H	12.5 x 13.5	200
150.0	AFK157M80H32T-F	120.0	0.08	0.32	0.32	500	H	12.5 x 13.5	200
330.0	AFK337M80P44T-F	264.0	0.08	0.17	0.17	793	P	16 x 16.5	125
470.0	AFK477M80R44T-F	376.0	0.08	0.15	0.15	917	R	18 x 16.5	125
				100 Vdc (125 Vdc Surge)					
22.0	AFK226M2AF24T-F	22.0	0.07	1.30	1.30	130	F	8 x 10.2	500
33.0	AFK336M2AG24T-F	33.0	0.07	0.70	0.70	200	G	10 x 10.2	500
47.0	AFK476M2AH32T-F	47.0	0.07	0.32	0.32	500	H	12.5 x 13.5	200
68.0	AFK686M2AH32T-F	68.0	0.07	0.32	0.32	500	H	12.5 x 13.5	200
100.0	AFK107M2AP44T-F	100.0	0.07	0.17	0.17	793	P	16 x 16.5	125
150.0	AFK157M2AP44T-F	150.0	0.07	0.17	0.17	793	P	16 x 16.5	125
220.0	AFK227M2AR44T-F	220.0	0.07	0.15	0.15	917	R	18 x 16.5	125
330.0	AFK337M2AR44T-F	330.0	0.07	0.15	0.15	917	R	18 x 16.5	125

Type AFK –55 °C to 105 °C

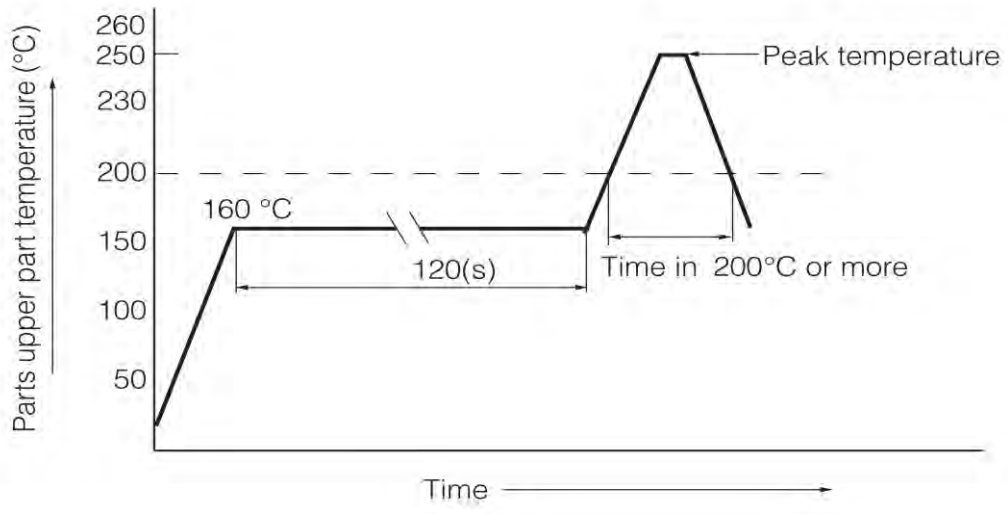
SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Part Numbering System

AFK	106	M	16	B	12T	–F
Type	**Capacitance**	**Capacitance Tolerance**	**Voltage Code**	**Case Code**	**Packaging Code**	**RoHS Compliant**
	105 = 1.0 µF	M = ±20%	06 = 6.3 Vdc		12 = Carrier tape Width (mm)	
	106 = 10.0 µF		10 = 10 Vdc		T = Tape & Reel	
	107 = 100.0 µF		16 = 16 Vdc		B = Bulk	
	108 = 1000.0 µF		25 = 25 Vdc			
			35 = 35 Vdc			
			50 = 50 Vdc			
			63 = 63 Vdc			
			80 = 80 Vdc			
			2A = 100 Vdc			

Reflow Solder

Diameter	4 - 6.3mm	8 - 10mm	12.5 - 18mm
Peak Temperature	250°C	235°C	230°C
Duration at Peak	5s	5s	5s
Time ≥200°C	60s	60s	20s
Number of Reflows	1	1	1

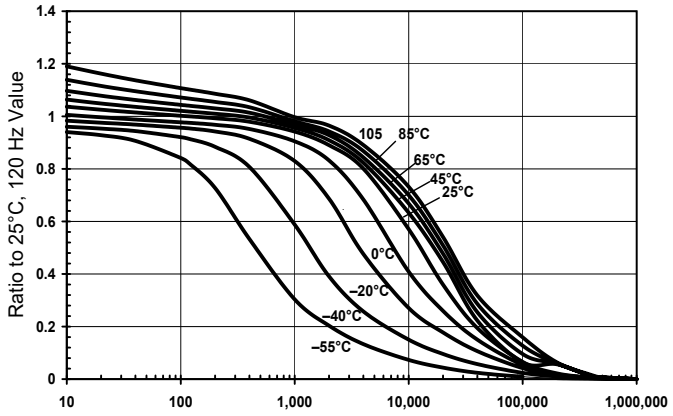


Type AFK –55 °C to 105 °C

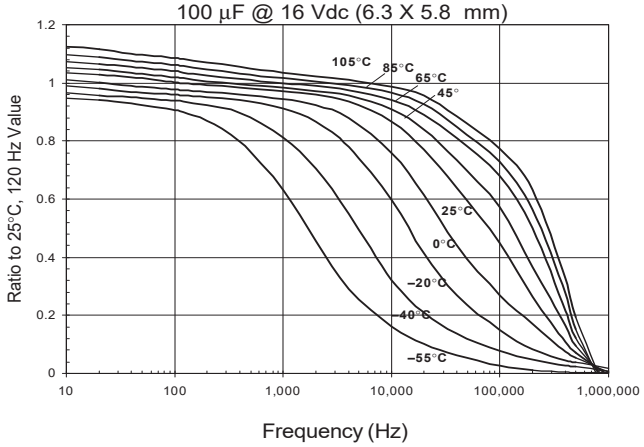
SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Typical Performance Curves

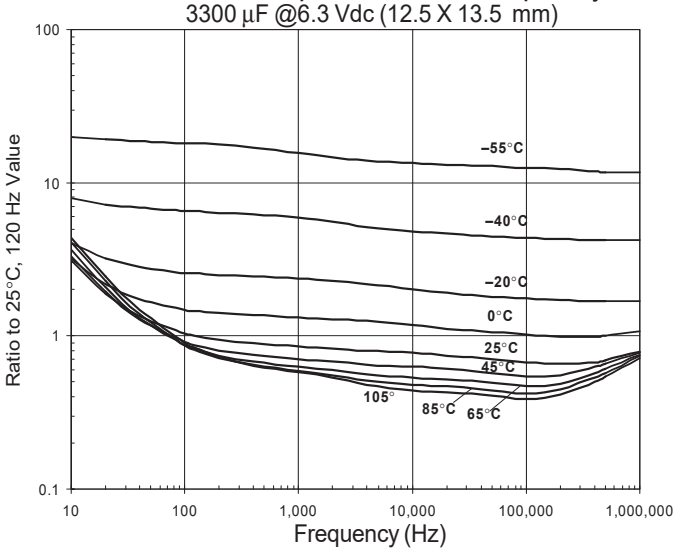
Capacitance vs. Temperature and Frequency
3300µF/6.3Vdc (12.5 x 13.5 mm)



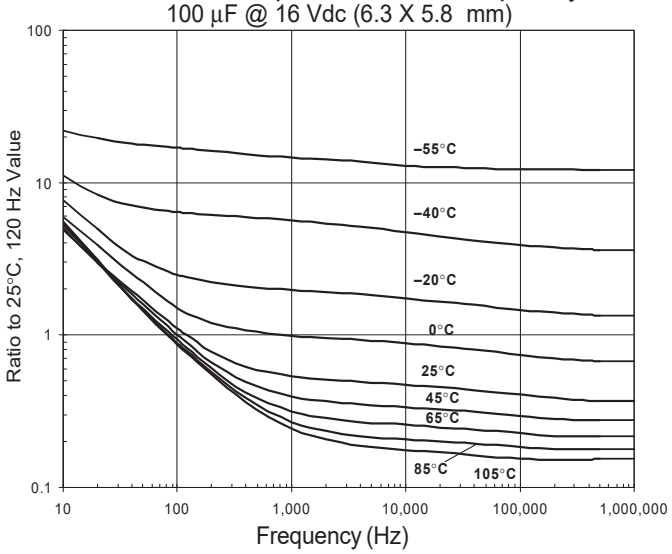
Capacitance vs. Temperature & Frequency
100 µF @ 16 Vdc (6.3 X 5.8 mm)



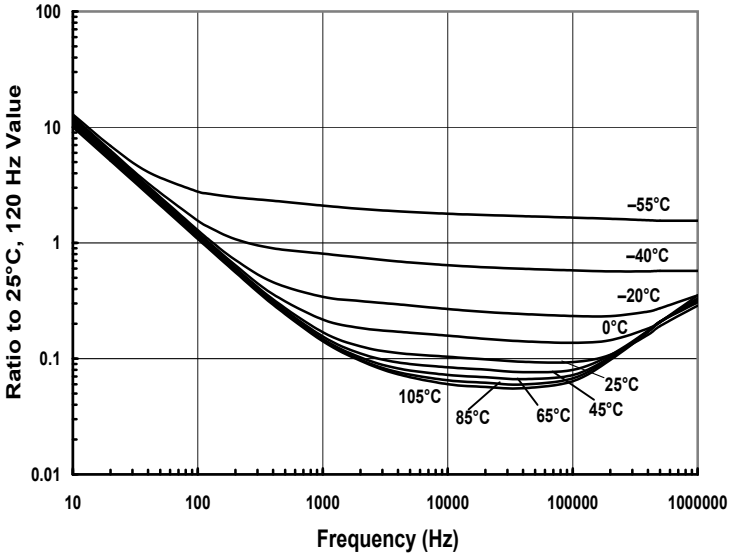
ESR vs. Temperature and Frequency
3300 µF @6.3 Vdc (12.5 X 13.5 mm)



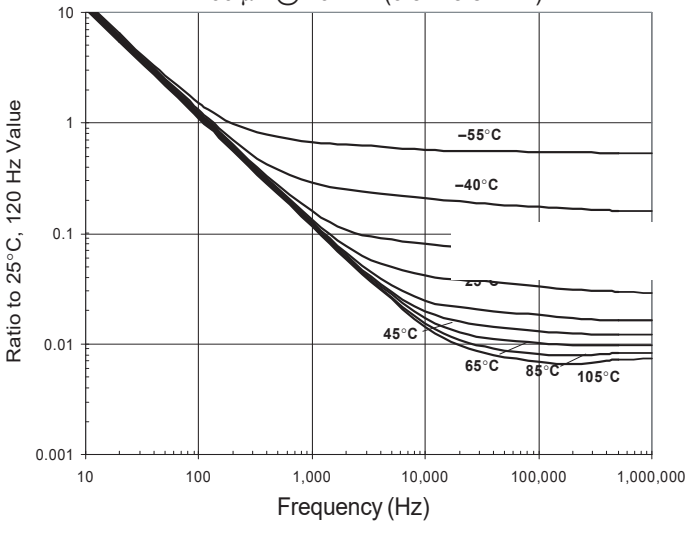
ESR vs. Temperature and Frequency
100 µF @ 16 Vdc (6.3 X 5.8 mm)



Impedance vs Temperature and Frequency
3300 µF /6.3 V (12.5 x13.5mm)



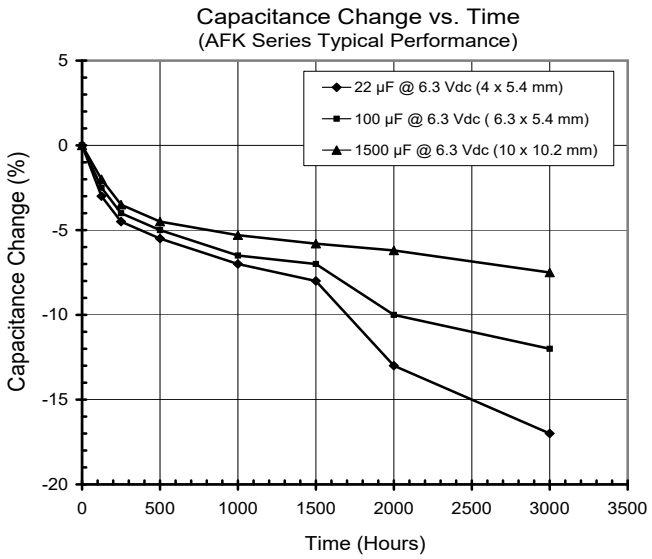
Impedance vs. Temperature and Frequency
100 µF @ 16 Vdc (6.3 X 5.8 mm)

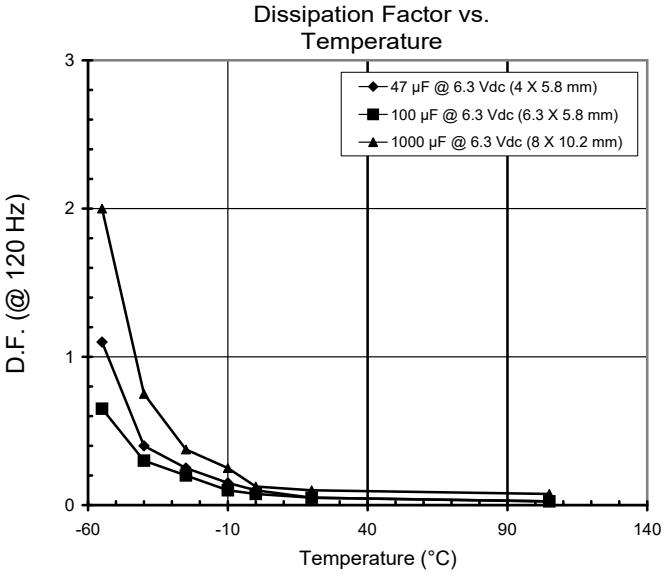


Type AFK –55 °C to 105 °C

SMT Aluminum Electrolytic Capacitors - Lowest E.S.R., 105 °C

Typical Performance Curves





Type AHA

SMT Aluminum Electrolytic Capacitors -55 °C to +105 °C - Long Life

Long Life Filtering, Bypassing, Power Supply Decoupling

Type AHA Capacitors deliver twice the life of many SMT aluminum capacitor types, and they handle high levels of ripple current. The AHA can handle the ripple current of Type AVS at 20 °C higher temperature. The vertical cylindrical cases facilitate automatic mounting and reflow soldering and Type AHA offers a significant cost savings over tantalum capacitors.

Highlights

- +105 °C, Up to 2000 Hour Load Life
- Capacitance Range: 0.1 µF to 1500 µF
- Voltage Range: 6.3 Vdc to 100 Vdc
- AEC-Q200 Compliant

Specifications

Operating Temperature: −55 °C to +105 °C

Rated Voltage: 6.3, 10, 16, 25, 35, 50, 63 & 100 Vdc

Capacitance: 0.1 µF to 1500 µF

D.F. (@ 20 °C): See Ratings Table

Capacitance Tolerance: 20% @ 120 Hz and +20 °C

Leakage Current: 0.01 CV or 3 µA @ +20°C after two minutes (whichever is greater)

Ripple Current Multipliers:

Frequency

50/60 Hz	120 Hz	1 kHz	10 kHz & up
0.7	1	1.3	1.7

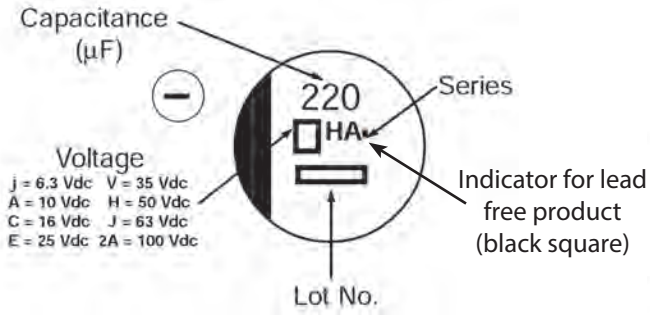
Load Life: 1000 h @ +105 °C, 4.0 - 6.3 mm dia.
2000 h @ +105 °C, 8.0 - 10.0 mm dia.
Δ Capacitance ±20%
DF: < 200% of limit
DCL: ≤100% of limit

Shelf Life: 1000 h @ +105 °C
Δ Capacitance ±20%
DF: < 200% of limit
DCL: ≤100% of limit

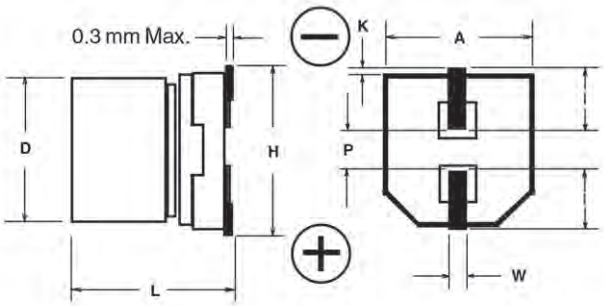
Maximum Impedance Ratio at 120 Hz								
W.V. Vdc	6.3	10	16	25	35	50	63	100
–25 °C /+20 °C	4	3	2	2	2	2	3	3
–40 °C /+20 °C	8	6	4	4	3	3	4	4

RoHS Compliant

AHA Series Marking



Outline Drawing



Type AHA

SMT Aluminum Electrolytic Capacitors -55 °C to +105 °C - Long Life

Case Dimen-

Case Code	D ± 0.5	L	A ± 0.2	H (max)	I (ref)	W	P (ref)	K
B	4	5.4 +.1,-.2	4.3	5.5	1.8	0.65 ± 0.1	1	0.35 + 0.15/-0.20
C	5	5.4 +.1,-.2	5.3	6.5	2.2	0.65 ± 0.1	1.5	0.35 + 0.15/-0.20
D	6.3	5.4 +.1,-.2	6.6	7.8	2.6	0.65 ± 0.1	1.8	0.35 + 0.15/-0.20
X	6.3	7.7 ±.3	6.6	7.8	2.6	0.65 ± 0.1	1.8	0.35 + 0.15/-0.20
E	8	6.2 ±.3	8.3	9.5	3.4	0.65 ± 0.1	2.2	0.35 + 0.15/-0.20
F	8	10.2 ±.3	8.3	10	3.4	0.90 ± 0.2	3.1	0.70 ± 0.20
G	10	10.2 ±.3	10.3	12	3.5	0.90 ± 0.2	4.6	0.70 ± 0.20

Ratings

Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz /20 °C	Max ESR 120 Hz /20 °C (Ω)	Max Ripple Current 120 Hz /105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
6.3 Vdc (8 Vdc Surge)								
22.0	AHA226M06B12T-F	3.0	0.30	22.6	29	B	4 x 5.4	2000
33.0	AHA336M06B12T-F	3.0	0.35	17.6	29	B	4 x 5.4	2000
47.0	AHA476M06B12T-F	3.0	0.35	12.3	36	B	4 x 5.4	2000
47.0	AHA476M06C12T-F	3.0	0.30	10.6	46	C	5 x 5.4	1000
100.0	AHA107M06C12T-F	6.3	0.35	5.8	47	C	5 x 5.4	1000
100.0	AHA107M06D16T-F	6.3	0.30	5.0	71	D	6.3 x 5.4	1000
220.0	AHA227M06D16T-F	13.9	0.35	2.6	74	D	6.3 x 5.4	1000
330.0	AHA337M06X16T-F	20.8	0.30	1.5	105	X	6.3 x 7.7	900
330.0	AHA337M06F24T-F	20.8	0.35	1.8	230	F	8 x 10.2	500
470.0	AHA477M06F24T-F	29.6	0.35	1.2	300	F	8 x 10.2	500
1000.0	AHA108M06F24T-F	63.0	0.35	0.6	300	F	8 x 10.2	500
1000.0	AHA108M06G24T-F	63.0	0.35	0.6	400	G	10 x 10.2	500
1500.0	AHA158M06G24T-F	94.5	0.35	0.4	480	G	10 x 10.2	500
10 Vdc (13 Vdc Surge)								
22.0	AHA226M10B12T-F	3.0	0.30	22.6	28	B	4 x 5.4	2000
33.0	AHA336M10B12T-F	3.3	0.30	15.1	29	B	4 x 5.4	2000
33.0	AHA336M10C12T-F	3.3	0.22	11.1	43	C	5 x 5.4	1000
47.0	AHA476M10C12T-F	4.7	0.30	10.6	43	C	5 x 5.4	1000
100.0	AHA107M10D16T-F	10.0	0.30	5.0	70	D	6.3 x 5.4	1000
100.0	AHA107M10E16T-F	10.0	0.26	4.3	110	E	8 x 6.2	1000
220.0	AHA227M10X16T-F	22.0	0.22	1.7	105	X	6.3 x 7.7	900
220.0	AHA227M10F24T-F	22.0	0.26	2.0	160	F	8 x 10.2	500
470.0	AHA477M10F24T-F	47.0	0.26	0.9	200	F	8 x 10.2	500
470.0	AHA477M10G24T-F	47.0	0.26	0.9	270	G	10 x 10.2	500
1000.0	AHA108M10G24T-F	100.0	0.26	0.4	580	G	10 x 10.2	500
16 Vdc (20 Vdc Surge)								
10.0	AHA106M16B12T-F	3.0	0.16	26.5	28	B	4 x 5.4	2000
22.0	AHA226M16B12T-F	3.5	0.26	19.6	28	B	4 x 5.4	2000
22.0	AHA226M16C12T-F	3.5	0.16	12.1	39	C	5 x 5.4	1000
33.0	AHA336M16C12T-F	5.3	0.26	13.1	35	C	5 x 5.4	1000
47.0	AHA476M16C12T-F	7.5	0.26	9.2	39	C	5 x 5.4	1000
47.0	AHA476M16D16T-F	7.5	0.16	5.6	70	D	6.3 x 5.4	1000
100.0	AHA107M16D16T-F	16.0	0.26	4.3	70	D	6.3 x 5.4	1000
220.0	AHA227M16X16T-F	35.2	0.16	1.2	105	X	6.3 x 7.7	900
220.0	AHA227M16F24T-F	35.2	0.20	1.5	150	F	8 x 10.2	500
220.0	AHA227M16G24T-F	35.2	0.20	1.5	210	G	10 x 10.2	500
330.0	AHA337M16F24T-F	52.8	0.20	1.0	170	F	8 x 10.2	500
330.0	AHA337M16G24T-F	52.8	0.20	1.0	230	G	10 x 10.2	500
470.0	AHA477M16F24T-F	75.2	0.20	0.7	190	F	8 x 10.2	500
470.0	AHA477M16G24T-F	75.2	0.20	0.7	340	G	10 x 10.2	500
25 Vdc (31 Vdc Surge)								
4.7	AHA475M25B12T-F	3.0	0.14	49.4	22	B	4 x 5.4	2000
10.0	AHA106M25B12T-F	3.0	0.20	33.2	22	B	4 x 5.4	2000
10.0	AHA106M25C12T-F	3.0	0.14	23.2	28	C	5 x 5.4	1000
22.0	AHA226M25C12T-F	5.5	0.20	15.1	35	C	5 x 5.4	1000
22.0	AHA226M25D16T-F	5.5	0.14	10.6	55	D	6.3 x 5.4	1000
33.0	AHA336M25C12T-F	8.3	0.20	10.0	42	C	5 x 5.4	1000
33.0	AHA336M25D16T-F	8.3	0.14	7.0	65	D	6.3 x 5.4	1000
47.0	AHA476M25D16T-F	11.8	0.20	7.1	70	D	6.3 x 5.4	1000
47.0	AHA476M25E16T-F	11.8	0.16	5.6	91	E	8 x 6.2	1000
100.0	AHA107M25E16T-F	25.0	0.16	2.7	91	E	8 x 6.2	1000
100.0	AHA107M25F24T-F	25.0	0.16	2.7	130	F	8 x 10.2	500
220.0	AHA227M25F24T-F	55.0	0.16	1.2	160	F	8 x 10.2	500
220.0	AHA227M25G24T-F	55.0	0.16	1.2	190	G	10 x 10.2	500
330.0	AHA337M25F24T-F	82.5	0.16	0.8	180	F	8 x 10.2	500
330.0	AHA337M25G24T-F	82.5	0.16	0.8	340	G	10 x 10.2	500
470.0	AHA477M25G24T-F	117.5	0.16	0.6	360	G	10 x 10.2	500

Type AHA

SMT Aluminum Electrolytic Capacitors -55 °C to +105 °C - Long Life

Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz /20 ºC	Max ESR 120 Hz /20 ºC (Ω)	Max Ripple Current 120 Hz /105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
35 Vdc (44 Vdc Surge)								
4.7	AHA475M35B12T-F	3.0	0.12	42.3	22	B	4 x 5.4	2000
10.0	AHA106M35B12T-F	3.6	0.16	26.5	22	B	4 x 5.4	2000
10.0	AHA106M35C12T-F	3.6	0.12	19.9	30	C	5 x 5.4	1000
22.0	AHA226M35C12T-F	7.7	0.16	12.1	35	C	5 x 5.4	1000
22.0	AHA226M35D16T-F	7.7	0.12	9.0	60	D	6.3 x 5.4	1000
33.0	AHA336M35D16T-F	11.6	0.16	8.0	42	D	6.3 x 5.4	1000
33.0	AHA336M35E16T-F	11.6	0.14	7.0	84	E	8 x 6.2	1000
47.0	AHA476M35E16T-F	16.5	0.14	4.9	84	E	8 x 6.2	1000
47.0	AHA476M35F24T-F	16.5	0.14	4.9	98	F	8 x 10.2	500
100.0	AHA107M35X16T-F	35.0	0.12	2.0	84	X	6.3 x 7.7	900
100.0	AHA107M35F24T-F	35.0	0.14	2.3	120	F	8 x 10.2	500
100.0	AHA107M35G24T-F	35.0	0.14	2.3	160	G	10 x 10.2	500
220.0	AHA227M35F24T-F	77.0	0.14	1.1	170	F	8 x 10.2	500
220.0	AHA227M35G24T-F	77.0	0.14	1.1	210	G	10 x 10.2	500
330.0	AHA337M35G24T-F	115.5	0.14	0.7	250	G	10 x 10.2	500
50 Vdc (63 Vdc Surge)								
0.10	AHA104M50B12T-F*	3.0	0.12	1990.0	1	B	4 x 5.4	2000
0.22	AHA224M50B12T-F*	3.0	0.12	905.0	2	B	4 x 5.4	2000
0.33	AHA334M50B12T-F*	3.0	0.12	603.0	3	B	4 x 5.4	2000
0.47	AHA474M50B12T-F*	3.0	0.12	424.0	5	B	4 x 5.4	2000
1.0	AHA105M50B12T-F	3.0	0.12	199.0	10	B	4 x 5.4	2000
2.2	AHA225M50B12T-F	3.0	0.12	90.5	16	B	4 x 5.4	2000
3.3	AHA335M50B12T-F	3.0	0.12	60.3	16	B	4 x 5.4	2000
4.7	AHA475M50C12T-F	3.0	0.12	42.4	23	C	5 x 5.4	1000
10.0	AHA106M50D16T-F	5.0	0.12	19.9	35	D	6.3 x 5.4	1000
22.0	AHA226M50E16T-F	11.0	0.12	9.0	70	E	8 x 6.2	1000
33.0	AHA336M50X16T-F	16.5	0.12	6.0	60	X	6.3 x 7.7	900
33.0	AHA336M50E16T-F	16.5	0.12	6.0	70	E	8 x 6.2	1000
33.0	AHA336M50F24T-F	16.5	0.12	6.0	91	F	8 x 10.2	500
47.0	AHA476M50X16T-F	23.5	0.12	4.2	63	X	6.3 x 7.7	900
47.0	AHA476M50F24T-F	23.5	0.12	4.2	95	F	8 x 10.2	500
47.0	AHA476M50G24T-F	23.5	0.12	4.2	100	G	10 x 10.2	500
100.0	AHA107M50F24T-F	50.0	0.12	2.0	110	F	8 x 10.2	500
100.0	AHA107M50G24T-F	50.0	0.12	2.0	120	G	10 x 10.2	500
220.0	AHA227M50G24T-F	110.0	0.12	0.9	150	G	10 x 10.2	500
63 Vdc (75 Vdc Surge)								
10.0	AHA106M63E16T-F	6.3	0.18	29.9	25	E	8 x 6.2	1000
22.0	AHA226M63E16T-F	13.9	0.18	13.6	30	E	8 x 6.2	1000
22.0	AHA226M63F24T-F	13.9	0.18	13.6	30	F	8 x 10.2	500
33.0	AHA336M63G24T-F	20.8	0.18	9.0	45	G	10 x 10.2	500
47.0	AHA476M63F24T-F	29.6	0.18	6.3	50	F	8 x 10.2	500
47.0	AHA476M63G24T-F	29.6	0.18	6.3	50	G	10 x 10.2	500
100 Vdc (125 Vdc Surge)								
3.3	AHA335M2AE16T-F	3.3	0.18	90.5	30	E	8 x 6.2	1000
4.7	AHA475M2AE16T-F*	4.7	0.18	63.5	30	E	8 x 6.2	1000
4.7	AHA475M2AF24T-F*	4.7	0.18	63.5	50	F	8 x 10.2	500
10.0	AHA106M2AF24T-F	10.0	0.18	29.8	55	F	8 x 10.2	500
22.0	AHA226M2AF24T-F	22.0	0.18	13.6	55	F	8 x 10.2	500
22.0	AHA226M2AG24T-F	22.0	0.18	13.6	60	G	10 x 10.2	500
33.0	AHA336M2AG24T-F	33.0	0.18	9.0	65	G	10 x 10.2	500

* denotes a discontinued part

Part Numbering System

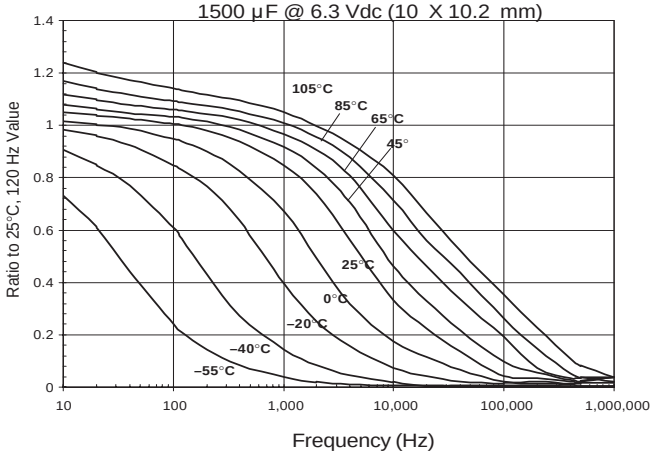
AHA	106	M	16	B	12T	– F
Series	Capacitance	Capacitance Tolerance	Voltage	Case Code	Packaging Information	RoHS Compliant
	104 = 0.1 µF	M = ±20%	06 = 6.3 Vdc 35 = 35 Vdc	B = B	12 = Carrier Tape Width (mm)	
	105 = 1.0 µF		10 = 10 Vdc 50 = 50 Vdc		T = Tape & Reel	
	106 = 10.0 µF		16 = 16 Vdc 63 = 63 Vdc		B = Bulk	
	107 = 100.0 µF		25 = 25 Vdc 2A = 100 Vdc			
	108 = 1000.0 µF					

Type AHA

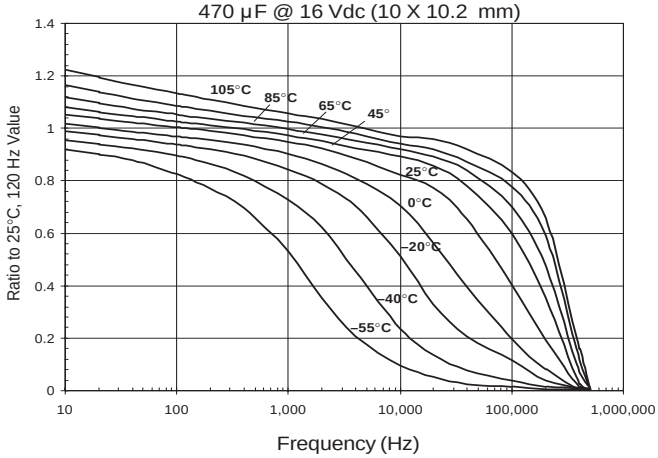
SMT Aluminum Electrolytic Capacitors -55 °C to +105 °C - Long Life

Typical Performance Curves

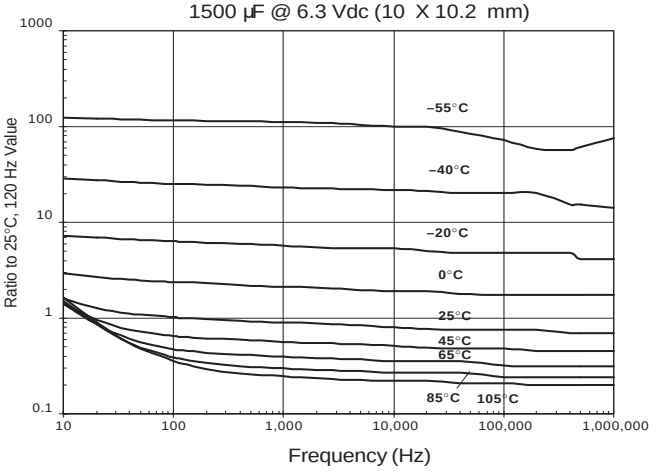
Capacitance vs. Temperature & Frequency
1500 µF @ 6.3 Vdc (10 X 10.2 mm)



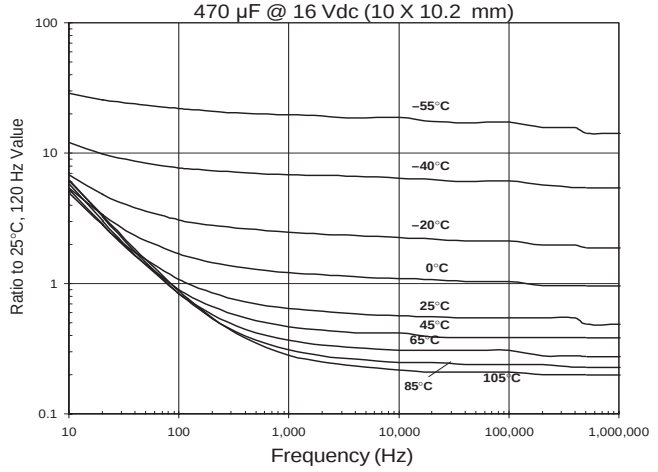
Capacitance vs. Temperature & Frequency
470 µF @ 16 Vdc (10 X 10.2 mm)



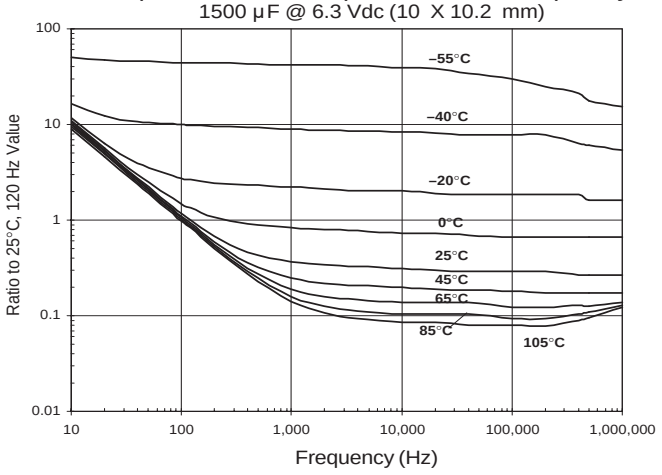
ESR vs. Temperature and Frequency
1500 µF @ 6.3 Vdc (10 X 10.2 mm)



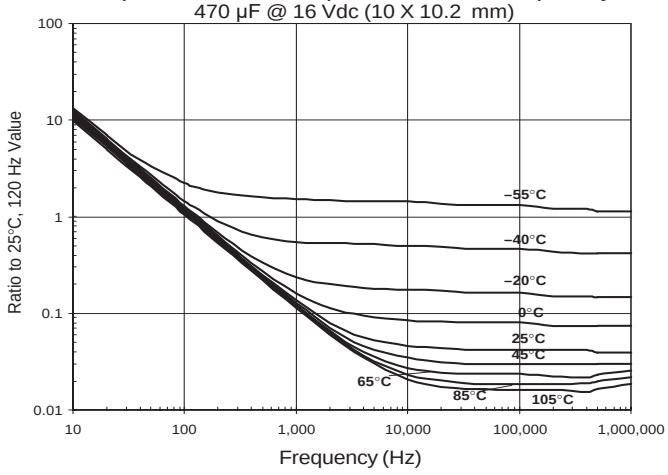
ESR vs. Temperature and Frequency
470 µF @ 16 Vdc (10 X 10.2 mm)



Impedance vs. Temperature and Frequency
1500 µF @ 6.3 Vdc (10 X 10.2 mm)

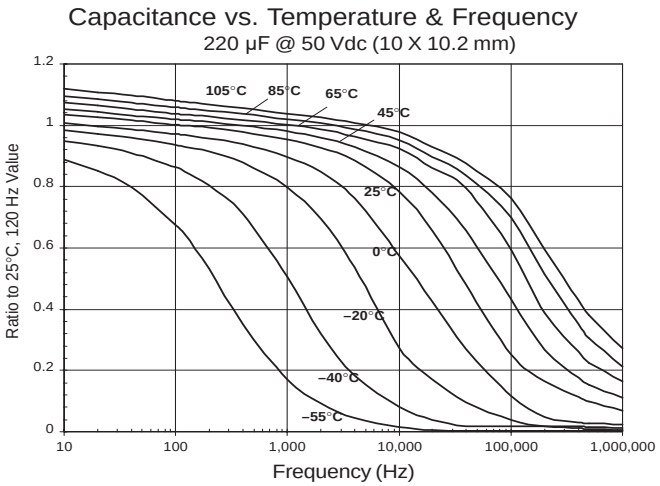


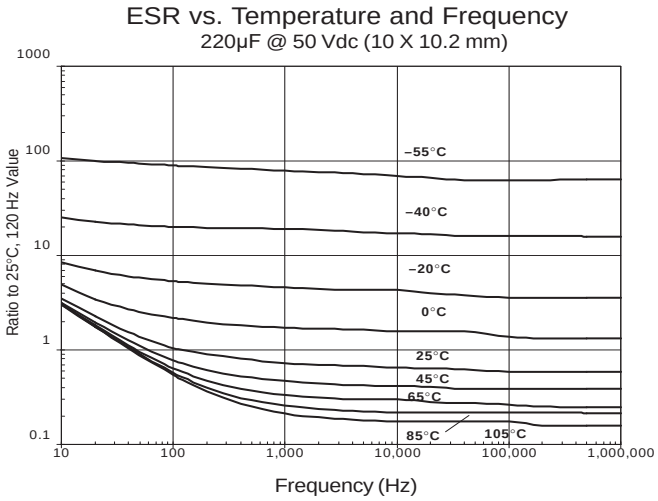
Impedance vs. Temperature and Frequency
470 µF @ 16 Vdc (10 X 10.2 mm)

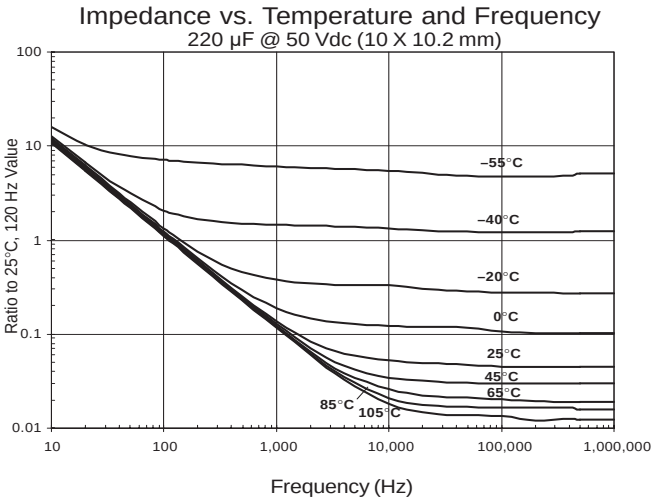


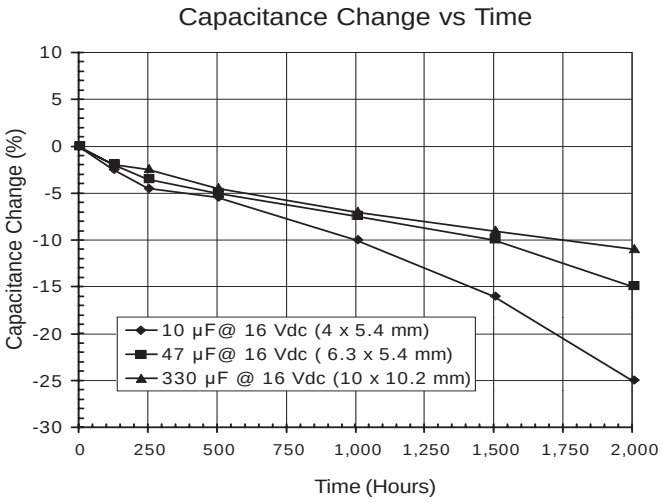
Type AHA

SMT Aluminum Electrolytic Capacitors -55 °C to +105 °C - Long Life

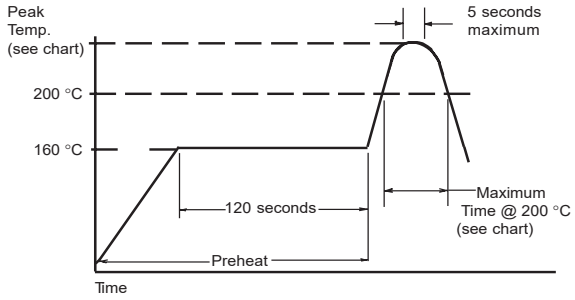








Reflow Soldering Temperature Profile for Part Numbers Ending in –F



Case Code	Peak Temperature (°C)	Max. Time at or above 200°C (sec.)	Number of Reflow Processes
B, C, D, X	250	60	1
E, F, G	235	60	1

See SMT application guide for land pattern, tape and reel specifications, and cleaning information.

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ATB

Surface Mount Capacitors

+105°C Long Life, Low Impedance

FEATURES

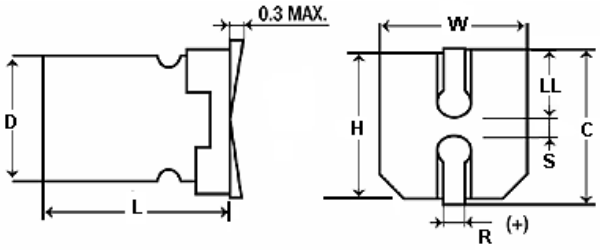
Small Size – Long Life – Low Impedance

APPLICATIONS

Filtering – Bypass/ Coupling – De-Coupling

Operating Temperature Range		**-55°C to +105°C**						
Capacitance Tolerance		**±20% at 120 Hz, 20°C**						
Surge Voltage	**WVDC**	**6.3**	**10**	**16**	**25**	**35**	**50**	
	SVDC	7.9	13	20	32	44	63	
Dissipation Factor	**WVDC**	**6.3**	**10**	**16**	**35**	**50**		
	Tan δ	.26	.19	.16	.12	.12		
Leakage Current		**2 Minutes**						
		.01CV or 3uA,Whichever is greater						
Low Temperature Stability Impedance Ratio (120 Hz)	**Rated WVDC**	**6.3**	**10**	**16**	**25**	**35**	**50**	
	-25°C to +20°C	2	2	2	2	2	2	
	-40°C to +20°C	3	3	3	3	3	3	
Load Life		**5000 hours(3000 hours for D=4,5,6.3mm) at 105°C with rated WVDC**						
		Capacitance Change	≤30% of initial measured value					
		Dissipation Factor	≤200% of maximum specified value					
		Leakage Current	Not more than the specified value					
Shelf Life		**1000 hours at 85°C with no voltage applied**						
		Capacitance Change	≤30% of initial measured value					
		Dissipation Factor	≤200% of maximum specified value					
		Leakage Current	Not more than the specified value					
Resistance to Soldering Heat		**Capacitors placed on a 250°C hot plate for 30 seconds with their electrode terminations facing downward will fulfill the following conditions after being cooled to room temperature**						
		Capacitance Change	≤10% of initial measured value					
		Dissipation Factor	≤100% of maximum specified value					
		Leakage Current	≤100% of maximum specified value					
Ripple Current Multipliers		**Frequency (Hz)**						
		120	1k	10k	100k			
		0.70	0.80	0.90	1.00			

Special Order Options



D	L	W ±0.2	H ±0.2	C max	R	S ±0.2
4	5.4 +0.3/-0.1	4.3	4.8	5.5	0.65±0.1	1.0
5	5.4 +0.3/-0.1	5.3	5.8	6.5	0.65±0.1	1.5
6.3	5.4 +0.3/-0.1	6.6	7.1	7.8	0.65±0.1	1.8
6.3	7.7 +/- 0.3	6.6	7.1	7.8	0.65±0.1	1.8
8	6.2 +/- 0.3	8.3	8.8	9.5	0.65±0.1	2.2
8	10.2 +/- 0.3	8.3	8.6	10.0	0.90±0.2	3.1
10	10.2 +/- 0.3	10.3	10.6	12.0	0.90±0.2	4.6

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ATB

+105°C, Low Impedance, up to 5000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Impedance Ω +20°C, 100kHz	Maximum RMS Ripple Current (mA) 100 kHz, +105°C	Dims DxL (mm)
6.3	22	ATB226M6R3	1.93	90	4x5.4
6.3	33	ATB336M6R3	1.93	90	4x5.4
6.3	47	ATB476M6R3	1	160	5x5.4
6.3	100	ATB107M6R3	0.52	240	6.3x5.4
6.3	150	ATB157M6R3	0.3	240	6.3x7.7
6.3	220	ATB227M6R3	0.3	240	6.3x7.7
6.3	330	ATB337M6R3	0.16	600	8x10.2
6.3	470	ATB477M6R3	0.16	600	8x10.2
6.3	680	ATB687M6R3	0.12	850	10x10.2
6.3	1000	ATB108M6R3	0.12	850	10x10.2
10	22	ATB226M010	1.93	90	4x5.4
10	33	ATB336M010	1	160	5x5.4
10	47	ATB476M010	0.52	190	6.3x5.4
10	100	ATB107M010	0.52	190	6.3x5.4
10	150	ATB157M010	0.34	240	6.3x7.7
10	220	ATB227M010	0.16	600	8x10.2
10	330	ATB337M010	0.16	600	8x10.2
10	470	ATB477M010	0.12	850	10x10.2
10	680	ATB687M010	0.12	850	10x10.2
10	1000	ATB108M010	0.12	850	10x10.2
16	10	ATB106M016	1.93	90	4x5.4
16	22	ATB226M016	1	160	5x5.4
16	33	ATB336M016	0.52	240	6.3x5.4
16	47	ATB476M016	0.52	240	6.3x5.4
16	100	ATB107M016	0.34	280	6.3x7.7
16	150	ATB157M016	0.22	370	8x10.2
16	220	ATB227M016	0.22	370	8x10.2
16	330	ATB337M016	0.16	600	8x10.2
16	470	ATB477M016	0.12	850	10x10.2
16	680	ATB687M016	0.12	850	10x10.2
25	10	ATB106M025	1.93	90	4x5.4
25	22	ATB226M025	1	160	5x5.4
25	33	ATB336M025	0.52	240	6.3x5.4
25	47	ATB476M025	0.52	240	6.3x5.4
25	68	ATB686M025	0.34	280	6.3x7.7
25	100	ATB107M025	0.34	300	6.3x7.7
25	150	ATB157M025	0.16	600	8x10.2
25	220	ATB227M025	0.16	600	8x10.2
25	330	ATB337M025	0.16	850	10x10.2
25	470	ATB477M025	0.12	850	10x10.2
35	4.7	ATB475M035	1.93	90	4x5.4
35	10	ATB106M035	1	160	5x5.4
35	22	ATB226M035	1	160	5x5.4
35	33	ATB336M035	0.52	240	6.3x5.4
35	47	ATB476M035	0.34	280	6.3x7.7
35	68	ATB686M035	0.34	280	6.3x7.7
35	100	ATB107M035	0.16	600	8x10.2
35	150	ATB157M035	0.12	850	10x10.2
35	220	ATB227M035	0.12	850	10x10.2
35	330	ATB337M035	0.12	850	10x10.2
50	1	ATB105M050	5	60	4x5.4
50	2.2	ATB225M050	5	60	4x5.4
50	3.3	ATB335M050	5	60	4x5.4
50	4.7	ATB475M050	4	95	5x5.4
50	10	ATB106M050	2.6	140	6.3x5.4
50	22	ATB226M050	1.3	230	6.3x7.7
50	33	ATB336M050	0.5	350	8x10.2
50	47	ATB476M050	0.34	670	10x10.2
50	68	ATB686M050	0.34	670	10x10.2
50	100	ATB107M050	0.34	670	10x10.2
50	150	ATB157M050	0.34	670	10x10.2
50	220	ATB227M050	0.34	670	10x10.2

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Type AVE –40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

Type AVE capacitors are a great value for filter and bypass applications not requiring wide temperature performance or high ripple current. Their vertical cylindrical cases facilitate automatic mounting and reflow soldering and offer a significant savings over tantalum capacitors.

Highlights

- +85 °C, Up to 2000 Hour Load Life
- Low Impedance
- Voltage Range: 4 Vdc to 100 Vdc

Specifications

Operating Temperature: –40 °C to +85 °C

Rated Voltage: 4, 6.3, 10, 16, 25, 35, 50, 63 & 100 Vdc

Capacitance: 0.1 µF to 1500 µF

Capacitance Tolerance: ±20% @ 120 Hz and +20 °C

Leakage Current: 0.01 CV or 3 µA @ +20 °C, after two minutes (whichever is greater)

Dissipation Factor:

4V	6.3V	10 V	16 V	25 V	35 V	50 V	63 V	100 V
0.42	0.28	0.24	0.20	0.14	0.12	0.10	0.10	0.10

Low Temperature Characteristics @ 120 Hz:

Rated Voltage (Vdc)		4	6.3	10	16	25	35	50	63	100
Impedance	Z(-25ºC)/Z(+20ºC)	7	4	3	2	2	2	2	2	2
Ratio	Z(-40ºC)/Z(+20ºC)	15	8	5	4	3	3	3	3	3

Ripple Curent Multipliers:

Frequency	50 Hz	120 Hz	1 kHz	10 kHz up
Vdc (V)	Multiplier			
≤ 16	0.80	1.00	1.15	1.25
25 - 35	0.80	1.00	1.25	1.40
50 - 63	0.80	1.00	1.35	1.50
100	0.70	1.00	1.35	1.50

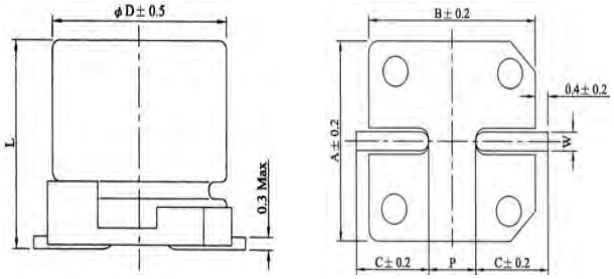
RoHS Compliant

Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

Life Test: 2000 h @ 85 °C
Δ Capacitance ±20% (4 WV: ±30%)
DF: ≤ 200% of limit (4 WV: ±30%)
DCL: ≤ 100% of limit

Shelf Test: 1000 h @ 85 °C
Δ Capacitance ±20% (4 WV: ±30%)
DF: ≤ 200% of limit (4 WV: ±30%)

Outline Drawing



Case Code	Dimensions in millimeters (mm)						
	∅ D	L	A	B	C	W	P±0.2
A	3	5.3±0.2	3.3	3.3	1.5	.45 ~ 0.75	0.8
B	4	5.3±0.2	4.3	4.3	2.0	0.5 to 0.8	1.0
C	5	5.3±0.2	5.3	5.3	2.3	0.5 to 0.8	1.5
D	6.3	5.3±0.2	6.6	6.6	2.7	0.5 to 0.8	2.0
X	6.3	7.7±0.3	6.6	6.6	2.7	0.5 to 0.8	2.0
E	8	6.5±0.3	8.4	8.4	3.4	0.5 to 0.8	2.3
F	8	10±0.5	8.4	8.4	3.0	0.7 to 1.1	3.1
G	10	10±0.5	10.4	10.4	3.3	0.7 to 1.1	4.7

Type AVE –40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

Part Numbering System

AVE	106	M	16	B	12T	– F
Type	Capacitance	Capacitance Tolerance	Voltage	Case Code	Packaging Information	RoHS Compliant

Capacitance
- **104** = 0.1 µF
- **105** = 1.0 µF
- **106** = 10.0 µF
- **107** = 100.0 µF
- **108** = 1000.0 µF

Capacitance Tolerance
- **M** = ±20%

Voltage
- **04** = 4 Vdc
- **06** = 6.3 Vdc
- **10** = 10 Vdc
- **16** = 16 Vdc
- **25** = 25 Vdc
- **35** = 35 Vdc
- **50** = 50 Vdc
- **63** = 63 Vdc
- **2A** = 100 Vdc

Case Code
- **B** = B

Packaging Information
- **12** = Carrier Tape Width (mm)
- **T** = Tape & Reel

Ratings

Cap (µF)	Catalog Part Number	Max. DCL 2 min. (µA)	Max. DF @120Hz/20ºC	Max. E.S.R. @120Hz/20ºC (Ω)	Max. Ripple Current @120Hz/85ºC (mA)	Case Code	Size D x L (mm)	Qty. Per Reel (Each)
4 Vdc (5 Vdc Surge)								
22	AVE226M04A12T-F	3	0.42	31.65	14	A	3x5.3	2000
33	AVE336M04B12T-F	3	0.42	21.10	31	B	4x5.3	2000
47	AVE476M04B12T-F	3	0.42	14.81	37	B	4x5.3	2000
68	AVE686M04C12T-F	3	0.42	10.24	63	C	5x5.3	1000
100	AVE107M04D16T-F	4	0.42	6.96	110	D	6.3x5.3	1000
6.3 Vdc (8 Vdc Surge)								
22	AVE226M06B12T-F	3	0.28	21.10	23	B	4x5.3	2000
33	AVE336M06B12T-F	3	0.28	14.07	31	B	4x5.3	2000
47	AVE476M06C12T-F	3	0.28	9.88	52	C	5x5.3	1000
68	AVE686M06D16T-F	4.3	0.28	6.83	89	D	6.3x5.3	1000
100	AVE107M06D16T-F	6.3	0.28	4.64	120	D	6.3x5.3	1000
220	AVE227M06X16T-F	13.9	0.28	2.11	123	X	6.3x7.7	1000
220	AVE227M06E16T-F	13.9	0.28	2.11	155	E	8x6.5	1000
330	AVE337M06X16T-F	20.8	0.28	1.41	139	X	6.3x7.7	1000
330	AVE337M06E16T-F	20.8	0.28	1.41	155	E	8x6.5	1000
470	AVE477M06F24T-F	29.6	0.28	0.99	252	F	8x10	500
1000	AVE108M06G24T-F	63.0	0.28	0.46	458	G	10x10	500
1500	AVE158M06G24T-F	94.5	0.28	0.31	458	G	10x10	500
10 Vdc (13 Vdc Surge)								
10	AVE106M10B12T-F	3	0.24	39.79	23	B	4x5.3	2000
22	AVE226M10C12T-F	3	0.24	18.09	39	C	5x5.3	1000
33	AVE336M10C12T-F	3.3	0.24	12.06	48	C	5x5.3	1000
47	AVE476M10D16T-F	4.7	0.24	8.47	67	D	6.3x5.3	1000
68	AVE686M10D16T-F	6.8	0.24	5.85	98	D	6.3x5.3	1000
100	AVE107M10X16T-F	10	0.24	3.98	108	X	6.3x7.7	1000
100	AVE107M10E16T-F	10	0.24	3.98	155	E	8x6.5	1000
220	AVE227M10X16T-F	22	0.24	1.81	130	X	6.3x7.7	1000
220	AVE227M10E16T-F	22	0.24	1.81	155	E	8x6.5	1000
330	AVE337M10F24T-F	33	0.24	1.21	252	F	8x10	500
470	AVE477M10G24T-F	47	0.24	0.85	458	G	10x10	500
1000	AVE108M10G24T-F	100	0.24	0.40	458	G	10x10	500

Type AVE –40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

Ratings

Cap (µF)	Catalog Part Number	Max. DCL 2 min. (µA)	Max. DF @120Hz/20ºC	Max. E.S.R. @120Hz/20ºC (Ω)	Max. Ripple Current @120Hz/85ºC (mA)	Case Code	Size D x L (mm)	Qty. Per Reel (Each)
16 Vdc (20 Vdc Surge)								
10	AVE106M16A12T-F	3.0	0.2	33.16	14	A	3x5.3	2000
10	AVE106M16B12T-F	3.0	0.2	33.16	26	B	4x5.3	2000
22	AVE226M16C12T-F	3.5	0.2	15.07	44	C	5x5.3	1000
33	AVE336M16D16T-F	5.3	0.2	10.05	63	D	6.3x5.3	1000
47	AVE476M16D16T-F	7.5	0.2	7.05	75	D	6.3x5.3	1000
68	AVE686M16D16T-F	10.9	0.2	4.88	103	D	6.3x5.3	1000
100	AVE107M16X16T-F	16.0	0.2	3.32	108	X	6.3x7.7	1000
100	AVE107M16E16T-F	16.0	0.2	3.32	155	E	8x6.5	1000
220	AVE227M16X16T-F	35.2	0.2	1.51	124	X	6.3x7.7	1000
220	AVE227M16F24T-F	35.2	0.2	1.51	252	F	8x10	500
330	AVE337M16F24T-F	52.8	0.2	1.00	252	F	8x10	500
470	AVE477M16G24T-F	75.2	0.2	0.71	458	G	10x10	500
25 Vdc (31 Vdc Surge)								
4.7	AVE475M25B12T-F	3.0	0.14	49.38	19	B	4x5.3	2000
10	AVE106M25C12T-F	3.0	0.14	23.21	32	C	5x5.3	1000
22	AVE226M25D16T-F	5.5	0.14	10.55	55	D	6.3x5.3	1000
33	AVE336M25D16T-F	8.3	0.14	7.03	67	D	6.3x5.3	1000
47	AVE476M25X16T-F	11.8	0.14	4.94	98	X	6.3x7.7	1000
47	AVE476M25E16T-F	11.8	0.14	4.94	155	E	8x6.5	1000
68	AVE686M25X16T-F	17.0	0.14	3.41	109	X	6.3x7.7	1000
68	AVE686M25E16T-F	17.0	0.14	3.41	155	E	8x6.5	1000
100	AVE107M25X16T-F	25.0	0.14	2.32	124	X	6.3x7.7	1000
100	AVE107M25E16T-F	25.0	0.14	2.32	155	E	8x6.5	1000
220	AVE227M25F24T-F	55.0	0.14	1.06	252	F	8x10	500
330	AVE337M25G24T-F	82.5	0.14	0.70	458	G	10x10	500
35 Vdc (44 Vdc Surge)								
3.3	AVE335M35A12T-F	3.0	0.12	60.28	8	A	3x5.3	2000
4.7	AVE475M35B12T-F	3.0	0.12	42.33	20	B	4x5.3	2000
10	AVE106M35C12T-F	3.5	0.12	19.89	34	C	5x5.3	1000
22	AVE226M35D16T-F	7.7	0.12	9.04	59	D	6.3x5.3	1000
33	AVE336M35X16T-F	11.6	0.12	6.03	85	X	6.3x7.7	1000
33	AVE336M35E16T-F	11.6	0.12	6.03	155	E	8x6.5	1000
47	AVE476M35X16T-F	16.5	0.12	4.23	98	X	6.3x7.7	1000
47	AVE476M35E16T-F	16.5	0.12	4.23	155	E	8x6.5	1000
68	AVE686M35X16T-F	23.8	0.12	2.93	109	X	6.3x7.7	1000
68	AVE686M35E16T-F	23.8	0.12	2.93	155	E	8x6.5	1000
100	AVE107M35F24T-F	35.0	0.12	1.99	252	F	8x10	500
220	AVE227M35G24T-F	77.0	0.12	0.90	458	G	10x10	500

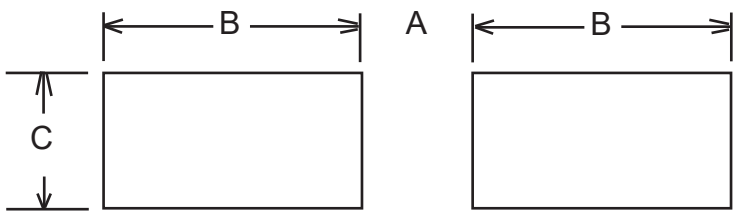
Type AVE –40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

Cap (µF)	Catalog Part Number	Max. DCL 2 min. (µA)	Max. DF @120Hz/20ºC	Max. E.S.R. @120Hz/20ºC (Ω)	Max. Ripple Current @120Hz/85ºC (mA)	Case Code	Size D x L (mm)	Qty. Per Reel (Each)
50 Vdc (63 Vdc Surge)								
.10	AVE104M50B12T-F*	3.0	0.1	1657.83	3	B	4x5.3	2000
.22	AVE224M50B12T-F*	3.0	0.1	753.56	5	B	4x5.3	2000
.33	AVE334M50B12T-F*	3.0	0.1	502.37	6	B	4x5.3	2000
.47	AVE474M50B12T-F*	3.0	0.1	352.73	7	B	4x5.3	2000
1	AVE105M50B12T-F	3.0	0.1	165.78	10	B	4x5.3	2000
2.2	AVE225M50B12T-F	3.0	0.1	75.36	15	B	4x5.3	2000
3.3	AVE335M50B12T-F	3.0	0.1	50.24	19	B	4x5.3	2000
4.7	AVE475M50C12T-F	3.0	0.1	35.27	26	C	5x5.3	1000
10	AVE106M50D16T-F	5.0	0.1	16.58	44	D	6.3x5.3	1000
22	AVE226M50X16T-F	11.0	0.1	7.54	65	X	6.3x7.7	1000
22	AVE226M50E16T-F	11.0	0.1	7.54	155	E	8x6.5	1000
33	AVE336M50X16T-F	16.5	0.1	5.02	82	X	6.3x7.7	1000
33	AVE336M50E16T-F	16.5	0.1	5.02	155	E	8x6.5	1000
47	AVE476M50X16T-F	23.5	0.1	3.53	98	X	6.3x7.7	1000
47	AVE476M50F24T-F	23.5	0.1	3.53	252	F	8x10	500
68	AVE686M50F24T-F	34.0	0.1	2.44	252	F	8x10	500
100	AVE107M50F24T-F	50.0	0.1	1.66	252	F	8x10	500
220	AVE227M50G24T-F	110.0	0.1	0.75	458	G	10x10	500
63 Vdc (75 Vdc Surge)								
10	AVE106M63E16T-F	6.3	0.1	16.58	75	E	8x6.5	1000
22	AVE226M63F24T-F	13.9	0.1	7.54	139	F	8x10	500
33	AVE336M63F24T-F	20.8	0.1	5.02	139	F	8x10	500
47	AVE476M63G24T-F	29.6	0.1	3.53	226	G	10x10	500
68	AVE686M63G24T-F	42.8	0.1	2.44	226	G	10x10	500
100	AVE107M63G24T-F	63.0	0.1	1.66	226	G	10x10	500
100 Vdc (125 Vdc Surge)								
10	AVE106M2AF24T-F	10	0.1	16.58	94	F	8x10	500
22	AVE226M2AG24T-F	22	0.1	7.54	189	G	10x10	500
33	AVE336M2AG24T-F	33	0.1	5.02	189	G	10x10	500

*denotes discontinued part

Recommended Land Patterns by case size for AVE series



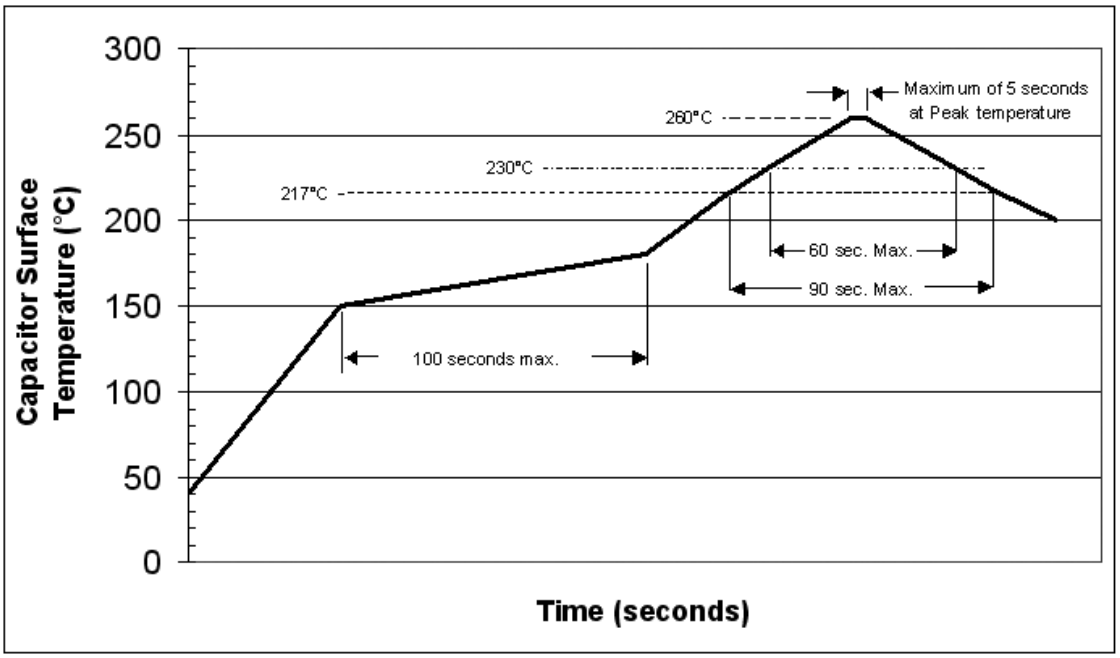
Case Code	Case Size	Land Dimensions (mm)		
		C	B	A
A	3x5.3	1.6	2.2	0.8
B	4x5.3	1.6	2.6	1.0
C	5x5.3	1.6	3.0	1.4
D	6.3x5.3	1.6	3.5	1.9
X	6.3x7.7	1.6	3.5	1.9
E	8x6.5	1.6	4.0	2.1
F	8x10	2.5	3.5	3.0
G	10x10	2.5	4.0	4.0

Aluminum Electrolytic Capacitors for Filtering and Bypass

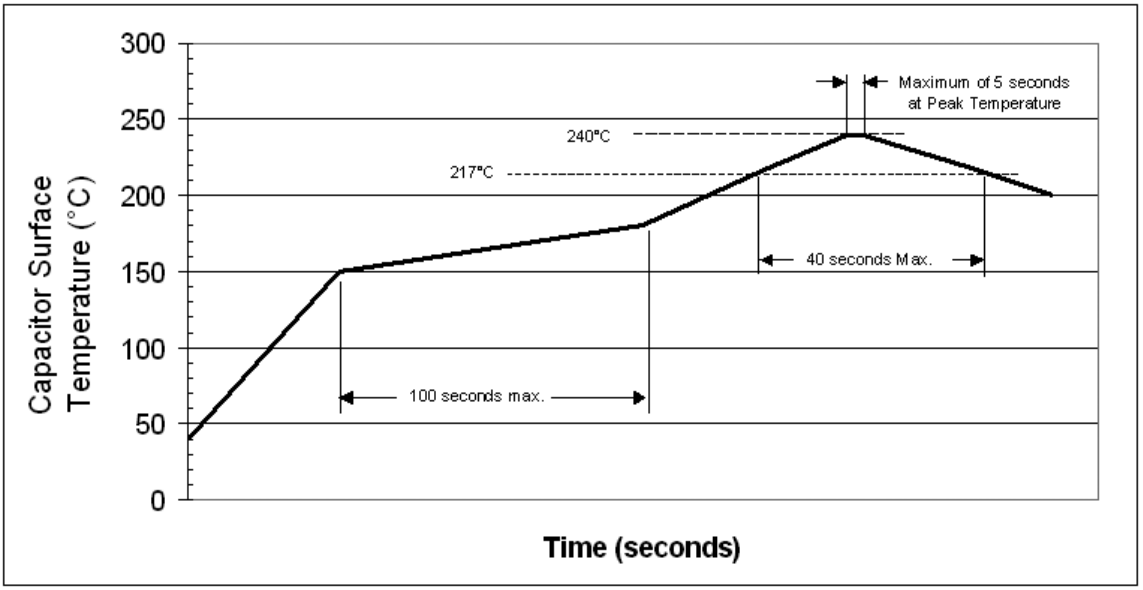
Recommended Soldering Methods

Recommended Reflow Soldering Profile:

For case diameters 3 thru 6.3 mm



For case diameters 8 and 10 mm



Case sizes 4 thur 6.3 mm dia. should be subjected to just one reflow soldering process.
The 8 and 10 mm dia. case sizes should be subjected to a maximum of two reflow soldering processes.

Soldering with a solder iron should be performed with a maximum soldering iron tip temperature of 350±5°C for 3 to 4 seconds.

Type AVE –40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

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Type AVES –55 °C to +105 °C

Low Profile SMT Aluminum Electrolytic Capacitors

For Filtering, Bypassing and Power Supply Decoupling

Type AVES Capacitors are rated for 1000 hours at 105 °C with low impedance characteristics. They are ideal for high density PC board packaging. The Type AVES offers a low in-place-cost for a high quality performer. The vertical cylindrical cases facilitate automatic mounting and reflow soldering into the same footprint of like-rated tantalum capacitors except without the need for voltage derating. Type AVES is RoHS compliant.

Highlights

- +105 °C, Up to 1000 Hours Load Life
- Capacitance Range: 0.1 µF to 100 µF
- Voltage Range: 6.3 Vdc to 50 Vdc

Specifications

Operating Temperature: –55 °C to +105 °C

Rated Voltage: 6.3, 10, 16, 25, 35, 50 Vdc

Capacitance: 0.1µF to 100 µF

Capacitance Tolerance: ±20% @ 120 Hz and +20 °C

Leakage Current: I = 0.01 CV or 3 (µA) whichever is greater after 2 minutes

C = rated capacitance in µF, V = rated DC working voltage

Ripple Current Multiplier:

Freq. (Hz) / Vdc	50, 60	120	1 k	10 k up
Under 16	0.8	1.00	1.15	1.25
25 ~ 35	0.8	1.00	1.25	1.40
50	0.8	1.00	1.35	1.50

Dissipation Factor: (Tan δ at 120 Hz, 20 °C)

Rated Voltage	6.3	10	16	25	35	50
Tan δ Max	0.30	0.26	0.22	0.16	0.13	0.12

Low Temperature Characteristic (at 120 Hz):

Rated Voltage		6.3	10	16	25	35	50
Impedance Ratio	Z(–25 °C) / Z(+20 °C)	4	3	2	2	2	2
	Z(–40 °C) / Z(+20 °C)	8	5	4	3	3	3

RoHS Compliant

Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

Load Life Test:

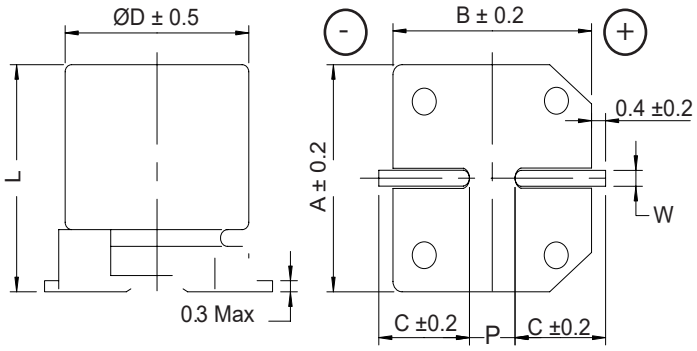
Test Time	1,000 Hours
Capacitance Change	Within ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

* The above specifications shall be satisfied when the capacitors are restored to 20 °C after the rated voltage is applied for 1,000 hrs at 105 °C

Shelf LifeTest: Test time: 1000 hours; other items are the same as those for life test.

Type AVES –55 °C to +105 °C
Low Profile SMT Aluminum Electrolytic Capacitors

Outline Drawing, Case Code & Dimensions Table



Case Code	Ø D (mm)	L (mm)	A (mm)	B (mm)	C (mm)	W (mm)	P ±0.2 (mm)
B	4.0	5.3 ±0.2	4.3	4.3	2.0	0.5 to 0.8	1.0
C	5.0	5.3 ±0.2	5.3	5.3	2.3	0.5 to 0.8	1.5
D	6.3	5.3 ±0.2	6.6	6.6	2.7	0.5 to 0.8	2.0

Part Numbering System

AVES	106	M	16	B	12T	– F
Series	**Capacitance**	**Capacitance Tolerance**	**Voltage**	**Case Code**	**Packaging Information**	**RoHS Compliant**
AVES	**104** = 0.1 µF	**M** = ±20%	**06** = 6.3 Vdc	**B** = B	**12** = Carrier Tape Width (mm)	
	105 = 1.0 µF		**10** = 10 Vdc		**T** = Tape & Reel	
	106 = 10.0 µF		**16** = 16 Vdc			
	107 = 100.0 µF		**25** = 25 Vdc			
	108 = 1000.0 µF		**50** = 50 Vdc			

Ratings

Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz 20 °C	Max ESR 120 Hz 20 °C (ohms)	Max Ripple Current 120 Hz 105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel (each)
				6.3 Vdc (8 Vdc Surge)				
22	AVES226M06B12T-F	3.0	0.30	22.6	21	B	4 x 5.3	2000
33	AVES336M06C12T-F	3.0	0.30	15.1	30	C	5 x 5.3	1000
47	AVES476M06C12T-F	3.0	0.30	10.6	46	C	5 x 5.3	1000
100	AVES107M06D16T-F	6.3	0.30	5.0	61	D	6.3 x 5.3	1000
				10 Vdc (13 Vdc Surge)				
10	AVES106M10B12T-F	3.0	0.26	43.1	15	B	4 x 5.3	2000
22	AVES226M10C12T-F	3.0	0.26	19.6	25	C	5 x 5.3	1000
33	AVES336M10C12T-F	3.3	0.26	13.1	31	C	5 x 5.3	1000
47	AVES476M10D16T-F	4.7	0.26	9.2	43	D	6.3 x 5.3	1000
100	AVES107M10D16T-F	10.0	0.26	4.3	65	D	6.3 x 5.3	1000

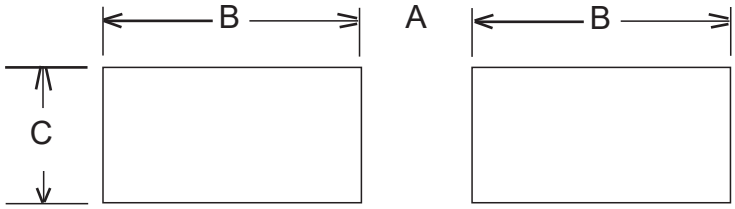
Type AVES –55 °C to +105 °C

Low Profile SMT Aluminum Electrolytic Capacitors

Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz 20 °C	Max ESR 120 Hz 20 °C (ohms)	Max Ripple Current 120 Hz 105 °C (mA)	Size D x L (mm)	Quantity per Reel (each)
			16 Vdc (20 Vdc Surge)				
10	AVES106M16B12T-F	3.0	0.22	36.5	16	4 x 5.3	2000
22	AVES226M16C12T-F	3.5	0.22	16.6	28	5 x 5.3	1000
33	AVES336M16D16T-F	5.3	0.22	11.1	40	6.3 x 5.3	1000
47	AVES476M16D16T-F	7.5	0.22	7.8	47	6.3 x 5.3	1000
100	AVES107M16D16T-F	16.0	0.22	3.6	70	6.3 x 5.3	1000
			25 Vdc (31 Vdc Surge)				
4.7	AVES475M25B12T-F	3.0	0.16	56.4	12	4 x 5.3	2000
10	AVES106M25C12T-F	3.0	0.16	26.5	21	5 x 5.3	1000
22	AVES226M25D16T-F	5.5	0.16	12.1	36	6.3 x 5.3	1000
33	AVES336M25D16T-F	8.3	0.16	8.0	44	6.3 x 5.3	1000
47	AVES476M25D16T-F	11.8	0.16	5.6	60	6.3 x 5.3	1000
			35 Vdc (44 Vdc Surge)				
4.7	AVES475M35B12T-F	3.0	0.13	45.9	14	4 x 5.3	2000
10.0	AVES106M35C12T-F	3.5	0.13	21.6	23	5 x 5.3	1000
22.0	AVES226M35D16T-F	7.7	0.13	9.8	50	6.3 x 5.3	1000
			50 Vdc (63 Vdc Surge)				
.10	AVES104M50B12T-F*	3.0	0.12	1989.4	2	4 x 5.3	2000
.22	AVES224M50B12T-F*	3.0	0.12	904.3	3	4 x 5.3	2000
.33	AVES334M50B12T-F*	3.0	0.12	602.8	4	4 x 5.3	2000
.47	AVES474M50B12T-F*	3.0	0.12	423.3	5	4 x 5.3	2000
1.0	AVES105M50B12T-F	3.0	0.12	198.9	7	4 x 5.3	2000
2.2	AVES225M50B12T-F	3.0	0.12	90.4	10	4 x 5.3	2000
3.3	AVES335M50B12T-F	3.0	0.12	60.3	12	4 x 5.3	2000
4.7	AVES475M50C12T-F	3.0	0.12	42.3	17	5 x 5.3	1000
10.0	AVES106M50D16T-F	5.0	0.12	19.9	26	6.3 x 5.3	1000
22.0	AVES226M50D16T-F	11.0	0.12	9.0	51	6.3 x 5.3	1000

*denotes discontinured part number

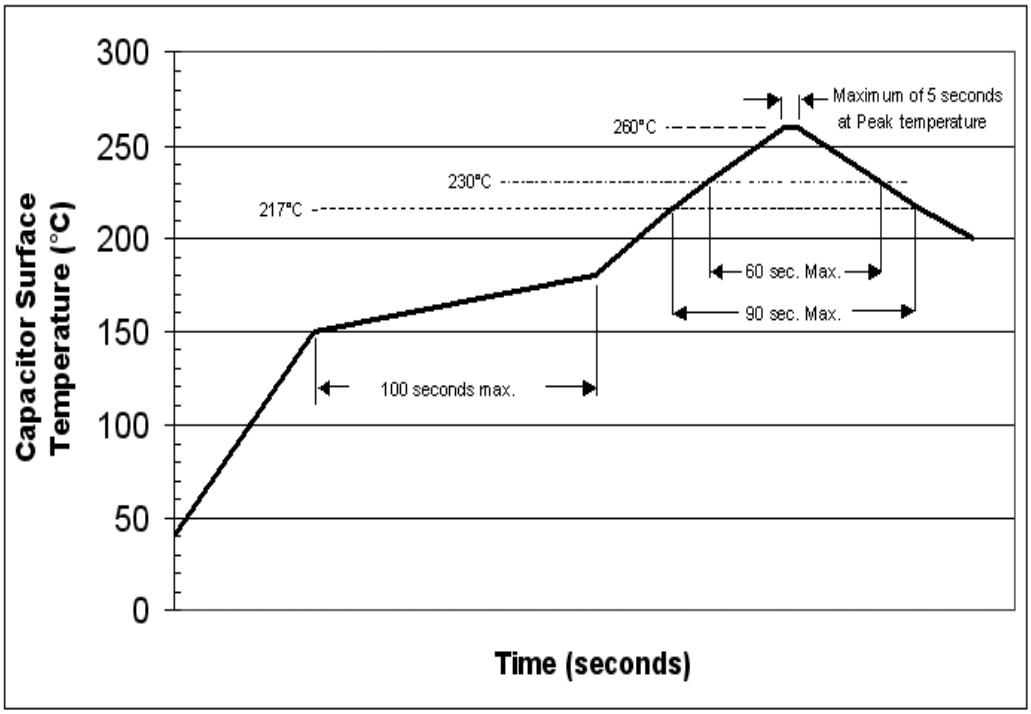
Recommended Land Patterns by case size for AVES series



Case Code	Case Size	Land Dimensions (mm)		
		C	B	A
B	4x5.3	1.6	2.6	1
C	5x5.3	1.6	3	1.4
D	6.3x5.3	1.6	3.5	1.9

Recommended Soldering Methods

Recommended Reflow Soldering Profile:



Parts should be subjected to just one reflow soldering process.

Soldering with a solder iron should be performed with a maximum soldering iron tip temperature of 350±5°C for 3 to 4 seconds.

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Type AVEZ –55 °C to +105 °C
Low Impedance SMT Aluminum Electrolytic Capacitors

For Filtering, Bypassing and Power Supply Decoupling

Type AVEZ Capacitors are rated for 1000 hours at 105 °C with low impedance characteristics. They are ideal for high density PC board packaging. The Type AVEZ offers a low in-place-cost for a high quality performer. The vertical cylindrical cases facilitate automatic mounting and reflow soldering into the same footprint of like-rated tantalum capacitors except without the need for voltage derating. Type AVEZ is RoHS compliant.

Highlights

- +105 °C, Up to 1000 Hours Load Life
- Capacitance Range: 1.0 µF to 220 µF
- Voltage Range: 6.3 Vdc to 50 Vdc

Specifications

Operating Temperature: –55 °C to +105 °C

Rated Voltage: 6.3, 10, 16, 25, 35, 50 Vdc

Capacitance: 1.0 µF to 220 µF

Capacitance Tolerance: ±20% @ 120 Hz and +20 °C

Leakage Current: I = 0.01 CV or 3 (µA) whichever is greater after 2 minutes
C = rated capacitance in µF, V = rated DC working voltage

Ripple Current Multiplier:

Freq. (Hz) / Vdc	50, 60	120	1 k	10 k up
6.3 ~ 50	0.64	0.80	0.93	1.00

Dissipation Factor: (Tan δ at 120 Hz, 20 °C)

Rated Voltage	6.3	10	16	25	35	50
Tan δ Max	0.28	0.24	0.20	0.16	0.14	0.12

Low Temperature Characteristic (at 120 Hz):

Rated Voltage		6.3	10	16	25	35	50
Impedance Ratio	Z(–25 °C) / Z(+20 °C)	4	3	2	2	2	2
	Z(–40 °C) / Z(+20 °C)	8	5	4	3	3	3

RoHS Compliant

Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

Load Life Test:

Test Time	1,000 Hours
Capacitance Change	Within ±25% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

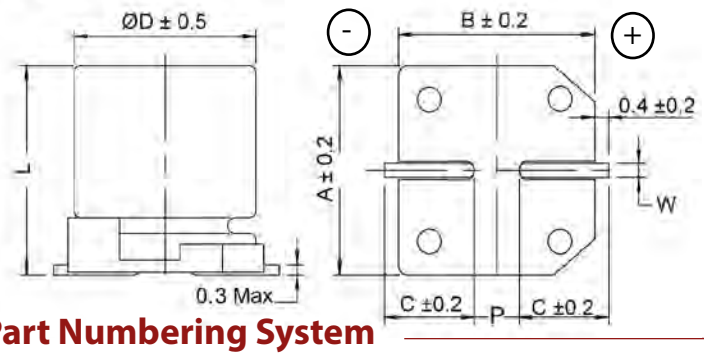
* The above specifications shall be satisfied when the capacitors are restored to 20 °C after the rated voltage is applied for 1,000 hrs at 105 °C

Shelf LifeTest: Test time: 1000 hours; test limits are the same as those for life test.

Type AVEZ –55 °C to +105 °C
Low Impedance SMT Aluminum Electrolytic Capacitors

Outline Drawing, Case Code & Dimensions Table

Fig. 1



Case Code	Ø D (mm)	L (mm)	A (mm)	B (mm)	C (mm)	W (mm)	P ±0.2 (mm)
B	4.0	5.3 ±0.2	4.3	4.3	2.0	0.5 to 0.8	1.0
C	5.0	5.3 ±0.2	5.3	5.3	2.3	0.5 to 0.8	1.5
D	6.3	5.3 ±0.2	6.6	6.6	2.7	0.5 to 0.8	2.0
X	6.3	7.7 ±0.3	6.6	6.6	2.7	0.5 to 0.8	2.0

Part Numbering System

AVEZ	106	M	25	C	12T	–F
Type	Capacitance	Capacitance Tolerance	Voltage Code	Case Code	Packaging Code	RoHS Compliant
AVEZ	**105** = 1.0 µF	**M** = ±20%	**06** = 6.3 Vdc **25** = 25 Vdc	See	**12** = Carrier Tape	
	106 = 10.0 µF		**10** = 10 Vdc **35** = 35 Vdc	Table	Width (mm)	
	107 = 100.0 µF		**16** = 16 Vdc **50** = 50 Vdc		**T** = Tape & Reel	

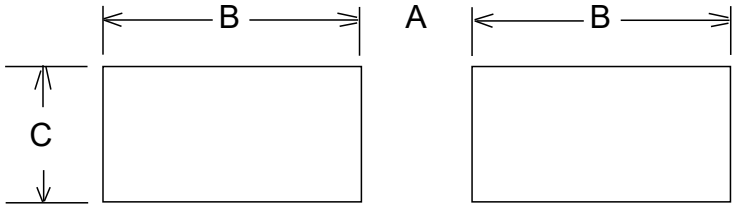
Ratings

Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz 20 °C	Max Impedance 100 kHz 20 °C (ohms)	Max Ripple Current 100 kHz 105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel (each)
			6.3 Vdc (8 Vdc Surge)					
22	AVEZ226M06B12T-F	3.0	0.28	3.20	65	B	4 x 5.3	2000
33	AVEZ336M06C12T-F	3.0	0.28	1.50	110	C	5 x 5.3	1000
47	AVEZ476M06C12T-F	3.0	0.28	1.50	110	C	5 x 5.3	1000
100	AVEZ107M06D16T-F	6.3	0.28	0.85	170	D	6.3 x 5.3	1000
150	AVEZ157M06X16T-F	9.5	0.28	0.50	255	X	6.3 x 7.7	1000
220	AVEZ227M06X16T-F	13.9	0.28	0.50	255	X	6.3 x 7.7	1000
			10 Vdc (13 Vdc Surge)					
10	AVEZ106M10B12T-F	3.0	0.24	3.20	65	B	4 x 5.3	2000
22	AVEZ226M10C12T-F	3.0	0.24	1.50	110	C	5 x 5.3	1000
33	AVEZ336M10C12T-F	3.0	0.24	1.50	110	C	5 x 5.3	1000
47	AVEZ476M10D16T-F	3.0	0.24	0.85	170	D	6.3 x 5.3	1000
100	AVEZ107M10D16T-F	6.3	0.24	0.85	170	D	6.3 x 5.3	1000
150	AVEZ157M10X16T-F	9.5	0.24	0.50	255	X	6.3 x 7.7	1000
220	AVEZ227M10X16T-F	13.9	0.24	0.50	255	X	6.3 x 7.7	1000

Type AVEZ –55 °C to +105 °C
Low Impedance SMT Aluminum Electrolytic Capacitors

Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz 20 ºC	Max Impedance 100 kHz 20 ºC (ohms)	Max Ripple Current 100 kHz 105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel (each)
			16 Vdc (13 Vdc Surge)					
10	AVEZ106M16B12T-F	3.0	0.2	3.20	65	B	4 x 5.3	2000
22	AVEZ226M16C12T-F	3.0	0.2	1.50	110	C	5 x 5.3	1000
33	AVEZ336M16D16T-F	3.0	0.2	0.85	170	D	6.3 x 5.3	1000
47	AVEZ476M16D16T-F	3.0	0.2	0.85	170	D	6.3 x 5.3	1000
100	AVEZ107M16D16T-F	6.3	0.2	0.85	170	D	6.3 x 5.3	1000
150	AVEZ157M16X16T-F	9.5	0.2	0.50	255	X	6.3 x 7.7	1000
220	AVEZ227M16X16T-F	13.9	0.2	0.50	255	X	6.3 x 7.7	1000
			25 Vdc (31 Vdc Surge)					
4.7	AVEZ475M25B12T-F	3.0	0.16	3.20	65	B	4 x 5.3	2000
10	AVEZ106M25C12T-F	3.0	0.16	1.50	110	C	5 x 5.3	1000
22	AVEZ226M25D16T-F	3.0	0.16	0.85	170	D	6.3 x 5.3	1000
33	AVEZ336M25D16T-F	3.0	0.16	0.85	170	D	6.3 x 5.3	1000
47	AVEZ476M25D16T-F	3.0	0.16	0.85	170	D	6.3 x 5.3	1000
100	AVEZ107M25X16T-F	6.3	0.16	0.5	255	X	6.3 x 7.7	1000
			35 Vdc (44 Vdc Surge)					
4.7	AVEZ475M35B12T-F	3.0	0.14	3.20	65	B	4 x 5.3	2000
10	AVEZ106M35C12T-F	3.0	0.14	1.50	110	C	5 x 5.3	1000
22	AVEZ226M35D16T-F	3.0	0.14	0.85	170	D	6.3 x 5.3	1000
33	AVEZ336M35D16T-F	3.0	0.14	0.85	170	D	6.3 x 5.3	1000
47	AVEZ476M35X16T-F	3.0	0.14	0.50	255	X	6.3 x 7.7	1000
			50 Vdc (63 Vdc Surge)					
1.0	AVEZ105M50B12T-F	3.0	0.12	5.0	30	B	4 x 5.3	2000
2.2	AVEZ225M50B12T-F	3.0	0.12	5.0	30	B	4 x 5.3	2000
3.3	AVEZ335M50B12T-F	3.0	0.12	5.0	30	B	4 x 5.3	2000
4.7	AVEZ475M50C12T-F	3.0	0.12	3.0	50	C	5 x 5.3	1000
10	AVEZ106M50D16T-F	3.0	0.12	2.0	70	D	6.3 x 5.3	1000
22	AVEZ226M50D16T-F	3.0	0.12	3.0	70	D	6.3 x 5.3	1000
33	AVEZ336M50X16T-F	3.0	0.12	1.0	170	X	6.3 x 7.7	1000

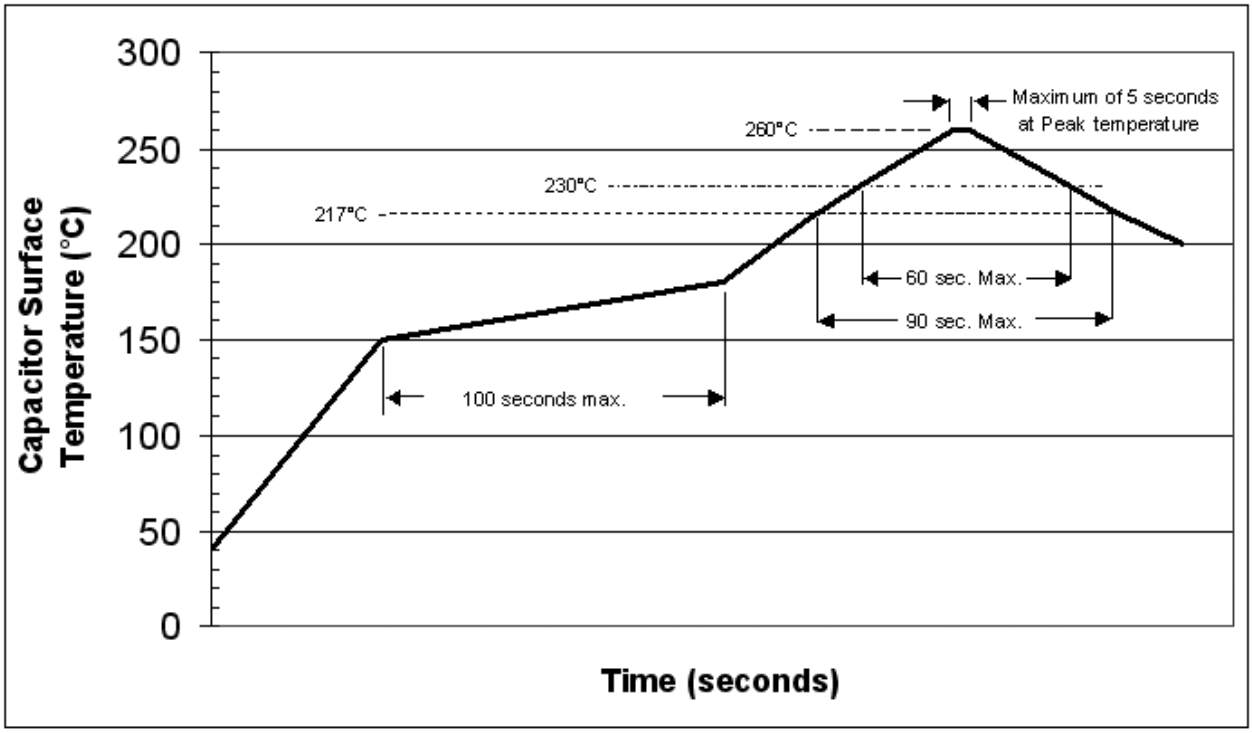
Recommended Land Patterns by case size for AVEZ series



Case Code	Case Size	Land Dimensions (mm)		
		C	B	A
B	4x5.3	1.6	2.6	1
C	5x5.3	1.6	3	1.4
D	6.3x5.3	1.6	3.5	1.9
X	6.3x7.7	1.6	3.5	1.9

Recommended Soldering Methods

Recommended Reflow Soldering Profile:



Parts should be subjected to just one reflow soldering process.

Soldering with a solder iron should be performed with a maximum soldering iron tip temperature of 350±5°C for 3 to 4 seconds.

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Type AVS

SMT Aluminum Electrolytic Capacitors - General Purpose, 85°C

General Purpose Filtering, Bypassing, Power Supply Decoupling

Type AVS Capacitors are the best value for filter and bypass applications not requiring wide temperature performance or high ripple current. Their vertical cylindrical cases facilitate automatic mounting and reflow soldering and Type AVS offers a significant cost savings over tantalum capacitors.

Highlights

- +85°C, 2000 Hour Load Life
- Capacitance Range: 0.1 µF to 1500 µF
- Voltage Range: 4.0 Vdc to 100 Vdc
- AEC-Q200 Compliant

Specifications

Operating Temperature: -40°C to +85°C

Rated voltage: 4.0, 6.3, 10, 16, 25, 35, 63, & 100 Vdc

Capacitance: 0.1 µF to 1500 µF

D.F. (@ 20°C): See Ratings Table

Capacitance Tolerance: ±20% @ 120 Hz and +20°C

Leakage Current: 0.01 CV or 3 µA @ +20°C, after two minutes (whichever is greater)

Ripple Current Multipliers:

Frequency

50/60 Hz	120 Hz	1 kHz	10 kHz & up
0.7	1.0	1.3	1.7

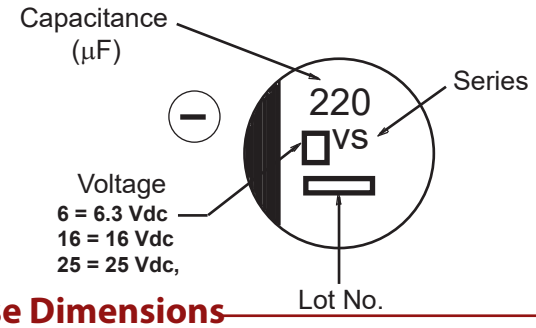
Load Life: 2000 h @ 85°C
Δ Capacitance: ±20%
DF: ≤200% of limit
DCL: <100% of limit

RoHS Compliant

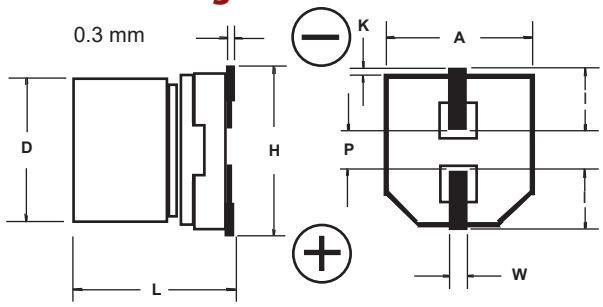
Shelf Life: 1000 h @ 85°C
Δ Capacitance: ±20%
DF: ≤200% of limit
DCL: <100% of limit

Maximum Impedance Ratio @ 120 Hz									
W.V. (Vdc)	4.0	6.3	10.0	16.0	25.0	35.0	50.0	63.0	100.0
-25°C / +20°C	7.0	4.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
-40°C / +20°C	15.0	8.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0

AVS Series Marking



Outline Drawing



Case Dimensions

Case Code	D ± 0.5	L	A ± 0.2	H (max)	I (ref)	W	P (ref)	K
A	3	5.4 +.1,-.2	3.3	4.5	1.5	0.55 ± 0.1	0.6	0.35 + 0.15/-0.20
B	4	5.4 +.1,-.2	4.3	5.5	1.8	0.65 ± 0.1	1.0	0.35 + 0.15/-0.20
C	5	5.4 +.1,-.2	5.3	6.5	2.2	0.65 ± 0.1	1.5	0.35 + 0.15/-0.20
D	6.3	5.4 +.1,-.2	6.6	7.8	2.6	0.65 ± 0.1	1.8	0.35 + 0.15/-0.20
X	6.3	7.9 ±.3	6.6	7.8	2.6	0.65 ± 0.1	1.8	0.35 + 0.15/-0.20
E	8	6.2 ±.3	8.3	9.5	3.4	0.65 ± 0.1	2.2	0.35 + 0.15/-0.20
F	8	10.2 ±.3	8.3	10.0	3.4	0.90 ± 0.2	3.1	0.70 ± 0.20
G	10	10.2 ±.3	10.3	12.0	3.5	0.90 ± 0.2	4.6	0.70 ± 0.20

Type AVS

SMT Aluminum Electrolytic Capacitors - General Purpose, 85°C

Cap (µF)	CaT-Falog ParT-F Number	Max . DCL (µA)	Max. Dissipation Factor @ 120 Hz	Max. ESR @ 120 Hz/20 °C (Ohms)	Max. Ripple Current 120 Hz/85 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
4 Vdc (5 Vdc Surge)								
22	AVS226M04A12T-F*	3.0	0.37	27.9	19	A	3 x 5.4	2000
33	AVS336M04B12T-F	3.0	0.35	17.6	26	B	4 x 5.4	2000
47	AVS476M04B12T-F	3.0	0.35	12.3	34	B	4 x 5.4	2000
100	AVS107M04C12T-F	4.0	0.35	5.8	61	C	5 x 5.4	1000
220	AVS227M04D16T-F	8.8	0.35	2.6	82	D	6.3 x 5.4	1000
6.3 Vdc (8 Vdc Surge)								
22	AVS226M06A12T-F*	3.0	0.35	26.4	20	A	3 x 5.4	2000
22	AVS226M06B12T-F	3.0	0.26	19.6	29	B	4 x 5.4	2000
33	AVS336M06B12T-F	3.0	0.35	17.6	29	B	4 x 5.4	2000
47	AVS476M06B12T-F	3.0	0.35	12.3	36	B	4 x 5.4	2000
47	AVS476M06C12T-F	3.0	0.26	9.2	46	C	5 x 5.4	1000
100	AVS107M06C12T-F	6.3	0.35	5.8	47	C	5 x 5.4	1000
100	AVS107M06D16T-F	6.3	0.26	4.3	71	D	6.3 x 5.4	1000
220	AVS227M06D16T-F	13.9	0.35	2.6	74	D	6.3 x 5.4	1000
330	AVS337M06X16T-F	20.8	0.26	1.3	150	X	6.3 x 7.9	900
330	AVS337M06E16T-F	20.8	0.35	1.8	300	E	8 x 6.2	1000
470	AVS477M06F24T-F	29.6	0.35	1.2	380	F	8 x 10.2	500
1000	AVS108M06F24T-F	63.0	0.35	0.6	500	F	8 x 10.2	500
1000	AVS108M06G24T-F	63.0	0.35	0.6	700	G	10 x 10.2	500
1500	AVS158M06G24T-F	94.5	0.35	0.4	700	G	10 x 10.2	500
10 Vdc (13 Vdc Surge)								
22	AVS226M10B12T-F	3.0	0.3	22.6	28	B	4 x 5.4	2000
33	AVS336M10B12T-F	3.3	0.3	15.1	29	B	4 x 5.4	2000
33	AVS336M10C12T-F	3.3	0.2	10.1	43	C	5 x 5.4	1000
47	AVS476M10C12T-F	4.7	0.3	10.6	43	C	5 x 5.4	1000
100	AVS107M10C12T-F	10.0	0.3	5.0	50	C	5 x 5.4	1000
100	AVS107M10D16T-F	10.0	0.2	3.3	70	D	6.3 x 5.4	1000
220	AVS227M10X16T-F	22.0	0.2	1.5	150	X	6.3 x 7.9	900
220	AVS227M10E16T-F	22.0	0.26	2.0	250	E	8 x 6.2	1000
330	AVS337M10F24T-F	33.0	0.26	1.3	330	F	8 x 10.2	500
470	AVS477M10F24T-F	47.0	0.26	0.9	330	F	8 x 10.2	500
470	AVS477M10G24T-F	47.0	0.26	0.9	400	G	10 x 10.2	500
1000	AVS108M10G24T-F	100.0	0.26	0.4	580	G	10 x 10.2	500
16 Vdc (20 Vdc Surge)								
10	AVS106M16A12T-F*	3.0	0.18	29.9	20	A	3 x 5.4	2000
10	AVS106M16B12T-F	3.0	0.16	26.5	28	B	4 x 5.4	2000
22	AVS226M16B12T-F	3.5	0.26	19.6	28	B	4 x 5.4	2000
22	AVS226M16C12T-F	3.5	0.16	12.1	39	C	5 x 5.4	1000
33	AVS336M16C12T-F	5.3	0.26	13.1	35	C	5 x 5.4	1000
47	AVS476M16C12T-F	7.5	0.26	9.2	39	C	5 x 5.4	1000
47	AVS476M16D16T-F	7.5	0.16	5.6	70	D	6.3 x 5.4	1000
100	AVS107M16D16T-F	16.0	0.26	4.3	70	D	6.3 x 5.4	1000
100	AVS107M16E16T-F	16.0	0.2	3.3	200	E	8 x 6.2	1000
220	AVS227M16X16T-F	35.2	0.16	1.2	150	X	6.3 x 7.9	900
220	AVS227M16E16T-F	35.2	0.2	1.5	200	E	8 x 6.2	1000
220	AVS227M16F24T-F	35.2	0.2	1.5	280	F	8 x 10.2	500
330	AVS337M16F24T-F	52.8	0.2	1.0	320	F	8 x 10.2	500
330	AVS337M16G24T-F	52.8	0.2	1.0	380	G	10 x 10.2	500
470	AVS477M16F24T-F	75.2	0.2	0.7	320	F	8 x 10.2	500
470	AVS477M16G24T-F	75.2	0.2	0.7	420	G	10 x 10.2	500
25 Vdc (31 Vdc Surge)								
4.7	AVS475M25A12T-F*	3.0	0.16	56.5	12	A	3 x 5.4	2000
4.7	AVS475M25B12T-F	3.0	0.14	49.4	22	B	4 x 5.4	2000
10	AVS106M25B12T-F	3.0	0.2	33.2	22	B	4 x 5.4	2000
10	AVS106M25C12T-F	3.0	0.14	23.2	28	C	5 x 5.4	1000
22	AVS226M25C12T-F	5.5	0.2	15.1	35	C	5 x 5.4	1000
22	AVS226M25D16T-F	5.5	0.14	10.6	55	D	6.3 x 5.4	1000
33	AVS336M25C12T-F	8.3	0.2	10.0	42	C	5 x 5.4	1000
33	AVS336M25D16T-F	8.3	0.14	7.0	65	D	6.3 x 5.4	1000
47	AVS476M25D16T-F	11.8	0.2	7.1	70	D	6.3 x 5.4	1000
100	AVS107M25X16T-F	25.0	0.14	2.3	150	X	6.3 x 7.9	900
100	AVS107M25E16T-F	25.0	0.16	2.7	91	E	8 x 6.2	1000
100	AVS107M25F24T-F	25.0	0.16	2.7	180	F	8 x 10.2	500
220	AVS227M25F24T-F	55.0	0.16	1.2	140	F	8 x 10.2	500
220	AVS227M25G24T-F	55.0	0.16	1.2	310	G	10 x 10.2	500
330	AVS337M25F24T-F	82.5	0.16	0.8	150	F	8 x 10.2	500
330	AVS337M25G24T-F	82.5	0.16	0.8	340	G	10 x 10.2	500
470	AVS477M25G24T-F	117.5	0.16	0.6	360	G	10 x 10.2	500

*Denotes discontinued part

SMT Aluminum Electrolytic Capacitors - General Purpose, 85°C

Cap (µF)	CaT-Falog ParT-F Number	Max. DCL (µA)	Dissipation Factor @ 120 Hz	ESR @ 120 Hz/20 °C (Ohms)	Ripple Current 120 Hz/85 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel
35 Vdc (44 Vdc Surge)								
2.2	AVS225M35A12T-F*	3.0	0.14	105.6	8	A	3 x 5.4	2000
3.3	AVS335M35A12T-F*	3.0	0.14	70.4	10	A	3 x 5.4	2000
4.7	AVS475M35B12T-F	3.0	0.12	42.4	22	B	4 x 5.4	2000
10	AVS106M35B12T-F	3.5	0.16	26.5	22	B	4 x 5.4	2000
10	AVS106M35C12T-F	3.5	0.12	19.9	30	C	5 x 5.4	1000
22	AVS226M35C12T-F	7.7	0.16	12.1	36	C	5 x 5.4	1000
22	AVS226M35D16T-F	7.7	0.12	9.1	60	D	6.3 x 5.4	1000
33	AVS336M35D16T-F	11.6	0.16	8.0	60	D	6.3 x 5.4	1000
33	AVS336M35E16T-F	11.6	0.14	7.0	130	E	8 x 6.2	1000
47	AVS476M35D16T-F	16.5	0.16	5.6	70	D	6.3 x 5.4	1000
47	AVS476M35E16T-F	16.5	0.14	4.9	165	E	8 x 6.2	1000
100	AVS107M35X16T-F	35.0	0.12	2.0	130	X	6.3 x 7.9	900
100	AVS107M35F24T-F	35.0	0.14	2.3	140	F	8 x 10.2	500
100	AVS107M35G24T-F	35.0	0.14	2.3	210	G	10 x 10.2	500
220	AVS227M35F24T-F	77.0	0.14	1.1	200	F	8 x 10.2	500
220	AVS227M35G24T-F	77.0	0.14	1.1	310	G	10 x 10.2	500
330	AVS337M35G24T-F	115.5	0.14	0.7	320	G	10 x 10.2	500
50 Vdc (63 Vdc Surge)								
0.1	AVS104M50A12T-F*	3.0	0.14	2322.0	1	A	3 x 5.4	2000
0.1	AVS104M50B12T-F*	3.0	0.12	1990.0	1	B	4 x 5.4	2000
0.22	AVS224M50A12T-F*	3.0	0.14	1055.0	2	A	3 x 5.4	2000
0.22	AVS224M50B12T-F	3.0	0.12	905.0	2	B	4 x 5.4	2000
0.33	AVS334M50A12T-F*	3.0	0.14	704.0	3	A	3 x 5.4	2000
0.33	AVS334M50B12T-F	3.0	0.12	603.0	3	B	4 x 5.4	2000
0.47	AVS474M50A12T-F*	3.0	0.14	494.0	5	A	3 x 5.4	2000
0.47	AVS474M50B12T-F*	3.0	0.12	424.0	5	B	4 x 5.4	2000
1	AVS105M50A12T-F*	3.0	0.14	232.0	8	A	3 x 5.4	2000
1	AVS105M50B12T-F	3.0	0.12	199.0	10	B	4 x 5.4	2000
2.2	AVS225M50A12T-F*	3.0	0.14	106.0	10	A	3 x 5.4	2000
2.2	AVS225M50B12T-F	3.0	0.12	90.5	16	B	4 x 5.4	2000
3.3	AVS335M50B12T-F	3.0	0.12	60.3	16	B	4 x 5.4	2000
4.7	AVS475M50B12T-F	3.0	0.14	49.4	18	B	4 x 5.4	2000
4.7	AVS475M50C12T-F	3.0	0.12	42.4	23	C	5 x 5.4	1000
10	AVS106M50C12T-F	5.0	0.14	23.2	27	C	5 x 5.4	1000
10	AVS106M50D16T-F	5.0	0.12	19.9	35	D	6.3 x 5.4	1000
22	AVS226M50D16T-F	11.0	0.14	10.6	60	D	6.3 x 5.4	1000
22	AVS226M50E16T-F	11.0	0.12	9.1	120	E	8 x 6.2	1000
33	AVS336M50X16T-F	16.5	0.12	6.0	85	X	6.3 x 7.9	900
33	AVS336M50E16T-F	16.5	0.12	6.0	130	E	8 x 6.2	1000
33	AVS336M50F24T-F	16.5	0.12	6.0	140	F	8 x 10.2	500
47	AVS476M50X16T-F	23.5	0.12	4.2	90	X	6.3 x 7.9	900
47	AVS476M50F24T-F	23.5	0.12	4.2	150	F	8 x 10.2	500
47	AVS476M50G24T-F	23.5	0.12	4.2	160	G	10 x 10.2	500
100	AVS107M50F24T-F	50.0	0.12	2.0	200	F	8 x 10.2	500
100	AVS107M50G24T-F	50.0	0.12	2.0	250	G	10 x 10.2	500
220	AVS227M50G24T-F	110.0	0.12	0.9	300	G	10 x 10.2	500
63 Vdc (75 Vdc Surge)								
10	AVS106M63D16T-F	6.3	0.18	29.9	35	D*	6.3 x 5.7	1000
22	AVS226M63E16T-F	13.9	0.18	13.6	40	E	8 x 6.2	1000
22	AVS226M63F24T-F	13.9	0.18	13.6	40	F	8 x 10.2	500
33	AVS336M63F24T-F	20.8	0.18	9.1	45	F	8 x 10.2	500
47	AVS476M63F24T-F	29.6	0.18	6.4	45	F	8 x 10.2	500
100	AVS107M63G24T-F	63.0	0.18	3.0	60	G	10 x 10.2	500
100 Vdc (125 Vdc Surge)								
3.3	AVS335M2AE16T-F	3.3	0.18	90.4	50	E	8 x 6.2	1000
4.7	AVS475M2AE16T-F*	4.7	0.18	63.5	50	E	8 x 6.2	1000
4.7	AVS475M2AF24T-F*	4.7	0.18	63.5	80	F	8 x 10.2	500
10	AVS106M2AE16T-F	10.0	0.18	29.8	50	E	8 x 6.2	1000
10	AVS106M2AF24T-F	10.0	0.18	29.8	85	F	8 x 10.2	500
22	AVS226M2AF24T-F	22.0	0.18	13.6	70	F	8 x 10.2	500
22	AVS226M2AG24T-F	22.0	0.18	13.6	90	G	10 x 10.2	500
33	AVS336M2AG24T-F	33.0	0.18	8.0	90	G	10 x 10.2	500

*Denotes discontinued part

*Overall case height (L dimension) is 5.7 mm ±0.3 mm

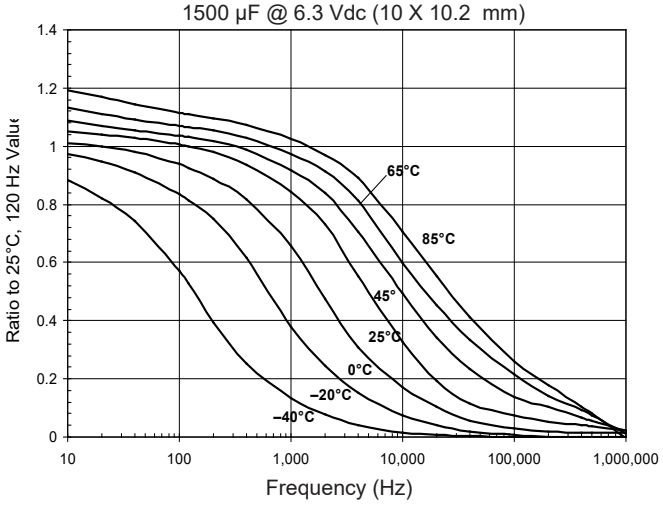
Part Numbering System

AVS	106	M	16	B	12T	–F
Type	**Capacitance** 104 = 0.1 µF 105 = 1.0 µF 106 = 10 µF 107 = 100 µF 108 = 1000 µF	**Capacitance Tolerance** M = ±20%	**Voltage** 04 = 4 Vdc 06 = 6.3 Vdc 10 = 10 Vdc 16 = 16 Vdc 25 = 25 Vdc 35 = 35 Vdc 50 = 50 Vdc 63 = 63 Vdc 2A = 100 Vdc	**Case Code**	**Packaging Information** 12 = Carrier Tape Width (mm) T = Tape & Reel B = Bulk	**RoHS Compliant**

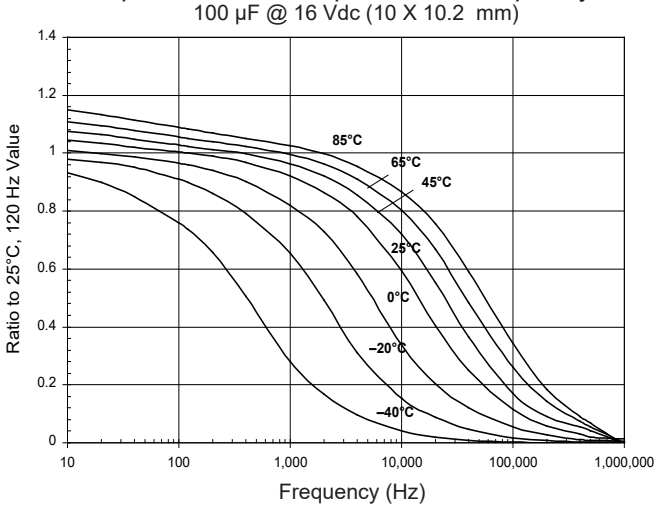
Type AVS
SMT Aluminum Electrolytic Capacitors - General Purpose, 85°C

Typical Performance Curves

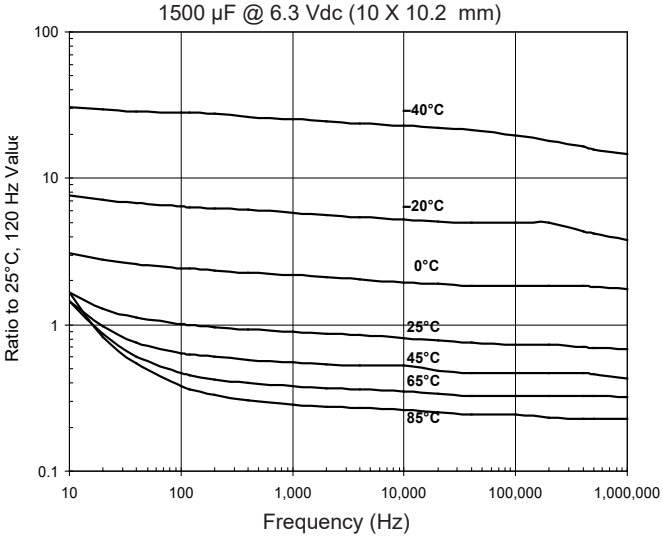
Capacitance vs. Temperature & Frequency
1500 µF @ 6.3 Vdc (10 X 10.2 mm)



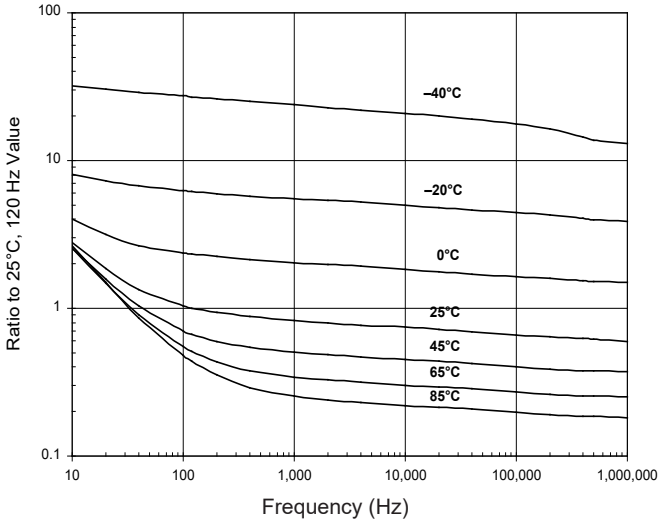
Capacitance vs. Temperature & Frequency
100 µF @ 16 Vdc (10 X 10.2 mm)



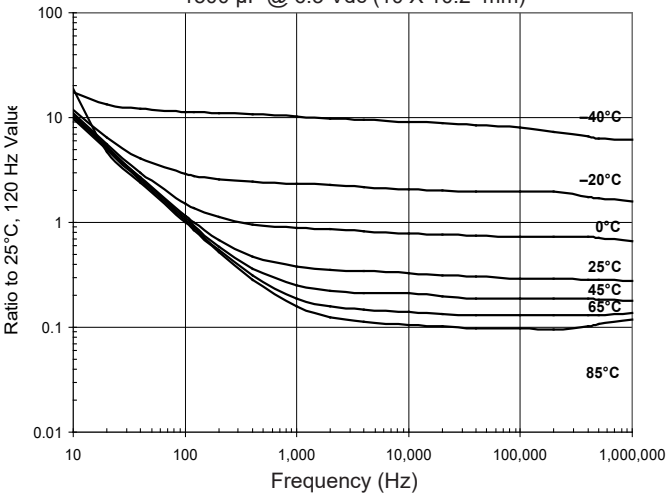
ESR vs. Temperature and Frequency
1500 µF @ 6.3 Vdc (10 X 10.2 mm)



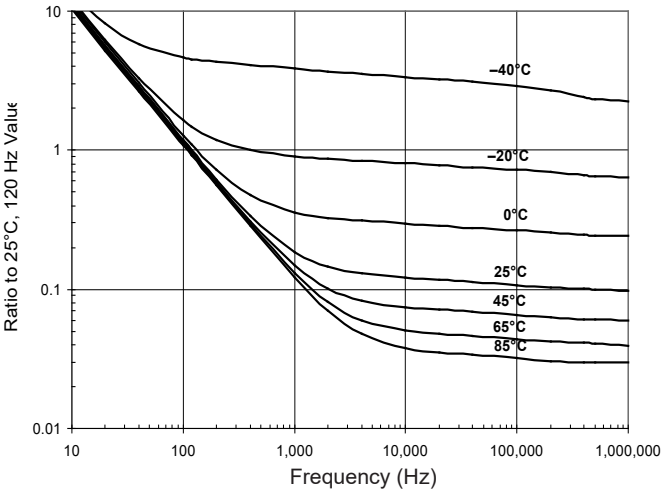
ESR vs. Temperature and Frequency
100 µF @ 16 Vdc (10 X 10.2 mm)



Impedance vs. Temperature and Frequency
1500 µF @ 6.3 Vdc (10 X 10.2 mm)



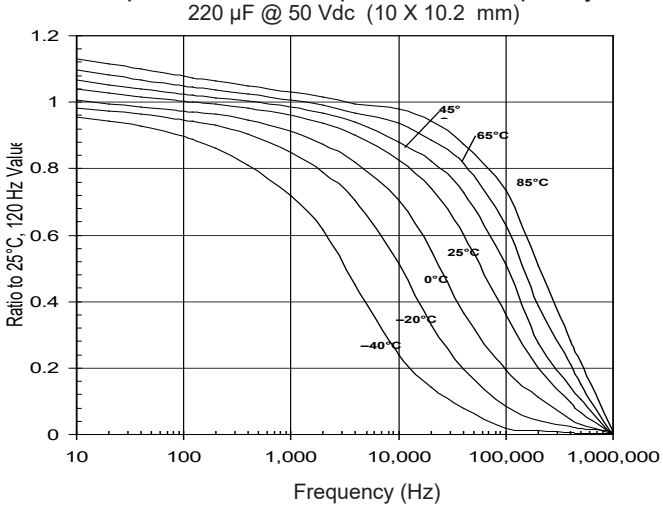
Impedance vs. Temperature and Frequency
100 µF @ 16 Vdc (10 X 10.2 mm)



SMT Aluminum Electrolytic Capacitors - General Purpose, 85°C

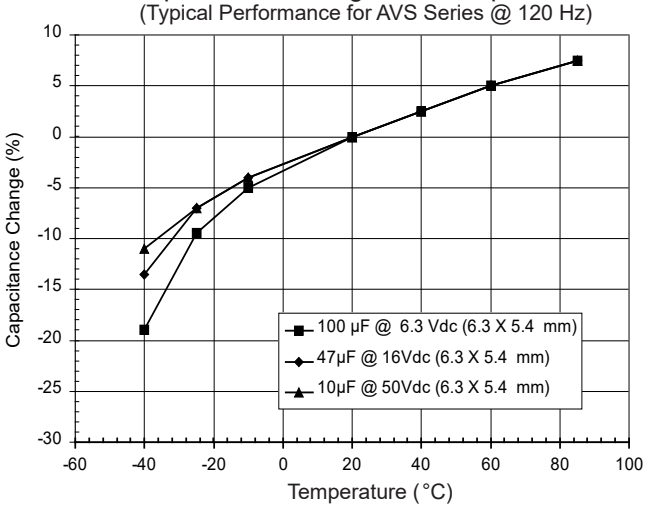
Capacitance vs. Temperature & Frequency

220 µF @ 50 Vdc (10 X 10.2 mm)



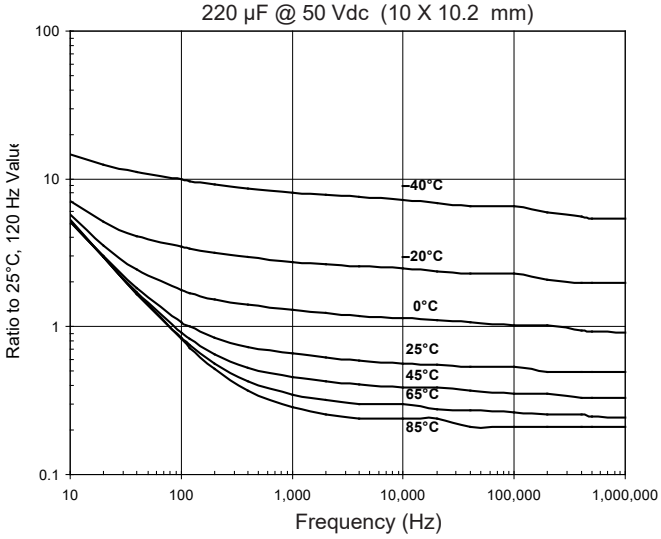
Capacitance Change with Temperature

(Typical Performance for AVS Series @ 120 Hz)



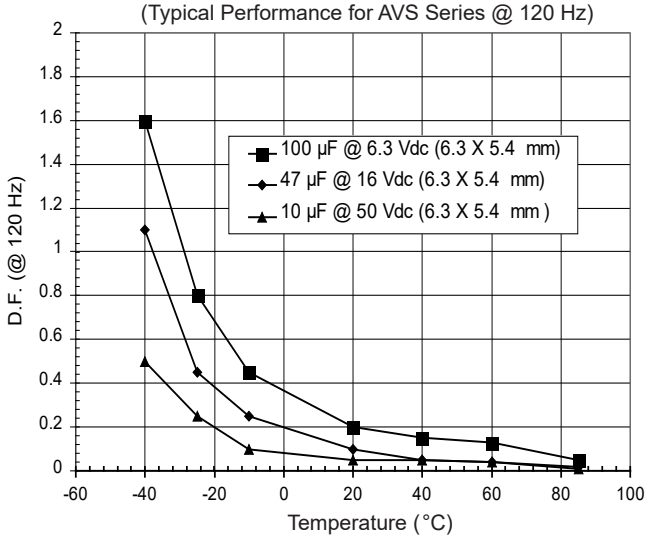
ESR vs. Temperature and Frequency

220 µF @ 50 Vdc (10 X 10.2 mm)



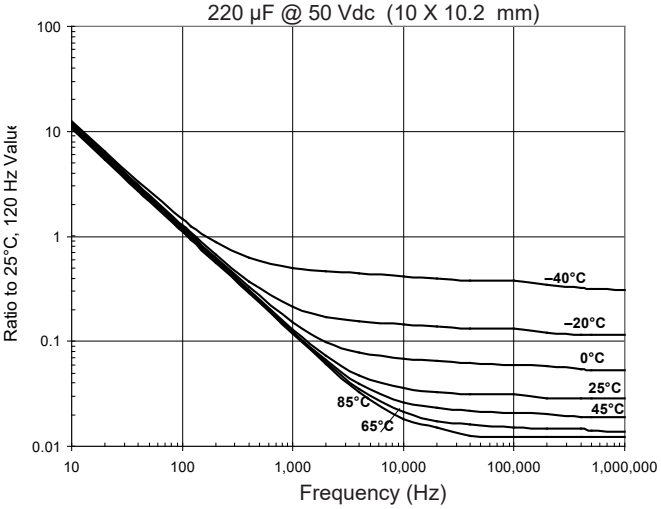
Dissipation Factor vs. Temperature

(Typical Performance for AVS Series @ 120 Hz)



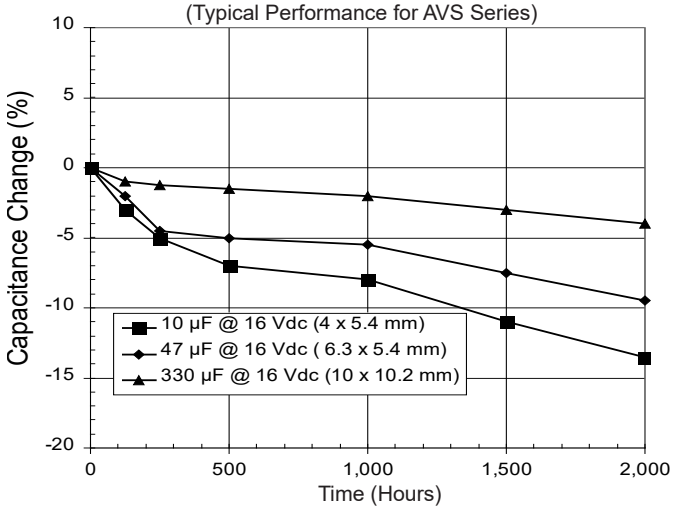
Impedance vs. Temperature and Frequency

220 µF @ 50 Vdc (10 X 10.2 mm)



Capacitance Change vs. Time

(Typical Performance for AVS Series)



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Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

The excellent value of Type 380L/LX capacitors finds application in switching power supply input and output circuits and even motor drives where the high surface area of multiple units in parallel approaches the ripple capability of our Type 520C computer-grade capacitor. Type 380LX delivers more capacitance per can size while Type 380L available in the largest case sizes gives lower ESR for the same capacitance. Types 382L and 382LX give the choice of 4 or 5 leads for stable, reverse proof mounting.

Highlights

- Latest available ratings, worldwide
- Top performance in power supplies and motor drives
- Big selection of 49 case sizes
- 2, 4 and 5 leads available

Specifications

Temperature Range	–40 °C to +85 °C ≤ 250 Vdc –25 °C to +85 °C ≥ 315 Vdc
Rated Voltage Range	16 Vdc to 500 Vdc
Capacitance Range	33 µF to 270,000 µF
Capacitance Tolerance	± 20%
Leakage Current	$\leq 3\sqrt{CV}$ µA at 5 min
Ripple Current Multipliers	Ambient Temperature

45 °C	60 °C	70 °C	85 °C
1.5	1.4	1.3	1.0

Frequency

	50 Hz	60 Hz	120 Hz	500 kHz	1 kHz	10 kHz & Up
16 - 100 WV	0.93	0.95	1.00	1.05	1.08	1.15
160 - 450 WV	0.75	0.80	1.00	1.20	1.25	1.40

Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 8 (16–50 Vdc) ≤ 4 (63–100 Vdc) ≤ 3 (150–500 Vdc)
Endurance Life Test	3,000 h @ full load at +85 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	1,000 h @ 85 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h in each plane
RoHS Compliant	

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

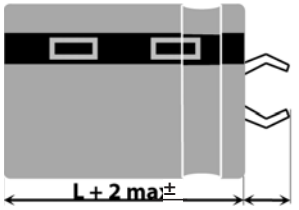
2, 4 and 5 pin styles available

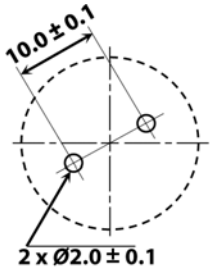
Part Numbering System

382LX	272	M	200	N05	2	V
Type	Cap	Tolerance	Voltage	Case Code	Insulation	# of pins
380L / LX (2 pins)	**272** = 2700 µF	**M** = ±20%	**200** = 200 Vdc		**2** = PVC	**Blank** = 2 pins / 4 pins snap-in 6.3mm L
382L / LX (4 or 5 pins)	**333** = 33000 µF					**A** = 2 pins snap-in 4.0mm L
						VS = 5 pins snap-in 6.3mm L
						V = 5 pins standoff

Outline Drawings Dimensions shown are in mm

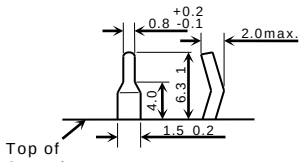
Two Pins
380L/LX (22 through 40 mm diameter)





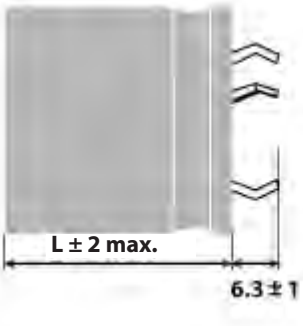
PC Board Mounting Holes

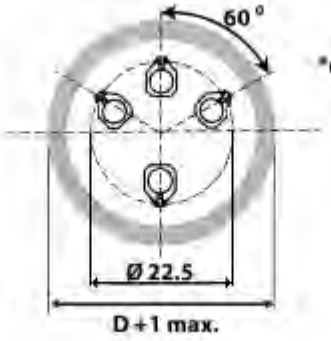
Available in 2, 4 and 5 pins

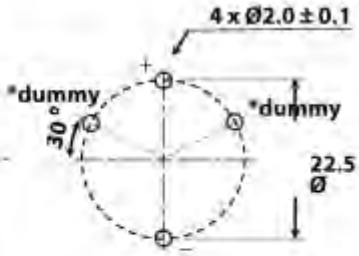


6.3 pin length

Four Pins
382L/LX (35, 40 and 45mm diameter)

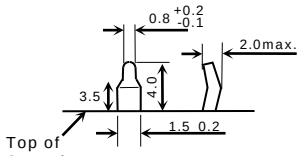






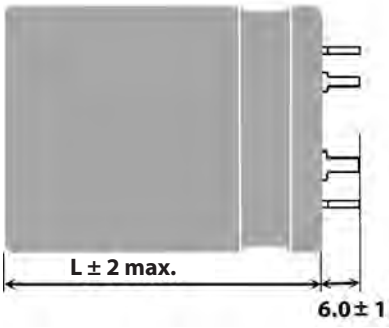
PC Board Mounting Holes

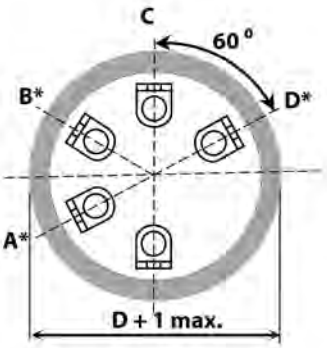
Available in 2 and 4 pins

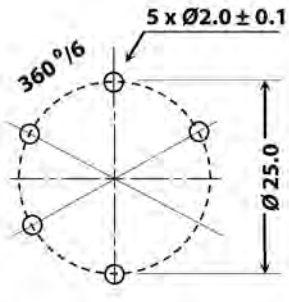


4.0 pin length
option (add "A" to end of part#)

Five Pins
382L/LX (40 and 50mm diameter)

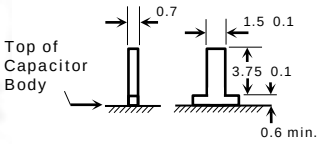






PC Board Mounting Holes

Available in 5 pins



5 pin Standoff pin style (add "V" to end of part#)

	Connection	
Terminal	**40 mm Dia.**	**50 mm Dia.**
A	**dummy**	**negative (–)**
B	**dummy**	**dummy**
C	**positive (+)**	**positive (+)**
D	**dummy**	**positive (+)**
–	**negative (–)**	**negative (–)**

Notes:
* Use dummy terminals for mechanical support only. Make no electrical connection because they resistively connect through the electrolyte to the negative terminal.
** Safety Vent may be on the bottom or on the side of the can.

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

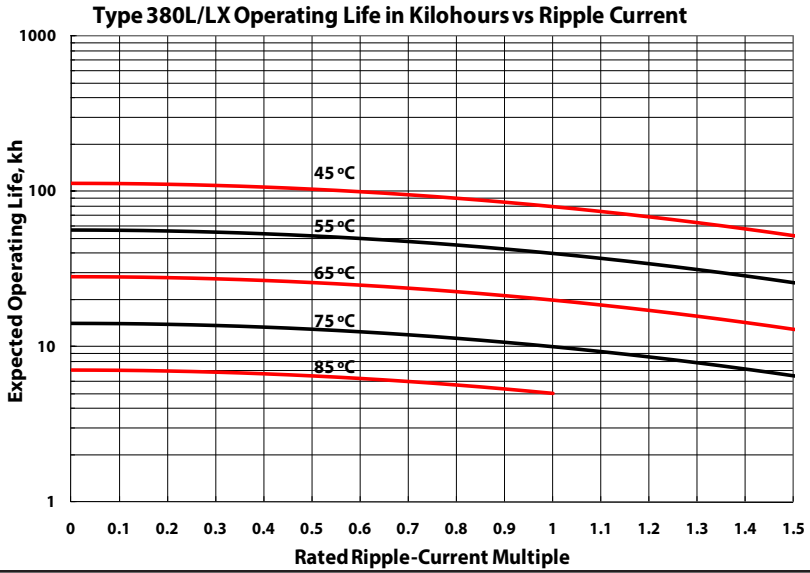
2, 4 and 5 pin styles available

Insulated Case Dimensions

Case Code	DIAMETER "D"		LENGTH "L"		Typical Weight
	mm	inches	mm	inches	(grams)
H20	22	0.87	20	0.79	14
H01	22	0.87	25	0.98	16
H02	22	0.87	30	1.18	19
H03	22	0.87	35	1.38	22
H04	22	0.87	40	1.57	24
H45	22	0.87	45	1.77	28
H05	22	0.87	50	1.97	31
J20	25	0.98	20	0.79	16
J01	25	0.98	25	0.98	20
J02	25	0.98	30	1.18	24
J03	25	0.98	35	1.38	27
J04	25	0.98	40	1.57	31
J45	25	0.98	45	1.77	35
J05	25	0.98	50	1.97	38
K20	30	1.18	20	0.79	25
K01	30	1.18	25	0.98	30
K02	30	1.18	30	1.18	35
K03	30	1.18	35	1.38	40
K04	30	1.18	40	1.57	44
K45	30	1.18	45	1.77	48
K05	30	1.18	50	1.97	53
A20	35	1.38	20	0.79	35
A01	35	1.38	25	0.98	42
A02	35	1.38	30	1.18	48
A03	35	1.38	35	1.38	54

Case Code	DIAMETER "D"		LENGTH "L"		Typical Weight
	mm	inches	mm	inches	(grams)
A04	35	1.38	40	1.57	62
A45	35	1.38	45	1.77	67
A05	35	1.38	50	1.97	74
A55	35	1.38	55	2.17	80
A06	35	1.38	63	2.48	88
A07	35	1.38	70	2.76	98
A08	35	1.38	80	3.15	112
A10	35	1.38	105	4.13	144
N04	40	1.57	40	1.57	82
N05	40	1.57	50	1.97	105
N06	40	1.57	63	2.48	130
N08	40	1.57	80	3.15	185
N10	40	1.57	105	4.13	265
E05	45	1.77	50	1.97	122
E06	45	1.77	63	2.48	150
E75	45	1.77	75	2.65	200
E08	45	1.77	80	3.15	213
E09	45	1.77	92	3.62	238
E10	45	1.77	105	4.13	299
B05	50	1.97	50	1.97	136
B06	50	1.97	63	2.48	168
B08	50	1.97	80	3.15	239
B09	50	1.97	92	3.62	241
B10	50	1.97	105	4.13	325

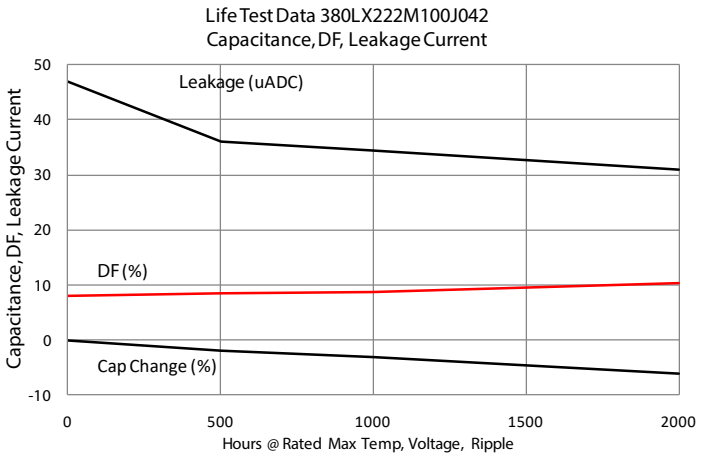
Typical Performance Curves

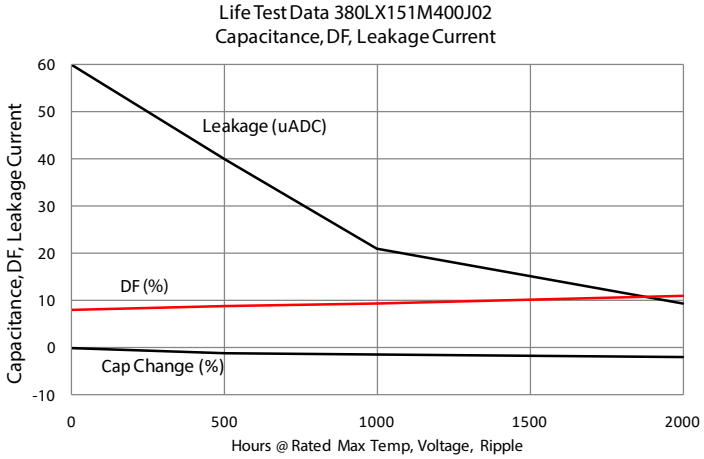


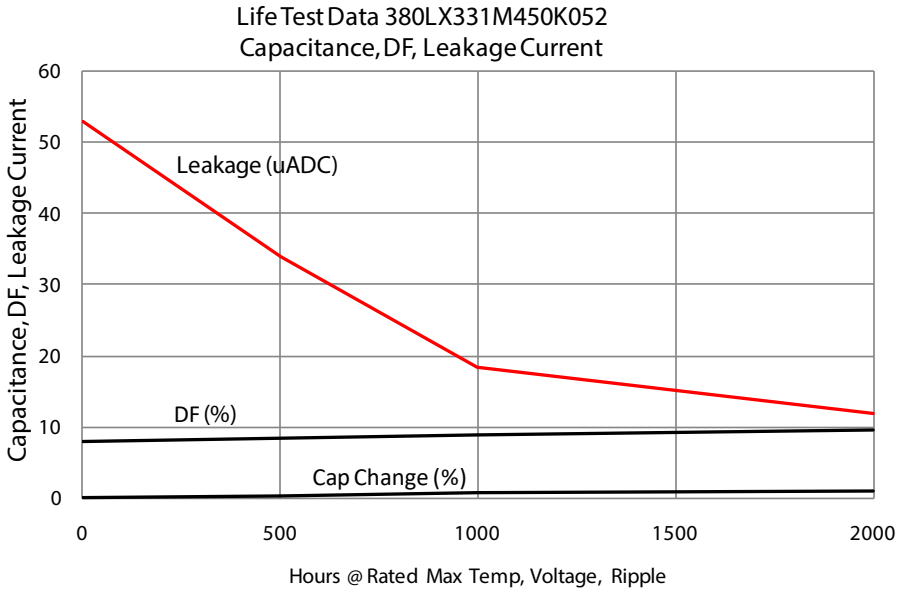
Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

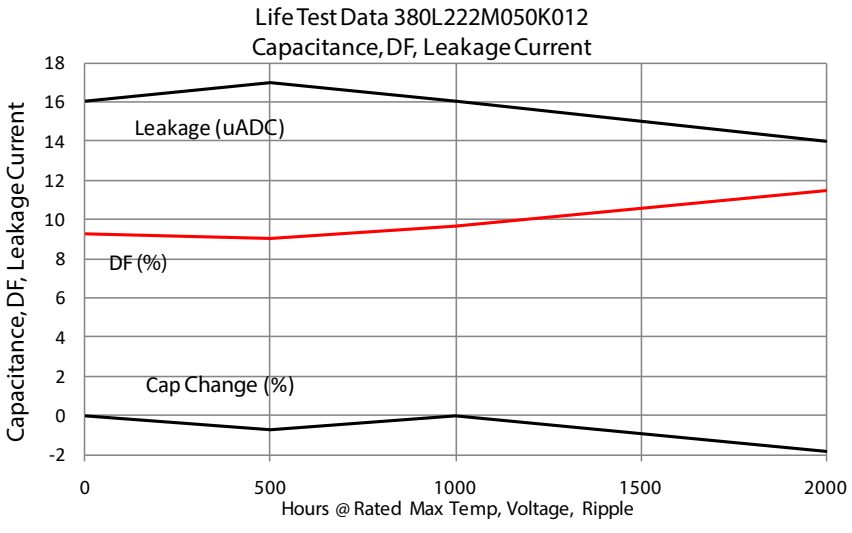
2, 4 and 5 pin styles available

Typical Performance Curves









Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
16 Vdc (20 Vdc Surge)						
4700	380LX472M016H012	0.160	0.135	1.77	2.00	22 x 25
6800	380LX682M016H012	0.075	0.063	2.60	2.99	22 x 25
6800	380LX682M016J202	0.110	0.092	1.80	2.10	25 x 20
8200	380LX822M016H012	0.090	0.078	3.10	3.60	22 x 25
10000	380LX103M016H012	0.075	0.062	2.90	3.30	22 x 25
10000	380LX103M016J012	0.143	0.118	3.80	4.30	25 x 25
12000	380LX123M016H022	0.062	0.059	3.13	3.60	22 x 30
12000	380LX123M016J012	0.062	0.052	4.50	5.20	25 x 25
15000	380LX153M016H032	0.055	0.047	3.69	4.24	22 x 35
18000	380LX183M016H032	0.046	0.039	3.98	4.58	22 x 35
22000	380LX223M016H042	0.038	0.032	4.52	5.20	22 x 40
27000	380LX273M016J452	0.031	0.025	6.30	7.30	25 x 45
27000	380LX273M016K022	0.028	0.023	4.70	5.41	30 x 30
33000	380LX333M016J052	0.025	0.021	6.80	7.80	25 x 50
33000	380LX333M016K032	0.025	0.021	6.84	7.87	30 x 35
33000	380LX333M016K042	0.025	0.021	6.80	7.90	30 x 40
33000	380LX333M016A022	0.025	0.021	6.80	7.90	35 x 30
39000	380LX393M016K042	0.024	0.020	6.94	7.98	30 x 40
39000	380LX393M016A032	0.022	0.018	6.95	8.00	35 x 35
47000	380LX473M016K452	0.023	0.019	7.47	8.59	30 x 45
47000	380LX473M016K052	0.020	0.017	7.50	8.60	30 x 50
47000	380LX473M016A042	0.022	0.020	7.50	8.60	35 x 40
56000	380LX563M016A452	0.020	0.019	8.73	10.04	35 x 45
56000	382LX563M016N042	0.022	0.021	9.00	10.40	40 x 40
68000	380LX683M016A452	0.021	0.018	9.05	10.41	35 x 45
68000	380LX683M016A052	0.018	0.017	9.00	10.40	35 x 50
82000	380LX823M016A052	0.020	0.018	9.49	10.91	35 x 50
82000	382LX823M016N052	0.016	0.015	10.30	11.80	40 x 50
100000	380LX104M016A082	0.015	0.014	11.00	12.70	35 x 80
100000	382LX104M016N062	0.018	0.017	11.40	13.00	40 x 63
120000	380LX124M016A082	0.015	0.014	11.50	12.50	35 x 80
120000	382LX124M016N082	0.017	0.016	12.40	14.30	40 x 80
120000	382LX124M016B052V	0.014	0.013	13.17	15.15	50 x 50
150000	382LX154M016B062V	0.012	0.011	14.40	16.56	50 x 63
180000	382LX184M016N102	0.013	0.012	14.85	17.08	40 x 105
180000	382LX184M016B082V	0.011	0.010	15.69	18.04	50 x 80
220000	382LX224M016B092V	0.010	0.009	16.73	19.24	50 x 92
270000	382LX274M016B102V	0.009	0.008	17.79	20.46	50 x 105
25 Vdc (32 Vdc Surge)						
3300	380LX332M025H012	0.161	0.130	1.70	1.90	22 x 25
4700	380LX472M025H012	0.110	0.090	2.40	2.75	22 x 25
5600	380LX562M025H012	0.110	0.090	2.40	2.75	22 x 25

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
25 Vdc (32 Vdc Surge)						
6800	380LX682M025H022	0.078	0.063	2.63	3.01	22 x 30
6800	380LX682M025J012	0.078	0.063	3.50	4.00	25 x 25
8200	380LX822M025H022	0.081	0.065	2.86	3.29	22 x 30
8200	380LX822M025J012	0.065	0.049	3.60	4.10	25 x 25
10000	380LX103M025H032	0.058	0.046	3.80	4.30	22 x 35
10000	380LX103M025J022	0.058	0.046	3.80	4.30	25 x 30
12000	380LX123M025J022	0.055	0.044	4.10	4.72	25 x 30
15000	380LX153M025J032	0.044	0.035	4.63	5.32	25 x 35
15000	380LX153M025K022	0.040	0.030	4.60	5.30	30 x 30
18000	380LX183M025J042	0.037	0.029	5.47	6.29	25 x 40
18000	380LX183M025K032	0.035	0.028	5.50	6.30	30 x 35
22000	380LX223M025J452	0.030	0.024	6.10	7.00	25 x 45
22000	380LX223M025J052	0.030	0.023	6.10	7.00	25 x 50
22000	380LX223M025K042	0.030	0.023	6.10	7.00	30 x 40
27000	380LX273M025K042	0.025	0.020	6.21	7.14	30 x 40
27000	380LX273M025K452	0.023	0.020	6.20	7.10	30 x 45
27000	380LX273M025A032	0.023	0.020	6.20	7.10	35 x 35
33000	380LX333M025K452	0.020	0.017	6.84	7.87	30 x 45
33000	380LX333M025K052	0.030	0.016	6.84	7.90	30 x 50
33000	382L333M025N042	0.026	0.016	7.30	8.00	40 x 40
39000	380LX393M025A452	0.020	0.017	7.40	8.50	35 x 45
39000	382LX393M025N042	0.020	0.018	8.00	9.20	40 x 40
47000	380LX473M025A052	0.019	0.015	8.00	9.20	35 x 50
56000	382LX563M025N052	0.016	0.015	9.00	10.30	40 x 50
56000	382L563M025N062	0.015	0.009	9.50	10.30	40 x 63
68000	382LX683M025N062	0.017	0.015	10.25	11.80	40 x 63
82000	382LX823M025B052V	0.016	0.015	12.29	14.13	50 x 50
100000	380LX104M025A102	0.010	0.008	9.50	12.00	35 x 105
100000	382LX104M025N082	0.012	0.011	12.00	13.40	40 x 80
100000	382LX104M025B062V	0.014	0.013	13.45	15.47	50 x 63
120000	382LX124M025B082V	0.012	0.011	15.29	17.58	50 x 80
150000	382LX154M025N102	0.011	0.010	14.07	16.18	40 x 105
150000	382LX154M025B092V	0.011	0.010	16.01	18.41	50 x 92
180000	382LX184M025B102V	0.010	0.009	16.89	19.42	50 x 105
35 Vdc (44 Vdc Surge)						
2200	380LX222M035H012	0.166	0.125	1.50	1.75	22 x 25
3300	380LX332M035H012	0.110	0.085	2.30	2.60	22 x 25
3900	380LX392M035H012	0.095	0.070	2.70	3.10	22 x 25
4700	380LX472M035H022	0.080	0.060	3.30	3.70	22 x 30
4700	380LX472M035J012	0.080	0.060	3.30	3.70	25 x 25
5600	380LX562M035H022	0.083	0.063	3.40	3.90	22 x 30
5600	380LX562M035J012	0.083	0.063	3.40	3.90	25 x 25

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
35 Vdc (44 Vdc Surge)						
6800	380LX682M035J022	0.073	0.055	2.60	2.99	25 x 30
8200	380LX822M035J022	0.071	0.053	3.26	3.75	25 x 30
8200	380LX822M035J032	0.057	0.043	4.00	4.60	25 x 35
10000	380LX103M035H452	0.050	0.037	4.40	5.10	22 x 45
10000	380LX103M035J022	0.058	0.044	4.42	5.08	25 x 30
10000	380LX103M035A012	0.050	0.037	4.40	5.10	35 x 25
12000	380LX123M035J042	0.048	0.036	5.05	5.81	25 x 40
15000	380LX153M035J052	0.036	0.027	5.60	6.40	25 x 50
15000	380LX153M035K042	0.036	0.027	5.60	6.40	30 x 40
15000	380LX153M035A022	0.036	0.027	5.60	6.40	35 x 30
18000	380LX183M035K452	0.480	0.037	5.70	6.50	30 x 45
18000	380LX183M035A032	0.480	0.037	5.70	6.50	35 x 35
22000	380LX223M035K452	0.026	0.020	6.10	7.02	30 x 45
22000	380LX223M035A042	0.026	0.020	6.10	7.00	35 x 40
27000	380LX273M035A452	0.021	0.017	6.80	7.90	35 x 45
27000	380LX273M035A052	0.021	0.016	6.84	7.87	35 x 50
33000	380LX333M035A052	0.018	0.014	7.15	8.22	35 x 50
39000	380LX393M035A052	0.017	0.014	7.91	9.10	35 x 50
39000	382LX393M035N052	0.017	0.014	8.00	9.20	40 x 50
47000	380LX473M035A552	0.014	0.014	8.56	9.84	35 x 55
47000	382LX473M035N062	0.016	0.013	9.60	11.00	40 x 63
56000	382LX563M035N082	0.015	0.012	10.30	11.90	40 x 80
56000	382LX563M035B052V	0.015	0.012	10.94	12.58	50 x 50
68000	380LX683M035A102	0.010	0.008	9.50	11.00	35 x 105
68000	382LX683M035B062V	0.013	0.011	11.93	13.72	50 x 63
82000	382LX823M035N102	0.012	0.009	12.02	13.82	40 x 105
82000	382LX823M035B082V	0.012	0.010	13.06	15.02	50 x 80
100000	382LX104M035B092V	0.011	0.009	13.97	16.07	50 x 92
120000	382LX124M035B102V	0.010	0.008	14.86	17.09	50 x 105
50 Vdc (63 Vdc Surge)						
1500	380LX152M050H012	0.220	0.170	1.25	1.45	22 x 25
2200	380LX222M050H012	0.150	0.115	1.80	2.10	22 x 25
2700	380LX272M050H012	0.154	0.115	2.20	2.60	22 x 25
3300	380LX332M050H012	0.151	0.113	2.41	2.77	22 x 25
3300	380LX332M050H022	0.100	0.075	2.70	3.10	22 x 30
3300	380LX332M050J012	0.100	0.075	2.70	3.10	25 x 25
3900	380LX392M050J012	0.085	0.065	2.80	3.20	25 x 25
4700	380LX472M050H032	0.070	0.055	3.00	3.50	22 x 35
4700	380LX472M050J012	0.080	0.060	2.10	2.40	25 x 25
4700	380LX472M050J022	0.070	0.055	3.00	3.50	25 x 30
4700	380LX472M050K012	0.070	0.055	3.00	3.50	30 x 25

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
50 Vdc (63 Vdc Surge)						
5600	380LX562M050J032	0.060	0.045	3.40	3.90	25 x 35
5600	380LX562M050K022	0.060	0.045	3.40	3.90	30 x 30
6800	380LX682M050H452	0.073	0.055	3.85	4.43	22 x 45
8200	380LX822M050J452	0.067	0.050	4.40	5.10	25 x 45
8200	380LX822M050K032	0.067	0.050	4.40	5.10	30 x 35
10000	380LX103M050J052	0.040	0.030	5.00	5.70	25 x 50
10000	380LX103M050K042	0.040	0.030	*5.00*	*5.70*	30 x 40
10000	380LX103M050A022	0.040	0.030	5.00	5.70	35 x 30
12000	380LX123M050K452	0.033	0.025	5.60	6.40	30 x 45
12000	380LX123M050A032	0.041	0.031	5.58	6.42	35 x 35
15000	380LX153M050A452	0.027	0.020	6.40	7.40	35 x 45
18000	380LX183M050A452	0.028	0.021	6.94	7.98	35 x 45
18000	382LX183M050N042	0.023	0.017	6.94	7.98	40 x 40
22000	380L223M050A052	0.023	0.018	7.57	8.71	35 x 50
22000	380LX223M050A052	0.025	0.020	7.60	8.71	35 x 50
27000	380L273M050A052	0.018	0.015	8.96	10.03	35 x 50
27000	382LX273M050N052	0.018	0.015	8.10	9.30	40 x 50
27000	382L273M050N062	0.018	0.009	9.00	9.60	40 x 63
33000	380LX333M050A082	0.015	0.012	9.20	10.60	35 x 80
33000	382LX333M050N062	0.018	0.014	9.10	10.50	40 x 63
33000	382LX333M050B052V	0.018	0.014	10.48	12.05	50 x 50
47000	380LX473M050A102	0.014	0.011	10.27	11.81	35 x 105
47000	382LX473M050B062V	0.013	0.010	11.54	13.27	50 x 63
56000	382LX563M050N102	0.012	0.009	11.47	13.19	40 x 105
56000	382LX563M050B082V	0.012	0.009	12.46	14.33	50 x 80
68000	382LX683M050B092V	0.011	0.009	13.17	15.15	50 x 92
82000	382LX823M050B102V	0.011	0.008	13.87	15.95	50 x 105
63 Vdc (79 Vdc Surge)						
1000	380LX102M063H012	0.332	0.250	1.20	1.40	22 x 25
1500	380LX152M063H012	0.221	0.167	1.70	2.00	22 x 25
2200	380LX222M063J012	0.151	0.114	2.50	2.90	25 x 25
2700	380LX272M063H042	0.126	0.094	2.72	3.13	22 x 40
3300	380LX332M063J022	0.106	0.080	3.13	3.60	25 x 30
3900	380LX392M063J022	0.106	0.080	3.13	3.60	25 x 30
4700	380LX472M063J032	0.080	0.060	3.99	4.56	25 x 35
4700	380LX472M063K022	0.080	0.060	4.90	5.60	30 x 30
4700	380LX472M063A012	0.080	0.060	4.90	5.60	35 x 25
5600	380LX562M063K022	0.070	0.050	4.11	4.72	30 x 30
6800	380LX682M063J052	0.060	0.045	5.80	6.70	25 x 50
6800	380LX682M063K042	0.060	0.045	5.80	6.70	30 x 40
8200	380LX822M063A032	0.050	0.040	6.00	6.90	35 x 35
10000	380LX103M063A042	0.033	0.025	6.50	7.50	35 x 40

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
63 Vdc (79 Vdc Surge)						
10000	382L103M063N042	0.028	0.017	6.60	7.20	40 x 40
12000	380LX123M063K052	0.035	0.026	7.15	8.22	30 x 50
12000	382LX123M063N042	0.035	0.028	7.15	8.22	40 x 40
15000	380LX153M063A052	0.028	0.021	7.91	9.10	35 x 50
18000	380LX183M063A082	0.023	0.012	9.40	10.80	35 x 80
18000	382LX183M063N062	0.028	0.022	9.25	10.60	40 x 63
27000	380LX273M063A102	0.015	0.012	10.38	11.94	35 x 105
27000	382LX273M063N082	0.018	0.015	10.00	11.50	40 x 80
27000	382LX273M063B052V	0.018	0.015	10.86	12.49	50 x 50
33000	382LX333M063N102	0.015	0.012	11.76	13.52	40 x 105
33000	382LX333M063B062V	0.017	0.013	11.57	13.42	50 x 63
47000	382LX473M063B082V	0.013	0.010	12.78	14.70	50 x 80
51000	382LX513M063B092V	0.012	0.010	13.34	15.34	50 x 92
56000	382LX563M063B102V	0.012	0.009	13.93	16.02	50 x 105
80 Vdc (100 Vdc Surge)						
680	380LX681M080H012	0.390	0.295	1.00	1.20	22 x 25
1000	380LX102M080H012	0.265	0.200	1.50	1.75	22 x 25
1200	380LX122M080H022	0.235	0.176	1.80	2.10	22 x 30
1500	380LX152M080H022	0.177	0.134	2.30	2.60	22 x 30
1500	380LX152M080K202	0.200	0.150	1.40	1.60	30 x 20
1800	380LX182M080J032	0.147	0.109	2.50	2.90	25 x 35
2200	380LX222M080H452	0.121	0.092	2.70	3.10	22 x 45
2200	380LX222M080K012	0.121	0.092	2.70	3.10	30 x 25
2700	380LX272M080J042	0.123	0.092	2.78	3.20	25 x 40
3300	380LX332M080J042	0.100	0.075	3.21	3.69	25 x 40
3300	380LX332M080K022	0.085	0.065	3.20	3.70	30 x 30
3900	380LX392M080J452	0.080	0.060	3.60	4.10	25 x 45
3900	380LX392M080K042	0.085	0.064	3.59	4.13	30 x 40
4700	380LX472M080J052	0.065	0.050	4.10	4.70	25 x 50
4700	380LX472M080K042	0.071	0.053	4.09	4.70	30 x 40
5600	380LX562M080K452	0.059	0.044	4.55	5.23	30 x 45
5600	380LX562M080A032	0.055	0.040	4.60	5.20	35 x 35
6800	380LX682M080K052	0.049	0.037	5.16	5.93	30 x 50
6800	380LX682M080A042	0.045	0.035	5.20	5.90	35 x 40
8200	380LX822M080A052	0.040	0.030	5.80	6.70	35 x 50
8200	382LX822M080N042	0.040	0.030	5.83	6.70	40 x 40
10000	380LX103M080A052	0.033	0.025	6.40	7.34	35 x 50
12000	380L123M080A072	0.020	0.012	8.10	9.00	35 x 70
12000	382L123M080N052	0.025	0.016	7.50	8.00	40 x 50
15000	380L153M080A082	0.017	0.010	8.80	9.60	35 x 80
15000	382L153M080N062	0.020	0.013	8.50	9.20	40 x 63
18000	382L183M080N082	0.014	0.009	10.30	10.80	40 x 80

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
80 Vdc (100 Vdc Surge)						
18000	382LX183M080B052V	0.023	0.017	10.00	11.50	50 x 50
22000	380LX223M080A102	0.015	0.011	9.86	11.34	35 x 105
22000	382LX223M080B062V	0.019	0.014	11.08	12.74	50 x 63
27000	382LX273M080N102	0.015	0.012	11.35	13.05	40 x 105
27000	382LX273M080B082V	0.015	0.012	12.33	14.18	50 x 80
33000	382LX333M080B092V	0.014	0.010	13.37	15.38	50 x 92
39000	382LX393M080B102V	0.013	0.010	14.34	16.49	50 x 105
100 Vdc (125 Vdc Surge)						
470	380LX471M100H012	0.450	0.300	1.10	1.30	22 x 25
560	380LX561M100H012	0.400	0.250	1.30	1.50	22 x 25
680	380LX681M100H012	0.100	0.250	1.30	1.50	22 x 25
1000	380LX102M100H022	0.220	0.150	2.00	2.30	22 x 30
1000	380LX102M100J012	0.220	0.150	2.00	2.30	25 x 25
1200	380LX122M100H032	0.195	0.125	1.80	2.70	22 x 35
1500	380LX152M100H042	0.155	0.100	2.60	3.00	22 x 40
1800	380LX182M100H042	0.140	0.090	2.80	3.30	22 x 40
2200	380LX222M100J042	0.121	0.080	3.14	3.61	25 x 40
2700	380LX272M100J452	0.104	0.068	3.70	4.30	25 x 45
2700	380LX272M100A022	0.092	0.060	3.71	4.27	35 x 30
3300	380LX332M100J052	0.090	0.060	4.10	4.70	25 x 50
3300	380LX332M100K042	0.090	0.060	4.10	4.70	30 x 40
3300	380LX332M100A022	0.100	0.065	4.07	4.68	35 x 30
3900	380LX392M100K452	0.080	0.050	4.50	5.20	30 x 45
3900	380LX392M100K052	0.085	0.055	4.54	5.22	30 x 50
4700	380LX472M100K052	0.071	0.046	5.13	5.90	30 x 50
4700	380LX472M100A042	0.070	0.050	5.10	5.90	35 x 40
5600	380LX562M100A052	0.059	0.041	5.75	6.61	35 x 50
5600	382LX562M100N042	0.060	0.045	5.80	6.60	40 x 40
6800	380LX682M100A052	0.049	0.034	6.60	7.59	35 x 50
6800	382L682M100N052	0.026	0.017	7.40	7.90	40 x 50
8200	382LX822M100N052	0.040	0.030	7.30	8.40	40 x 50
8200	382L822M100N062	0.021	0.013	8.40	9.10	40 x 63
10000	380LX103M100A082	0.033	0.025	8.70	9.60	35 x 80
10000	382LX103M100N062	0.033	0.025	8.00	9.20	40 x 63
10000	382LX103M100B052V	0.033	0.025	8.82	10.14	50 x 50
12000	380LX123M100A102	0.028	0.021	8.57	9.86	35 x 105
12000	382LX123M100N082	0.028	0.021	8.65	10.00	40 x 80
15000	382LX153M100N102	0.022	0.017	10.12	11.64	40 x 105
15000	382LX153M100B062V	0.022	0.017	10.07	11.58	50 x 63
18000	382LX183M100B082V	0.018	0.014	11.00	12.65	50 x 80
22000	382LX223M100B092V	0.015	0.011	11.76	13.52	50 x 92
27000	382LX273M100B102V	0.014	0.010	12.53	14.41	50 x 105

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
160 Vdc (200 Vdc Surge)						
220	380LX221M160H012	0.850	0.420	0.90	1.25	22 x 25
270	380LX271M160H012	0.700	0.340	1.20	1.65	22 x 25
330	380LX331M160H012	0.600	0.310	1.50	2.00	22 x 25
390	380LX391M160H012	0.470	0.240	1.60	2.30	22 x 25
470	380LX471M160H022	0.420	0.220	1.86	2.66	22 x 30
560	380LX561M160H032	0.360	0.180	2.25	3.15	22 x 35
680	380LX681M160H042	0.296	0.130	2.36	2.39	22 x 40
820	380LX821M160J042	0.243	0.109	2.75	3.85	25 x 40
1000	380LX102M160J042	0.220	0.110	3.00	4.20	25 x 40
1200	380LX122M160K032	0.210	0.115	3.25	4.55	30 x 35
1800	380LX182M160K052	0.140	0.085	4.20	5.90	30 x 50
2700	380LX272M160A052	0.086	0.043	5.30	7.42	35 x 50
2700	382LX272M160N042	0.080	0.045	5.50	7.60	40 x 40
4700	382L472M160N082	0.036	0.020	6.60	8.50	40 x 80
5600	382LX562M160N082	0.040	0.020	8.30	11.70	40 x 80
5600	382LX562M160B052V	0.040	0.020	8.25	9.50	50 x 50
6800	380LX682M160N102	0.038	0.021	8.90	12.46	40 x 105
8200	382LX822M160B062V	0.026	0.015	8.90	12.50	50 x 63
10000	382LX103M160N102	0.022	0.012	9.90	13.80	40 x 105
10000	382LX103M160B082V	0.022	0.012	9.80	13.70	50 x 80
12000	382LX123M160B092V	0.018	0.010	12.90	18.10	50 x 92
15000	382LX153M160B102V	0.014	0.008	14.10	19.70	50 x 105
180 Vdc (225 Vdc Surge)						
330	380LX331M180H012	0.603	0.308	1.50	2.00	22 x 25
390	380LX391M180H022	0.510	0.230	1.68	2.35	22 x 30
470	380LX471M180H022	0.423	0.190	1.91	2.67	22 x 30
560	380LX561M180H042	0.355	0.160	2.25	3.15	22 x 40
680	380LX681M180J032	0.293	0.132	2.22	3.11	25 x 35
820	380LX821M180K022	0.240	0.120	2.80	3.90	30 x 30
1000	380LX102M180J052	0.220	0.100	3.00	4.20	25 x 50
1200	380LX122M180J052	0.170	0.080	3.31	4.63	25 x 50
1500	380LX152M180K052	0.130	0.070	3.80	5.40	30 x 50
1800	380LX182M180K052	0.120	0.050	4.32	6.05	30 x 50
2200	380LX222M180A052	0.090	0.050	4.90	6.90	35 x 50
2700	382L272M180N062	0.051	0.027	5.00	6.50	40 x 63
4700	382L472M180N082	0.036	0.020	6.60	8.50	40 x 80
200 Vdc (250 Vdc Surge)						
150	380LX151M200H012	1.330	0.600	0.65	0.90	22 x 25
220	380LX221M200H012	0.900	0.420	1.00	1.45	22 x 25
270	380LX271M200H012	0.730	0.300	1.40	2.00	22 x 25
330	380LX331M200H022	0.600	0.270	1.60	2.20	22 x 30
330	380LX331M200J012	0.470	0.210	1.70	2.40	25 x 25

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
200 Vdc (250 Vdc Surge)						
390	380LX391M200H022	0.510	0.230	1.68	2.35	22 x 30
390	380LX391M200J012	0.470	0.210	1.70	2.40	25 x 25
470	380LX471M200J022	0.420	0.190	1.90	2.60	25 x 30
470	380LX471M200A202	0.460	0.210	1.30	1.80	35 x 20
560	380LX561M200H042	0.360	0.160	2.18	3.08	22 x 40
680	380LX681M200H452	0.290	0.130	2.70	3.80	22 x 45
680	380LX681M200J032	0.270	0.120	2.70	3.80	25 x 35
680	380LX681M200K022	0.270	0.120	2.70	3.80	30 x 30
820	380LX821M200H452	0.243	0.124	2.90	4.10	22 x 45
820	380LX821M200J042	0.240	0.110	2.60	3.60	25 x 40
820	380LX821M200K022	0.220	0.100	2.90	4.10	30 x 30
1000	380LX102M200J452	0.199	0.090	3.25	4.55	25 x 45
1000	380LX102M200K022	0.199	0.102	3.30	4.60	30 x 30
1000	380LX102M200K032	0.216	0.097	3.20	4.50	30 x 35
1200	380LX122M200J052	0.144	0.072	3.87	5.42	25 x 50
1200	380LX122M200K042	0.166	0.075	3.50	4.90	30 x 40
1200	380LX122M200A022	0.166	0.075	3.50	4.90	35 x 30
1500	380LX152M200K452	0.144	0.072	3.87	5.42	30 x 45
1500	380LX152M200A032	0.144	0.072	3.87	5.42	35 x 35
1800	380LX182M200K052	0.120	0.060	4.32	6.05	30 x 50
1800	380LX182M200A042	0.120	0.060	4.32	6.05	35 x 40
2200	380LX222M200A452	0.098	0.054	4.92	6.89	35 x 45
2200	382LX222M200N042	0.098	0.054	4.92	6.89	40 x 40
2700	380LX272M200A062	0.080	0.045	5.50	7.70	35 x 63
2700	382LX272M200N052	0.080	0.045	5.40	7.60	40 x 50
3300	380LX332M200A082	0.065	0.037	6.40	9.00	35 x 80
3300	382LX332M200N062	0.065	0.037	6.30	8.90	40 x 63
3900	380LX392M200A082	0.055	0.030	6.60	9.25	35 x 80
3900	382LX392M200N062	0.055	0.030	6.80	9.50	40 x 63
3900	382LX392M200B052V	0.055	0.030	8.22	9.45	50 x 50
4700	382LX472M200N082	0.046	0.025	8.38	11.73	40 x 80
4700	382LX472M200B062V	0.046	0.025	9.32	13.05	50 x 63
5600	380LX562M200N102	0.040	0.020	8.90	12.46	40 x 105
6800	382LX682M200N102	0.032	0.017	8.65	12.11	40 x 105
6800	382LX682M200B082V	0.032	0.017	11.41	15.97	50 x 80
7500	382LX752M200B092V	0.029	0.016	12.28	17.19	50 x 92
8200	382LX822M200B102V	0.026	0.014	13.16	18.42	50 x 105
250 Vdc (300 Vdc Surge)						
120	380LX121M250H012	1.660	0.850	0.50	0.60	22 x 25
150	380LX151M250H012	1.330	0.460	1.00	1.25	22 x 25
180	380LX181M250H012	1.110	0.550	1.10	1.50	22 x 25
220	380LX221M250H012	0.900	0.450	1.30	1.70	22 x 25

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
250 Vdc (300 Vdc Surge)						
270	380LX271M250H022	0.620	0.250	1.30	1.80	22 x 30
330	380LX331M250H042	0.600	0.300	1.66	2.32	22 x 40
330	380LX331M250J022	0.550	0.220	1.80	2.50	25 x 30
390	380LX391M250J032	0.510	0.260	1.91	2.67	25 x 35
470	380LX471M250J032	0.420	0.190	2.11	2.95	25 x 35
470	380LX471M250J042	0.039	1.550	2.10	3.00	25 x 40
560	380LX561M250J032	0.360	0.160	2.25	3.15	25 x 35
560	380LX561M250K022	0.326	0.130	2.30	3.20	30 x 30
680	380LX681M250J452	0.270	0.110	2.50	3.50	25 x 45
680	380LX681M250K032	0.268	0.107	2.50	3.50	30 x 35
820	380LX821M250K042	0.222	0.089	2.80	3.90	30 x 40
820	380LX821M250A022	0.222	0.089	2.80	3.90	35 x 30
1000	380LX102M250K452	0.182	0.073	3.32	4.65	30 x 45
1000	380LX102M250A032	0.182	0.073	3.32	4.65	35 x 35
1200	380LX122M250A042	0.166	0.083	3.53	4.94	35 x 40
1500	380LX152M250A052	0.133	0.068	4.00	5.70	35 x 50
1500	382LX152M250N042	0.133	0.066	4.04	5.66	40 x 40
1800	380LX182M250A062	0.110	0.055	4.50	6.30	35 x 63
1800	382LX182M250N052	0.110	0.055	4.50	6.30	40 x 50
1800	382L182M250N062	0.062	0.030	4.80	6.40	40 x 63
2200	380LX222M250A062	0.090	0.045	4.70	6.60	35 x 63
2200	380LX222M250A082	0.090	0.045	4.90	6.90	35 x 80
2200	382LX222M250N062	0.090	0.045	4.90	6.90	40 x 63
2700	380LX272M250A082	0.074	0.037	5.60	7.90	35 x 80
2700	382LX272M250N062	0.074	0.037	5.80	8.10	40 x 63
2700	382L272M250N082	0.043	0.021	6.30	8.40	40 x 80
2700	382LX272M250B052V	0.074	0.037	6.77	7.79	50 x 50
3300	382LX332M250N082	0.060	0.030	7.00	9.80	40 x 80
3300	382LX332M250B062V	0.060	0.030	7.79	10.91	50 x 63
3900	382LX392M250N082	0.051	0.026	7.35	10.30	40 x 80
3900	380LX392M250N102	0.060	0.040	7.47	10.46	40 x 105
4700	382LX472M250N102	0.042	0.021	8.88	12.43	40 x 105
4700	382LX472M250B082V	0.042	0.021	9.65	13.51	50 x 80
5600	382LX562M250B092V	0.036	0.018	10.80	15.12	50 x 92
6800	382LX682M250B102V	0.029	0.015	12.16	17.02	50 x 105
315 Vdc (365 Vdc Surge)						
100	380LX101M315H012	1.930	1.020	0.90	1.30	22 x 25
120	380LX121M315H012	1.660	0.860	1.00	1.40	22 x 25
150	380LX151M315H022	1.330	0.600	1.10	1.60	22 x 30
180	380LX181M315H022	1.110	0.550	1.21	1.69	22 x 30
220	380LX221M315H032	0.900	0.450	1.41	1.97	22 x 35
270	380LX271M315J032	0.740	0.370	1.60	2.24	25 x 35

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
315 Vdc (365 Vdc Surge)						
270	380LX271M315K022	0.737	0.376	1.60	2.20	30 x 30
330	380LX331M315J042	0.600	0.300	1.82	2.55	25 x 40
330	380LX331M315K022	0.603	0.308	1.80	2.50	30 x 30
390	380LX391M315J042	0.510	0.260	2.01	2.81	25 x 40
390	380LX391M315K032	0.510	0.260	2.00	2.80	30 x 35
390	380LX391M315A022	0.510	0.260	2.00	2.80	35 x 30
470	380LX471M315K042	0.423	0.216	2.30	3.20	30 x 40
470	380LX471M315A032	0.423	0.216	2.30	3.20	35 x 35
560	380LX561M315K452	0.355	0.181	2.60	3.60	30 x 45
560	380LX561M315A032	0.355	0.181	2.60	3.60	35 x 35
680	380LX681M315A452	0.293	0.149	2.90	4.00	35 x 45
820	380LX821M315A052	0.243	0.124	3.30	4.60	35 x 50
1000	380L102M315A062	0.218	0.129	2.70	3.60	35 x 63
1200	380L122M315A072	0.182	0.107	3.20	4.20	35 x 70
1200	382L122M315N052	0.202	0.122	2.90	3.90	40 x 50
1500	380L152M315A082	0.153	0.090	3.60	4.80	35 x 80
1500	382L152M315N062	0.162	0.098	3.40	4.50	40 x 63
1800	382L182M315N082	0.113	0.069	4.50	6.00	40 x 80
350 Vdc (400 Vdc Surge)						
82	380LX820M350H012	2.430	1.240	0.83	1.16	22 x 25
100	380LX101M350H022	1.990	1.020	0.70	1.10	22 x 30
120	380LX121M350H022	1.660	0.750	1.00	1.40	22 x 30
150	380LX151M350H022	1.330	0.600	1.10	1.60	22 x 30
180	380LX181M350H022	1.110	0.500	1.20	1.70	22 x 30
220	380LX221M350H042	0.900	0.410	1.44	2.00	22 x 40
270	380LX271M350H452	0.740	0.380	1.66	2.32	22 x 45
270	380LX271M350K022	0.614	0.215	1.66	2.32	30 x 30
330	380LX331M350J042	0.600	0.300	1.88	2.63	25 x 40
330	380LX331M350K032	0.500	0.180	1.90	2.60	30 x 35
330	380LX331M350A022	0.500	0.180	1.90	2.60	35 x 30
390	380LX391M350J452	0.510	0.230	1.80	2.50	25 x 45
390	380LX391M350K042	0.425	0.149	2.06	2.88	30 x 40
390	380LX391M350A022	0.425	0.149	2.06	2.88	35 x 30
470	380LX471M350K052	0.390	0.140	2.40	3.40	30 x 50
470	380LX471M350A032	0.390	0.140	2.40	3.40	35 x 35
560	380LX561M350K052	0.326	0.114	2.60	3.64	30 x 50
560	380LX561M350A042	0.326	0.114	2.60	3.64	35 x 40
680	380LX681M350A452	0.293	0.117	2.96	4.14	35 x 45
680	382LX681M350N042	0.293	0.117	3.00	4.10	40 x 40
820	380LX821M350A052	0.243	0.097	3.55	4.97	35 x 50
1000	380LX102M350A062	0.250	0.110	3.80	5.30	35 x 63
1000	382LX102M350N052	0.250	0.110	3.80	5.30	40 x 50

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
350 Vdc (400 Vdc Surge)						
1200	380LX122M350A082	0.210	0.095	4.40	6.20	35 x 80
1200	382LX122M350N062	0.210	0.095	4.40	6.20	40 x 63
1200	382LX122M350B052V	0.207	0.093	5.18	5.96	50 x 50
1500	382LX152M350B062V	0.166	0.075	6.01	8.41	50 x 63
1800	380LX182M350A102	0.140	0.060	5.79	8.11	35 x 105
1800	382LX182M350N082	0.138	0.062	5.85	8.20	40 x 80
1800	382LX182M350B082V	0.138	0.062	6.89	9.65	50 x 80
2200	382LX222M350N102	0.113	0.051	6.91	9.67	40 x 105
2200	382LX222M350B092V	0.113	0.051	7.79	10.91	50 x 92
2700	382LX272M350B102V	0.092	0.041	8.80	12.32	50 x 105
400 Vdc (450 Vdc Surge)						
47	380LX470M400H012	4.500	1.600	0.30	0.42	22 x 25
68	380LX680M400H012	2.930	1.000	0.35	0.50	22 x 25
82	380LX820M400H012	2.440	0.850	0.70	0.95	22 x 25
100	380LX101M400H012	1.990	0.900	0.90	1.30	22 x 25
100	380LX101M400H022	1.650	0.580	0.90	1.30	22 x 30
100	380LX101M400J012	1.650	0.580	0.90	1.30	25 x 25
120	380LX121M400H022	1.660	0.750	1.00	1.40	22 x 30
150	380LX151M400H032	1.330	0.460	1.20	1.60	22 x 35
150	380LX151M400J022	1.100	0.390	1.20	1.60	25 x 30
180	380LX181M400J032	1.100	0.500	1.30	1.85	25 x 35
220	380LX221M400J022	0.900	0.450	1.49	2.09	25 x 30
220	380LX221M400K022	0.750	0.260	1.50	2.10	30 x 30
270	380LX271M400J452	0.680	0.240	1.70	2.30	25 x 45
270	380LX271M400K022	0.740	0.370	1.67	2.34	30 x 30
270	380LX271M400K032	0.680	0.240	1.70	2.30	30 x 35
270	380LX271M400A022	0.680	0.240	1.70	2.30	35 x 30
330	380LX331M400K042	0.550	0.200	1.90	2.70	30 x 40
330	380LX331M400A022	0.550	0.200	1.90	2.70	35 x 30
330	380LX331M400A032	0.502	0.201	1.40	1.90	35 x 35
390	380LX391M400J452	0.470	0.160	2.10	3.00	25 x 45
390	380LX391M400K452	0.470	0.160	2.10	3.00	30 x 45
390	380LX391M400A032	0.470	0.160	2.10	3.00	35 x 35
470	380LX471M400A042	0.388	0.136	2.39	3.35	35 x 40
560	380LX561M400A452	0.326	0.114	2.69	3.77	35 x 45
560	382LX561M400N042	0.326	0.114	2.70	3.80	40 x 40
680	380LX681M400A052	0.270	0.095	3.00	4.20	35 x 50
680	382LX681M400N052	0.270	0.095	3.40	4.70	40 x 50
820	380LX821M400A062	0.222	0.078	3.55	4.97	35 x 63
820	382LX821M400N052	0.222	0.078	3.40	4.70	40 x 50
1000	380L102M400A082	0.179	0.099	3.60	4.80	35 x 80
1000	382LX102M400N062	0.199	0.127	4.20	5.80	40 x 63

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
400 Vdc (450 Vdc Surge)						
1000	382LX102M400B052V	0.199	0.080	4.76	5.47	50 x 50
1200	380LX122M400A082	0.152	0.053	4.52	6.33	35 x 80
1200	382LX122M400N062	0.152	0.053	4.52	6.33	40 x 63
1200	382LX122M400B062V	0.166	0.066	5.47	7.66	50 x 63
1500	380LX152M400A102	0.120	0.040	5.44	7.62	35 x 105
1500	382LX152M400N082	0.122	0.043	5.50	7.70	40 x 80
1500	382LX152M400B082V	0.133	0.053	6.47	9.06	50 x 80
1800	382LX182M400N102	0.101	0.035	6.53	9.14	40 x 105
1800	382LX182M400B092V	0.111	0.044	7.35	10.29	50 x 92
2200	382LX222M400B102V	0.090	0.036	8.43	11.80	50 x 105
420 Vdc (470 Vdc Surge)						
82	380LX820M420H012	2.430	0.850	0.80	1.15	22 x 25
100	380LX101M420H022	1.820	0.820	0.90	1.30	22 x 30
120	380LX121M420H022	1.660	0.750	0.90	1.30	22 x 30
150	380LX151M420H042	1.330	0.600	1.15	1.60	22 x 40
180	380LX181M420H042	1.110	0.500	1.45	2.00	22 x 40
180	380LX181M420K022	1.100	0.390	1.45	2.00	30 x 30
220	380LX221M420H452	0.900	0.410	1.50	2.10	22 x 45
220	380LX221M420K022	0.900	0.320	1.50	2.10	30 x 30
270	380LX271M420J452	0.740	0.330	1.70	2.30	25 x 45
270	380LX271M420K032	0.740	0.260	1.70	2.30	30 x 35
270	380LX271M420A022	0.740	0.260	1.70	1.93	35 x 30
330	380LX331M420K452	0.600	0.210	1.90	2.68	30 x 45
330	380LX331M420A032	0.600	0.210	1.90	2.68	35 x 35
390	380LX391M420K052	0.500	0.180	2.10	3.00	30 x 50
390	380LX391M420A042	0.500	0.180	2.10	3.00	35 x 40
470	380LX471M420A452	0.420	0.150	2.40	3.35	35 x 45
560	380LX561M420A052	0.355	0.125	2.70	3.80	35 x 50
450 Vdc (500 Vdc Surge)						
33	380LX330M450H012	6.030	2.400	0.40	0.57	22 x 25
47	380LX470M450H202	4.230	1.690	0.30	0.40	22 x 20
56	380LX560M450H012	3.550	1.600	0.70	1.00	22 x 25
68	380LX680M450H012	2.930	1.020	0.80	1.10	22 x 25
82	380LX820M450H012	2.000	0.810	0.80	1.20	22 x 25
82	380LX820M450H022	2.430	1.210	0.83	1.16	22 x 30
100	380LX101M450H022	1.990	0.790	0.90	1.30	22 x 30
120	380LX121M450H022	1.659	0.661	1.00	1.50	22 x 30
120	380LX121M450H032	1.660	0.750	0.90	1.35	22 x 35
120	380LX121M450J012	1.380	0.550	1.00	1.50	25 x 25
150	380LX151M450H032	1.330	0.590	1.18	1.66	22 x 35
150	380LX151M450K022	1.100	0.440	1.20	1.70	30 x 30
180	380LX181M450J032	1.110	0.380	1.20	1.75	25 x 35

Type 380LX / 382LX 85 °C High Capacitance, Snap-In Aluminum

2, 4 and 5 pin styles available

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
450 Vdc (500 Vdc Surge)						
180	380LX181M450K012	0.921	0.368	1.40	1.90	30 x 25
180	380LX181M450K022	0.921	0.368	1.35	1.89	30 x 30
220	380LX221M450H452	0.754	0.301	1.40	2.00	22 x 45
220	380LX221M450J452	0.750	0.300	1.40	2.00	25 x 45
220	380LX221M450J052	0.754	0.301	1.55	2.17	25 x 50
220	380LX221M450K032	0.754	0.301	1.55	2.17	30 x 35
220	380LX221M450A022	0.904	0.461	1.60	2.20	35 x 30
270	380LX271M450K452	0.680	0.270	1.80	2.50	30 x 45
270	380LX271M450A022	0.680	0.270	1.80	2.50	35 x 30
330	380LX331M450K052	0.550	0.250	2.00	2.80	30 x 50
330	380LX331M450A032	0.553	0.221	2.01	2.81	35 x 35
390	380LX391M450A452	0.510	0.260	2.20	3.10	35 x 45
470	380LX471M450A452	0.423	0.233	2.53	3.54	35 x 45
470	382LX471M450N042	0.423	0.233	2.53	3.54	40 x 40
560	380LX561M450A052	0.355	0.171	2.50	3.50	35 x 50
560	380LX561M450A062	0.355	0.195	2.90	4.10	35 x 63
680	380L681M450A072	0.226	0.120	3.20	4.20	35 x 70
680	382LX681M450N052	0.290	0.160	3.15	4.40	40 x 50
680	382L681M450N062	0.201	0.109	3.40	4.50	40 x 63
820	380LX821M450A082	0.243	0.133	3.80	5.30	35 x 80
820	382LX821M450N062	0.243	0.133	3.70	5.20	40 x 63
820	382LX821M450B052V	0.263	0.145	4.31	4.96	50 x 50
1000	382LX102M450N082	0.216	0.119	4.20	5.90	40 x 80
1000	382LX102M450B062V	0.216	0.119	4.96	6.94	50 x 63
1200	380LX122M450A102	0.170	0.090	4.80	6.72	35 x 105
1200	382LX122M450N082	0.166	0.091	4.85	6.80	40 x 80
1200	382LX122M450B082V	0.180	0.099	5.71	7.99	50 x 80
1500	382LX152M450N102	0.133	0.073	5.81	8.13	40 x 105
1500	382LX152M450B092V	0.144	0.079	6.55	9.17	50 x 92
1800	382LX182M450B102V	0.120	0.066	7.38	10.30	50 x 105
500 Vdc (550 Vdc Surge)						
33	380LX330M500H012	4.420	2.652	0.60	0.80	22 x 25
47	380LX470M500H012	3.500	2.100	0.63	0.88	22 x 25
56	380LX560M500H022	2.980	1.788	0.70	0.98	22 x 30
68	380LX680M500H032	2.720	1.632	0.78	1.09	22 x 35
68	380LX680M500J012	2.720	1.632	0.78	1.09	25 x 25
82	380LX820M500H042	2.455	1.473	0.88	1.23	22 x 40
82	380LX820M500J022	2.455	1.473	0.88	1.23	25 x 30
82	380LX820M500K012	2.455	1.473	0.90	1.20	30 x 25
100	380LX101M500H452	2.013	1.208	0.99	1.39	22 x 45
100	380LX101M500J032	2.013	1.208	0.99	1.39	25 x 35
100	380LX101M500J042	2.013	1.208	1.10	1.50	25 x 40

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
500 Vdc (550 Vdc Surge)						
100	380LX101M500K022	2.013	1.208	1.10	1.50	30 x 30
100	380LX101M500A012	2.013	1.208	1.10	1.50	35 x 25
120	380LX121M500H052	1.678	1.007	1.13	1.58	22 x 50
120	380LX121M500J042	1.678	1.007	1.13	1.58	25 x 40
120	380LX121M500K022	1.678	1.007	1.13	1.58	30 x 30
120	380LX121M500K032	1.678	1.007	1.40	1.90	30 x 35
120	380LX121M500A022	1.678	1.007	1.40	1.90	35 x 30
150	380LX151M500J452	1.105	0.442	1.29	1.80	25 x 45
150	380LX151M500J052	0.945	0.585	1.40	1.90	25 x 50
150	380LX151M500K032	1.105	0.442	1.29	1.80	30 x 35
150	380LX151M500K042	0.926	0.562	1.60	2.20	30 x 40
150	380LX151M500A012	1.342	0.805	1.29	1.80	35 x 25
180	380LX181M500J052	0.920	0.368	1.38	1.93	25 x 50
180	380LX181M500K042	0.920	0.368	1.38	1.93	30 x 40
180	380LX181M500A022	1.119	0.617	1.38	1.93	35 x 30
180	380LX181M500A032	1.119	0.617	1.60	2.20	35 x 35
220	380LX221M500K452	0.754	0.339	1.50	2.10	30 x 45
220	380LX221M500K052	0.654	0.397	2.00	2.70	30 x 50
220	380LX221M500A032	0.915	0.549	1.50	2.10	35 x 35
220	380LX221M500A042	0.915	0.549	1.90	2.50	35 x 40
270	380LX271M500A042	0.746	0.447	1.76	2.46	35 x 40
270	380LX271M500A052	0.746	0.447	2.30	3.10	35 x 50
270	382L271M500N042	0.746	0.447	2.40	3.20	40 x 40
330	380LX331M500A452	0.610	0.366	1.99	2.79	35 x 45
330	382LX331M500N042	0.610	0.366	2.16	3.00	40 x 40
390	380LX391M500A052	0.516	0.310	2.22	3.11	35 x 50
390	380LX391M500A062	0.516	0.310	2.70	3.60	35 x 63
390	382L391M500N052	0.516	0.310	2.90	3.90	40 x 50
470	380LX471M500A062	0.428	0.257	2.58	3.61	35 x 63
470	380LX471M500A072	0.428	0.257	3.20	4.20	35 x 70
470	382LX471M500N052	0.428	0.257	2.70	3.78	40 x 50
470	382L471M500N062	0.428	0.257	3.40	4.50	40 x 63
560	380LX561M500A082	0.360	0.216	3.60	4.80	35 x 80
560	382LX561M500N062	0.360	0.216	3.11	4.35	40 x 63
560	382LX561M500B052V	0.360	0.216	3.52	4.05	50 x 50
680	380LX681M500A082	0.296	0.178	3.21	4.49	35 x 80
680	382L681M500N082	0.296	0.178	4.50	6.00	40 x 80
680	382LX681M500B062V	0.296	0.178	4.07	5.70	50 x 63
820	380LX821M500A102	0.246	0.147	3.97	5.56	35 x 105
820	382LX821M500N082	0.246	0.147	3.88	5.43	40 x 80
1000	382LX102M500B082V	0.199	0.121	5.05	7.07	50 x 80
1200	382LX122M500N102	0.168	0.101	5.90	8.26	40 x 105
1200	382LX122M500B092V	0.168	0.101	5.74	8.04	50 x 92
1500	382LX152M500B102V	0.134	0.081	6.65	9.31	50 x 105

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Type 380LQ 85 °C Compact, High Capacitance, Snap-In Aluminum

High Capacitance per Case Size

Type 380LQ is on average 27% smaller and more than 10 mm shorter than Type 380LX. This is achieved with a new can-closure method that permits installing capacitor elements into smaller cans. Approaching the capability of the 380LX, the new 380LQ enables you to shrink equipment size and retain the original performance.

Highlights

- New, more capacitance per case
- Compare to Type 380LX
- New, lower voltages down to 16 V

Specifications

Temperature Range	–40 °C to + 85 °C ≤ 315 Vdc –25 °C to + 85 °C ≥ 350 Vdc
Rated Voltage Range	16 Vdc to 450 Vdc
Capacitance Range	82 µF to 100,000 µF
Capacitance Tolerance	±20%
Leakage Current	≤ 3 $\sqrt{CV}$ µA, 4 mA max, 5 minutes
Ripple Current Multipliers	Ambient Temperature

45 °C	60 °C	70 °C	85 °C
1.50	1.40	1.30	1.00

Frequency

Voltage	50 Hz	60 Hz	120 Hz	500 kHz	1 kHz	10 kHz & Up
16–100 WV	0.93	0.95	1.00	1.05	1.08	1.15
160–450 WV	0.75	0.80	1.00	1.20	1.25	1.40

Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 8 (16–50 Vdc) ≤ 4 (63–100 Vdc) ≤ 3 (150–450 Vdc)
Endurance Life Test	2000 h at full load at 85 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	1000 h at 85 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h each plane
RoHS Compliant	

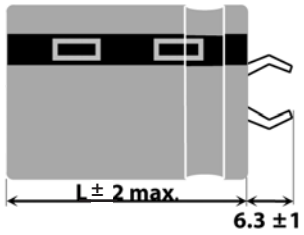
Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

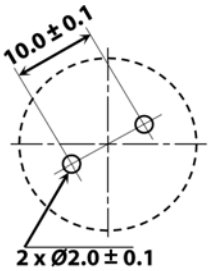
High Capacitance per Case Size

Part Numbering System

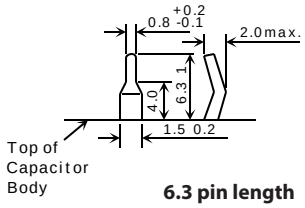
380LQ	272	M	200	A05	2	A
Type	Cap	Tolerance	Voltage	Case Code	Insulation	Pin Styles
380LQ	**561** = 560 µF	**M =** ±20%	**016** = 16 Vdc		**2** = PVC	**Blank** = 2 pins snap-in 6.3 mm L
	272 = 2700 µF		**200** = 200 Vdc			**A** = 2 pins snap-in 4.0 mm L
	392 = 3900 µF		**450** = 450 Vdc			

Outline Drawing

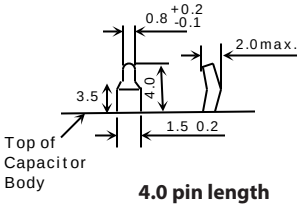




PC Board Mounting Holes



6.3 pin length



4.0 pin length
option (add "A" to end of part#)

Dimensions shown are in mm

Insulated Case Dimensions

Case Code	DIAMETER D		LENGTH L		Typical Weight	Case Code	DIAMETER D		LENGTH L		Typical Weight
	mm	inches	mm	inches	(grams)		mm	inches	mm	inches	(grams)
H01	22	0.87	25	0.98	16	K01	30	1.18	25	0.98	30
H02	22	0.87	30	1.18	19	K02	30	1.18	30	1.18	35
H03	22	0.87	35	1.38	22	K03	30	1.18	35	1.38	40
H04	22	0.87	40	1.57	24	K04	30	1.18	40	1.57	44
H45	22	0.87	45	1.77	28	K45	30	1.18	45	1.77	49
H05	22	0.87	50	1.97	31	K05	30	1.18	50	1.97	53
J01	25	0.98	25	0.98	20	A01	35	1.38	25	0.98	42
J02	25	0.98	30	1.18	24	A02	35	1.38	30	1.18	48
J03	25	0.98	35	1.38	27	A03	35	1.38	35	1.38	54
J04	25	0.98	40	1.57	31	A04	35	1.38	40	1.57	60
J45	25	0.98	45	1.77	35	A45	35	1.38	45	1.77	67
J05	25	0.98	50	1.97	38	A05	35	1.38	50	1.97	74

Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

High Capacitance per Case Size

Ratings

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
16 Vdc (20 Vdc Surge)						
12000	380LQ123M016H022	0.069	0.059	3.13	3.60	22 x 30
15000	380LQ153M016H032	0.055	0.047	3.69	4.24	22 x 35
18000	380LQ183M016H032	0.046	0.039	3.10	4.58	22 x 35
22000	380LQ223M016H042	0.038	0.032	4.52	5.20	22 x 40
27000	380LQ273M016H052	0.031	0.026	6.31	7.26	22 x 50
33000	380LQ333M016K032	0.025	0.021	6.84	7.87	30 x 35
39000	380LQ393M016K042	0.024	0.020	6.94	7.98	30 x 40
47000	380LQ473M016K452	0.023	0.019	7.47	8.59	30 x 45
56000	380LQ563M016A452	0.022	0.018	8.73	10.04	35 x 45
68000	380LQ683M016A452	0.021	0.018	9.05	10.41	35 x 45
82000	380LQ823M016A052	0.020	0.018	9.49	10.91	35 x 50
100000	380LQ104M016A052	0.019	0.018	10.18	11.71	35 x 50
25 Vdc (32 Vdc Surge)						
8200	380LQ822M025H022	0.081	0.065	2.86	3.29	22 x 30
12000	380LQ123M025J022	0.055	0.044	4.10	4.72	25 x 30
15000	380LQ153M025J032	0.044	0.035	4.63	5.32	25 x 35
18000	380LQ183M025J042	0.037	0.029	5.47	6.29	25 x 40
18000	380LQ183M025K012	0.037	0.029	4.66	5.36	30 x 25
22000	380LQ223M025J452	0.030	0.024	6.10	7.02	25 x 45
27000	380LQ273M025K042	0.025	0.020	6.21	7.14	30 x 40
33000	380LQ333M025K452	0.020	0.016	6.84	7.87	30 x 45
39000	380LQ393M025A452	0.020	0.016	7.36	8.46	35 x 45
47000	380LQ473M025A052	0.019	0.015	8.00	9.20	35 x 50
56000	380LQ563M025A052	0.019	0.016	8.91	10.25	35 x 50
35 Vdc (44 Vdc Surge)						
5600	380LQ562M035H022	0.104	0.078	2.79	3.20	22 x 30
8200	380LQ822M035J022	0.071	0.053	4.00	4.60	25 x 30
10000	380LQ103M035J022	0.058	0.044	4.42	5.08	25 x 30
10000	380LQ103M035J032	0.058	0.044	4.42	5.08	25 x 35
12000	380LQ123M035J042	0.048	0.036	5.05	5.81	25 x 40
12000	380LQ123M035K012	0.048	0.036	4.15	4.77	30 x 25
15000	380LQ153M035K042	0.036	0.027	5.60	6.40	30 x 40
18000	380LQ183M035K452	0.032	0.024	5.68	6.53	30 x 45
22000	380LQ223M035K452	0.026	0.020	6.10	7.02	30 x 45
27000	380LQ273M035A052	0.021	0.016	6.84	7.87	35 x 50
33000	380LQ333M035A052	0.018	0.014	7.15	8.22	35 x 50
39000	380LQ393M035A052	0.017	0.014	7.91	9.10	35 x 50
47000	380LQ473M035A552	0.017	0.014	8.56	9.84	35 x 55
50 Vdc (63 Vdc Surge)						
3300	380LQ332M050H012	0.151	0.113	2.41	2.77	22 x 25
4700	380LQ472M050H032	0.106	0.079	3.03	3.48	22 x 35
5600	380LQ562M050J032	0.089	0.067	3.42	3.93	25 x 35

Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

High Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
		50 Vdc (63 Vdc Surge)				
6800	380LQ682M050H452	0.073	0.055	3.85	4.43	22 x 45
6800	380LQ682M050J022	0.073	0.055	3.22	3.71	25 x 30
8200	380LQ822M050H452	0.061	0.045	4.41	5.07	22 x 45
8200	380LQ822M050J032	0.061	0.045	4.41	5.07	25 x 35
10000	380LQ103M050J052	0.050	0.037	4.97	5.72	25 x 50
10000	380LQ103M050A032	0.050	0.037	4.97	5.72	35 x 35
12000	380LQ123M050A032	0.041	0.031	5.58	6.42	35 x 35
18000	380LQ183M050A452	0.028	0.021	6.94	7.98	35 x 45
22000	380LQ223M050A052	0.023	0.018	7.57	8.71	35 x 50
27000	380LQ273M050A052	0.018	0.015	8.96	10.30	35 x 50
		63 Vdc (79 Vdc Surge)				
2200	380LQ222M063H022	0.188	0.141	2.35	2.70	22 x 30
3300	380LQ332M063H042	0.126	0.094	2.72	3.13	22 x 40
3900	380LQ392M063J022	0.106	0.080	3.13	3.60	25 x 30
4700	380LQ472M063J032	0.088	0.066	3.59	4.13	25 x 35
4700	380LQ472M063K022	0.061	0.046	3.89	4.48	30 x 30
5600	380LQ562M063K042	0.074	0.056	4.11	4.72	30 x 40
6800	380LQ682M063K042	0.061	0.046	4.55	5.24	30 x 40
8200	380LQ822M063A032	0.051	0.038	4.68	5.38	35 x 35
10000	380LQ103M063K042	0.041	0.031	5.35	6.15	30 x 40
10000	380LQ103M063K452	0.041	0.031	6.52	7.50	30 x 45
12000	380LQ123M063K052	0.035	0.026	7.15	8.22	30 x 50
15000	380LQ153M063A052	0.028	0.021	7.91	9.10	35 x 50
18000	380LQ183M063A552	0.023	0.018	8.55	9.83	35 x 55
		80 Vdc (100 Vdc Surge)				
1500	380LQ152M080H022	0.221	0.166	2.01	2.31	22 x 30
1800	380LQ182M080H032	0.184	0.138	2.11	2.43	22 x 35
2200	380LQ222M080H042	0.151	0.113	2.73	3.14	22 x 40
2700	380LQ272M080J042	0.123	0.092	2.78	3.20	25 x 40
3300	380LQ332M080J042	0.100	0.075	3.21	3.69	25 x 40
3900	380LQ392M080K042	0.085	0.064	3.59	4.13	30 x 40
4700	380LQ472M080K042	0.071	0.053	4.09	4.70	30 x 40
5600	380LQ562M080K452	0.059	0.044	4.55	5.23	30 x 45
6800	380LQ682M080K052	0.049	0.037	5.16	5.93	30 x 50
8200	380LQ822M080A452	0.040	0.030	5.83	6.70	35 x 45
10000	380LQ103M080A052	0.040	0.030	5.83	6.70	35 x 50
		100 Vdc (125 Vdc Surge)				
1000	380LQ102M100H022	0.332	0.216	2.12	2.44	22 x 30
1200	380LQ122M100H022	0.276	0.180	2.12	2.44	22 x 30
1500	380LQ152M100K012	0.221	0.144	2.57	2.96	30 x 25
1800	380LQ182M100H042	0.184	0.120	2.60	2.99	22 x 40
2200	380LQ222M100J452	0.151	0.098	3.14	3.61	25 x 45

Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

High Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
		100 Vdc (125 Vdc Surge)				
2200	380LQ222M100K012	0.151	0.098	3.14	3.61	30 x 25
2700	380LQ272M100J452	0.123	0.080	3.66	4.21	25 x 45
2700	380LQ272M100A022	0.123	0.080	3.71	4.27	35 x 30
3300	380LQ332M100A022	0.100	0.065	4.06	4.67	35 x 30
3900	380LQ392M100K052	0.085	0.055	4.54	5.22	30 x 50
4700	380LQ472M100K052	0.071	0.046	5.13	5.90	30 x 50
5600	380LQ562M100A052	0.059	0.041	5.75	6.61	35 x 50
6800	380LQ682M100A052	0.049	0.034	6.60	7.59	35 x 50
		160 Vdc (200 Vdc Surge)				
560	380LQ561M160H042	0.355	0.160	2.25	3.15	22 x 40
680	380LQ681M160H042	0.293	0.132	2.35	3.29	22 x 40
820	380LQ821M160J042	0.243	0.109	2.75	3.85	25 x 40
1000	380LQ102M160J042	0.199	0.090	3.00	4.20	25 x 40
1200	380LQ122M160K032	0.166	0.075	3.25	4.55	30 x 35
1500	380LQ152M160K452	0.133	0.060	3.73	5.22	30 x 45
1800	380LQ182M160K452	0.111	0.050	4.20	5.88	30 x 45
2200	380LQ222M160K052	0.098	0.049	4.78	6.69	30 x 50
2700	380LQ272M160A042	0.080	0.040	5.45	7.63	35 x 40
2700	380LQ272M160A052	0.074	0.033	5.45	7.63	35 x 50
3300	380LQ332M160A052	0.070	0.035	5.75	8.05	35 x 50
		180 Vdc (225 Vdc Surge)				
470	380LQ471M180H022	0.423	0.190	1.91	2.68	22 x 30
560	380LQ561M180H042	0.355	0.160	2.25	3.15	22 x 40
680	380LQ681M180J032	0.290	0.130	1.70	2.38	25 x 35
820	380LQ821M180H452	0.240	0.110	2.00	2.80	22 x 45
1000	380LQ102M180H052	0.200	0.090	2.99	4.19	22 x 50
1200	380LQ122M180J052	0.170	0.080	3.31	4.63	25 x 50
1500	380LQ152M180J052	0.130	0.060	3.83	5.36	25 x 50
1800	380LQ182M180K052	0.120	0.054	4.32	6.05	30 x 50
2200	380LQ222M180K052	0.100	0.050	4.86	6.81	30 x 50
2700	380LQ272M180A052	0.090	0.040	5.30	7.42	35 x 50
		200 Vdc (250 Vdc Surge)				
390	380LQ391M200H022	0.510	0.230	1.68	2.35	22 x 30
470	380LQ471M200H022	0.423	0.190	1.85	2.59	22 x 30
560	380LQ561M200H042	0.360	0.160	2.18	3.05	22 x 40
680	380LQ681M200J032	0.290	0.130	2.48	3.47	25 x 35
820	380LQ821M200H452	0.240	0.110	2.75	3.85	22 x 45
1000	380LQ102M200H452	0.199	0.090	3.25	4.55	22 x 45
1000	380LQ102M200H052	0.200	0.090	3.20	4.48	22 x 50
1000	380LQ102M200K022	0.199	0.090	3.25	4.55	30 x 30
1200	380LQ122M200J052	0.166	0.075	3.50	4.90	25 x 50
1200	380LQ122M200K022	0.166	0.075	3.50	4.90	30 x 30

Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

High Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
		200 Vdc (250 Vdc Surge)				
1500	380LQ152M200K052	0.130	0.070	3.87	5.12	30 x 50
1800	380LQ182M200K052	0.160	0.080	4.32	6.05	30 x 50
1800	380LQ182M200A032	0.120	0.060	4.32	6.05	35 x 35
2200	380LQ222M200K052	0.098	0.049	4.92	6.89	30 x 50
2200	380LQ222M200A042	0.105	0.053	4.81	6.73	35 x 40
2700	380LQ272M200A052	0.105	0.052	5.00	7.00	35 x 50
		250 Vdc (300 Vdc Surge)				
270	380LQ271M250H022	0.737	0.332	1.31	1.83	22 x 30
330	380LQ331M250H022	0.603	0.271	1.66	2.32	22 x 30
390	380LQ391M250J032	0.510	0.230	1.91	2.67	25 x 35
470	380LQ471M250J032	0.420	0.190	2.11	2.95	25 x 35
470	380LQ471M250J042	0.423	0.190	2.11	2.95	25 x 40
560	380LQ561M250J022	0.355	0.160	2.20	3.08	25 x 30
560	380LQ561M250J032	0.355	0.160	2.25	3.15	25 x 35
680	380LQ681M250H052	0.293	0.132	2.30	3.20	22 x 50
680	380LQ681M250J032	0.293	0.132	2.50	3.50	25 x 35
680	380LQ681M250K022	0.293	0.132	2.50	3.50	30 x 30
820	380LQ821M250J452	0.240	0.110	2.77	3.88	25 x 45
820	380LQ821M250K022	0.243	0.109	2.77	3.88	30 x 30
1000	380LQ102M250K032	0.199	0.090	3.32	4.65	30 x 35
1000	380LQ102M250A022	0.199	0.090	3.32	4.65	35 x 30
1200	380LQ122M250K042	0.166	0.075	3.53	4.94	30 x 40
1200	380LQ122M250A032	0.166	0.083	3.53	4.94	35 x 35
1500	380LQ152M250K052	0.133	0.066	4.04	5.66	30 x 50
1500	380LQ152M250A042	0.133	0.066	4.04	5.66	35 x 40
1800	380LQ182M250A452	0.111	0.055	4.55	6.37	35 x 45
2200	380LQ222M250A052	0.105	0.052	5.00	7.00	35 x 50
		315 Vdc (365 Vdc Surge)				
180	380LQ181M315H022	1.100	0.553	1.21	1.69	22 x 30
220	380LQ221M315H032	0.900	0.452	1.41	1.97	22 x 35
270	380LQ271M315J032	0.740	0.370	1.60	2.24	25 x 35
330	380LQ331M315J042	0.600	0.300	1.82	2.55	25 x 40
390	380LQ391M315J042	0.510	0.255	2.01	2.81	25 x 40
390	380LQ391M315K022	0.510	0.255	2.01	2.81	30 x 30
470	380LQ471M315J042	0.420	0.270	2.27	3.18	25 x 40
470	380LQ471M315K022	0.423	0.212	2.27	3.18	30 x 30
560	380LQ561M315J052	0.360	0.200	2.49	3.56	25 x 50
560	380LQ561M315K032	0.355	0.178	2.56	3.58	30 x 35
680	380LQ681M315K042	0.293	0.148	2.87	4.02	30 x 40
680	380LQ681M315A032	0.293	0.146	2.87	4.55	35 x 35
820	380LQ821M315K452	0.243	0.121	3.25	4.55	30 x 45
820	380LQ821M315A042	0.243	0.121	3.25	4.55	35 x 40

Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

High Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
	315 Vdc (365 Vdc Surge)					
1000	380LQ102M315K052	0.199	0.090	3.63	5.08	30 x 50
1000	380LQ102M315A452	0.199	0.109	3.63	5.08	35 x 45
	350 Vdc (400 Vdc Surge)					
150	380LQ151M350H022	1.330	0.660	1.12	1.57	22 x 30
180	380LQ181M350H022	1.106	0.497	1.20	1.70	22 x 30
220	380LQ221M350H032	0.900	0.452	1.44	2.02	22 x 35
270	380LQ271M350H452	0.737	0.376	1.66	2.32	22 x 45
270	380LQ271M350J022	0.737	0.376	1.66	2.32	25 x 30
330	380LQ331M350J032	0.603	0.301	1.88	2.63	25 x 35
330	380LQ331M350J042	0.600	0.300	1.88	2.63	25 x 40
390	380LQ391M350J042	0.510	0.260	2.06	2.88	25 x 40
390	380LQ391M350K022	0.510	0.255	2.06	2.88	30 x 30
470	380LQ471M350K032	0.423	0.211	2.40	3.36	30 x 35
470	380LQ471M350A022	0.420	0.211	2.39	3.35	35 x 30
560	380LQ561M350K042	0.355	0.178	2.60	3.64	30 x 40
680	380LQ681M350K452	0.293	0.146	2.96	4.14	30 x 45
680	380LQ681M350A032	0.293	0.146	2.96	4.14	35 x 35
820	380LQ821M350K052	0.243	0.121	3.25	4.55	30 x 50
820	380LQ821M350A452	0.243	0.121	3.25	4.55	35 x 45
1000	380LQ102M350A052	0.199	0.109	3.54	4.96	35 x 50
	400 Vdc (450 Vdc Surge)					
150	380LQ151M400H022	1.659	0.748	0.70	0.98	22 x 30
180	380LQ181M400J032	1.105	0.550	1.44	2.02	25 x 35
220	380LQ221M400H042	0.900	0.450	1.49	2.09	22 x 40
220	380LQ221M400J022	0.905	0.452	1.49	2.09	25 x 30
270	380LQ271M400H452	0.737	0.368	1.67	2.34	22 x 45
270	380LQ271M400K022	0.737	0.368	1.67	2.34	30 x 30
330	380LQ331M400K022	0.603	0.301	1.90	2.66	30 x 30
330	380LQ331M400K032	0.603	0.300	1.90	2.66	30 x 35
330	380LQ331M400A012	0.603	0.301	1.90	2.66	35 x 25
390	380LQ391M400J452	0.510	0.255	2.13	2.98	25 x 45
390	380LQ391M400K032	0.510	0.255	2.13	2.98	30 x 35
390	380LQ391M400A022	0.510	0.255	2.13	2.98	35 x 30
470	380LQ471M400K042	0.423	0.212	2.39	3.35	30 x 40
470	380LQ471M400A032	0.420	0.210	2.39	3.35	35 x 35
560	380LQ561M400K452	0.355	0.178	2.69	3.77	30 x 45
560	380LQ561M400A032	0.355	0.178	2.69	3.77	35 x 35
680	380LQ681M400K052	0.293	0.148	2.96	4.14	30 x 50
680	380LQ681M400A042	0.293	0.148	2.70	3.80	35 x 40
680	380LQ681M400A452	0.293	0.148	2.96	4.14	35 x 45
820	380LQ821M400A452	0.243	0.122	2.95	4.15	35 x 45
820	380LQ821M400A052	0.243	0.122	3.25	4.55	35 x 50

Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

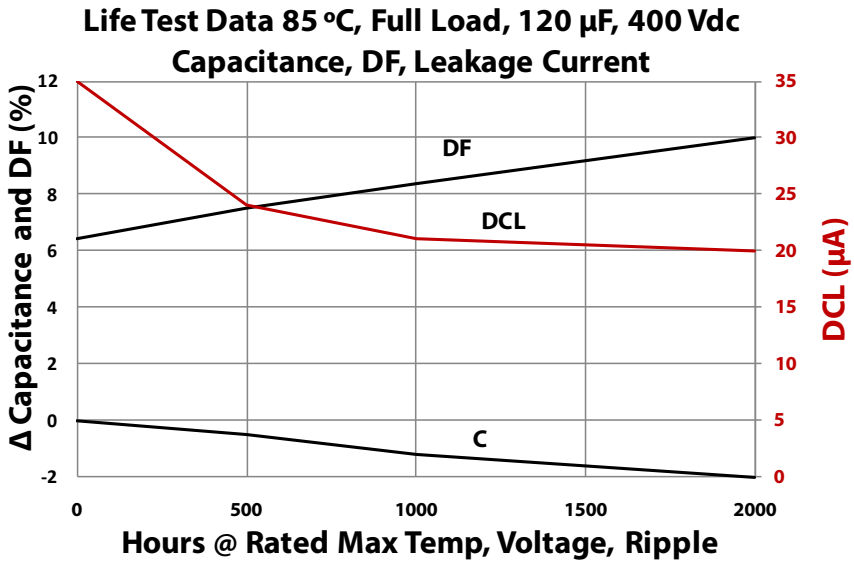
High Capacitance per Case Size

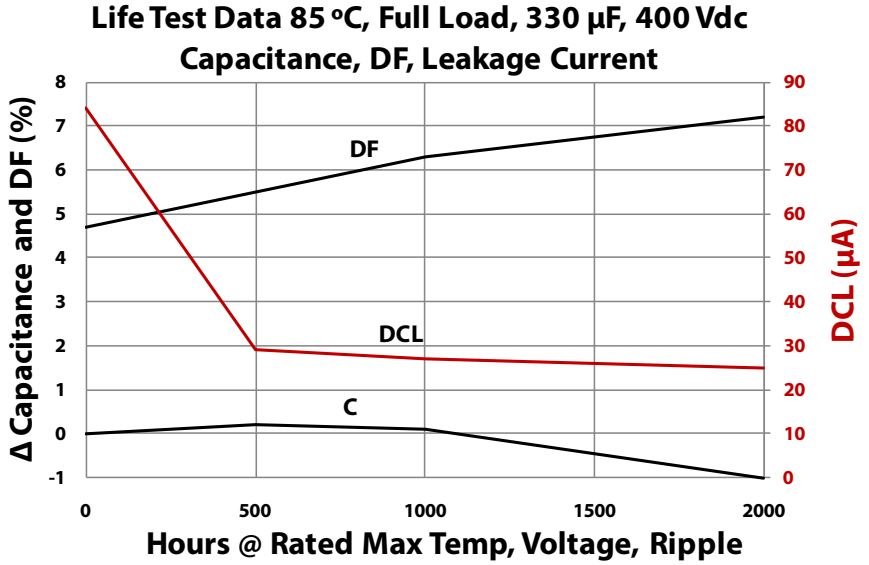
Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +85°C 120 Hz (A)	Ripple Amps @ +85°C 20 kHz (A)	Nominal Size D x L (mm)
420 Vdc (470 Vdc Surge)						
220	380LQ221M420H452	0.905	0.407	1.50	2.10	22 x 45
270	380LQ271M420J452	0.737	0.332	1.70	2.30	25 x 45
330	380LQ331M420J052	0.603	0.302	2.01	2.81	25 x 50
330	380LQ331M420K022	0.603	0.302	1.95	2.75	30 x 30
390	380LQ391M420K032	0.510	0.255	2.15	3.05	30 x 35
390	380LQ391M420K042	0.510	0.255	2.10	3.00	30 x 40
470	380LQ471M420K042	0.423	0.212	2.45	3.40	30 x 40
470	380LQ471M420A032	0.423	0.212	2.45	3.40	35 x 35
560	380LQ561M420K452	0.355	0.178	2.75	3.85	30 x 45
560	380LQ561M420A042	0.355	0.178	2.75	3.85	35 x 40
680	380LQ681M420A452	0.293	0.146	3.10	4.35	35 x 45
450 Vdc (500 Vdc Surge)						
82	380LQ820M450H022	2.430	1.210	0.83	1.16	22 x 30
100	380LQ101M450H022	1.990	0.985	0.93	1.30	22 x 30
120	380LQ121M450H022	1.656	0.829	1.04	1.46	22 x 30
150	380LQ151M450H032	1.330	0.660	1.19	1.67	22 x 35
180	380LQ181M450H042	1.110	0.550	1.32	1.85	22 x 40
180	380LQ181M450J022	1.105	0.553	1.35	1.89	25 x 30
220	380LQ221M450H452	0.900	0.450	1.32	1.84	22 x 45
220	380LQ221M450J042	0.904	0.452	1.55	2.17	25 x 40
220	380LQ221M450K022	0.904	0.452	1.55	2.17	30 x 30
220	380LQ221M450A012	0.904	0.452	1.55	2.17	35 x 25
270	380LQ271M450H052	0.740	0.370	1.72	2.42	22 x 50
270	380LQ271M450K022	0.737	0.368	1.78	2.49	30 x 30
330	380LQ331M450J052	0.600	0.300	2.01	2.81	25 x 50
330	380LQ331M450K032	0.603	0.302	1.90	2.60	30 x 35
330	380LQ331M450K042	0.603	0.302	2.01	2.81	30 x 40
330	380LQ331M450A022	0.600	0.300	2.01	2.81	35 x 30
390	380LQ391M450K042	0.510	0.255	2.24	3.14	30 x 40
390	380LQ391M450A032	0.510	0.255	2.24	3.14	35 x 35
470	380LQ471M450K452	0.423	0.212	2.53	3.54	30 x 45
470	380LQ471M450A042	0.423	0.212	2.53	3.54	35 x 40
560	380LQ561M450K052	0.355	0.178	2.82	3.95	30 x 50
560	380LQ561M450A452	0.355	0.178	2.82	3.95	35 x 45
680	380LQ681M450A052	0.293	0.146	3.00	4.25	35 x 50

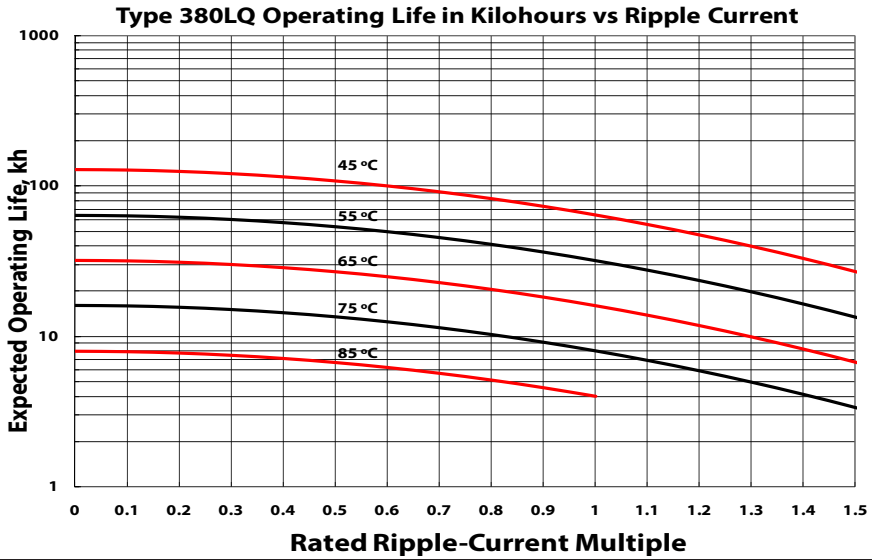
Type 380LQ 85 °C Compact, High Capacitance Snap-in Capacitors

High Capacitance per Case Size

Typical Performance Curves







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Type 381LL/383LL, 105 °C Long Life, Snap-In Aluminum

8,000 Hour Snap-in

Type 381LL snap-ins are designed and tested to meet the high ripple current demands of inverter DC link applications where long-life of the capacitor bank is essential to system reliability. The 381LL series uses the most advanced electrolyte system that delivers reliable performance and stability of parameters over the life of the capacitor.

Highlights

- 8,000 life at full rated conditions
- Stable capacitance over operating life
- Reduced leakage current over operating life
- Stable ESR and dissipation factor over operating life
- RoHS Compliant

Specifications

<table>
<tr><td>Temperature Range</td><td>–55°C to + 105 °C</td></tr>
<tr><td>Rated Voltage Range</td><td>16 Vdc to 250 Vdc</td></tr>
<tr><td>Capacitance Range</td><td>740 µF to 100,000 µF</td></tr>
<tr><td>Capacitance Tolerance</td><td>± 20%</td></tr>
<tr><td>Leakage Current</td><td>≤3 $\sqrt{CV}$ µA, 4 mA max, 5 minutes</td></tr>
<tr><td>Ripple Current Multipliers</td><td>Frequency
<table>
<tr><th></th><th>50Hz</th><th>60Hz</th><th>120Hz</th><th>500Hz</th><th>1KHz</th><th>20KHz</th></tr>
<tr><td>0-6 3 Vdc</td><td>0.75</td><td>0.85</td><td>1</td><td>1</td><td>1.05</td><td>1.05</td></tr>
<tr><td>64-100 Vdc</td><td>0.65</td><td>0.75</td><td>1</td><td>1.2</td><td>1.2</td><td>1.4</td></tr>
<tr><td>101-250 Vdc</td><td>0.65</td><td>0.73</td><td>1</td><td>1.1</td><td>1.15</td><td>1.2</td></tr>
</table>
Ambient Temperature
<table>
<tr><th></th><th>45</th><th>60</th><th>70</th><th>85</th><th>105</th></tr>
<tr><td>0-63 Vdc</td><td>1.9</td><td>1.7</td><td>1.4</td><td>1.25</td><td>1</td></tr>
<tr><td>64-100 Vdc</td><td>1.6</td><td>1.5</td><td>1.3</td><td>1.1</td><td>1</td></tr>
<tr><td>100-250 Vdc</td><td>1.7</td><td>1.5</td><td>1.3</td><td>1.2</td><td>1</td></tr>
</table></td></tr>
<tr><td>Low Temperature Characteristics</td><td>Impedance ratio: $Z_{-55°C}/Z_{+25°C}$
≤8 (16 -50 Vdc) ≤4 (63 - 100 Vdc) ≤ 3 (150–250 Vdc)</td></tr>
<tr><td>Endurance Life Test</td><td>5000 h at full load at 105 °C
Δ Capactiance ± 12.5%
ESR 162.5% of limit
DCL 100% of limit</td></tr>
<tr><td>Shelf Life Test</td><td>1000 h at 105 °C
Δ Capacitance ±20%
ESR 200% of limit
DCL 100% of limit</td></tr>
<tr><td>Expected Life</td><td>8000 h at full load at 105°C
Δ Capacitance ± 20%
ESR 200% of limit
DCL 100% of limit</td></tr>
<tr><td>Vibration</td><td>10 to 55 Hz, 0.06” and 10 g max, 2 h each plane</td></tr>
<tr><td colspan="2">Regulatory Information</td></tr>
</table>

Type 381LL/383LL, 105 °C Long Life, Snap-In Aluminum

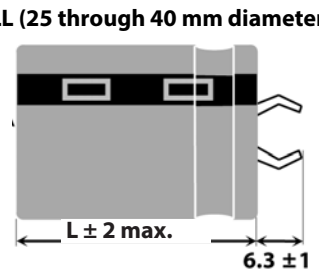
8,000 Hour Snap-in
Part Numbering System

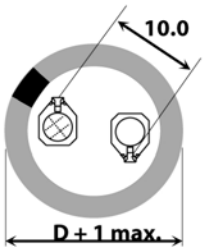
381LL/383LL	801	M	016	A03	2	V
Type	Cap	Tolerance	Voltage	Case Code	Insulating Sleeve	V = 5 Pin Standoff
381LL	**801** = 800 µF **832** = 8300 µF **863** = 86,000 µF	**M** = ±20%	**016** = 16 Vdc **063** = 63 Vdc **100** = 100 Vdc		**2** = PET	

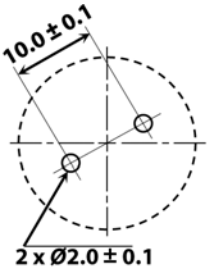
Outline Drawings

Dimensions shown are in mm

Two Pins
381LL (25 through 40 mm diameter)

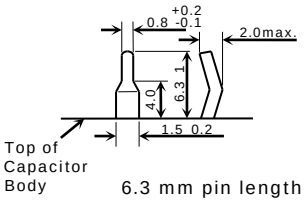






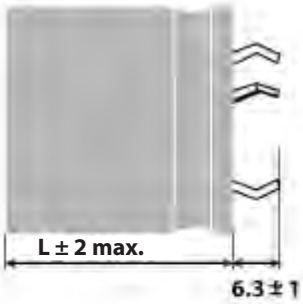
PC Board Mounting Holes

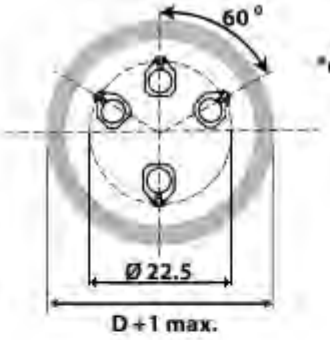
Available in 2, 4 and 5 pins

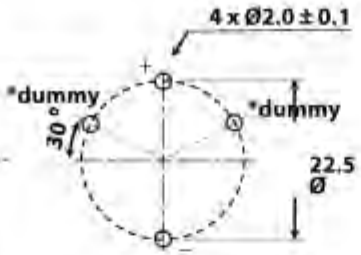


6.3 mm pin length

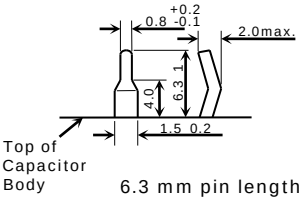
Four Pins
383LL (35, 40 mm diameter)





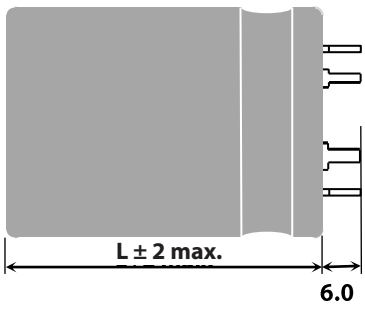


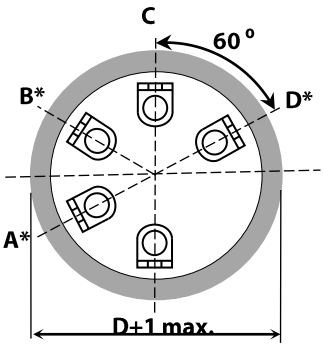
PC Board Mounting Holes

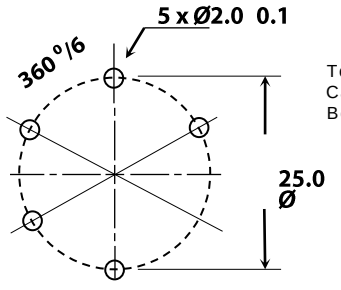


6.3 mm pin length

Five Pins
383LL (40 mm diameter)

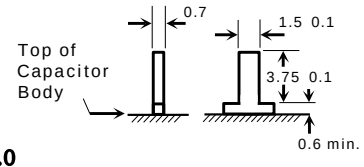






PC Board Mounting Holes

Available in 5 pins



5 pin Standoff pin style (add "V" to end of part#)

Terminal	Connection	
	40 mm Dia.	50 mm Dia.
A	dummy	negative (–)
B	dummy	dummy
C	positive (+)	positive (+)
D	dummy	positive (+)
–	negative (–)	negative (–)

Notes:
* Use dummy terminals for mechanical support only. Make no electrical connection because they resistively connect through the electrolyte to the negative terminal.
** Safety Vent may be on the bottom or on the side of the can.

Type 381LL/383LL, 105 °C Long Life, Snap-In Aluminum

8,000 Hour Snap-in
Ratings

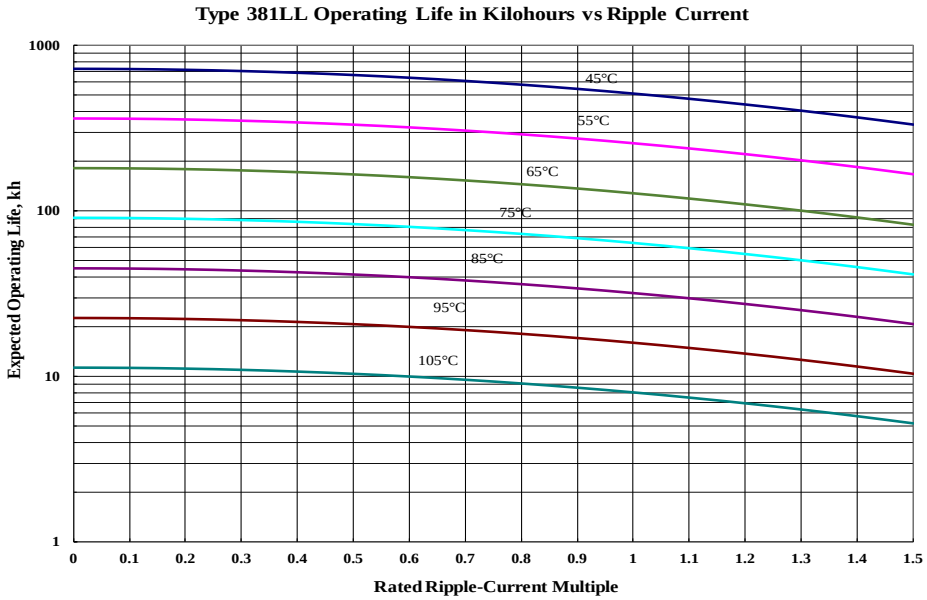
Cap (µF)	Catalog Part Number	Max ESR @ +25°C 120 Hz (ohms)	Max ESR @ +25°C 20 kHz (ohms)	Ripple Amps @105 °C 120 Hz (A)	Ripple Amps @105 °C 20 kHz (A)	Nominal Size D x L (mm)
16 Vdc (20Vdc Surge)						
35000	381LL353M016A032	0.037	0.036	4.81	5.00	35 x 35
59000	381LL593M016A052	0.022	0.021	6.83	7.10	35 x 50
73000	383LL733M016N052	0.021	0.021	7.60	7.91	40 x 50
75000	381LL753M016A062	0.016	0.015	8.42	8.75	35 x 63
100000	383LL104M016N062	0.016	0.015	9.39	9.77	40 x 63
150000	383LL154M016E752	0.013	0.013	11.79	12.26	45 x 75
170000	383LL174M016B062	0.015	0.015	11.22	11.67	50 x 63
200000	383LL204M016B752	0.013	0.012	12.83	13.35	50 x 75
35 Vdc (44 Vdc Surge)						
6800	381LL682M035A032	0.058	0.056	3.84	3.99	35 x 35
13000	381LL133M035A032	0.042	0.041	4.50	4.68	35 x 35
18000	381LL183M035A052	0.027	0.026	6.09	6.34	35 x 50
22000	381LL223M035A052	0.025	0.024	6.39	6.65	35 x 50
28000	383LL283M035N052	0.024	0.023	7.20	7.48	40 x 50
31000	381LL313M035A062	0.018	0.018	7.90	8.21	35 x 63
35000	383LL353M035E052	0.023	0.023	7.99	8.31	45 x 50
38000	383LL383M035N062	0.018	0.017	8.89	9.25	40 x 63
58000	383LL583M035E752	0.014	0.014	11.28	11.73	45 x 75
66000	383LL663M035B062	0.016	0.016	10.85	11.29	50 x 63
79000	383LL793M035B752	0.014	0.013	12.41	12.91	50 x 75
50 Vdc (63 Vdc Surge)						
6800	381LL682M050A032	0.047	0.046	3.91	4.07	35 x 35
8400	381LL842M050A032	0.041	0.040	4.18	4.35	35 x 35
14000	381LL143M050A052	0.025	0.024	5.94	6.18	35 x 50
17000	383LL173M050N052	0.023	0.022	6.77	7.04	40 x 50
18000	381LL183M050A062	0.018	0.018	7.28	7.58	35 x 63
19000	381LL193M050A062	0.018	0.017	7.34	7.64	35 x 63
22000	383LL223M050E052	0.022	0.021	7.61	7.91	45 x 50
24000	383LL243M050N062	0.017	0.016	8.37	8.70	40 x 63
36000	383LL363M050E752	0.013	0.013	10.72	11.15	45 x 75
41000	383LL413M050B062	0.015	0.015	10.44	10.85	50 x 63
49000	383LL493M050B752	0.013	0.012	11.94	12.41	50 x 75
63 Vdc (79 Vdc Surge)						
4700	381LL472M063A032	0.086	0.083	2.91	3.03	35 x 35
6400	381LL642M063A032	0.080	0.078	3.02	3.14	35 x 35
6800	381LL682M063A052	0.050	0.048	4.18	4.35	35 x 50
10000	381LL103M063A052	0.047	0.046	4.28	4.45	35 x 50
13000	383LL133M063N052	0.044	0.043	4.89	5.08	40 x 50
14000	381LL143M063A062	0.035	0.034	5.29	5.50	35 x 63
16000	383LL163M063E052	0.042	0.041	5.49	5.71	45 x 50
18000	383LL183M063N062	0.033	0.032	6.04	6.28	40 x 63
27000	383LL273M063E752	0.026	0.026	7.75	8.06	45 x 75
31000	383LL313M063B062	0.029	0.028	7.56	7.87	50 x 63
37000	383LL373M063B752	0.024	0.023	8.65	9	50 x 75

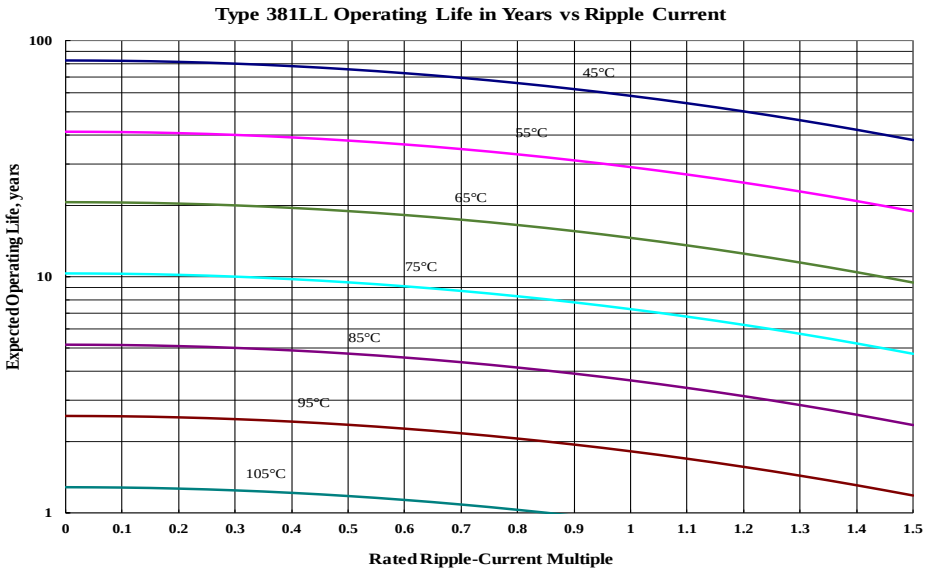
Cap (µF)	Catalog Part Number	Max ESR @ +25°C 120 Hz (ohms)	Max ESR @ +25°C 20 kHz (ohms)	Ripple Amps @105 °C 120 Hz (A)	Ripple Amps @105 °C 20 kHz (A)	Nominal Size D x L (mm)
80 Vdc (100 Vdc Surge)						
4000	381LL402M080A032	0.084	0.042	3.60	5.04	35 x 35
4700	381LL472M080A052	0.056	0.028	4.80	6.72	35 x 50
6800	381LL682M080A052	0.050	0.025	5.11	7.16	35 x 50
6800	381LL682M080A062	0.040	0.020	6.00	8.39	35 x 63
8400	383LL842M080N052	0.046	0.023	5.86	8.20	40 x 50
9200	381LL922M080A062	0.036	0.018	6.32	8.85	35 x 63
10000	383LL103M080E052	0.044	0.022	6.6	9.24	45 x 50
11000	383LL113M080N062	0.034	0.017	7.24	10.13	40 x 63
18000	383LL183M080E752	0.026	0.013	9.37	13.11	45 x 75
19000	383LL193M080B062	0.03	0.015	9.14	12.79	50 x 63
23000	383LL233M080B752	0.025	0.012	10.45	14.63	50 x 75
100 Vdc (125 Vdc Surge)						
2400	381LL242M100A032	0.091	0.046	3.46	4.84	35 x 35
3300	381LL332M100A052	0.059	0.029	4.70	6.58	35 x 50
4100	381LL412M100A052	0.054	0.027	4.91	6.87	35 x 50
4700	381LL472M100A062	0.042	0.021	5.86	8.21	35 x 63
5100	383LL512M100N052	0.050	0.025	5.65	7.91	40 x 50
5600	381LL562M100A062	0.039	0.020	6.07	8.49	35 x 63
6400	383LL642M100E052	0.046	0.023	6.41	8.97	45 x 50
6800	383LL682M100N062	0.037	0.018	6.96	9.74	40 x 63
7000	383LL702M100N062	0.037	0.018	6.99	9.78	40 x 63
10000	383LL103M100E752	0.028	0.014	9.05	12.67	45 x 75
12000	383LL123M100B062	0.031	0.016	8.92	12.49	50 x 63
14000	383LL142M100B752	0.026	0.013	10.2	14.29	50 x 75
200 Vdc (250 Vdc Surge)						
950	381LL951M200A032	0.183	0.092	2.30	3.22	35 x 35
1600	381LL162M200A052	0.108	0.054	3.38	4.74	35 x 50
2000	383LL202M200N052	0.101	0.051	3.87	5.42	40 x 50
2200	381LL222M200A062	0.079	0.040	4.19	5.86	35 x 63
2500	383LL252M200E052	0.095	0.048	4.36	6.11	45 x 50
2700	383LL272M200N062	0.074	0.037	4.78	6.70	40 x 63
4100	383LL412M200E752	0.058	0.029	6.16	8.63	45 x 75
4600	383LL462M200B062	0.065	0.033	6.03	8.44	50 x 63
5600	383LL562M200B752	0.054	0.027	6.9	9.66	50 x 75
250 Vdc (300 Vdc Surge)						
740	381LL741M250A032	0.200	0.100	2.28	3.19	35 x 35
1200	381LL122M250A052	0.118	0.059	3.24	4.54	35 x 50
1500	383LL152M250N052	0.109	0.055	3.73	5.22	40 x 50
1700	381LL172M250A062	0.087	0.043	4.00	5.60	35 x 63
1900	383LL192M250E052	0.102	0.051	4.23	5.92	45 x 50
2100	383LL212M250N062	0.080	0.040	4.61	6.45	40 x 63
3200	383LL322M250E752	0.062	0.031	5.97	8.36	45 x 75
3600	383LL362M250B062	0.069	0.034	5.88	8.23	50 x 63
4300	383LL432M250B752	0.057	0.029	6.73	9.42	50 x 75

Type 381LL/383LL, 105 °C Long Life, Snap-In Aluminum

8,000 Hour Snap-in

Typical Performance Curves

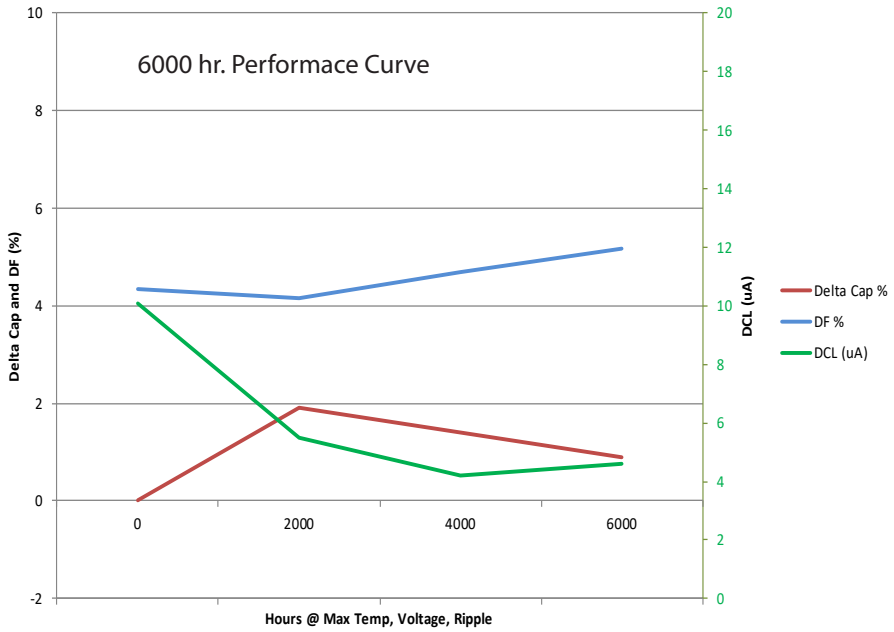




Type 381LL/383LL, 105 °C Long Life, Snap-In Aluminum

8,000 Hour Snap-in

Typical Performance Curves



Based on 330uF 250Vdc Endurance Life Test

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2, 4 and 5 pin styles available

Adding longer-life and more ripple capability to the excellent value of Type 380L/LX capacitors, the 381L/LX readily handles tough switching power supply input and output circuits and motor-drive bus capacitor applications where the high surface area of multiple units in parallel equals the ripple capability of our Type 520C inverter-grade capacitor. Type 381LX delivers more capacitance per can size while Type 381L gives lower ESR for the same capacitance rating. Type 383L/LX has 4 or 5 leads for stable, reverse-proof mounting.

Highlights

- Top performance in power supplies and motor drives
- 4 times the life of Type 380L/LX
- 2, 4 and 5 leads available
- Big selection of 42 case sizes

Specifications

Temperature Range	–40 °C to + 105 °C ≤ 250 Vdc –25 °C to + 105 °C ≥ 315 Vdc
Rated Voltage Range	10 Vdc to 450 Vdc
Capacitance Range	33 µF to 150,000 µF
Capacitance Tolerance	± 20%
Leakage Current	≤3 $\sqrt{CV}$ µA, 4 mA max, 5 minutes
Ripple Current Multipliers	Ambient Temperature

	45 °C	60 °C	70 °C	85 °C	105°C
381L 383L	2.70	2.60	2.50	2.10	1.00
381LX, 383 LX	2.35	2.20	2.00	1.70	1.00

Frequency

	50 Hz	60 Hz	120 Hz	500 Hz	1 kHz	5 kHz & up
10-100 Vdc	0.93	0.95	1.00	1.05	1.08	1.15
160-450 Vdc	0.75	0.80	1.00	1.20	1.25	1.40

Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 10 (10 Vdc) ≤ 8 (16–50 Vdc) ≤ 4 (63–100 Vdc) ≤ 3 (150–450 Vdc)
Endurance Life Test	3000 h at full load at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	1000 h at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h each plane
RoHS Compliant	

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

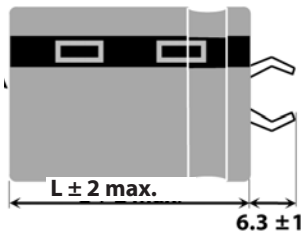
High Ripple, Long Life, 2,4 and 5 pin styles available

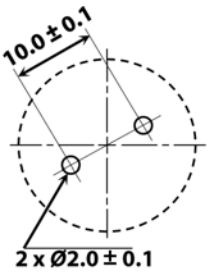
383LX	272	M	200	N08	2	V
Type	Cap	Tolerance	Voltage	Case Code	Insulation	# of pins
381L / LX (2 pins)	**100** = 10 µF	**M =** ±20%	**200** = 200 Vdc		**2** = PVC	**Blank** = 2 pins / 4 pins snap-in 6.3mm L
383L / LX (4 or 5 pins)	**101** = 100 µF					**A** = 2 pins snap-in 4.0mm L
	272 = 2700 µF					**VS** = 5 pins snap-in 6.3mm L
						V = 5 pins standoff

Outline Drawings

Dimensions shown are in mm

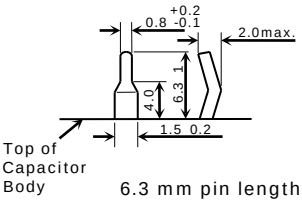
Two Pins
381L/LX (22 through 40 mm diameter)





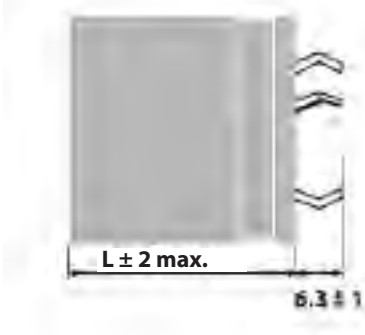
PC Board Mounting Holes

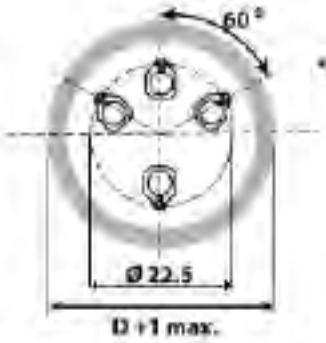
Available in 2, 4 and 5 pins

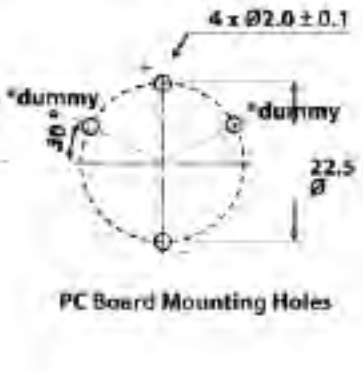


6.3 mm pin length

Four Pins
383L/LX (35 and 40 mm diameter)

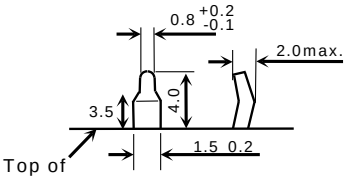






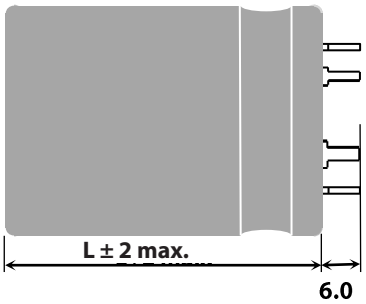
PC Board Mounting Holes

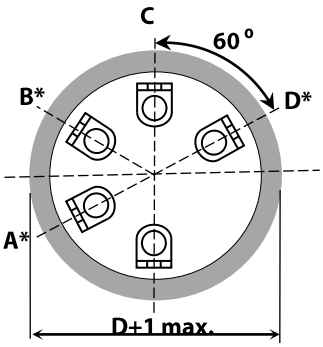
Available in 2 and 4 pins

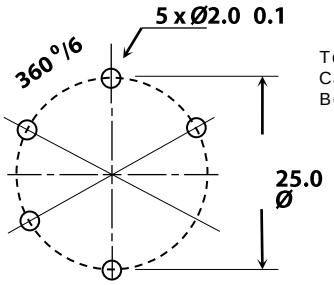


4.0 mm pin length option (add "A" to end of part#)

Five Pins
383L/LX (40 and 50 mm diameter)

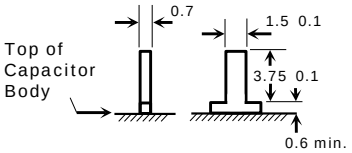






PC Board Mounting Holes

Available in 5 pins



5 pin Standoff pin style (add "V" to end of part#)

Terminal	Connection	
	40 mm Dia.	50 mm Dia.
A	dummy	negative (–)
B	dummy	dummy
C	positive (+)	positive (+)
D	dummy	positive (+)
–	negative (–)	negative (–)

Notes:
* Use dummy terminals for mechanical support only. Make no electrical connection because they resistively connect through the electrolyte to the negative terminal.
** Safety Vent may be on the bottom or on the side of the can.

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

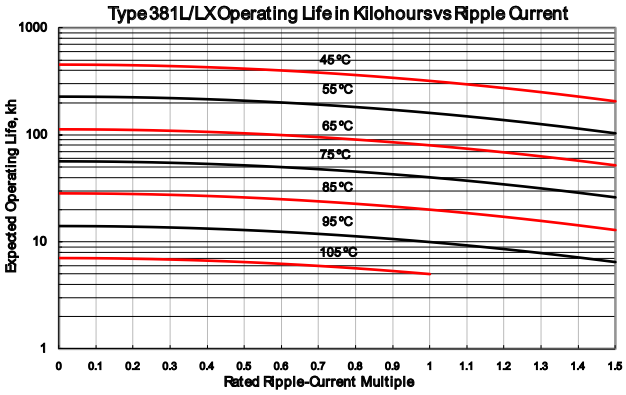
High Ripple, Long Life, 2,4 and 5 pin styles available

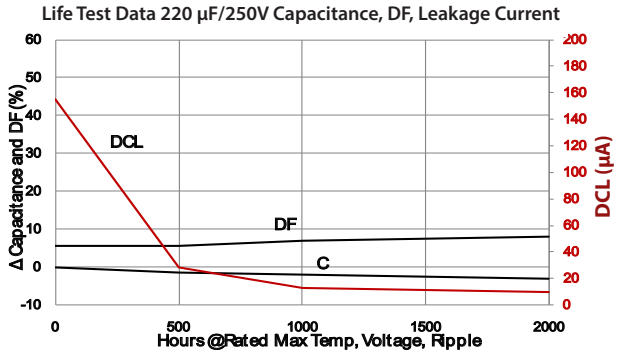
Insulated Case Dimensions

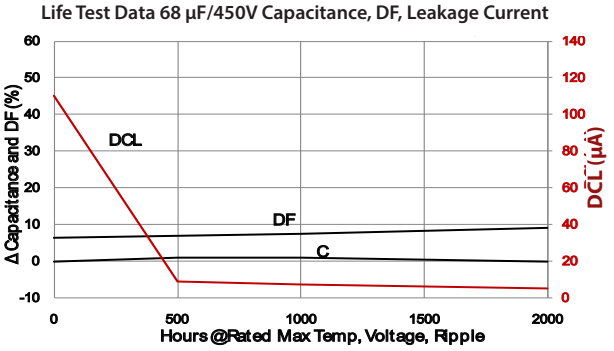
Case Code	DIAMETER "D"		LENGTH "L"		Typical Weight
	mm	inches	mm	inches	(grams)
H20	22	0.87	20	0.79	14
H01	22	0.87	25	0.98	16
H02	22	0.87	30	1.18	19
H03	22	0.87	35	1.38	22
H04	22	0.87	40	1.57	24
H45	22	0.87	45	1.77	28
H05	22	0.87	50	1.97	31
J20	25	0.98	20	0.79	16
J01	25	0.98	25	0.98	20
J02	25	0.98	30	1.18	24
J03	25	0.98	35	1.38	27
J04	25	0.98	40	1.57	31
J45	25	0.98	45	1.77	35
J05	25	0.98	50	1.97	38
K20	30	1.18	20	0.79	25
K01	30	1.18	25	0.98	30
K02	30	1.18	30	1.18	35
K03	30	1.18	35	1.38	40
K04	30	1.18	40	1.57	44
K45	30	1.18	45	1.77	48
K05	30	1.18	50	1.97	53
A20	35	1.38	20	0.79	35
A01	35	1.38	25	0.98	42
A02	35	1.38	30	1.18	48
A03	35	1.38	35	1.38	54

Case Code	DIAMETER "D"		LENGTH "L"		Typical Weight
	mm	inches	mm	inches	(grams)
A04	35	1.38	40	1.57	62
A45	35	1.38	45	1.77	67
A05	35	1.38	50	1.97	74
A55	35	1.38	55	2.17	80
A06	35	1.38	63	2.48	88
A07	35	1.38	70	2.76	98
A08	35	1.38	80	3.15	112
A10	35	1.38	105	4.13	144
N04	40	1.57	40	1.57	82
N05	40	1.57	50	1.97	105
N06	40	1.57	63	2.48	130
N08	40	1.57	80	3.15	185
N10	40	1.57	105	4.13	265
E05	45	1.77	50	1.97	122
E06	45	1.77	63	2.48	150
E75	45	1.77	75	2.65	200
E08	45	1.77	80	3.15	213
E09	45	1.77	92	3.62	238
E10	45	1.77	105	4.13	299
B05	50	1.97	50	1.97	136
B06	50	1.97	63	2.48	168
B08	50	1.97	80	3.15	239
B09	50	1.97	92	3.62	241
B10	50	1.97	105	4.13	325

Typical Performance Curves







Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Ratings

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
10 Vdc (13 Vdc Surge)						
4700	381LX472M010H012	0.159	0.135	0.85	0.98	22 x 25
6800	381LX682M010H012	0.111	0.093	1.30	1.50	22 x 25
10000	381LX103M010H012	0.075	0.063	1.80	2.10	22 x 25
12000	381LX123M010H012	0.076	0.065	2.20	2.63	22 x 25
15000	381LX153M010H012	0.076	0.065	2.20	2.53	22 x 25
18000	381LX183M010H022	0.051	0.043	2.40	2.76	22 x 30
22000	381LX223M010H032	0.041	0.035	2.60	2.99	22 x 35
27000	381LX273M010J032	0.034	0.029	3.10	3.57	25 x 35
33000	381LX333M010J042	0.028	0.023	3.40	3.91	25 x 40
39000	381LX393M010K032	0.026	0.023	3.70	4.26	30 x 35
39000	381LX393M010A022	0.025	0.020	3.70	4.30	35 x 30
47000	381LX473M010K032	0.024	0.022	4.20	4.83	30 x 35
56000	381LX563M010K042	0.023	0.021	5.00	5.75	30 x 40
68000	381LX683M010K452	0.022	0.019	5.40	6.21	30 x 45
68000	383LX683M010N042	0.023	0.022	5.40	6.20	40 x 40
82000	383LX823M010N052	0.018	0.017	7.40	8.50	40 x 50
120000	383L124M010N062	0.012	0.008	7.10	8.60	40 x 63
150000	383L154M010N082	0.009	0.006	8.90	10.60	40 x 80
16 Vdc (20 Vdc Surge)						
3300	381LX332M016H012	0.213	0.170	1.30	1.50	22 x 25
4700	381LX472M016H012	0.150	0.120	1.60	1.80	22 x 25
6800	381LX682M016H012	0.090	0.067	2.20	2.50	22 x 25
6800	381LX682M016J202	0.110	0.092	1.80	2.10	25 x 20
8200	381LX822M016H012	0.110	0.092	1.80	2.10	22 x 25
10000	381LX103M016H012	0.075	0.063	2.60	2.99	22 x 25
10000	381LX103M016J012	0.120	0.086	2.60	3.00	25 x 25
12000	381LX123M016H022	0.062	0.053	2.90	3.34	22 x 30
15000	381LX153M016J022	0.046	0.307	3.20	3.70	25 x 30
15000	381LX153M016J032	0.080	0.064	3.20	3.70	25 x 35
15000	381LX153M016K022	0.080	0.064	3.20	3.70	30 x 30
18000	381LX183M016H032	0.041	0.035	3.50	4.03	22 x 35
22000	381LX223M016H042	0.034	0.029	3.80	4.37	22 x 40
22000	381LX223M016J452	0.033	0.028	3.80	4.40	25 x 45
27000	381LX273M016H052	0.028	0.023	4.20	4.83	22 x 50
27000	381LX273M016J052	0.030	0.025	4.20	4.80	25 x 50
27000	381LX273M016K022	0.028	0.023	4.20	4.83	30 x 30
33000	381LX333M016K032	0.023	0.020	4.70	5.41	30 x 35
33000	381LX333M016K452	0.023	0.020	4.70	5.40	30 x 45
39000	381LX393M016K042	0.022	0.020	5.10	5.87	30 x 40
47000	381LX473M016K452	0.021	0.019	5.50	6.33	30 x 45
47000	381LX473M016A452	0.020	0.018	5.50	6.30	35 x 45

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
16 Vdc (20 Vdc Surge)						
47000	383LX473M016N042	0.020	0.018	5.50	6.33	40 x 40
56000	381LX563M016A452	0.020	0.018	6.00	6.90	35 x 45
68000	381LX683M016A452	0.020	0.018	6.50	7.50	35 x 45
68000	383LX683M016N052	0.015	0.014	7.30	8.40	40 x 50
82000	383LX823M016N062	0.017	0.013	7.70	8.80	40 x 63
100000	381LX104M016A082	0.015	0.013	8.00	9.20	35 x 80
120000	381LX124M016A082	0.015	0.013	8.50	9.50	35 x 80
120000	383LX124M016N082	0.014	0.012	8.80	10.10	40 x 80
120000	383LX124M016B052V	0.015	0.014	9.02	10.37	50 x 50
150000	383LX154M016N102	0.013	0.012	9.88	11.36	40 x 105
150000	383LX154M016B062V	0.014	0.013	10.15	11.67	50 x 63
180000	383LX184M016B082V	0.013	0.012	11.02	12.67	50 x 80
220000	383LX224M016B092V	0.012	0.011	11.71	13.47	50 x 92
250000	383LX254M016B102V	0.011	0.010	12.31	14.16	50 x 105
25 Vdc (32 Vdc Surge)						
2200	381LX222M025H202	0.240	0.180	1.30	1.50	22 x 20
3300	381LX332M025H012	0.160	0.120	1.60	1.80	22 x 25
4700	381LX472M025H012	0.105	0.080	2.00	2.30	22 x 25
5600	381LX562M025H012	0.090	0.070	2.20	2.50	22 x 25
6800	381LX682M025H022	0.085	0.064	2.40	2.76	22 x 30
6800	381LX682M025J012	0.070	0.055	2.40	2.80	25 x 25
8200	381LX822M025H022	0.071	0.053	2.70	3.11	22 x 30
10000	381LX103M025J022	0.058	0.044	3.00	3.45	25 x 30
12000	381LX123M025J022	0.048	0.036	3.20	3.68	25 x 30
12000	381LX123M025A012	0.044	0.033	3.20	3.70	35 x 25
15000	381LX153M025J032	0.039	0.029	3.60	4.14	25 x 35
15000	381LX153M025J452	0.036	0.031	3.60	4.10	25 x 45
15000	381LX153M025A022	0.036	0.031	3.60	4.10	35 x 30
18000	381LX183M025J042	0.032	0.024	3.90	4.49	25 x 40
18000	381LX183M025J052	0.030	0.027	3.90	4.50	25 x 50
22000	381LX223M025J452	0.026	0.020	4.30	4.95	25 x 45
22000	381LX223M025K452	0.025	0.022	4.30	4.90	30 x 45
22000	381LX223M025A032	0.030	0.026	4.30	4.90	35 x 35
27000	381LX273M025K042	0.021	0.019	4.80	5.50	30 x 40
27000	383L273M025N042	0.020	0.013	4.60	5.60	40 x 40
33000	381LX333M025K452	0.018	0.014	5.50	6.33	30 x 45
33000	383LX333M025N042	0.018	0.016	5.50	6.33	40 x 40
39000	383L393M025N052	0.015	0.010	5.80	7.00	40 x 50
47000	381LX473M025A052	0.017	0.015	6.50	4.25	35 x 50
47000	383LX473M025N052	0.015	0.014	6.50	7.40	40 x 50
47000	383L473M025N062	0.012	0.008	6.90	8.30	40 x 63
56000	383LX563M025N062	0.015	0.012	7.20	8.25	40 x 63

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
25 Vdc (32 Vdc Surge)						
68000	383L683M025N082	0.009	0.007	8.70	10.20	40 x 80
82000	383LX823M025N082	0.014	0.011	8.70	10.00	40 x 80
82000	383LX823M025B052V	0.016	0.015	9.20	10.58	50 x 50
100000	383LX104M025N102	0.012	0.010	9.76	11.22	40 x 105
100000	383LX104M025B062V	0.015	0.013	10.02	11.52	50 x 63
120000	383LX124M025B082V	0.013	0.012	10.93	12.57	50 x 80
150000	383LX154M025B092V	0.012	0.011	11.70	13.46	50 x 92
180000	383LX184M025B102V	0.010	0.009	12.42	14.28	50 x 105
35 Vdc (44 Vdc Surge)						
1500	381LX152M035H012	0.287	0.216	1.10	1.30	22 x 25
2200	381LX222M035H012	0.200	0.150	1.40	1.60	22 x 25
3300	381LX332M035H012	0.121	0.091	1.90	2.20	22 x 25
3300	381LX332M035K202	0.130	0.100	1.70	2.00	30 x 20
3900	381LX392M035H012	0.110	0.080	2.00	2.30	22 x 25
4700	381LX472M035H022	0.090	0.070	2.20	2.50	22 x 30
4700	381LX472M035J012	0.090	0.070	2.20	2.50	25 x 25
5600	381LX562M035H032	0.071	0.054	2.40	2.80	22 x 35
5600	381LX562M035J012	0.041	0.054	2.40	2.80	25 x 25
6800	381LX682M035J022	0.073	0.055	2.60	2.99	25 x 30
6800	381LX682M035K022	0.059	0.045	2.60	3.00	30 x 30
8200	381LX822M035J022	0.049	0.037	2.90	3.30	25 x 30
8200	381LX822M035A012	0.049	0.037	2.90	3.30	35 x 25
10000	381LX103M035J032	0.050	0.037	3.20	3.68	25 x 35
10000	381LX103M035J452	0.040	0.030	3.20	3.70	25 x 45
10000	381LX103M035A022	0.040	0.030	3.20	3.70	35 x 30
12000	381LX123M035J042	0.041	0.031	3.50	4.03	25 x 40
12000	381LX123M035J052	0.033	0.025	3.50	4.00	25 x 50
12000	381LX123M035A022	0.033	0.025	3.50	4.00	35 x 30
15000	381LX153M035K042	0.033	0.025	3.90	4.49	30 x 40
15000	381LX153M035K452	0.030	0.020	3.90	4.50	30 x 45
15000	381LX153M035A032	0.030	0.020	3.90	4.50	35 x 35
18000	381LX183M035K452	0.028	0.021	4.30	4.95	30 x 45
22000	381LX223M035A052	0.023	0.017	5.00	5.80	35 x 50
22000	383LX223M035N042	0.023	0.017	5.00	5.75	40 x 40
27000	381LX273M035A052	0.018	0.014	5.30	6.10	35 x 50
27000	383LX273M035N052	0.020	0.015	5.45	6.25	40 x 50
33000	383L333M035N062	0.019	0.014	6.60	7.60	40 x 63
39000	381LX393M035A052	0.017	0.014	6.50	7.50	35 x 50
47000	383L473M035N082	0.018	0.013	7.80	9.00	40 x 80
47000	383LX473M035B052V	0.021	0.016	8.25	9.49	50 x 50
56000	383LX563M035B062V	0.019	0.014	9.07	10.43	50 x 63
68000	383LX683M035N102	0.016	0.012	9.27	10.66	40 x 105

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
35 Vdc (44 Vdc Surge)						
68000	383LX683M035B082V	0.017	0.013	10.07	11.58	50 x 80
82000	383LX823M035B092V	0.015	0.011	10.89	12.52	50 x 92
100000	383LX104M035B102V	0.013	0.010	11.75	13.51	50 x 105
50 Vdc (63 Vdc Surge)						
1000	381LX102M050H202	0.260	0.200	0.90	1.00	22 x 20
1500	381LX152M050H012	0.155	0.120	1.25	1.45	22 x 25
1800	381LX182M050H012	0.129	0.097	1.50	1.70	22 x 25
2200	381LX222M050H012	0.129	0.097	1.50	1.70	22 x 25
2700	381LX272M050H012	0.154	0.115	1.80	2.07	22 x 25
2700	381LX272M050J012	0.086	0.064	1.80	2.10	25 x 25
3300	381LX332M050H012	0.126	0.094	2.00	2.30	22 x 25
3300	381LX332M050J022	0.070	0.053	2.00	2.30	25 x 30
3900	381LX392M050J012	0.106	0.080	2.20	2.53	25 x 25
3900	381LX392M050K012	0.065	0.050	2.20	2.50	30 x 25
4700	381LX472M050J022	0.053	0.040	2.50	2.90	25 x 30
4700	381LX472M050A012	0.053	0.040	2.50	2.90	35 x 25
5600	381LX562M050J032	0.074	0.056	2.80	3.22	25 x 35
5600	381LX562M050A022	0.050	0.038	2.80	3.20	35 x 30
6800	381LX682M050H452	0.061	0.046	3.30	3.80	22 x 45
6800	381LX682M050A022	0.046	0.035	3.30	3.80	35 x 30
8200	381LX822M050K452	0.051	0.038	3.60	4.10	30 x 45
8200	381LX822M050A032	0.040	0.030	3.60	4.10	35 x 35
10000	381LX103M050J052	0.041	0.031	4.00	4.60	25 x 50
10000	381LX103M050K052	0.033	0.025	4.00	4.60	30 x 50
10000	381LX103M050A042	0.033	0.025	4.00	4.60	35 x 40
12000	381LX123M050A452	0.028	0.021	4.50	5.20	35 x 45
12000	383L123M050N042	0.029	0.018	3.80	4.80	40 x 40
15000	381LX153M050K452	0.028	0.022	4.80	5.52	30 x 45
15000	383LX153M050N042	0.022	0.018	4.80	5.52	40 x 40
15000	383L153M050N052	0.021	0.013	4.90	6.10	40 x 50
18000	381LX183M050A452	0.023	0.018	5.60	6.44	35 x 45
18000	383L183M050N062	0.017	0.011	5.80	7.20	40 x 63
22000	383LX223M050N052	0.016	0.013	5.10	5.90	40 x 50
27000	383LX273M050N062	0.015	0.012	6.05	6.96	40 x 63
27000	383L273M050N082	0.013	0.009	7.40	9.00	40 x 80
33000	383LX333M050B052V	0.018	0.014	7.75	8.91	50 x 50
39000	383LX393M050N082	0.013	0.010	6.20	7.10	40 x 80
39000	383LX393M050B062V	0.016	0.013	8.40	9.66	50 x 63
47000	383LX473M050N102	0.012	0.010	8.18	9.41	40 x 105
47000	383LX473M050B082V	0.014	0.011	9.19	10.57	50 x 80
56000	383LX563M050B092V	0.012	0.009	9.79	11.26	50 x 92
68000	383LX683M050B102V	0.011	0.009	10.40	12.00	50 x 105

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
63 Vdc (79 Vdc Surge)						
680	381LX681M063H012	0.410	0.310	0.90	1.00	22 x 25
1000	381LX102M063H012	0.280	0.210	1.18	1.35	22 x 25
1200	381LX122M063H012	0.235	0.180	1.40	1.60	22 x 25
1500	381LX152M063H012	0.235	0.180	1.50	1.70	22 x 25
1800	381LX182M063H022	0.157	0.117	1.70	1.96	22 x 30
1800	381LX182M063J012	0.123	0.092	2.20	2.53	25 x 25
2200	381LX222M063H022	0.143	0.110	1.50	1.70	22 x 30
2700	381LX272M063H042	0.123	0.092	2.20	2.53	22 x 40
2700	381LX272M063K012	0.105	0.080	2.20	2.50	30 x 25
3300	381LX332M063J022	0.090	0.070	2.50	2.90	25 x 30
3300	381LX332M063A012	0.090	0.070	2.50	2.90	35 x 25
3900	381LX392M063J022	0.085	0.064	2.70	3.11	25 x 30
3900	381LX392M063J452	0.080	0.060	2.70	3.10	25 x 45
4700	381LX472M063K042	0.063	0.048	3.00	3.50	30 x 40
5600	381LX562M063K042	0.059	0.044	3.30	3.80	30 x 40
5600	381LX562M063K452	0.055	0.040	3.30	3.80	30 x 45
5600	381LX562M063A032	0.055	0.040	3.30	3.80	35 x 35
6800	381LX682M063J052	0.050	0.040	3.60	4.10	25 x 50
6800	381LX682M063K042	0.049	0.037	3.60	4.14	30 x 40
6800	381LX682M063K052	0.050	0.040	3.60	4.10	30 x 50
8200	381LX822M063J052	0.040	0.030	3.90	4.50	25 x 50
8200	381LX822M063A452	0.040	0.030	3.90	4.50	35 x 45
8200	383L822M063N042	0.031	0.018	3.70	4.80	40 x 40
10000	381LX103M063K452	0.033	0.028	4.40	5.10	30 x 45
10000	381LX103M063K052	0.033	0.028	4.40	5.10	30 x 50
12000	381LX123M063K052	0.030	0.025	4.40	5.06	30 x 50
12000	383LX123M063N042	0.030	0.028	4.52	5.20	40 x 40
12000	383L123M063N052	0.022	0.013	4.70	6.10	40 x 50
15000	381LX153M063A052	0.024	0.023	4.90	5.70	35 x 50
15000	383LX153M063N052	0.027	0.023	4.80	5.50	40 x 50
15000	383L153M063N062	0.018	0.011	5.70	7.20	40 x 63
18000	381LX183M063A082	0.022	0.019	5.80	6.70	35 x 80
18000	383LX183M063N062	0.023	0.020	5.40	6.20	40 x 63
22000	383L223M063N082	0.013	0.009	7.20	9.00	40 x 80
22000	383LX223M063B052V	0.019	0.016	6.76	7.77	50 x 50
27000	383LX273M063N082	0.017	0.014	6.60	7.60	40 x 80
27000	383LX273M063B062V	0.017	0.014	7.34	8.44	50 x 63
33000	383LX333M063B082V	0.015	0.013	8.00	9.20	50 x 80
39000	383LX393M063N102	0.014	0.012	7.53	8.66	40 x 105
39000	383LX393M063B092V	0.014	0.012	8.48	9.75	50 x 92
47000	383LX473M063B102V	0.012	0.010	8.99	10.34	50 x 105

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
80 Vdc (100 Vdc Surge)						
470	381LX471M080H012	0.390	0.270	0.80	0.90	22 x 25
680	381LX681M080H012	0.270	0.190	1.00	1.15	22 x 25
820	381LX821M080H012	0.222	0.145	1.20	1.40	22 x 25
1000	381LX102M080H012	0.222	0.145	1.20	1.40	22 x 25
1000	381LX102M080J012	0.182	0.120	1.30	1.50	25 x 25
1200	381LX122M080H022	0.235	0.176	1.50	1.73	22 x 30
1500	381LX152M080H032	0.188	0.141	1.70	1.96	22 x 35
1800	381LX182M080J032	0.147	0.080	1.80	2.10	25 x 35
1800	381LX182M080K012	0.111	0.080	1.80	2.10	30 x 25
2200	381LX222M080H452	0.121	0.092	2.10	2.40	22 x 45
2200	381LX222M080A012	0.090	0.063	2.10	2.40	35 x 25
2700	381LX272M080J042	0.104	0.078	2.40	2.76	25 x 40
3300	381LX332M080J052	0.065	0.049	2.60	3.00	25 x 50
3300	381LX332M080K042	0.100	0.075	2.60	3.00	30 x 40
3300	381LX332M080A022	0.065	0.049	2.60	3.00	35 x 30
3900	381LX392M080K042	0.072	0.054	3.00	3.45	30 x 40
4700	381LX472M080K042	0.060	0.045	3.30	3.80	30 x 40
4700	381LX472M080K052	0.048	0.036	3.30	3.80	30 x 50
4700	381LX472M080A042	0.048	0.036	3.30	3.80	35 x 40
5600	381LX562M080A052	0.072	0.054	3.00	3.45	35 x 50
5600	383L562M080N042	0.035	0.022	3.50	4.40	40 x 40
6800	381LX682M080A052	0.041	0.031	3.90	4.50	35 x 50
6800	383LX682M080N042	0.041	0.031	3.90	4.49	40 x 40
8200	383L822M080N052	0.025	0.016	4.40	5.60	40 x 50
10000	383L103M080N062	0.021	0.013	5.30	6.70	40 x 63
12000	383LX123M080B052V	0.035	0.026	6.03	6.93	50 x 50
15000	383L153M080N082	0.015	0.010	6.80	8.40	40 x 80
15000	383LX153M080B062V	0.028	0.021	6.65	7.65	50 x 63
18000	383LX183M080B082V	0.026	0.019	7.29	8.38	50 x 80
22000	383LX223M080N102	0.019	0.014	6.95	7.99	40 x 105
22000	383LX223M080B092V	0.022	0.016	7.83	9.00	50 x 92
27000	383LX273M080B102V	0.018	0.014	8.38	9.64	50 x 105
100 Vdc (125 Vdc Surge)						
330	381LX331M100H012	0.653	0.392	0.80	1.20	22 x 25
470	381LX471M100H012	0.390	0.230	0.92	1.40	22 x 25
560	381LX561M100H012	0.300	0.180	1.10	1.30	22 x 25
680	381LX681M100H012	0.300	0.180	1.10	1.30	22 x 25
820	381LX821M100H012	0.303	0.197	1.40	1.60	22 x 25
820	381LX821M100J012	0.202	0.120	1.40	2.10	25 x 25
1000	381LX102M100H022	0.182	0.110	1.70	2.55	22 x 30
1200	381LX122M100H022	0.195	0.125	1.85	2.70	22 x 30
1200	381LX122M100H032	0.195	0.125	1.85	2.70	22 x 35

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
100 Vdc (125 Vdc Surge)						
1500	381LX152M100H042	0.155	0.100	2.30	2.80	22 x 40
1500	381LX152M100K012	0.155	0.100	2.30	2.80	30 x 25
1800	381LX182M100J042	0.138	0.090	2.30	2.65	25 x 40
2200	381LX222M100J042	0.121	0.080	2.60	2.99	25 x 40
2200	381LX222M100J452	0.090	0.060	2.60	3.90	25 x 45
2700	381LX272M100A022	0.092	0.060	2.90	3.34	35 x 30
3300	381LX332M100K052	0.075	0.053	3.20	4.80	30 x 50
3300	381LX332M100A042	0.075	0.053	3.20	4.80	35 x 40
3900	381LX392M100K052	0.064	0.043	3.60	4.14	30 x 50
4700	381LX472M100A052	0.053	0.040	3.80	5.70	35 x 50
4700	383LX472M100N042	0.053	0.040	3.80	5.70	40 x 40
5600	381LX562M100A052	0.044	0.033	4.10	4.70	35 x 50
5600	383L562M100N062	0.027	0.012	4.60	6.50	40 x 63
6800	383LX682M100N052	0.037	0.027	4.60	5.30	40 x 50
8200	383LX822M100N062	0.030	0.023	5.00	5.77	40 x 63
8200	383L822M100N082	0.020	0.009	6.00	8.20	40 x 80
8200	383LX822M100B052V	0.030	0.023	6.14	7.06	50 x 50
10000	381LX103M100A082	0.033	0.025	6.38	7.34	35 x 80
12000	383LX123M100N082	0.021	0.016	6.44	7.40	40 x 80
12000	383LX123M100B062V	0.022	0.017	7.17	8.25	50 x 63
15000	383LX153M100N102	0.017	0.012	7.37	8.48	40 x 105
15000	383LX153M100B082V	0.019	0.014	8.01	9.21	50 x 80
18000	383LX183M100B092V	0.017	0.012	8.64	9.94	50 x 92
22000	383LX223M100B102V	0.015	0.011	9.32	10.72	50 x 105
160 Vdc (200 Vdc Surge)						
470	381LX471M160H022	0.423	0.190	1.40	2.00	22 x 30
560	381LX561M160H032	0.355	0.160	1.50	2.10	22 x 35
680	381LX681M160H042	0.293	0.132	1.70	2.40	22 x 40
820	381LX821M160J042	0.243	0.109	2.00	2.80	25 x 40
1000	381LX102M160J042	0.216	0.108	2.20	3.08	25 x 40
1200	381LX122M160K032	0.180	0.090	2.30	3.20	30 x 35
1500	381LX152M160K452	0.155	0.077	2.50	3.50	30 x 45
1800	381LX182M160K452	0.111	0.055	2.70	3.78	30 x 45
2200	381LX222M160K052	0.098	0.049	2.90	4.06	30 x 50
2200	383LX222M160N042	0.100	0.060	2.90	4.10	40 x 40
2700	383L272M160N062	0.045	0.027	3.80	5.00	40 x 63
3300	383LX332M160N052	0.070	0.040	3.40	4.70	40 x 40
180 Vdc (225 Vdc Surge)						
270	381LX271M180H012	0.737	0.376	1.10	1.50	22 x 25
330	381LX331M180H022	0.603	0.308	1.20	1.70	22 x 30
390	381LX391M180J012	0.510	0.260	1.30	1.80	25 x 25
470	381LX471M180H032	0.423	0.216	1.40	2.00	22 x 35

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
180 Vdc (225 Vdc Surge)						
560	381LX561M180H042	0.355	0.181	1.50	2.10	22 x 40
680	381LX681M180J032	0.293	0.149	1.70	2.38	25 x 35
820	381LX821M180K022	0.243	0.124	2.00	2.80	30 x 30
1000	381LX102M180J052	0.216	0.097	2.20	3.08	25 x 50
1200	381LX122M180K452	0.166	0.085	2.30	3.20	30 x 45
1500	381LX152M180K052	0.133	0.068	2.50	3.50	30 x 50
1800	381LX182M180A452	0.111	0.050	2.70	3.80	35 x 45
1800	383L182M180N052	0.059	0.033	3.10	4.20	40 x 50
2200	381LX222M180A052	0.090	0.046	2.90	4.10	35 x 50
2200	383L222M180N062	0.048	0.027	3.70	4.90	40 x 63
3300	383L332M180N082	0.035	0.020	4.80	6.30	40 x 80
200 Vdc (250 Vdc Surge)						
100	381LX101M200H012	1.660	0.750	0.50	0.70	22 x 25
150	381LX151M200H012	1.100	0.500	0.70	0.95	22 x 25
220	381LX221M200H012	0.754	0.339	1.00	1.40	22 x 25
270	381LX271M200H012	0.730	0.300	1.10	1.50	22 x 25
270	381LX271M200J012	0.614	0.276	1.10	1.50	25 x 25
330	381LX331M200H022	0.603	0.308	1.25	1.79	22 x 30
330	381LX331M200J012	0.603	0.308	1.20	1.70	25 x 25
390	381LX391M200H022	0.510	0.230	1.30	1.80	22 x 30
470	381LX471M200J022	0.423	0.190	1.40	2.00	25 x 30
470	381LX471M200K012	0.353	0.159	1.40	2.00	30 x 25
560	381LX561M200H042	0.355	0.160	1.50	2.10	22 x 40
560	381LX561M200J022	0.355	0.160	1.50	2.10	25 x 30
680	381LX681M200J042	0.293	0.132	1.70	2.40	25 x 40
680	381LX681M200K022	0.244	0.110	1.70	2.40	30 x 30
820	381LX821M200H452	0.263	0.118	2.00	2.80	22 x 45
820	381LX821M200J042	0.243	0.109	2.04	2.92	25 x 40
820	381LX821M200K022	0.263	0.118	2.00	2.80	30 x 30
1000	381LX102M200J052	0.216	0.108	2.20	3.10	25 x 50
1000	381LX102M200K032	0.216	0.108	2.20	3.10	30 x 35
1000	381LX102M200K452	0.216	0.108	2.20	3.10	30 x 45
1000	381LX102M200A022	0.216	0.108	2.20	3.10	35 x 30
1200	381LX122M200K042	0.193	0.097	2.30	3.20	30 x 40
1200	381LX122M200K052	0.193	0.097	2.30	3.20	30 x 50
1200	381LX122M200A032	0.193	0.097	2.30	3.20	35 x 35
1500	381LX152M200K052	0.155	0.077	2.50	3.50	30 x 50
1500	381LX152M200A042	0.155	0.077	2.50	3.50	35 x 40
1800	381LX182M200A452	0.129	0.077	2.70	3.80	35 x 45
1800	383LX182M200N042	0.129	0.077	2.70	3.78	40 x 40
1800	383L182M200N052	0.063	0.033	3.00	4.10	40 x 50
2200	381LX222M200A052	0.105	0.063	2.90	4.00	35 x 50

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
200 Vdc (250 Vdc Surge)						
2200	383L222M200N062	0.051	0.027	3.60	4.90	40 x 63
2700	383LX272M200N052	0.086	0.052	3.55	4.97	40 x 50
2700	383L272M200N082	0.032	0.018	4.60	6.20	40 x 80
3300	381LX332M200A082	0.065	0.039	4.50	6.33	35 x 80
3300	383LX332M200N062	0.700	0.040	4.40	6.20	40 x 63
3300	383LX332M200B052V	0.075	0.045	5.20	7.28	50 x 50
3900	383LX392M200B062V	0.064	0.038	5.90	8.26	50 x 63
4700	383LX472M200N082	0.050	0.030	5.75	8.10	40 x 80
4700	383LX472M200B082V	0.053	0.032	6.82	9.55	50 x 80
5600	383LX562M200N102	0.041	0.025	6.76	9.46	40 x 105
5600	383LX562M200B092V	0.044	0.027	7.68	10.75	50 x 92
6800	383LX682M200B102V	0.034	0.020	8.71	12.19	50 x 105
250 Vdc (300 Vdc Surge)						
68	381LX680M250H202	2.926	1.493	0.40	0.60	22 x 20
68	381LX680M250H012	2.440	1.220	0.40	0.60	22 x 25
100	381LX101M250H012	1.660	0.830	0.55	0.78	22 x 25
150	381LX151M250H012	1.327	0.465	0.79	0.11	22 x 25
180	381LX181M250H012	1.106	0.553	0.88	1.23	22 x 25
220	381LX221M250H012	0.905	0.452	1.00	1.40	22 x 25
270	381LX271M250H022	0.737	0.332	1.18	1.69	22 x 30
330	381LX331M250H022	0.502	0.251	1.20	1.70	22 x 30
330	381LX331M250J022	0.502	0.251	1.20	1.70	25 x 30
390	381LX391M250J032	0.510	0.229	1.49	2.12	25 x 35
470	381LX471M250J032	0.423	0.191	1.40	1.96	25 x 35
470	381LX471M250K022	0.353	0.176	1.40	2.00	30 x 30
560	381LX561M250J032	0.355	0.160	1.80	2.57	25 x 35
560	381LX561M250K032	0.296	0.148	1.50	2.10	30 x 35
560	381LX561M250A012	0.296	0.148	1.50	2.10	35 x 25
680	381LX681M250J052	0.244	0.134	1.70	2.38	25 x 50
680	381LX681M250K042	0.244	0.134	1.70	2.38	30 x 40
680	381LX681M250A022	0.244	0.134	1.70	2.38	35 x 30
820	381LX821M250K452	0.202	0.111	2.00	2.80	30 x 45
820	381LX821M250A032	0.202	0.111	2.00	2.80	35 x 35
1000	381LX102M250K052	0.199	0.109	2.20	3.10	30 x 50
1000	381LX102M250A042	0.199	0.109	2.20	3.10	35 x 40
1000	381LX102M250A452	0.166	0.099	2.30	3.20	35 x 45
1200	381LX122M250A452	0.166	0.099	2.30	3.20	35 x 45
1200	383LX122M250N042	0.180	0.117	2.66	3.72	40 x 40
1200	383L122M250N052	0.081	0.031	2.60	4.30	40 x 50
1500	381LX152M250A052	0.144	0.093	2.50	3.50	35 x 50
1800	383LX182M250N052	0.120	0.078	3.25	4.55	40 x 50

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
250 Vdc (300 Vdc Surge)						
1800	383L182M250N062	0.066	0.025	3.10	5.10	40 x 63
2200	381LX222M250A082	0.096	0.064	3.75	5.25	35 x 80
2200	383LX222M250N062	0.098	0.064	3.70	5.15	40 x 63
2200	383L222M250N082	0.043	0.017	4.00	6.40	40 x 80
2200	383LX222M250B052V	0.098	0.064	4.35	6.09	50 x 50
2700	383LX272M250N082	0.092	0.047	3.10	4.30	40 x 80
2700	383LX272M250B062V	0.080	0.052	4.98	6.97	50 x 63
3300	383LX332M250N082	0.065	0.042	4.86	6.80	40 x 80
3900	383LX392M250N102	0.055	0.036	5.61	7.85	40 x 105
3900	383LX392M250B082V	0.055	0.036	6.10	8.54	50 x 80
4300	383LX432M250B092V	0.050	0.033	6.67	9.34	50 x 92
4700	383LX472M250B102V	0.046	0.030	7.03	9.84	50 x 105
315 Vdc (365 Vdc Surge)						
82	381LX820M315H012	2.430	1.240	0.60	0.90	22 x 25
100	381LX101M315H012	1.990	1.020	0.70	1.00	22 x 25
120	381LX121M315H012	1.660	0.850	0.80	1.10	22 x 25
150	381LX151M315H022	1.330	0.600	0.82	1.15	22 x 30
180	381LX181M315H022	1.110	0.550	0.90	1.25	22 x 30
220	381LX221M315H032	0.900	0.410	0.98	1.37	22 x 35
220	381LX221M315K022	0.904	0.461	1.00	1.40	30 x 30
270	381LX271M315J032	0.740	0.330	1.10	1.54	25 x 35
270	381LX271M315K022	0.737	0.376	1.10	1.50	30 x 30
270	381LX271M315K032	0.737	0.376	1.10	1.50	30 x 35
270	381LX271M315A022	0.737	0.376	1.10	1.50	35 x 30
330	381LX331M315J042	0.600	0.270	1.20	1.68	25 x 40
330	381LX331M315K032	0.603	0.308	1.20	1.70	30 x 35
330	381LX331M315K042	0.603	0.308	1.20	1.70	30 x 40
330	381LX331M315A022	0.603	0.308	1.20	1.70	35 x 30
390	381LX391M315K452	0.510	0.260	1.30	1.80	30 x 45
390	381LX391M315A032	0.510	0.260	1.30	1.80	35 x 35
470	381LX471M315K452	0.423	0.216	1.40	2.00	30 x 45
470	381LX471M315K052	0.423	0.216	1.40	2.00	30 x 50
470	381LX471M315A032	0.423	0.216	1.40	2.00	35 x 35
470	381LX471M315A042	0.423	0.216	1.40	2.00	35 x 40
560	381LX561M315K052	0.355	0.181	1.50	2.10	30 x 50
560	381LX561M315A042	0.355	0.181	1.50	2.10	35 x 40
560	381LX561M315A452	0.355	0.181	1.50	2.10	35 x 45
680	381LX681M315A452	0.293	0.149	1.70	2.40	35 x 45
680	381LX681M315A052	0.293	0.149	1.70	2.40	35 x 50
820	381LX821M315A052	0.242	0.030	2.00	2.80	35 x 50
820	383L821M315N052	0.190	0.130	1.70	2.10	40 x 50
1200	383L122M315N062	0.150	0.110	2.10	2.50	40 x 63
1500	383L152M315N082	0.110	0.055	2.70	3.20	40 x 80

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
350 Vdc (400 Vdc Surge)						
82	381LX820M350H012	2.430	1.240	0.60	0.90	22 x 25
100	381LX101M350H022	1.990	1.020	0.70	1.00	22 x 30
120	381LX121M350H022	1.660	0.750	0.75	1.05	22 x 30
150	381LX151M350H022	1.330	0.600	0.77	1.08	22 x 30
180	381LX181M350H032	1.110	0.500	0.87	1.22	22 x 35
220	381LX221M350H042	0.900	0.410	1.00	1.40	22 x 40
270	381LX271M350H452	0.740	0.380	1.10	1.50	22 x 45
270	381LX271M350K022	0.737	0.376	1.10	1.50	30 x 30
330	381LX331M350K042	0.603	0.308	1.20	1.70	30 x 40
330	381LX331M350A022	0.603	0.308	1.20	1.70	35 x 30
390	381LX391M350K452	0.510	0.260	1.30	1.80	30 x 45
390	381LX391M350A022	0.510	0.260	1.30	1.80	35 x 30
470	381LX471M350K052	0.423	0.216	1.40	2.00	30 x 50
470	381LX471M350A042	0.423	0.216	1.40	2.00	35 x 40
560	381LX561M350A452	0.355	0.181	1.50	2.10	35 x 45
560	383L561M350N042	0.299	0.205	1.30	1.50	40 x 40
680	381LX681M350A052	0.293	0.149	1.70	2.40	35 x 50
680	383LX681M350N042	0.317	0.127	2.30	3.22	40 x 40
820	381LX821M350A062	0.303	0.155	2.70	3.70	35 x 63
820	383LX821M350N052	0.303	0.155	2.70	3.70	40 x 50
1000	383L102M350N062	0.170	0.117	2.00	2.40	40 x 63
1000	383LX102M350B052V	0.216	0.066	3.56	4.96	50 x 50
1200	381LX122M350A082	0.207	0.106	3.20	4.50	35 x 80
1200	383LX122M350N062	0.207	0.106	3.20	4.50	40 x 63
1500	381LX152M350A102	0.144	0.057	4.78	6.69	35 x 105
1500	383LX152M350N082	0.166	0.085	3.80	5.25	40 x 80
1500	383LX152M350B062V	0.144	0.057	4.16	5.82	50 x 63
1800	383LX182M350N102	0.120	0.048	5.23	7.32	40 x 105
1800	383LX182M350B082V	0.120	0.048	5.69	7.97	50 x 80
2000	383LX202M350B092V	0.108	0.043	6.34	8.88	50 x 92
2200	383LX222M350B102V	0.098	0.039	6.60	9.30	50 x 105
400 Vdc (450 Vdc Surge)						
33	381LX330M400H202	5.020	1.760	0.20	0.30	22 x 20
47	381LX470M400H012	4.500	1.600	0.30	0.42	22 x 25
56	381LX560M400H012	3.530	1.240	0.47	0.66	22 x 25
68	381LX680M400H012	2.927	1.020	0.45	0.60	22 x 25
68	381LX680M400J012	1.950	0.683	0.60	0.80	25 x 25
82	381LX820M400H012	2.440	0.850	0.55	0.80	22 x 25
100	381LX101M400H022	1.658	0.580	0.50	0.70	22 x 30
100	381LX101M400J012	1.658	0.580	0.70	1.00	25 x 25
120	381LX121M400J012	1.100	0.387	0.80	1.10	25 x 25
120	381LX121M400J022	1.100	0.387	0.80	1.10	25 x 30

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
400 Vdc (450 Vdc Surge)						
150	381LX151M400H022	0.921	0.322	0.90	1.30	22 x 30
150	381LX151M400H032	1.330	0.460	0.80	1.10	22 x 35
150	381LX151M400J012	1.110	0.870	0.80	1.10	25 x 25
180	381LX181M400J022	0.921	0.322	0.90	1.30	25 x 30
180	381LX181M400J032	1.110	0.500	0.95	1.33	25 x 35
180	381LX181M400K022	0.921	0.322	0.90	1.30	30 x 30
220	381LX221M400H452	0.614	0.215	1.20	1.70	22 x 45
220	381LX221M400K022	0.754	0.264	1.10	1.50	30 x 30
220	381LX221M400A012	0.754	0.264	1.10	1.50	35 x 25
270	381LX271M400J052	0.614	0.215	1.20	1.70	25 x 50
270	381LX271M400K032	0.614	0.215	1.20	1.70	30 x 35
270	381LX271M400A022	0.614	0.215	1.20	1.70	35 x 30
330	381LX331M400K452	0.502	0.201	1.40	1.90	30 x 45
330	381LX331M400A032	0.502	0.201	1.40	1.90	35 x 35
390	381LX391M400J452	0.425	0.170	1.55	2.20	25 x 45
390	381LX391M400K052	0.425	0.170	1.55	2.20	30 x 50
390	381LX391M400A042	0.425	0.170	1.55	2.20	35 x 40
470	381LX471M400A452	0.353	0.141	1.80	2.50	35 x 45
470	383LX471M400N042	0.353	0.141	1.80	2.50	40 x 40
560	381LX561M400A052	0.296	0.118	1.80	2.50	35 x 50
680	383LX681M400N052	0.244	0.098	2.20	3.00	40 x 50
820	381LX821M400A062	0.202	0.081	2.44	3.42	35 x 63
820	383LX821M400B052V	0.202	0.081	3.20	4.40	50 x 50
1000	381LX102M400A082	0.202	0.081	3.00	4.20	35 x 80
1000	383LX102M400N062	0.202	0.081	3.00	4.20	40 x 63
1200	381LX122M400A102	0.138	0.055	3.80	5.30	35 x 105
1200	383LX122M400N082	0.138	0.055	3.80	5.30	40 x 80
1200	383LX122M400B062V	0.152	0.061	4.20	5.90	50 x 63
1500	383LX152M400N102	0.111	0.044	4.80	6.70	40 x 105
1500	383LX152M400B082V	0.122	0.049	5.20	7.30	50 x 80
1600	383LX162M400B092V	0.114	0.046	5.60	8.00	50 x 92
1800	383LX182M400B102V	0.101	0.041	6.48	9.10	50 x 105
420 Vdc (470 Vdc Surge)						
100	381LX101M420H022	1.820	0.820	0.65	0.90	22 x 30
120	381LX121M420H022	1.660	0.750	0.70	1.00	22 x 30
150	381LX151M420H042	1.330	0.600	0.79	1.11	22 x 40
180	381LX181M420H042	1.110	0.500	0.87	1.22	22 x 40
180	381LX181M420K022	1.000	0.450	0.88	1.20	30 x 30
220	381LX221M420H452	0.900	0.410	1.05	1.50	22 x 45
220	381LX221M420K022	0.750	0.260	1.10	1.50	30 x 30
270	381LX271M420J452	0.740	0.330	1.19	1.67	25 x 45
270	381LX271M420K032	0.610	0.210	1.20	1.70	30 x 35

Type 381LX / 383LX 105 °C High Ripple, Snap-In Aluminum

High Ripple, Long Life, 2,4 and 5 pin styles available

Cap. (µF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
420 Vdc (470 Vdc Surge)						
270	381LX271M420A022	0.610	0.210	1.20	1.70	35 x 30
330	381LX331M420K452	0.500	0.200	1.35	1.90	30 x 45
330	381LX331M420A032	0.502	0.200	1.35	1.90	35 x 35
390	381LX391M420K052	0.420	0.170	1.55	2.18	30 x 50
390	381LX391M420A042	0.420	0.170	1.55	2.18	35 x 40
470	381LX471M420A452	0.350	0.141	1.75	2.45	35 x 45
470	383LX471M420N042	0.350	0.141	1.78	2.45	40 x 40
560	381LX561M420A052	0.300	0.120	1.80	2.50	35 x 50
680	383LX681M420N052	0.250	0.100	2.10	2.95	40 x 50
450 Vdc (500 Vdc Surge)						
56	381LX560M450H012	3.530	1.240	0.47	0.66	22 x 25
68	381LX680M450H012	2.930	1.020	0.53	0.73	22 x 25
82	381LX820M450H022	2.430	1.090	0.64	0.91	22 x 30
100	381LX101M450H022	1.990	0.710	0.65	0.90	22 x 30
100	381LX101M450J022	1.660	0.580	0.65	0.90	25 x 30
120	381LX121M450H032	1.660	0.750	0.70	1.00	22 x 35
150	381LX151M450H032	1.330	0.590	0.80	1.10	22 x 35
150	381LX151M450K022	1.100	0.390	0.80	1.10	30 x 30
180	381LX181M450J032	1.110	0.380	0.90	1.20	25 x 35
180	381LX181M450K032	0.920	0.320	0.90	1.20	30 x 35
220	381LX221M450J052	0.750	0.260	1.00	1.40	25 x 50
220	381LX221M450K042	0.750	0.260	1.00	1.40	30 x 40
220	381LX221M450A022	0.750	0.260	1.00	1.40	35 x 30
220	381LX221M450A042	0.500	0.176	1.40	1.90	35 x 40
270	381LX271M450K452	0.614	0.246	1.20	1.70	30 x 45
270	381LX271M450A032	0.614	0.246	1.20	1.70	35 x 35
330	381LX331M450K052	0.502	0.201	1.40	1.90	30 x 50
330	381LX331M450A042	0.502	0.176	1.40	1.90	35 x 40
390	381LX391M450A452	0.425	0.150	1.60	2.20	35 x 45
390	383LX391M450N042	0.425	0.170	1.68	2.35	40 x 40
470	381LX471M450A052	0.353	0.123	1.70	2.40	35 x 50
470	383LX471M450N042	0.350	0.140	1.75	2.45	40 x 40
560	381LX561M450A062	0.296	0.104	2.20	3.00	35 x 63
680	383L681M450A082	0.188	0.124	2.00	2.50	35 x 80
680	383LX681M450N062	0.244	0.085	2.50	3.50	40 x 63
680	383LX681M450B052V	0.244	0.085	2.90	4.06	50 x 50
820	383LX821M450A082	0.202	0.071	2.70	3.80	35 x 80
820	383LX821M450B062V	0.222	0.078	3.42	4.79	50 x 63
1000	383LX102M450N082	0.166	0.058	3.50	4.90	40 x 80
1200	383LX122M450N102	0.138	0.048	4.33	6.06	40 x 105
1200	383LX122M450B082V	0.152	0.053	4.70	6.58	50 x 80
1300	383LX132M450B092V	0.140	0.049	5.16	7.25	50 x 92
1500	383LX152M450B102V	0.122	0.043	6.03	8.44	50 x 105

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Type 381LQ 105 °C Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Type 381LQ is on average 23% smaller and more than 5 mm shorter than Type 381LX. This is achieved with a new can closure method that permits installing capacitor elements into smaller cans. Approaching the robust capability of the 381L the new 381LQ enables you to shrink equipment size and retain the original performance.

Highlights

- More capacitance per case
- Compares to the 381L

Specifications

Temperature Range	–40 °C to + 105 °C ≤ 315 Vdc –25 °C to + 105 °C ≥ 350 Vdc
Rated Voltage Range	10 Vdc to 450 Vdc
Capacitance Range	100 µF to 100,000 µF
Capacitance Tolerance	± 20%
Leakage Current	≤3 $\sqrt{CV}$ µA, 4 mA max, 5 minutes
Ripple Current Multipliers	Ambient Temperature

45 °C	60 °C	70 °C	85 °C	105 °C
2.35	2.20	2.00	1.70	1.00

Frequency

Voltage	50 Hz	60 Hz	120 Hz	500 kHz	1 kHz	10 kHz & Up
10 - 100 WV	0.93	0.95	1.00	1.05	1.08	1.15
160 - 450 WV	0.75	0.80	1.00	1.20	1.25	1.40

Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 10 (10 Vdc) ≤ 8 (16–50 Vdc) ≤ 4 (63–100 Vdc) ≤ 3 (150–450 Vdc)
Endurance Life Test	2000 h at full load at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	1000 h at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h each plane
RoHS Compliant	

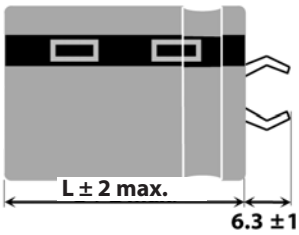
Type 381LQ 105 ºC Compact, High Ripple, Snap-In Aluminum

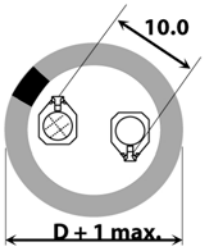
Higher Capacitance per Case Size

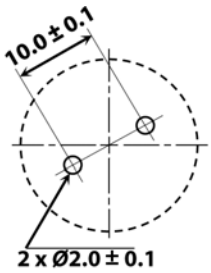
Part Numbering System

381LQ	821	M	160	J04	2	A
Type	Cap	Tolerance	Voltage	Case Code	Insulating Sleeve	Pin Style
381LQ	**821** =820 µF **332** = 3300 µF **103** = 10,000 µF	**M =** ±20%	**160** = 160 Vdc **450** = 450 Vdc		**2** = PVC	**Blank** = 2 pins snap-in 6.3 mm L **A** = 2 pins snap-in 4.0 mm L

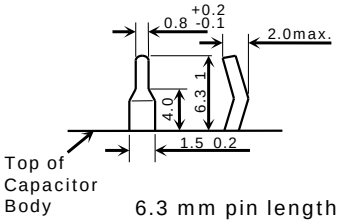
Outline Drawing



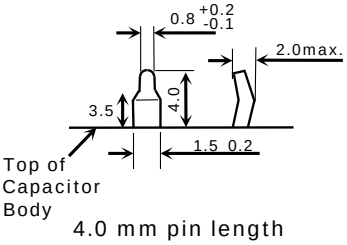




PC Board Mounting Holes



6.3 mm pin length



4.0 mm pin length option (add "A" to end of part#)

Dimensions shown are in mm

Insulated Case Dimensions

	DIAMETER		LENGTH		Typical
Case	D		L		Weight
Code	mm	inches	mm	inches	(grams)
H01	22	0.87	25	0.98	16
H02	22	0.87	30	1.18	19
H03	22	0.87	35	1.38	22
H04	22	0.87	40	1.57	24
H45	22	0.87	45	1.77	28
H05	22	0.87	50	1.97	31
J01	25	0.98	25	0.98	20
J02	25	0.98	30	1.18	24
J03	25	0.98	35	1.38	27
J04	25	0.98	40	1.57	31
J45	25	0.98	45	1.77	35
J05	25	0.98	50	1.97	38

	DIAMETER		LENGTH		Typical
Case	D		L		Weight
Code	mm	inches	mm	inches	(grams)
K01	30	1.18	25	0.98	30
K02	30	1.18	30	1.18	35
K03	30	1.18	35	1.38	40
K04	30	1.18	40	1.57	44
K45	30	1.18	45	1.77	49
K05	30	1.18	50	1.97	53
A01	35	1.38	25	0.98	42
A02	35	1.38	30	1.18	48
A03	35	1.38	35	1.38	54
A04	35	1.38	40	1.57	60
A45	35	1.38	45	1.77	67
A05	35	1.38	50	1.97	74

Type 381LQ 105 ºC Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Ratings

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
10 Vdc (13 Vdc Surge)						
12000	381LQ123M010H012	0.076	0.065	2.20	2.53	22 x 25
18000	381LQ183M010H022	0.051	0.043	2.40	2.76	22 x 30
22000	381LQ223M010H032	0.041	0.035	2.60	2.99	22 x 35
27000	381LQ273M010J032	0.034	0.029	3.10	3.57	25 x 35
33000	381LQ333M010J042	0.028	0.023	3.40	3.91	25 x 40
39000	381LQ393M010K032	0.026	0.022	3.70	4.26	30 x 35
47000	381LQ473M010K032	0.024	0.022	4.20	4.83	30 x 35
56000	381LQ563M010K042	0.023	0.021	5.00	5.75	30 x 40
68000	381LQ683M010K452	0.022	0.020	5.40	6.21	30 x 45
82000	381LQ823M010A452	0.021	0.019	6.10	7.02	35 x 45
100000	381LQ104M010A052	0.020	0.019	6.90	7.94	35 x 50
16 Vdc (20 Vdc Surge)						
10000	381LQ103M016H012	0.075	0.063	2.60	2.99	22 x 25
12000	381LQ123M016H022	0.062	0.053	2.90	3.34	22 x 30
15000	381LQ153M016H032	0.050	0.042	3.20	3.68	22 x 35
18000	381LQ183M016H032	0.041	0.035	3.50	4.03	22 x 35
22000	381LQ223M016H042	0.034	0.029	3.80	4.37	22 x 40
27000	381LQ273M016H052	0.028	0.023	4.20	4.83	22 x 50
27000	381LQ273M016K022	0.028	0.023	4.20	4.83	30 x 30
33000	381LQ333M016K032	0.023	0.019	4.70	5.41	30 x 35
39000	381LQ393M016K042	0.022	0.018	5.10	5.87	30 x 40
47000	381LQ473M016K452	0.016	0.014	5.50	6.33	30 x 45
56000	381LQ563M016A452	0.020	0.018	6.00	6.90	35 x 45
25 Vdc (32 Vdc Surge)						
6800	381LQ682M025H022	0.085	0.064	2.40	2.76	22 x 30
8200	381LQ822M025H022	0.071	0.053	2.70	3.11	22 x 30
10000	381LQ103M025J022	0.058	0.044	3.00	3.45	25 x 30
12000	381LQ123M025J022	0.048	0.036	3.20	3.68	25 x 30
15000	381LQ153M025J032	0.039	0.029	3.60	4.14	25 x 35
18000	381LQ183M025J042	0.032	0.024	3.90	4.49	25 x 40
22000	381LQ223M025J452	0.026	0.020	4.30	4.95	25 x 45
27000	381LQ273M025K042	0.021	0.016	4.80	5.52	30 x 40
33000	381LQ333M025K452	0.018	0.013	5.50	6.33	30 x 45
39000	381LQ393M025A452	0.017	0.014	5.80	6.67	35 x 45
47000	381LQ473M025A052	0.017	0.014	6.30	7.25	35 x 50
35 Vdc (44 Vdc Surge)						
4700	381LQ472M035H012	0.106	0.079	2.20	2.53	22 x 25
5600	381LQ562M035H022	0.089	0.067	2.40	2.76	22 x 30
5600	381LQ562M035J012	0.089	0.067	2.40	2.76	25 x 25
6800	381LQ682M035J022	0.073	0.055	2.60	2.99	25 x 30
8200	381LQ822M035J022	0.061	0.045	2.90	3.34	25 x 30
10000	381LQ103M035J032	0.050	0.037	3.20	3.68	25 x 35

Type 381LQ 105 ºC Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
12000	381LQ123M035J042	0.041	0.031	3.50	4.03	25 x 40
15000	381LQ153M035K042	0.033	0.025	3.90	4.49	30 x 40
18000	381LQ183M035K452	0.028	0.021	4.30	4.95	30 x 45
22000	381LQ223M035K452	0.023	0.017	5.00	5.75	30 x 45
27000	381LQ273M035A052	0.018	0.014	5.30	6.10	35 x 50
33000	381LQ333M035A052	0.015	0.012	5.90	6.79	35 x 50
50 Vdc (63 Vdc Surge)						
2700	381LQ272M050H012	0.154	0.115	1.80	2.07	22 x 25
3300	381LQ332M050H012	0.126	0.094	2.00	2.30	22 x 25
3900	381LQ392M050J012	0.106	0.080	2.20	2.53	25 x 25
4700	381LQ472M050H032	0.088	0.066	2.50	2.88	22 x 35
5600	381LQ562M050J032	0.074	0.056	2.80	3.22	25 x 35
6800	381LQ682M050H452	0.061	0.046	3.30	3.80	22 x 45
8200	381LQ822M050A032	0.051	0.038	3.60	4.14	35 x 35
10000	381LQ103M050J052	0.041	0.031	4.00	4.60	25 x 50
12000	381LQ123M050K452	0.035	0.026	4.50	5.18	30 x 45
15000	381LQ153M050K452	0.028	0.021	4.80	5.52	30 x 45
18000	381LQ183M050A452	0.023	0.018	5.60	6.44	35 x 45
63 Vdc (79 Vdc Surge)						
2200	381LQ222M063H022	0.151	0.113	2.00	2.30	22 x 30
2700	381LQ272M063H042	0.123	0.092	2.20	2.53	22 x 40
3300	381LQ332M063H042	0.100	0.075	2.50	2.88	22 x 40
3900	381LQ392M063J022	0.085	0.064	2.70	3.11	25 x 30
4700	381LQ472M063J032	0.071	0.053	3.00	3.45	25 x 35
5600	381LQ562M063K022	0.059	0.044	3.30	3.80	30 x 30
6800	381LQ682M063K042	0.049	0.037	3.60	4.14	30 x 40
8200	381LQ822M063A032	0.040	0.030	3.90	4.49	35 x 35
10000	381LQ103M063K452	0.033	0.025	4.40	5.06	30 x 45
12000	381LQ123M063K052	0.028	0.021	4.80	5.52	30 x 50
15000	381LQ153M063A052	0.022	0.018	5.40	6.21	35 x 50
80 Vdc (100 Vdc Surge)						
1200	381LQ122M080H022	0.235	0.176	1.50	1.73	22 x 30
1500	381LQ152M080H022	0.188	0.141	1.70	1.96	22 x 30
1800	381LQ182M080H032	0.157	0.117	1.80	2.07	22 x 35
2200	381LQ222M080H042	0.128	0.096	2.10	2.42	22 x 40
2700	381LQ272M080J042	0.104	0.078	2.40	2.76	25 x 40
3300	381LQ332M080J042	0.085	0.064	2.60	2.99	25 x 40
3900	381LQ392M080K042	0.072	0.054	3.00	3.45	30 x 40
4700	381LQ472M080K042	0.060	0.045	3.30	3.80	30 x 40
5600	381LQ562M080K452	0.050	0.038	3.70	4.26	30 x 45
6800	381LQ682M080K052	0.041	0.031	3.90	4.49	30 x 50
8200	381LQ822M080A452	0.034	0.027	4.50	5.18	35 x 45

Type 381LQ 105 ºC Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
100 Vdc (125 Vdc Surge)						
820	381LQ821M100H022	0.303	0.197	1.40	1.61	22 x 30
1200	381LQ122M100H022	0.207	0.135	1.80	2.07	22 x 30
1500	381LQ152M100K012	0.166	0.108	2.10	2.42	30 x 25
1800	381LQ182M100H042	0.138	0.090	2.30	2.65	22 x 40
2200	381LQ222M100J452	0.113	0.073	2.60	2.99	25 x 45
2700	381LQ272M100A022	0.092	0.060	2.90	3.34	35 x 30
3300	381LQ332M100A022	0.075	0.049	3.20	3.68	35 x 30
3900	381LQ392M100K052	0.064	0.043	3.60	4.14	30 x 50
4700	381LQ472M100K052	0.053	0.038	3.80	4.37	30 x 50
5600	381LQ562M100A052	0.044	0.031	4.20	4.83	35 x 50
6800	381LQ682M100A052	0.037	0.027	4.70	5.41	35 x 50
160 Vdc (200 Vdc Surge)						
470	381LQ471M160H022	0.423	0.190	1.40	1.96	22 x 30
560	381LQ561M160H042	0.355	0.160	1.50	2.10	22 x 40
680	381LQ681M160H042	0.293	0.132	1.70	2.38	22 x 40
820	381LQ821M160J042	0.243	0.109	2.00	2.80	25 x 40
1000	381LQ102M160J042	0.199	0.090	2.20	3.08	25 x 40
1200	381LQ122M160K032	0.166	0.075	2.30	3.22	30 x 35
1500	381LQ152M160K452	0.133	0.060	2.50	3.50	30 x 45
1800	381LQ182M160K452	0.110	0.055	2.70	3.78	30 x 45
2200	381LQ222M160K052	0.090	0.045	2.90	4.06	30 x 50
2700	381LQ272M160A052	0.080	0.040	3.10	4.34	35 x 50
3300	381LQ332M160A052	0.070	0.042	3.30	4.62	35 x 50
180 Vdc (225 Vdc Surge)						
560	381LQ561M180H042	0.355	0.160	1.50	2.10	22 x 40
680	381LQ681M180J032	0.293	0.132	1.70	2.38	25 x 35
820	381LQ821M180J042	0.243	0.109	2.00	2.80	25 x 40
1000	381LQ102M180J052	0.199	0.090	2.20	3.08	25 x 50
1200	381LQ122M180J052	0.166	0.075	3.31	4.63	25 x 50
1500	381LQ152M180K052	0.133	0.060	2.50	3.50	30 x 50
1800	381LQ182M180K052	0.110	0.050	2.70	3.78	30 x 50
2200	381LQ222M180A052	0.090	0.041	2.90	4.06	35 x 50
200 Vdc (250 Vdc Surge)						
390	381LQ391M200H022	0.510	0.230	1.31	1.83	22 x 30
470	381LQ471M200H022	0.423	0.190	1.45	2.03	22 x 30
560	381LQ561M200H042	0.355	0.160	1.67	2.34	22 x 40
680	381LQ681M200H042	0.293	0.132	1.75	2.45	22 x 40
680	381LQ681M200J032	0.293	0.132	1.75	2.45	25 x 35
820	381LQ821M200J042	0.243	0.109	1.99	2.79	25 x 40
1000	381LQ102M200J052	0.199	0.090	2.30	3.22	25 x 50
1000	381LQ102M200K022	0.199	0.090	2.30	3.22	30 x 30

Type 381LQ 105 ºC Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
200 Vdc (250 Vdc Surge)						
1000	381LQ102M200K032	0.199	0.090	2.30	3.22	30 x 35
1200	381LQ122M200J052	0.166	0.075	2.65	3.71	25 x 50
1200	381LQ122M200K032	0.166	0.075	2.65	3.71	30 x 35
1500	381LQ152M200K042	0.133	0.060	2.80	3.92	30 x 40
1500	381LQ152M200K452	0.133	0.060	2.80	3.92	30 x 45
1500	381LQ152M200A042	0.133	0.084	2.80	3.92	35 x 40
1800	381LQ182M200K452	0.110	0.050	3.08	4.31	30 x 45
1800	381LQ182M200K052	0.111	0.050	3.08	4.31	30 x 50
1800	381LQ182M200A042	0.129	0.084	3.08	4.31	35 x 40
2200	381LQ222M200K052	0.090	0.041	3.48	4.87	30 x 50
2200	381LQ222M200A452	0.096	0.044	3.48	4.87	35 x 45
2200	381LQ222M200A052	0.096	0.044	3.48	4.87	35 x 50
250 Vdc (300 Vdc Surge)						
270	381LQ271M250H022	0.737	0.331	1.10	1.54	22 x 30
330	381LQ331M250H022	0.502	0.226	1.20	1.68	22 x 30
390	381LQ391M250J032	0.510	0.229	1.30	1.82	25 x 35
470	381LQ471M250J032	0.353	0.159	1.30	1.82	25 x 35
560	381LQ561M250J032	0.296	0.133	1.50	2.10	25 x 35
680	381LQ681M250H052	0.244	0.110	1.70	2.38	22 x 50
680	381LQ681M250J452	0.244	0.110	1.70	2.38	25 x 45
680	381LQ681M250K022	0.244	0.110	1.70	2.38	30 x 30
820	381LQ821M250J452	0.202	0.091	2.00	2.80	25 x 45
820	381LQ821M250K032	0.202	0.091	2.00	2.80	30 x 35
1000	381LQ102M250K042	0.166	0.075	2.20	3.08	30 x 40
1000	381LQ102M250K052	0.166	0.075	2.20	3.08	30 x 50
1200	381LQ122M250K452	0.138	0.062	2.30	3.22	30 x 45
1200	381LQ122M250A032	0.138	0.062	2.30	3.22	35 x 35
1500	381LQ152M250A452	0.110	0.050	2.50	3.50	35 x 45
1800	381LQ182M250A452	0.092	0.041	2.50	3.50	35 x 45
1800	381LQ182M250A052	0.092	0.041	2.70	3.78	35 x 50
315 Vdc (365 Vdc Surge)						
150	381LQ151M315H022	1.330	0.600	0.82	1.15	22 x 30
180	381LQ181M315H022	1.110	0.500	0.86	1.20	22 x 30
220	381LQ221M315H032	0.900	0.410	0.98	1.37	22 x 35
270	381LQ271M315J032	0.740	0.330	1.10	1.54	25 x 35
330	381LQ331M315J042	0.600	0.270	1.20	1.68	25 x 40
390	381LQ391M315J042	0.510	0.230	1.30	1.82	25 x 40
390	381LQ391M315K022	0.425	0.191	1.30	1.82	30 x 30
470	381LQ471M315J452	0.420	0.190	1.40	1.96	25 x 45
470	381LQ471M315K032	0.353	0.159	1.40	1.96	30 x 35
560	381LQ561M315J052	0.360	0.160	1.50	2.10	25 x 50
560	381LQ561M315K042	0.296	0.133	1.50	2.10	30 x 40

Type 381LQ 105 °C Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C		Ripple Amps @ +105°C		Nominal Size
		120 Hz (ohms)	20 kHz (ohms)	120 Hz (A)	20 kHz (A)	D x L (mm)
315 Vdc (365 Vdc Surge)						
680	381LQ681M315K452	0.244	0.116	1.70	2.38	30 x 45
680	381LQ681M315A032	0.244	0.116	1.70	2.38	35 x 35
820	381LQ821M315K052	0.202	0.091	2.00	2.80	30 x 50
820	381LQ821M315A042	0.202	0.091	2.00	2.80	35 x 40
1000	381LQ102M315A452	0.166	0.075	2.30	3.22	35 x 45
350 Vdc (400 Vdc Surge)						
120	381LQ121M350H022	1.660	0.750	0.75	1.05	22 x 30
150	381LQ151M350H022	1.330	0.600	0.77	1.08	22 x 30
180	381LQ181M350H022	1.110	0.500	0.87	1.22	22 x 30
220	381LQ221M350H032	0.900	0.450	1.44	2.02	22 x 35
270	381LQ271M350J032	0.740	0.330	1.10	1.54	25 x 35
330	381LQ331M350J042	0.600	0.270	1.20	1.68	25 x 40
390	381LQ391M350J452	0.510	0.230	1.30	1.82	25 x 45
470	381LQ471M350A022	0.420	0.190	1.40	1.96	35 x 30
560	381LQ561M350K452	0.296	0.133	1.50	2.10	30 x 45
560	381LQ561M350A032	0.296	0.133	1.50	2.10	35 x 35
680	381LQ681M350K052	0.244	0.110	1.70	2.38	30 x 50
680	381LQ681M350A042	0.244	0.110	1.70	2.38	35 x 40
820	381LQ821M350A452	0.202	0.091	1.90	2.66	35 x 45
400 Vdc (450 Vdc Surge)						
100	381LQ101M400H012	1.990	0.900	0.70	0.98	22 x 25
120	381LQ121M400H022	1.520	0.684	0.75	1.05	22 x 30
150	381LQ151M400H032	1.330	0.600	0.88	1.23	22 x 35
180	381LQ181M400J032	1.110	0.500	0.95	1.33	25 x 35
220	381LQ221M400H452	0.900	0.410	1.05	1.40	22 x 45
220	381LQ221M400J032	0.829	0.373	1.10	1.54	25 x 35
270	381LQ271M400K022	0.675	0.304	1.22	1.71	30 x 30
330	381LQ331M400K032	0.553	0.249	1.44	2.02	30 x 35
390	381LQ391M400J052	0.510	0.230	1.55	2.17	25 x 50
390	381LQ391M400K032	0.468	0.210	1.40	1.95	30 x 35
390	381LQ391M400K042	0.468	0.210	1.55	2.17	30 x 40
470	381LQ471M400K452	0.388	0.175	1.68	2.35	30 x 45
470	381LQ471M400A032	0.388	0.175	1.68	2.35	35 x 35
560	381LQ561M400K052	0.326	0.147	1.90	2.66	30 x 50
560	381LQ561M400A042	0.326	0.147	1.90	2.66	35 x 40
680	381LQ681M400A452	0.268	0.121	2.12	2.97	35 X 45
820	381LQ821M400A052	0.200	0.090	2.30	3.20	35 X 50
420 Vdc (470 Vdc Surge)						
120	381LQ121M420H022	1.660	0.750	0.70	0.98	22 x 30
150	381LQ151M420H042	1.330	0.600	0.85	1.20	22 x 40
180	381LQ181M420H042	1.100	0.460	0.90	1.30	22 x 40
220	381LQ221M420H452	0.900	0.400	1.05	1.50	22 x 45

Type 381LQ 105 °C Compact, High Ripple, Snap-In Aluminum

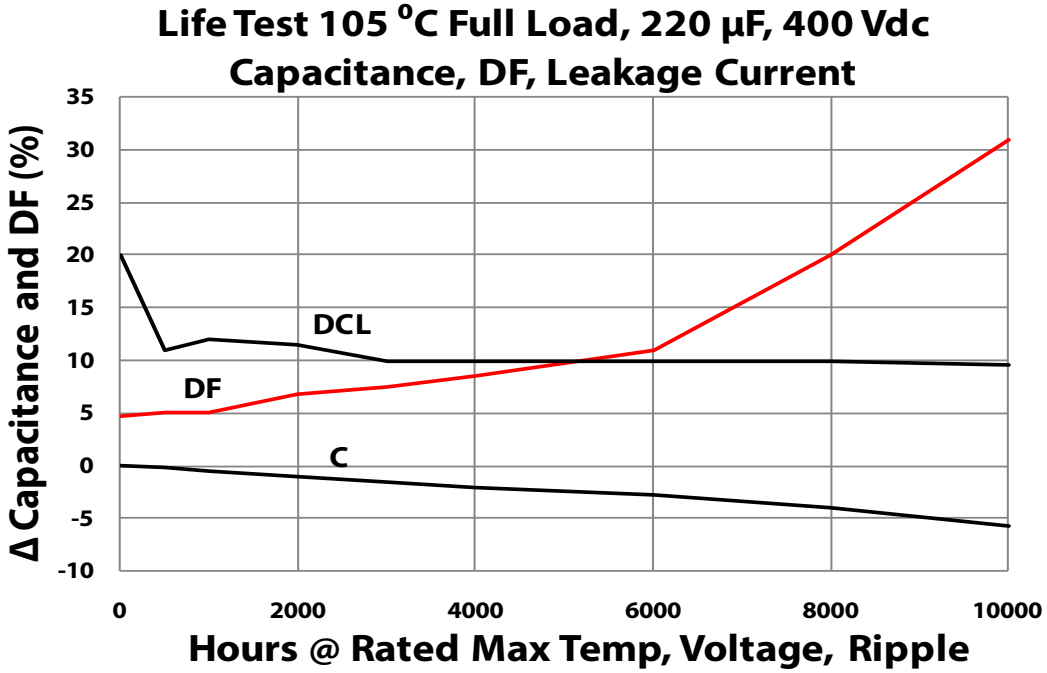
Higher Capacitance per Case Size

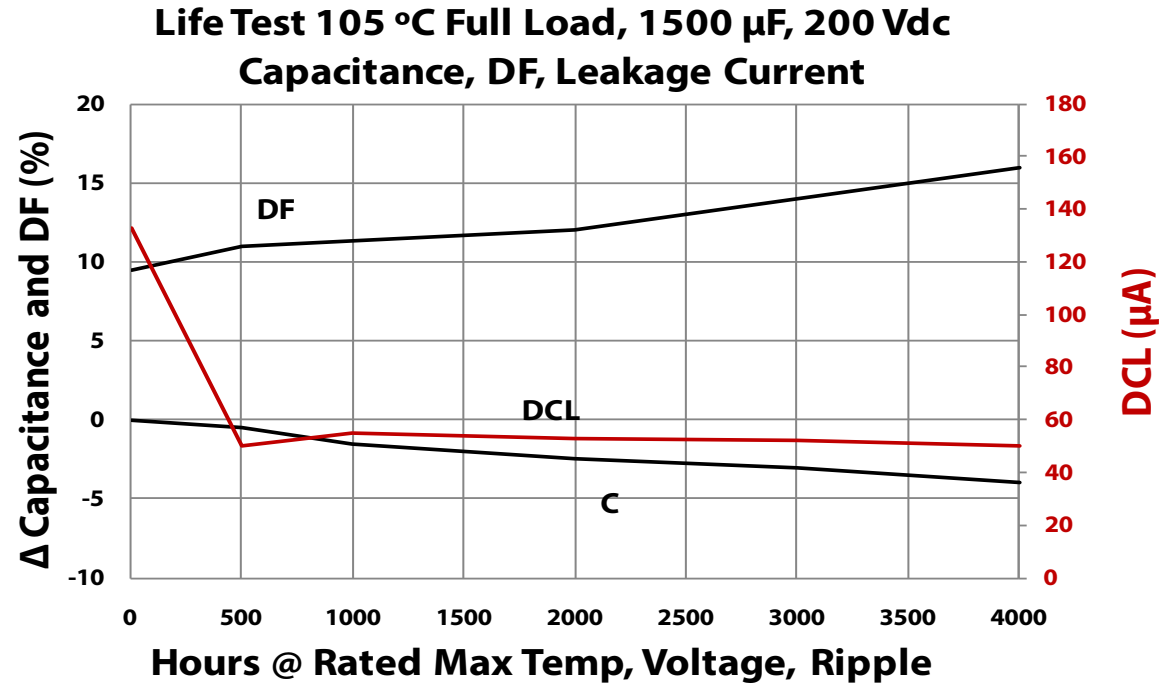
Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
420 Vdc (470 Vdc Surge)						
270	381LQ271M420K022	0.675	0.305	1.20	1.70	30 x 30
330	381LQ331M420K032	0.550	0.250	1.40	2.00	30 x 35
330	381LQ331M420A032	0.550	0.250	1.40	2.00	35 x 35
390	381LQ391M420K042	0.470	0.210	1.55	2.15	30 x 40
390	381LQ391M420A032	0.470	0.210	1.55	2.15	35 x 35
470	381LQ471M420K452	0.390	0.175	1.70	2.40	30 x 45
470	381LQ471M420A032	0.390	0.175	1.70	2.40	35 x 35
560	381LQ561M420K052	0.330	0.150	1.90	2.65	30 x 50
560	381LQ561M420A452	0.330	0.150	1.90	2.65	35 x 45
680	381LQ681M420A052	0.270	0.120	2.10	2.95	35 x 50
450 Vdc (500 Vdc Surge)						
100	381LQ101M450H022	1.820	0.820	0.65	0.90	22 x 30
120	381LQ121M450H032	1.659	0.746	0.70	1.00	22 x 35
150	381LQ151M450H032	1.327	0.594	0.80	1.10	22 x 35
150	381LQ151M450J022	1.216	0.547	0.79	1.11	25 x 30
180	381LQ181M450H042	1.106	0.498	1.00	1.43	22 x 40
180	381LQ181M450K022	1.013	0.456	0.87	1.22	30 X 30
220	381LQ221M450J452	0.905	0.317	1.12	1.52	25 x 45
220	381LQ221M450K022	0.829	0.373	1.00	1.40	30 X 30
270	381LQ271M450K032	0.675	0.304	1.10	1.50	30 X 35
270	381LQ271M450K042	0.675	0.304	1.19	1.67	30 X 40
330	381LQ331M450K042	0.553	0.249	1.25	1.75	30 X 40
330	381LQ331M450K452	0.553	0.249	1.38	1.93	30 X 45
330	381LQ331M450A032	0.553	0.249	1.38	1.93	35 X 35
390	381LQ391M450K452	0.468	0.210	1.40	1.95	30 X 45
390	381LQ391M450K052	0.680	0.210	1.55	2.17	30 X 50
390	381LQ391M450A042	0.468	0.210	1.55	2.17	35 X 40
470	381LQ471M450A452	0.388	0.175	1.74	2.44	35 X 45
560	381LQ561M450A052	0.326	0.147	1.90	2.66	35 X 50

Type 381LQ 105 °C Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Typical Performance Curves

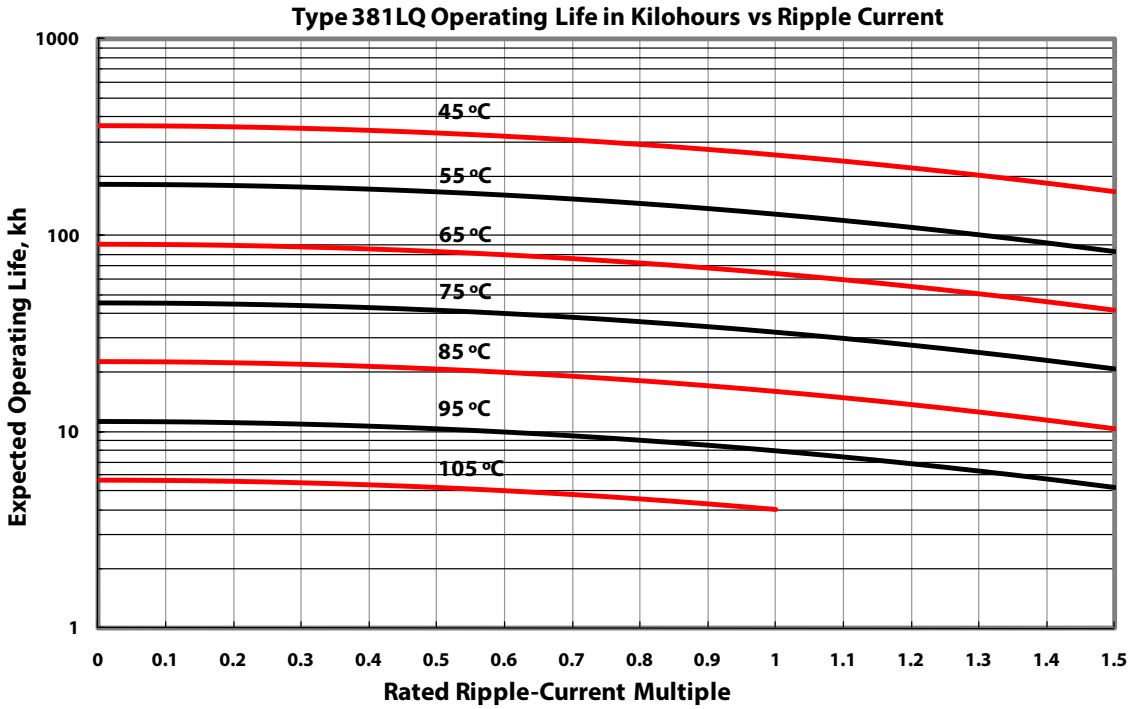




Type 381LQ 105 °C Compact, High Ripple, Snap-In Aluminum

Higher Capacitance per Case Size

Typical Performance Curves



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Type 381LR 105 °C Highest Ripple, Snap-In Aluminum

Ultra-High Ripple Capabilities

Compared to standard 105 °C snap-ins like the Type 381L/LX Type 381LR can handle an extra 25% ripple current or more. This remarkable capability stems from advances in electrolyte that give extremely low ESR values.In high ripple current applications like motor drives you can save by using fewer capacitors.

Highlights

- The right choice for motor drive bus capacitors
- The right choice for UPS bus capacitors
- Compare to Type 381L
- Up to 2 times the ripple current

Specifications

Temperature Range	–40 °C to + 105 °C ≤ 315 Vdc –25 °C to + 105 °C ≥ 350 Vdc
Rated Voltage Range	200 Vdc to 450 Vdc
Capacitance Range	56 µF to 2,200 µF
Capacitance Tolerance	± 20%
Leakage Current	≤3 $\sqrt{CV}$ µA, 4 mA max, 5 minutes
Ripple Current Multipliers	Ambient Temperature **45 °C** / **60 °C** / **70 °C** / **85 °C** / **105 °C** 2.35 / 2.20 / 2.00 / 1.70 / 1.00 Frequency **50 Hz** / **60 Hz** / **120 Hz** / **500 kHz** / **1 kHz** / **10 kHz & Up** 0.75 / 0.80 / 1.00 / 1.20 / 1.25 / 1.40
Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 3 (200–450Vdc)
Endurance Life Test	3000 h at full load at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Shelf Life Test	1000 h at 105 °C Δ Capacitance ±20% ESR 200% of limit DCL 100% of limit
Vibration	10 to 55 Hz, 0.06" and 10 g max, 2 h each plane
RoHS Compliant	

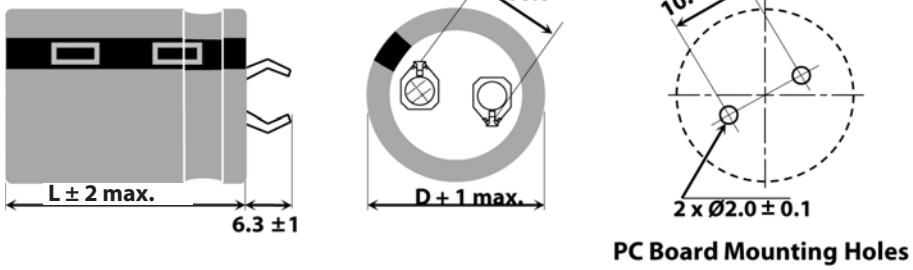
Type 381LR 105 °C Highest Ripple, Snap-In Aluminum

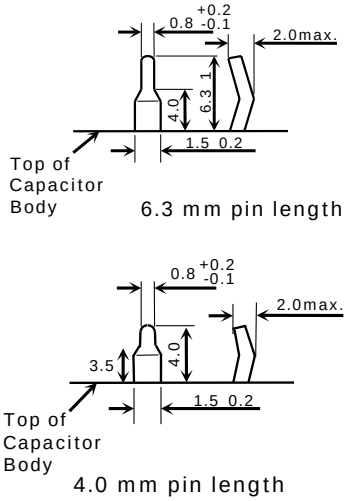
Ultra-High Ripple Capabilities

Part Numbering System

381LR	271	M	200	H01	2
Type	Cap	Tolerance	Voltage	Case Code	Insulating Sleeve
381LR	**271** = 270 µF **222** = 2200 µF	**M =** ±20%	**160** = 160 Vdc **450** = 450 Vdc		**2** = PVC

Outline Drawing





Dimensions shown are in mm

Insulated Case Dimensions

Case Code	DIAMETER D		LENGTH L		Typical Weight	Case Code	DIAMETER D		LENGTH L		Typical Weight
	mm	inches	mm	inches	(grams)		mm	inches	mm	inches	(grams)
H01	22	0.87	25	0.98	16	K01	30	1.18	25	0.98	30
H02	22	0.87	30	1.18	19	K02	30	1.18	30	1.18	35
H03	22	0.87	35	1.38	22	K03	30	1.18	35	1.38	40
H04	22	0.87	40	1.57	24	K04	30	1.18	40	1.57	44
H45	22	0.87	45	1.77	28	K45	30	1.18	45	1.77	49
H05	22	0.87	50	1.97	31	K05	30	1.18	50	1.97	53
J01	25	0.98	25	0.98	20	A01	35	1.38	25	0.98	42
J02	25	0.98	30	1.18	24	A02	35	1.38	30	1.18	48
J03	25	0.98	35	1.38	27	A03	35	1.38	35	1.38	54
J04	25	0.98	40	1.57	31	A04	35	1.38	40	1.57	60
J45	25	0.98	45	1.77	35	A45	35	1.38	45	1.77	67
J05	25	0.98	50	1.97	38	A05	35	1.38	50	1.97	74
						A55	35	1.38	55	2.17	80

Type 381LR 105 °C Highest Ripple, Snap-In Aluminum

Ultra-High Ripple Capabilities

Ratings

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
200 Vdc (250 Vdc Surge)						
330	381LR331M200H012	0.603	0.271	1.25	1.79	22 x 25
390	381LR391M200H022	0.510	0.229	1.35	1.93	22 x 30
470	381LR471M200H032	0.423	0.191	1.50	2.14	22 x 35
470	381LR471M200J022	0.317	0.143	1.85	2.64	25 x 30
560	381LR561M200H042	0.355	0.180	1.67	2.38	22 x 40
680	381LR681M200J032	0.293	0.132	1.72	2.45	25 x 35
680	381LR681M200K022	0.219	0.099	2.42	3.45	30 x 30
820	381LR821M200J042	0.243	0.109	0.20	2.92	25 x 40
820	381LR821M200K022	0.182	0.082	2.63	3.76	30 x 30
1000	381LR102M200J452	0.149	0.067	2.84	4.06	25 x 45
1000	381LR102M200J052	0.199	0.090	2.42	3.46	25 x 50
1000	381LR102M200K032	0.149	0.067	2.84	4.06	30 x 35
1200	381LR122M200J052	0.166	0.083	2.63	3.76	25 x 50
1200	381LR122M200K042	0.124	0.062	3.13	4.47	30 x 40
1200	381LR122M200A032	0.124	0.062	3.13	4.47	35 x 35
1500	381LR152M200K052	0.099	0.050	3.56	5.06	30 x 50
1500	381LR152M200A042	0.099	0.050	3.56	5.06	35 x 40
1800	381LR182M200A452	0.083	0.041	3.84	5.48	35 x 45
2200	381LR222M200A052	0.066	0.040	4.12	5.89	35 x 50
250 Vdc (300 Vdc Surge)						
220	381LR221M250H012	0.905	0.407	1.00	1.43	22 x 25
270	381LR271M250H022	0.737	0.332	1.18	1.69	22 x 30
330	381LR331M250H022	0.603	0.271	1.30	1.65	22 x 30
390	381LR391M250J032	0.510	0.229	1.49	2.12	25 x 35
470	381LR471M250J032	0.423	0.191	1.65	2.35	25 x 35
470	381LR471M250K022	0.317	0.143	1.85	2.64	30 x 30
560	381LR561M250J032	0.355	0.160	1.80	2.57	25 x 35
560	381LR561M250K022	0.266	0.120	2.14	3.05	30 x 30
680	381LR681M250H052	0.219	0.099	2.42	3.45	22 x 50
680	381LR681M250J452	0.293	0.132	2.00	2.85	25 x 45
680	381LR681M250K032	0.219	0.099	2.42	3.45	30 x 35
820	381LR821M250K042	0.182	0.082	2.63	3.76	30 x 40
820	381LR821M250A032	0.182	0.082	2.63	3.76	35 x 35
1000	381LR102M250K052	0.149	0.067	2.84	4.06	30 x 50
1000	381LR102M250A042	0.149	0.067	2.84	4.06	35 x 40
1200	381LR122M250A452	0.124	0.062	3.13	4.47	35 x 45
1500	381LR152M250A052	0.099	0.050	3.56	5.06	35 x 50
400 Vdc (450 Vdc Surge)						
82	381LR820M400H012	2.440	0.853	0.55	0.80	22 x 25
100	381LR101M400H012	1.990	0.700	0.50	0.70	22 x 25
100	381LR101M400H022	1.326	0.700	0.50	0.70	22 x 30
100	381LR101M400J012	1.326	0.597	0.91	1.30	25 x 25

Type 381LR 105 °C Highest Ripple, Snap-In Aluminum

Ultra-High Ripple Capabilities

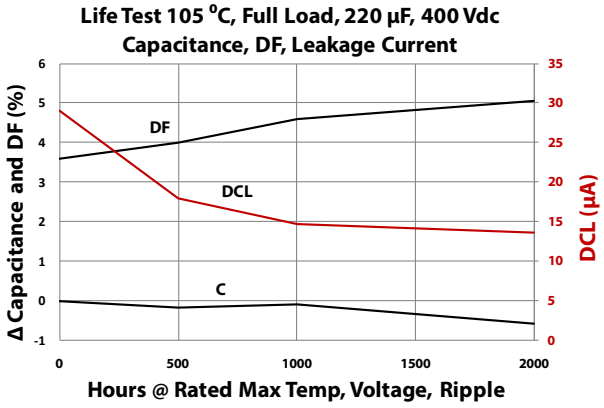
Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
400 Vdc (450 Vdc Surge)						
120	381LR121M400H022	1.659	0.746	0.70	0.98	22 x 30
150	381LR151M400H032	1.327	0.464	0.80	1.10	22 x 35
180	381LR181M400J032	1.106	0.500	0.95	1.33	25 x 35
180	381LR181M400K022	0.737	0.322	1.12	1.60	30 x 30
220	381LR221M400H452	0.905	0.407	1.00	1.40	22 x 45
220	381LR221M400J042	0.603	0.271	1.42	2.03	25 x 40
220	381LR221M400K022	0.603	0.271	1.42	2.03	30 x 30
220	381LR221M400A012	0.603	0.271	1.42	2.03	35 x 25
270	381LR271M400H452	0.603	0.271	1.42	2.03	22 x 45
270	381LR271M400K022	0.737	0.332	1.22	1.71	30 x 30
270	381LR271M400K032	0.491	0.221	1.56	2.23	30 x 35
330	381LR331M400K032	0.603	0.272	1.39	1.95	30 x 35
330	381LR331M400K042	0.402	0.181	1.71	2.44	30 x 40
330	381LR331M400A022	0.402	0.181	1.71	2.44	35 x 30
390	381LR391M400J452	0.340	0.153	1.85	2.64	25 x 45
390	381LR391M400K452	0.340	0.153	1.85	2.64	30 x 45
390	381LR391M400A032	0.340	0.153	1.85	2.64	35 x 35
470	381LR471M400A042	0.282	0.127	2.01	2.87	35 x 40
560	381LR561M400A452	0.237	0.107	2.35	3.36	35 x 45
420 Vdc (470 Vdc Surge)						
68	381LR680M420H012	2.930	1.320	0.56	0.80	22 x 25
82	381LR820M420H012	2.430	1.090	0.64	0.91	22 x 25
100	381LR101M420H012	1.990	0.900	0.70	1.00	22 x 25
120	381LR121M420H022	1.660	0.750	0.70	1.00	22 x 30
180	381LR181M420K022	0.737	0.332	1.12	1.60	30 x 30
220	381LR221M420H452	0.900	0.410	1.05	1.51	22 x 45
220	381LR221M420K032	0.603	0.271	1.42	2.03	30 x 35
270	381LR271M420J452	0.740	0.330	1.20	1.71	25 x 45
270	381LR271M420K042	0.491	0.221	1.68	2.40	30 x 40
330	381LR331M420A032	0.402	0.181	1.78	2.54	35 x 35
330	381LR331M420K452	0.402	0.181	1.78	2.54	30 x 45
390	381LR391M420K052	0.340	0.153	1.91	2.73	30 x 50
390	381LR391M420A042	0.340	0.153	1.91	2.73	35 x 40
470	381LR471M420A452	0.282	0.127	2.23	3.18	35 x 45
450 Vdc (500 Vdc Surge)						
56	381LR560M450H012	3.550	1.600	0.50	0.71	22 x 25
68	381LR680M450H012	2.930	1.320	0.53	0.75	22 x 25
82	381LR820M450H012	1.617	0.728	0.80	1.01	22 x 25
82	381LR820M450H022	2.430	1.090	0.64	0.91	22 x 30
100	381LR101M450H022	1.990	0.900	0.70	1.00	22 x 30
100	381LR101M450J022	1.326	0.597	0.91	1.30	25 x 30
120	381LR121M450H032	1.660	0.750	0.80	1.15	22 x 35

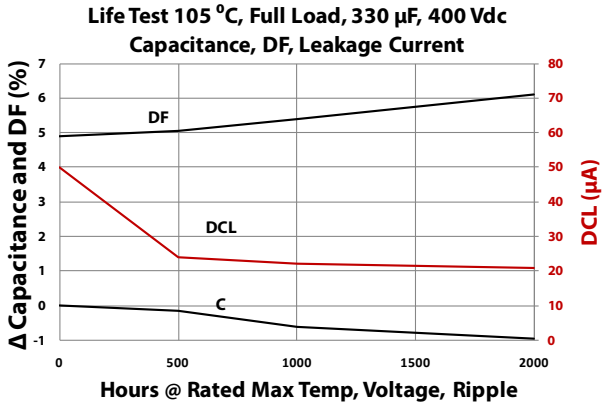
Type 381LR 105 °C Highest Ripple, Snap-In Aluminum

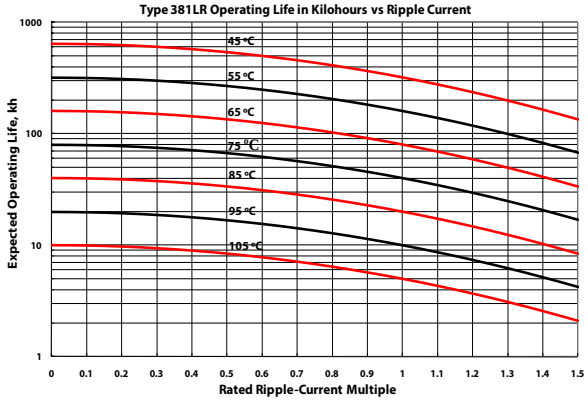
Ultra-High Ripple Capabilities

Cap. (uF)	Catalog Part Number	Max. ESR @ +25°C 120 Hz (ohms)	Max. ESR @ +25°C 20 kHz (ohms)	Ripple Amps @ +105°C 120 Hz (A)	Ripple Amps @ +105°C 20 kHz (A)	Nominal Size D x L (mm)
450 Vdc (500 Vdc Surge)						
150	381LR151M450H032	1.327	0.594	0.88	1.26	22 x 35
150	381LR151M450J022	1.330	0.464	0.830	1.04	25 x 30
150	381LR151M450J042	0.884	0.396	1.07	1.53	25 x 40
150	381LR151M450K022	0.884	0.396	1.07	1.53	30 x 30
180	381LR181M450H042	1.110	0.500	1.00	1.43	22 x 40
180	381LR181M450K022	0.737	0.332	1.12	1.60	30 x 30
220	381LR221M450J042	0.603	0.271	1.42	2.03	25 x 40
220	381LR221M450K032	0.603	0.271	1.42	2.03	30 x 35
220	381LR221M450A022	0.603	0.271	1.42	2.03	35 x 30
270	381LR271M450K042	0.491	0.221	1.72	2.45	30 x 40
270	381LR271M450A032	0.491	0.221	1.72	2.45	35 x 35
330	381LR331M450K052	0.402	0.181	1.85	2.64	30 x 50
330	381LR331M450A042	0.402	0.181	1.85	2.64	35 x 40
390	381LR391M450A042	0.340	0.153	1.97	2.82	35 x 40
470	381LR471M450A052	0.282	0.127	2.47	3.53	35 x 50

Typical Performance Curves







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LBB

85ºC Snap-Mount Aluminum Electrolytic Capacitors

FEATURES	Multiple Case Sizes - High Voltage – High Current
APPLICATIONS	Filtering – Switching Power Supplies

Operating Temperature Range		**-40°C to +85°C**												
Capacitance Tolerance		**±20% at 120 Hz, 20°C**												
Surge Voltage	**WVDC**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	SVDC	20	32	44	63	79	100	120	200	250	300	400	450	500
Dissipation Factor tan δ (120 Hz)	**WVDC**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	D≤30	.4	.3	.25	.2	.15	.15	.15	.1	.1	.1	.15	.15	.15
	D=35	.4	.3	.25	.2	.15	.15	.15	.15	.15	.15	.15	.15	.15
	D≥40	.5	.45	.4	.35	.3	.25	.2	--	--	--	--	--	--
		For capacitances above 33000uF, add to DF value (Capacitance-33000) *0.1 / 10000												
Leakage Current @20C, Rated WVDC applied		Time	**5 Minutes**											
			3√CV											
Impedance Ratio (120 Hz)	**WVDC**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	-25°C/+20°C	4	3	3	2	2	2	2	6	6	6	8	8	8
	-40°C/+20°C	15	10	8	6	6	5	5	9	9	9	12	12	12

Load Life	**3000 hours with rated voltage and rated ripple current applied at 85°C**	
	Capacitance Change	≤20% of initial measured value
	Dissipation Factor	≤200% of maximum specified value
	Leakage Current	≤100% of maximum specified value
Shelf Life	**1000 hours at 85°C with no voltage applied**	
	Capacitance Change	≤20% of initial measured value
	Dissipation Factor	≤200% of maximum specified value
	Leakage Current	≤100% of maximum specified value

Ripple Current Multipliers		**Frequency (Hz)**					**Temperature (°C)**			
	WVDC	60	120	400	1k	10k+	40	60	70	85
	≤100	0.8	1.0	1.1	1.15	1.25	1.8	1.4	1.2	1.2
	≥160	0.8	1.0	1.1	1.15	1.47	1.8	1.4	1.2	1.2

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CDE ENERGIZING IDEAS
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ILLINOIS CAPACITOR

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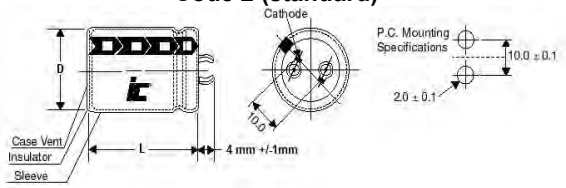
85ºC Snap-Mount Aluminum Electrolytic Capacitors

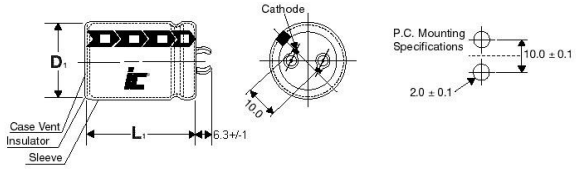
Lead Style Options

Code 2 (standard)



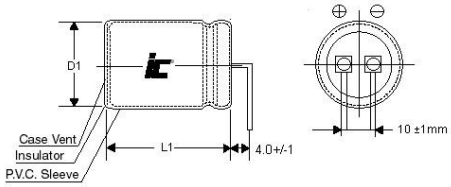
Diameter 20 to 40 mm

Code W



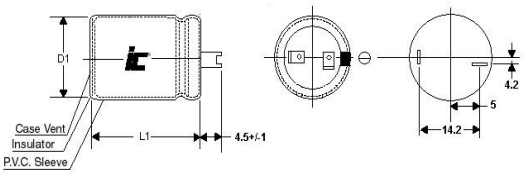
Diameter 20 to 40 mm

Code P



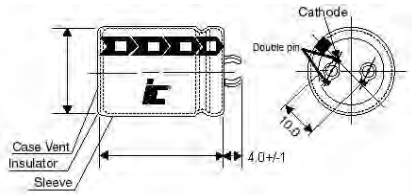
Diameter 22 to 35 mm

Code D



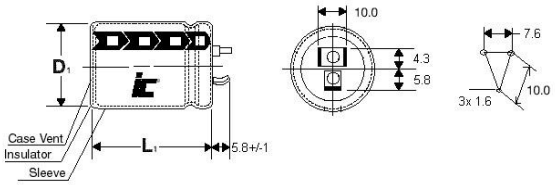
Diameter 30 to 40 mm

Code 9



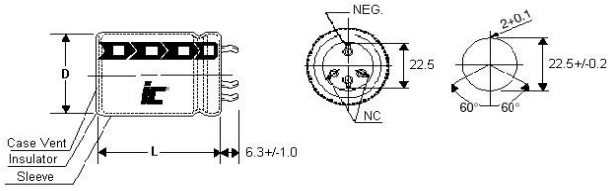
Diameter 25 to 35 mm

Code T



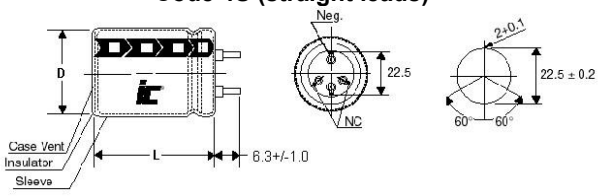
Diameter 25 to 35 mm

Code 4



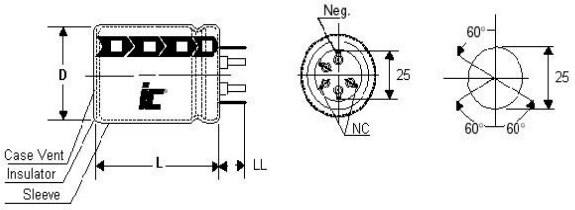
Diameter 35 to 45 mm

Code 4S (straight leads)



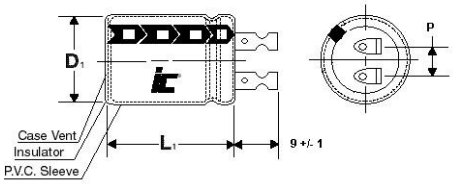
Diameter 35 to 45 mm

Code 5



Diameter 40 to 50 mm

Code G



D	35	40	50	63	76
P	14	14	18	25	25

Diameter 35 to 76 mm

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LBB

+85°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +85°C	Dims DxL (mm)
16	6800	688LBB016M2BC	121.9	2.4	22x25
16	10000	109LBB016M2BC	82.89	2.77	22x25
16	10000	109LBB016M2CC	66.3	2.67	25x25
16	15000	159LBB016M2BE	55.26	3.29	22x35
16	15000	159LBB016M2CD	55.26	3.46	25x30
16	15000	159LBB016M2DC	55.26	3.66	30x25
16	22000	229LBB016M2BH	37.68	4.37	22x50
16	22000	229LBB016M2CF	37.68	4.26	25x40
16	22000	229LBB016M2DD	37.68	4.21	30x30
16	22000	229LBB016M2EC	37.68	4.15	35x25
16	33000	339LBB016M2DF	25.12	5.36	30x40
16	33000	339LBB016M2ED	25.12	5.15	35x30
16	47000	479LBB016M2DH	17.64	6.79	30x50
16	47000	479LBB016M2EF	17.64	6.76	35x40
25	4700	478LBB025M2BC	105.82	2.25	22x25
25	6800	688LBB025M2BD	73.14	2.4	22x30
25	6800	688LBB025M2CC	73.14	2.56	25x25
25	10000	109LBB025M2BE	49.736	3.2	22x35
25	10000	109LBB025M2CD	49.736	3.12	25x30
25	10000	109LBB025M2DC	49.736	3.21	30x25
25	15000	159LBB025M2BG	33.16	3.7	22x45
25	15000	159LBB025M2CE	33.16	3.45	25x35
25	15000	159LBB025M2DD	33.16	4	30x30
25	15000	159LBB025M2EC	33.16	3.95	35x25
25	22000	229LBB025M2CG	22.61	4.48	25x45
25	22000	229LBB025M2DE	22.61	4.52	30x35
25	22000	229LBB025M2ED	22.61	4.61	35x30
25	33000	339LBB025M2DH	15.07	6.15	30x50
25	33000	339LBB025M2EF	15.07	6.33	35x40
35	3300	338LBB035M2BC	125.6	2.05	22x25
35	4700	478LBB035M2BD	88.18	2.41	22x30
35	4700	478LBB035M2CC	88.18	2.42	25x25
35	6800	688LBB035M2BE	60.95	2.82	22x35
35	6800	688LBB035M2CD	60.95	2.74	25x30
35	6800	688LBB035M2DC	60.95	2.97	30x25
35	10000	109LBB035M2BG	49.736	3.34	22x45
35	10000	109LBB035M2CE	41.45	3.06	25x35
35	10000	109LBB035M2DD	41.45	3.46	30x30
35	10000	109LBB035M2EC	41.45	3.02	35x25
35	15000	159LBB035M2CH	27.63	4.54	25x50
35	15000	159LBB035M2DE	27.63	3.67	30x35
35	15000	159LBB035M2ED	27.63	3.98	35x30
35	22000	229LBB035M2DG	18.84	4.94	30x45
35	22000	229LBB035M2EF	18.84	5.41	35x40
35	33000	339LBB035M2EH	12.56	7.27	35x50
50	2200	228LBB050M2BC	150.71	1.91	22x25
50	3300	338LBB050M2BD	100.48	2.37	22x30
50	3300	338LBB050M2CC	100.48	2.38	25x25
50	4700	478LBB050M2BE	70.55	2.72	22x35
50	4700	478LBB050M2CD	70.55	2.98	25x30
50	4700	478LBB050M2DC	70.55	2.81	30x25
50	6800	688LBB050M2BH	48.76	3.81	22x50
50	6800	688LBB050M2CF	48.76	3.81	25x40
50	6800	688LBB050M2DD	48.76	3	30x30
50	6800	688LBB050M2EC	48.76	3.23	35x25
50	10000	109LBB050M2CH	33.16	3.7	25x50
50	10000	109LBB050M2DE	33.16	3.35	30x35
50	10000	109LBB050M2ED	33.16	3.64	35x30
50	15000	159LBB050M2DH	22.1	4.61	30x50
50	15000	159LBB050M2EF	22.1	4.83	35x40
63	1500	158LBB063M2BC	165.786	1.66	22x25
63	2200	228LBB063M2BD	113.04	2.31	22x30
63	2200	228LBB063M2CC	113.04	2.3	25x25
63	3300	338LBB063M2BE	75.36	2.62	22x35
63	3300	338LBB063M2CD	75.36	2.64	25x30
63	3300	338LBB063M2DC	75.36	2.78	30x25
63	4700	478LBB063M2BG	52.91	3.04	22x45
63	4700	478LBB063M2CE	52.91	2.79	25x35
63	4700	478LBB063M2DD	52.91	3.32	30x30
63	4700	478LBB063M2EC	52.91	3.36	35x25
63	6800	688LBB063M2CH	36.57	4.27	25x50
63	6800	688LBB063M2DE	48.76	3.46	30x35
63	6800	688LBB063M2ED	48.76	4.15	35x30
63	10000	109LBB063M2DG	24.87	3.72	30x45
63	10000	109LBB063M2EF	24.87	5.47	35x40
63	15000	159LBB063M2EH	16.58	5.3	35x50
80	1000	108LBB080M2BC	248.68	1.5	22x25
80	1500	158LBB080M2BD	165.786	2	22x30
80	1500	158LBB080M2CC	165.786	2	25x25
80	2200	228LBB080M2BF	113.04	2.44	22x40
80	2200	228LBB080M2CD	113.04	2.46	25x30
80	2200	228LBB080M2DC	113.04	2.49	30x25
80	3300	338LBB080M2BH	75.36	3.16	22x50
80	3300	338LBB080M2CF	75.36	3.21	25x40
80	3300	338LBB080M2DD	75.36	3.17	30x30
80	3300	338LBB080M2EC	75.36	3.5	35x25
80	4700	478LBB080M2CH	52.91	4.05	25x50
80	4700	478LBB080M2DF	52.91	4.05	30x40
80	4700	478LBB080M2ED	52.91	4.09	35x30
80	6800	688LBB080M2DH	36.57	5.16	30x50
80	6800	688LBB080M2EF	36.57	5.14	35x40
100	1000	108LBB100M2BD	248.68	2	22x30
100	1000	108LBB100M2CC	248.68	2	25x25
100	1200	128LBB100M2BD	207.233	2.1	22x30
100	1200	128LBB100M2CC	207.233	2.1	25x25
100	1500	158LBB100M2BE	165.786	2.41	22x35
100	1500	158LBB100M2CD	165.786	2.43	25x30
100	1500	158LBB100M2DC	165.786	2.46	30x25
100	1800	188LBB100M2BF	138.16	2.77	22x40
100	1800	188LBB100M2CE	138.16	2.75	25x35
100	1800	188LBB100M2DD	138.16	2.35	30x30
100	2200	228LBB100M2BH	113.04	3.08	22x50
100	2200	228LBB100M2CF	113.04	3.13	25x40
100	2200	228LBB100M2DD	113.04	3.09	30x30
100	2200	228LBB100M2EC	113.04	3.14	35x25
100	3300	338LBB100M2CH	75.36	4.06	25x50
100	3300	338LBB100M2DF	75.36	4.05	30x40
100	3300	338LBB100M2ED	75.36	4.05	35x30
100	4700	478LBB100M2DH	52.91	5.13	30x50
100	4700	478LBB100M2EF	52.91	5.11	35x40
100	6800	688LBB100M2EH	36.57	6.5	35x50
160	330	337LBB160M2BC	502.38	1.4	22x25
160	390	397LBB160M2BC	425.09	1.44	22x25
160	470	477LBB160M2BD	352.74	1.73	22x30
160	470	477LBB160M2CC	352.74	1.74	25x25
160	560	567LBB160M2BE	296.05	1.99	22x35

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LBB

+85°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +85°C	Dims DxL (mm)
160	560	567LBB160M2CC	296.05	1.95	25x25
160	680	687LBB160M2BF	243.8	2.32	22x40
160	680	687LBB160M2CD	243.8	2.21	25x30
160	680	687LBB160M2DC	243.8	2.29	30x25
160	820	827LBB160M2BG	202.18	2.68	22x45
160	820	827LBB160M2CE	202.18	2.58	25x35
160	820	827LBB160M2DD	202.18	2.7	30x30
160	1000	108LBB160M2BH	165.79	3.11	22x50
160	1000	108LBB160M2CF	165.79	3.02	25x40
160	1000	108LBB160M2DD	165.79	2.98	30x30
160	1000	108LBB160M2EC	248.68	3.05	35x25
160	1200	128LBB160M2CG	138.16	3.49	25x45
160	1200	128LBB160M2DE	138.16	3.48	30x35
160	1200	128LBB160M2ED	207.23	3.59	35x30
160	1500	158LBB160M2DF	110.52	4.11	30x40
160	1500	158LBB160M2EE	165.786	4.26	35x35
160	1800	188LBB160M2DG	92.1	4.73	30x45
160	1800	188LBB160M2EE	138.16	4.67	35x35
160	2200	228LBB160M2EG	113.04	4.96	35x45
200	220	227LBB200M2BC	753.57	1.25	22x25
200	270	277LBB200M2BC	614.02	1.67	22x25
200	330	337LBB200M2BD	502.38	1.66	22x30
200	330	337LBB200M2CC	502.38	1.66	25x25
200	390	397LBB200M2BD	425.09	1.8	22x30
200	390	397LBB200M2CC	425.09	1.8	25x25
200	470	477LBB200M2BE	352.74	1.78	22x35
200	470	477LBB200M2CD	352.74	2.13	25x30
200	470	477LBB200M2DC	352.74	2.21	30x25
200	560	567LBB200M2BF	296.05	2.44	22x40
200	560	567LBB200M2CE	296.05	2.48	25x35
200	560	567LBB200M2DC	296.05	2.41	30x25
200	680	687LBB200M2BG	243.8	2.83	22x45
200	680	687LBB200M2CE	243.8	2.73	25x35
200	680	687LBB200M2DD	243.8	2.85	30x30
200	680	687LBB200M2EC	365.71	2.92	35x25
200	820	827LBB200M2CF	202.18	3.17	25x40
200	820	827LBB200M2DD	202.18	3.13	30x30
200	820	827LBB200M2EC	303.27	3.21	35x25
200	1000	108LBB200M2CH	165.79	3.87	25x50
200	1000	108LBB200M2DE	165.79	3.68	30x35
200	1000	108LBB200M2ED	248.68	3.8	35x30
200	1200	128LBB200M2DF	138.16	4.26	30x40
200	1200	128LBB200M2EE	207.23	4.42	35x35
200	1500	158LBB200M2EF	165.786	5.02	35x40
200	1800	188LBB200M2EG	138.16	4.32	35x45
200	2200	228LBB200M2EH	113.04	4.92	35x50
250	220	227LBB250M2BC	753.57	1.31	22x25
250	270	277LBB250M2BD	614.02	1.57	22x30
250	270	277LBB250M2CC	614.02	1.57	25x25
250	330	337LBB250M2BE	502.38	1.85	22x35
250	330	337LBB250M2CD	502.38	1.87	25x30
250	390	397LBB250M2BE	425.09	2.01	22x35
250	390	397LBB250M2CD	425.09	2.03	25x30
250	390	397LBB250M2DC	425.09	2.1	30x25
250	470	477LBB250M2BF	352.74	2.34	22x40
250	470	477LBB250M2CE	352.74	2.38	25x35
250	470	477LBB250M2DC	352.74	2.31	30x25
250	470	477LBB250M2EC	529.11	2.54	35x25

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +85°C	Dims DxL (mm)
250	560	567LBB250M2BH	296.05	2.82	22x50
250	560	567LBB250M2CF	296.05	2.74	25x40
250	560	567LBB250M2DD	296.05	2.71	30x30
250	560	567LBB250M2EC	444.07	2.78	35x25
250	680	687LBB250M2CG	243.8	3.19	25x45
250	680	687LBB250M2DE	243.8	3.18	30x35
250	680	687LBB250M2ED	365.71	3.28	35x30
250	820	827LBB250M2CH	202.18	3.67	25x50
250	820	827LBB250M2DF	202.18	3.69	30x40
250	820	827LBB250M2ED	303.27	3.6	35x30
250	1000	108LBB250M2DG	165.79	4.28	30x45
250	1000	108LBB250M2EE	248.68	4.22	35x35
250	1200	128LBB250M2DH	138.16	4.91	30x50
250	1200	128LBB250M2EF	207.23	4.88	35x40
250	1500	158LBB250M2EH	165.786	5.74	35x50
350	100	107LBB350M2BC	2486.8	0.86	22x25
350	120	127LBB350M2BD	2072.33	0.86	22x30
350	120	127LBB350M2CC	2072.33	0.86	25x25
350	150	157LBB350M2BD	1657.86	0.96	22x30
350	150	157LBB350M2CC	1657.86	1.1	25x25
350	180	187LBB350M2BE	1381.55	1.13	22x35
350	180	187LBB350M2CD	1381.55	1.14	25x30
350	180	187LBB350M2DC	1381.55	1.18	30x25
350	220	227LBB350M2BF	1130.36	1.32	22x40
350	220	227LBB350M2CE	1130.36	1.44	25x35
350	220	227LBB350M2DC	1130.36	1.3	30x25
350	270	277LBB350M2BH	921.04	1.61	22x50
350	270	277LBB350M2CF	921.04	1.57	25x40
350	270	277LBB350M2DD	921.04	1.55	30x30
350	270	277LBB350M2EC	921.04	1.59	35x25
350	330	337LBB350M2CG	753.57	1.82	25x45
350	330	337LBB350M2DD	753.57	1.8	30x30
350	330	337LBB350M2DE	753.57	1.83	30x35
350	390	397LBB350M2CH	637.64	2.08	25x50
350	390	397LBB350M2DF	637.64	2.1	30x40
350	390	397LBB350M2ED	637.64	2.04	35x30
350	470	477LBB350M2DF	529.11	2.3	30x40
350	470	477LBB350M2EE	529.11	2.38	35x35
350	560	567LBB350M2DH	444.07	2.76	30x50
350	560	567LBB350M2EF	444.07	2.75	35x40
350	680	687LBB350M2EG	365.71	3.18	35x45
400	82	826LBB400M2BC	3032.68	0.76	22x25
400	100	107LBB400M2BD	2486.8	0.91	22x30
400	100	107LBB400M2CC	2486.8	0.91	25x25
400	120	127LBB400M2BD	2072.33	1	22x30
400	120	127LBB400M2CC	2072.33	1	25x25
400	150	157LBB400M2BE	1657.86	1.19	22x35
400	150	157LBB400M2CD	1657.86	1.2	25x30
400	150	157LBB400M2DC	1657.86	1.25	30x25
400	180	187LBB400M2BF	1381.55	1.38	22x40
400	180	187LBB400M2CE	1381.55	1.4	25x35
400	180	187LBB400M2DC	1381.55	1.37	30x25
400	220	227LBB400M2BH	1130.36	1.69	22x50
400	220	227LBB400M2CF	1130.36	1.64	25x40
400	220	227LBB400M2DD	1130.36	1.62	30x30
400	220	227LBB400M2EC	1130.36	1.66	35x25
400	270	277LBB400M2CG	921.04	1.92	25x45
400	270	277LBB400M2DE	921.04	1.91	30x35

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LBB

+85°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +85°C	Dims DxL (mm)
400	270	277LBB400M2ED	921.04	1.97	35x30
400	330	337LBB400M2CH	753.57	2.22	25x50
400	330	337LBB400M2DF	753.57	2.23	30x40
400	330	337LBB400M2ED	753.57	2.18	35x30
400	390	397LBB400M2DG	637.64	2.55	30x45
400	390	397LBB400M2EE	637.64	2.52	35x35
400	470	477LBB400M2EF	529.11	2.92	35x40
400	560	567LBB400M2EG	444.07	3.34	35x45
400	680	687LBB400M2EH	365.71	3.85	35x50
450	82	826LBB450M2BD	3032.68	0.83	22x30
450	100	107LBB450M2BE	2486.8	0.97	22x35
450	100	107LBB450M2CC	2486.8	0.9	25x25
450	100	107LBB450M2CD	2486.8	0.98	25x30
450	100	107LBB450M2DC	2486.8	1.02	30x25
450	120	127LBB450M2BF	2072.33	1.13	22x40
450	120	127LBB450M2CD	2072.33	1.08	25x30
450	120	127LBB450M2DC	2072.33	1.12	30x25

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +85°C	Dims DxL (mm)
450	150	157LBB450M2BG	1657.86	1.33	22x45
450	150	157LBB450M2CE	1657.86	1.28	25x35
450	150	157LBB450M2DD	1657.86	1.34	30x30
450	180	187LBB450M2BH	1381.55	1.53	22x50
450	180	187LBB450M2CF	1381.55	1.49	25x40
450	180	187LBB450M2DD	1381.55	1.47	30x30
450	180	187LBB450M2EC	1381.55	1.5	35x25
450	220	227LBB450M2CG	1130.36	1.73	25x45
450	220	227LBB450M2DE	1130.36	1.72	30x35
450	220	227LBB450M2ED	1130.36	1.78	35x30
450	270	277LBB450M2DF	921.04	2.02	30x40
450	270	277LBB450M2EE	921.04	2.1	35x35
450	330	337LBB450M2DG	753.57	2.35	30x45
450	330	337LBB450M2EE	753.57	2.32	35x35
450	390	397LBB450M2EF	637.64	2.66	35x40
450	470	477LBB450M2EG	529.11	3.07	35x45

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LMB

Aluminum Electrolytic Capacitors

105°C Snap-Mount

FEATURES	Multiple Case Sizes - High Voltage – High Current
APPLICATIONS	Filtering – Switching Power Supplies

Operating Temperature Range		**-40°C to +105°C**								**-25°C to +105°C**					
Capacitance Tolerance		**±20% at 120 Hz, 20°C**													
Surge Voltage	**WVDC**	**10**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	SVDC	13	20	32	44	63	79	100	120	200	250	300	400	450	500
Dissipation Factor	**WVDC**	**10**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	Tan δ	.55	.5	.45	.4	.35	.3	.25	.2	.15	.15	.15	.25	.25	.25
		For capacitance values above 33000µF The add following to the Dissipation factors values above								(capacitance-33000 µF)*0.1 10000 µF					
Leakage current		**5 Minutes** 3√CV or 5000uA,Whichever is less													
Low Temperature Stability Impedance Ratio (120 Hz)	**WVDC**	**10**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	-25°C to +20°C	6	6	6	6	4	3	3	3	8	8	8	8	8	8
	-40°C to +20°C	15	15	15	15	15	15	15	15	-	-	-	-	-	-

Load Life	**3000 hours at 105°C with rated WVDC and ripple current applied**	
	Capacitance Change	≤20% of initial measured value
	Dissipation Factor	≤200% of maximum specified value
	Leakage Current	≤100% of maximum specified value
Shelf Life	**1000 hours at 85°C with no voltage applied**	
	Capacitance Change	≤20% of initial measured value
	Dissipation Factor	≤200% of maximum specified value
	Leakage Current	≤100% of maximum specified value

Ripple Current Multipliers		**Frequency (Hz)**				
	WVDC	**60**	**120**	**1k**	**10k+**	
	10 to 100	**0.9**	**1**	**1.15**	**1.25**	
	160 to 250	**0.8**	**1**	**1.25**	**1.47**	
	350 to 450	**0.8**	**1**	**1.3**	**1.47**	

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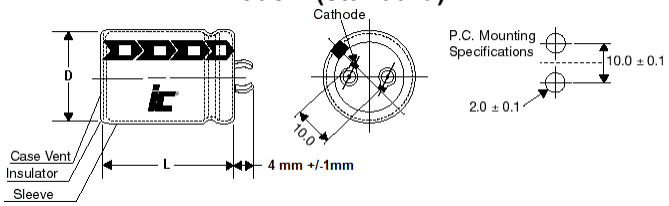
Aluminum Electrolytic Capacitors

105°C Snap-Mount

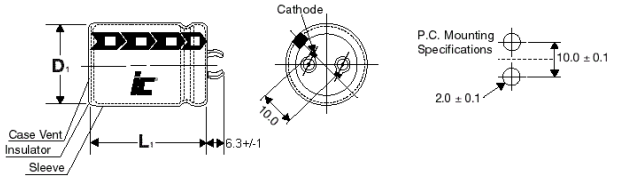
Lead Style Options

Code 2 (standard)



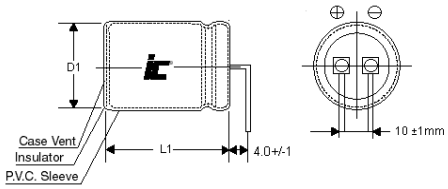
Diameter 20 to 40 mm

Code W



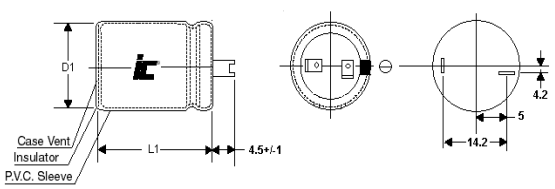
Diameter 20 to 40 mm

Code P



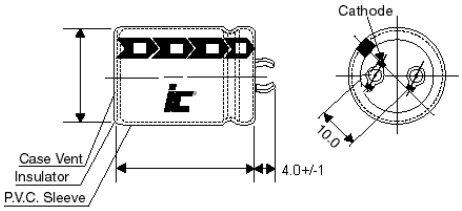
Diameter 22 to 35 mm

Code D



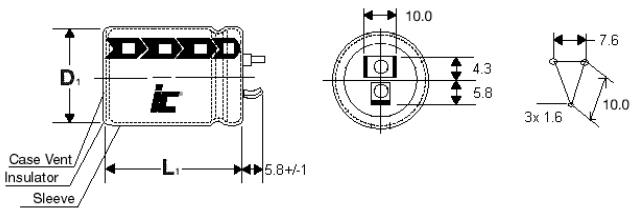
Diameter 30 to 40 mm

Code 9



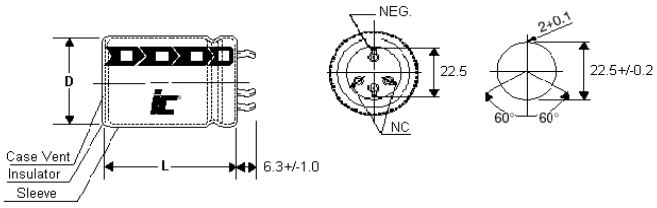
Diameter 25 to 35 mm

Code T



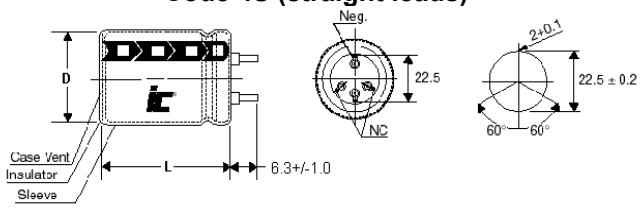
Diameter 25 to 35 mm

Code 4



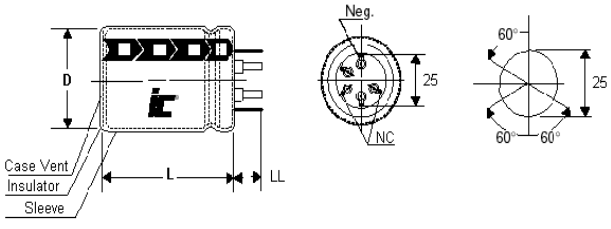
Diameter 35 to 45 mm

Code 4S (straight leads)



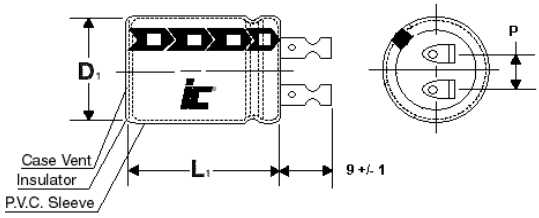
Diameter 35 to 45 mm

Code 5



Diameter 40 to 50 mm

Code G



D	35	40	50	63	76
P	14	14	18	25	25

Diameter 35 to 76 mm

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+105°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
10	6800	688LMB010M2AC	134.092	1.41	20x25
10	8200	828LMB010M2AD	111.198	1.67	20x30
10	10000	109LMB010M2AD	91.1825	1.88	20x30
10	10000	109LMB010M2BC	91.1825	1.8	22x25
10	12000	129LMB010M2AE	75.9854	2.23	20x35
10	12000	129LMB010M2BD	75.9854	2.2	22x30
10	12000	129LMB010M2CC	75.9854	2.2	25x25
10	15000	159LMB010M2AF	60.7883	2.31	20x40
10	15000	159LMB010M2BE	60.7883	2.3	22x35
10	15000	159LMB010M2CC	60.7883	2.3	25x25
10	18000	189LMB010M2BF	50.657	2.52	22x40
10	18000	189LMB010M2CD	50.657	2.4	25x30
10	18000	189LMB010M2DC	50.657	2.49	30x25
10	22000	229LMB010M2BG	41.4466	2.6	22x45
10	22000	229LMB010M2CE	41.4466	2.6	25x35
10	22000	229LMB010M2DC	41.4466	2.6	30x25
10	27000	279LMB010M2BH	33.7713	3.19	22x50
10	27000	279LMB010M2CF	33.7713	3.1	25x40
10	27000	279LMB010M2DD	33.7713	3.1	30x30
10	33000	339LMB010M2CG	27.6311	3.4	25x45
10	33000	339LMB010M2DE	27.6311	3.4	30x35
10	33000	339LMB010M2ED	27.6311	3.4	35x30
10	39000	399LMB010M2DF	25.1192	3.79	30x40
10	39000	399LMB010M2ED	25.1192	3.7	35x30
10	47000	479LMB010M2DG	24.3389	4.26	30x45
10	47000	479LMB010M2EE	24.3389	4.2	35x35
10	56000	569LMB010M2EF	23.0917	5	35x40
16	5600	568LMB016M2AC	148.024	1.89	20x25
16	6800	688LMB016M2AD	121.902	2.25	20x30
16	6800	688LMB016M2BC	121.902	1.74	22x25
16	6800	688LMB016M2CD	121.902	1.67	25x30
16	8200	828LMB016M2AE	101.089	2.43	20x35
16	8200	828LMB016M2BD	101.089	2.4	22x30
16	10000	109LMB016M2AF	82.8932	2.79	20x40
16	10000	109LMB016M2BD	82.8932	2.09	22x30
16	10000	109LMB016M2CC	82.8932	2.05	25x25
16	12000	129LMB016M2BE	69.0777	2.9	22x35
16	12000	129LMB016M2CD	69.0777	2.9	25x30
16	15000	159LMB016M2BF	55.2621	3.2	22x40
16	15000	159LMB016M2CE	55.2621	2.6	25x35
16	18000	189LMB016M2BG	46.0518	3.5	22x45
16	18000	189LMB016M2CF	46.0518	3.5	25x40
16	18000	189LMB016M2DD	46.0518	3.5	30x30
16	22000	229LMB016M2CG	37.6787	3.8	25x45
16	22000	229LMB016M2DD	37.6787	3.8	30x30
16	22000	229LMB016M2DE	37.6787	3.35	30x35
16	22000	229LMB016M2ED	37.6787	3.2	35x30
16	27000	279LMB016M2CH	30.7012	4.2	25x50
16	27000	279LMB016M2DE	30.7012	4.2	30x35
16	27000	279LMB016M2ED	30.7012	4.2	35x30
16	33000	339LMB016M2DF	25.1192	4.7	30x40
16	33000	339LMB016M2EE	25.1192	4.21	35x35
16	39000	399LMB016M2DG	23.8052	4.9	30x45
16	39000	399LMB016M2EF	23.8052	5.1	35x40
16	47000	479LMB016M2DH	22.5752	5.27	30x50
16	47000	479LMB016M2EG	22.5752	5.5	35x45
25	3300	338LMB025M2BC	200.953	1.34	22x25
25	3900	398LMB025M2AC	191.292	1.72	20x25
25	4700	478LMB025M2AD	158.732	2.04	20x30
25	4700	478LMB025M2BC	158.732	1.58	22x25
25	4700	478LMB025M2CC	158.732	1.51	25x25
25	5600	568LMB025M2AE	133.221	2.23	20x35
25	5600	568LMB025M2BD	133.221	2.2	22x30
25	6800	688LMB025M2AF	109.712	2.72	20x40
25	6800	688LMB025M2BD	109.712	1.85	22x30
25	6800	688LMB025M2CC	109.712	1.88	25x25
25	6800	688LMB025M2DC	109.712	1.75	30x25
25	8200	828LMB025M2BE	90.9803	2.7	22x35
25	8200	828LMB025M2CD	90.9803	2.7	25x30
25	8200	828LMB025M2DC	90.9803	2.7	30x25
25	10000	109LMB025M2BF	74.6039	2.6	22x40
25	10000	109LMB025M2CE	74.6039	2.55	25x35
25	10000	109LMB025M2DD	74.6039	2.6	30x30
25	10000	109LMB025M2EC	74.6039	2.15	35x25
25	12000	129LMB025M2BG	62.1699	3.2	22x45
25	12000	129LMB025M2CF	62.1699	3.2	25x40
25	12000	129LMB025M2DD	62.1699	3.2	30x30
25	15000	159LMB025M2CG	49.7359	3.25	25x45
25	15000	159LMB025M2DE	49.7359	3.1	30x35
25	15000	159LMB025M2ED	49.7359	3.25	35x30
25	18000	189LMB025M2DF	41.4466	3.9	30x40
25	18000	189LMB025M2ED	41.4466	3.9	35x30
25	22000	229LMB025M2DG	33.9109	2.44	30x45
25	22000	229LMB025M2EE	33.9109	3.95	35x35
25	27000	279LMB025M2EE	27.6311	4.8	35x35
25	33000	339LMB025M2EH	22.6072	5.47	35x50
35	2200	228LMB035M2BC	263.751	1.17	22x25
35	2700	278LMB035M2AC	245.61	1.62	20x25
35	3300	338LMB035M2AD	200.953	1.94	20x30
35	3300	338LMB035M2BC	200.953	1.43	22x25
35	3300	338LMB035M2CC	200.953	1.36	25x25
35	3900	398LMB035M2AE	170.037	2.02	20x35
35	3900	398LMB035M2BD	170.037	2	22x30
35	4700	478LMB035M2AF	141.095	2.21	20x40
35	4700	478LMB035M2BE	141.095	2	22x35
35	4700	478LMB035M2CC	141.095	1.73	25x25
35	4700	478LMB035M2DC	141.095	1.56	30x25
35	5600	568LMB035M2BE	118.419	2.4	22x35
35	5600	568LMB035M2CD	118.419	2.4	25x30
35	6800	688LMB035M2BF	97.5214	2.35	22x40
35	6800	688LMB035M2CE	97.5214	2.6	25x35
35	6800	688LMB035M2DC	97.5214	2.78	30x25
35	6800	688LMB035M2DD	97.5214	2.3	30x30
35	6800	688LMB035M2EC	97.5214	1.96	35x25
35	8200	828LMB035M2BH	80.8714	2.9	22x50
35	8200	828LMB035M2CF	80.8714	2.9	25x40
35	8200	828LMB035M2DD	80.8714	2.9	30x30
35	10000	109LMB035M2CG	66.3146	3	25x45
35	10000	109LMB035M2DE	66.3146	2.95	30x35
35	10000	109LMB035M2ED	66.3146	2.2	35x30
35	12000	129LMB035M2CH	55.2621	3.5	25x50
35	12000	129LMB035M2DF	55.2621	3.5	30x40
35	12000	129LMB035M2ED	55.2621	3.5	35x30
35	15000	159LMB035M2DG	44.2097	3.7	30x45
35	15000	159LMB035M2EE	44.2097	3.9	35x35
35	15000	159LMB035M2EF	44.2097	3.65	35x40

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+105°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
35	18000	189LMB035M2EF	36.8414	4.51	35x40
35	22000	229LMB035M2EG	30.143	5.24	35x45
50	1500	158LMB050M2AC	386.835	1.29	20x25
50	1500	158LMB050M2BC	386.835	1.05	22x25
50	1800	188LMB050M2AD	322.362	1.53	20x30
50	1800	188LMB050M2BC	322.362	1.5	22x25
50	2200	228LMB050M2AE	263.751	1.72	20x35
50	2200	228LMB050M2BD	263.751	1.31	22x30
50	2200	228LMB050M2CC	263.751	1.25	25x25
50	2700	278LMB050M2AE	214.908	1.82	20x35
50	2700	278LMB050M2BD	214.908	1.8	22x30
50	2700	278LMB050M2CC	214.908	1.8	25x25
50	3300	338LMB050M2AF	175.834	2.01	20x40
50	3300	338LMB050M2BE	175.834	1.94	22x35
50	3300	338LMB050M2CD	175.834	1.98	25x30
50	3300	338LMB050M2DC	175.834	1.5	30x25
50	3900	398LMB050M2BF	148.783	2.23	22x40
50	3900	398LMB050M2CD	148.783	2.2	25x30
50	3900	398LMB050M2DC	148.783	2.2	30x25
50	4700	478LMB050M2BG	123.458	2.54	22x45
50	4700	478LMB050M2CE	123.458	2.58	25x35
50	4700	478LMB050M2DD	123.458	2.53	30x30
50	4700	478LMB050M2EC	123.458	1.86	35x25
50	5600	568LMB050M2BH	103.617	2.8	22x50
50	5600	568LMB050M2CF	103.617	2.8	25x40
50	5600	568LMB050M2DD	103.617	2.76	30x30
50	6800	688LMB050M2CG	85.3312	3.32	25x45
50	6800	688LMB050M2DE	85.3312	3.34	30x35
50	6800	688LMB050M2ED	85.3312	3.25	35x30
50	8200	828LMB050M2DF	70.7625	3.71	30x40
50	8200	828LMB050M2EE	70.7625	3.85	35x35
50	10000	109LMB050M2DG	58.0252	4.04	30x45
50	10000	109LMB050M2DH	58.0252	4.51	30x50
50	10000	109LMB050M2EF	58.0252	4.02	35x40
50	12000	129LMB050M2EG	48.3544	4.56	35x45
50	15000	159LMB050M2EH	38.6835	4.73	35x50
63	1000	108LMB063M2AC	497.359	1.21	20x25
63	1000	108LMB063M2BC	414.466	0.91	22x25
63	1200	128LMB063M2AD	414.466	1.43	20x30
63	1200	128LMB063M2BC	414.466	1.4	22x25
63	1500	158LMB063M2AE	331.573	1.52	20x35
63	1500	158LMB063M2BD	331.573	1.43	22x30
63	1500	158LMB063M2CC	331.573	1.42	25x25
63	1800	188LMB063M2AE	276.311	1.72	20x35
63	1800	188LMB063M2BD	276.311	1.7	22x30
63	1800	188LMB063M2CC	276.311	1.7	25x25
63	2200	228LMB063M2BE	226.072	1.8	22x35
63	2200	228LMB063M2BF	226.072	2.01	22x40
63	2200	228LMB063M2CD	226.072	1.35	25x30
63	2200	228LMB063M2CE	226.072	2	25x35
63	2200	228LMB063M2DC	226.072	1.73	30x25
63	2700	278LMB063M2BF	184.207	2.2	22x40
63	2700	278LMB063M2CE	184.207	2.2	25x35
63	2700	278LMB063M2DC	184.207	2.2	30x25
63	3300	338LMB063M2BG	150.715	2.31	22x45
63	3300	338LMB063M2CE	150.715	2.23	25x35
63	3300	338LMB063M2DD	150.715	2.19	30x30
63	3300	338LMB063M2EC	150.715	1.73	35x25

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
63	3900	398LMB063M2CF	127.528	2.57	25x40
63	3900	398LMB063M2DE	127.528	2.7	30x35
63	4700	478LMB063M2CH	105.821	2.93	25x50
63	4700	478LMB063M2DE	105.821	2.9	30x35
63	4700	478LMB063M2DF	105.821	3	30x40
63	4700	478LMB063M2ED	105.821	2.81	35x30
63	5600	568LMB063M2DF	88.8141	3.22	30x40
63	5600	568LMB063M2EE	88.8141	3.3	35x35
63	6800	688LMB063M2DG	73.1411	3.71	30x45
63	6800	688LMB063M2DH	73.1411	3.86	30x50
63	6800	688LMB063M2EF	73.1411	3.68	35x40
63	8200	828LMB063M2EG	60.6536	4.43	35x45
63	10000	109LMB063M2EH	49.7359	4.64	35x50
80	820	827LMB080M2BC	05.446	1.04	22x25
80	1000	108LMB080M2AD	414.466	1.24	20x30
80	1000	108LMB080M2BC	414.466	1.2	22x25
80	1000	108LMB080M2CC	414.466	0.99	25x25
80	1200	128LMB080M2BD	345.388	1.5	22x30
80	1200	128LMB080M2CC	345.388	1.43	25x25
80	1500	158LMB080M2AE	276.311	1.57	20x35
80	1500	158LMB080M2BD	276.311	1.59	22x30
80	1500	158LMB080M2BE	276.311	1.6	22x35
80	1500	158LMB080M2CC	276.311	1.59	25x25
80	1500	158LMB080M2CD	276.311	1.63	25x30
80	1500	158LMB080M2DC	276.311	1.21	30x25
80	1800	188LMB080M2AF	230.259	1.77	20x40
80	1800	188LMB080M2BE	230.259	1.79	22x35
80	1800	188LMB080M2CD	230.259	1.71	25x30
80	2200	228LMB080M2BF	188.394	2.03	22x40
80	2200	228LMB080M2BH	188.394	2.04	22x50
80	2200	228LMB080M2CE	188.394	1.98	25x35
80	2200	228LMB080M2DC	188.394	1.98	30x25
80	2200	228LMB080M2DD	188.394	2.05	30x30
80	2200	228LMB080M2EC	188.394	1.61	35x25
80	2700	278LMB080M2BG	153.506	2.39	22x45
80	2700	278LMB080M2CF	153.506	2.35	25x40
80	2700	278LMB080M2DD	153.506	2.35	30x30
80	3300	338LMB080M2CG	125.596	2.74	25x45
80	3300	338LMB080M2DE	125.596	2.75	30x35
80	3300	338LMB080M2ED	125.596	2.7	35x30
80	3900	398LMB080M2CH	106.273	2.92	25x50
80	3900	398LMB080M2DF	106.273	2.82	30x40
80	3900	398LMB080M2ED	106.273	2.97	35x30
80	4700	478LMB080M2DG	88.1843	3.34	30x45
80	4700	478LMB080M2DH	88.1843	3.5	30x50
80	4700	478LMB080M2EE	88.1843	3.38	35x35
80	4700	478LMB080M2EF	88.1843	3.5	35x40
80	5600	568LMB080M2DH	74.0118	3.8	30x50
80	5600	568LMB080M2EF	74.0118	3.8	35x40
80	6800	688LMB080M2EG	60.9509	3.9	35x45
80	6800	688LMB080M2EH	60.9509	4.12	35x50
80	8200	828LMB080M2EH	50.5446	4.2	35x50
100	560	567LMB100M2AC	740.118	0.95	20x25
100	680	687LMB100M2AD	487.607	1.15	20x30
100	680	687LMB100M2BC	487.607	1.09	22x25
100	820	827LMB100M2AE	404.357	1.31	20x35
100	820	827LMB100M2BD	404.357	1.4	22x30
100	1000	108LMB100M2AE	331.573	1.43	20x35

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LMB

+105°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
100	1000	108LMB100M2BD	331.573	1.51	22x30
100	1000	108LMB100M2CC	331.573	1.55	25x25
100	1200	128LMB100M2AF	276.311	1.61	20x40
100	1200	128LMB100M2BE	276.311	1.69	22x35
100	1200	128LMB100M2CD	276.311	1.68	25x30
100	1500	158LMB100M2BF	221.048	1.94	22x40
100	1500	158LMB100M2CE	221.048	2.01	25x35
100	1500	158LMB100M2DC	221.048	1.98	30x25
100	1800	188LMB100M2BG	184.207	2.23	22x45
100	1800	188LMB100M2CF	184.207	2.2	25x40
100	1800	188LMB100M2DD	184.207	2.2	30x30
100	2200	228LMB100M2CG	150.715	2.55	25x45
100	2200	228LMB100M2DE	150.715	2.56	30x35
100	2200	228LMB100M2ED	150.715	2.6	35x30
100	2700	278LMB100M2CH	122.805	2.82	25x50
100	2700	278LMB100M2DF	122.805	2.86	30x40
100	2700	278LMB100M2EE	122.805	2.9	35x35
100	3300	338LMB100M2DG	100.477	3.3	30x45
100	3300	338LMB100M2EE	100.477	3.28	35x35
100	3900	398LMB100M2DH	85.0187	3.6	30x50
100	3900	398LMB100M2EF	85.0187	3.67	35x40
100	4700	478LMB100M2EG	70.5475	4.12	35x45
100	5600	568LMB100M2EH	59.2094	4.05	35x50
160	270	277LMB160M2AC	921.036	1.1	20x25
160	330	337LMB160M2AD	753.574	1.2	20x30
160	330	337LMB160M2BC	753.574	1.16	22x25
160	390	397LMB160M2AE	637.64	1.42	20x35
160	390	397LMB160M2BD	637.64	1.27	22x30
160	390	397LMB160M2CC	637.64	1.03	25x25
160	470	477LMB160M2AF	529.106	1.34	20x40
160	470	477LMB160M2BD	529.106	1.51	22x30
160	470	477LMB160M2CC	529.106	1.5	25x25
160	560	567LMB160M2BE	444.071	1.66	22x35
160	560	567LMB160M2CD	444.071	1.65	25x30
160	560	567LMB160M2DC	444.071	1.66	30x25
160	680	687LMB160M2BF	365.705	1.8	22x40
160	680	687LMB160M2CE	365.705	2	25x35
160	680	687LMB160M2DC	365.705	1.82	30x25
160	820	827LMB160M2BG	303.268	2.02	22x45
160	820	827LMB160M2CE	303.268	2	25x35
160	820	827LMB160M2CF	303.268	2.04	25x40
160	820	827LMB160M2DD	303.268	2.03	30x30
160	820	827LMB160M2EC	303.268	2	35x25
160	1000	108LMB160M2CG	248.68	2.22	25x45
160	1000	108LMB160M2DE	248.68	2.21	30x35
160	1000	108LMB160M2EC	248.68	2.24	35x25
160	1200	128LMB160M2CH	207.233	2.43	25x50
160	1200	128LMB160M2DE	207.233	2.4	30x35
160	1200	128LMB160M2DF	207.233	2.49	30x40
160	1200	128LMB160M2ED	207.233	2.41	35x30
160	1500	158LMB160M2DG	165.786	2.88	30x45
160	1500	158LMB160M2EE	165.786	2.84	35x35
160	1800	188LMB160M2DH	138.155	3.32	30x50
160	1800	188LMB160M2EF	138.155	3.28	35x40
160	1800	188LMB160M2EG	138.155	3	35x45
160	2200	228LMB160M2EG	113.036	3.5	35x45
200	220	227LMB200M2AC	1130.36	1	20x25
200	220	227LMB200M2BC	1130.36	0.97	22x25
200	270	277LMB200M2AD	921.036	1.1	20x30
200	270	277LMB200M2BC	921.036	1.04	22x25
200	330	337LMB200M2AE	753.574	1.2	20x35
200	330	337LMB200M2BD	753.574	1.21	22x30
200	330	337LMB200M2CC	753.574	1.44	25x25
200	390	397LMB200M2AF	637.64	1.31	20x40
200	390	397LMB200M2BE	637.64	1.31	22x35
200	390	397LMB200M2CC	637.64	1.29	25x25
200	390	397LMB200M2CD	637.64	1.35	25x30
200	470	477LMB200M2BF	529.106	1.52	22x40
200	470	477LMB200M2CD	529.106	1.45	25x30
200	470	477LMB200M2DC	529.106	1.5	30x25
200	560	567LMB200M2BF	444.071	1.7	22x40
200	560	567LMB200M2BG	444.071	1.67	22x45
200	560	567LMB200M2CE	444.071	1.68	25x35
200	560	567LMB200M2DC	444.071	1.67	30x25
200	560	567LMB200M2DD	444.071	1.7	30x30
200	680	687LMB200M2BG	365.705	1.82	22x45
200	680	687LMB200M2BH	365.705	1.75	22x50
200	680	687LMB200M2CE	365.705	1.79	25x35
200	680	687LMB200M2CF	365.705	1.82	25x40
200	680	687LMB200M2DD	365.705	1.84	30x30
200	680	687LMB200M2EC	365.705	1.8	35x25
200	820	827LMB200M2CG	303.268	2.07	25x45
200	820	827LMB200M2DD	303.268	2.05	30x30
200	820	827LMB200M2DE	303.268	2.04	30x35
200	820	827LMB200M2ED	303.268	2.15	35x30
200	1000	108LMB200M2CH	248.68	2.53	25x50
200	1000	108LMB200M2DE	248.68	2.4	30x35
200	1000	108LMB200M2DF	248.68	2.3	30x40
200	1000	108LMB200M2ED	248.68	2.58	35x30
200	1000	108LMB200M2EE	248.68	2.3	35x35
200	1200	128LMB200M2DG	207.233	2.65	30x45
200	1200	128LMB200M2EE	207.233	2.85	35x35
200	1500	158LMB200M2EF	165.786	3.08	35x40
200	1500	158LMB200M2EG	165.786	3.25	35x45
200	1800	188LMB200M2EG	138.155	3.48	35x45
200	1800	188LMB200M2EH	138.155	3.68	35x50
250	150	157LMB250M2AC	1657.86	0.79	20x25
250	180	187LMB250M2AD	1381.55	0.9	20x30
250	180	187LMB250M2BC	1381.55	0.88	22x25
250	220	227LMB250M2AE	1130.36	1	20x35
250	220	227LMB250M2BC	753.6	0.94	22x25
250	220	227LMB250M2BD	1130.36	1	22x30
250	220	227LMB250M2CC	1130.36	0.91	25x25
250	270	277LMB250M2AF	921.036	1.1	20x40
250	270	277LMB250M2BE	921.036	1.13	22x35
250	270	277LMB250M2CC	921.036	1.11	25x25
250	270	277LMB250M2CD	921.036	1.27	25x30
250	330	337LMB250M2BE	753.574	1.23	22x35
250	330	337LMB250M2BF	753.574	1.3	22x40
250	330	337LMB250M2CD	753.574	1.28	25x30
250	330	337LMB250M2DC	753.574	1.24	30x25
250	390	397LMB250M2BF	637.64	1.47	22x40
250	390	397LMB250M2BG	637.64	1.49	22x45
250	390	397LMB250M2CE	637.64	1.46	25x35
250	390	397LMB250M2DC	637.64	1.48	30x25
250	390	397LMB250M2DD	637.64	1.49	30x30

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+105°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
250	470	477LMB250M2BH	529.106	1.66	22x50
250	470	477LMB250M2CF	529.106	1.61	25x40
250	470	477LMB250M2DD	529.106	1.59	30x30
250	470	477LMB250M2EC	529.106	1.63	35x25
250	560	567LMB250M2CG	444.071	1.85	25x45
250	560	567LMB250M2DE	444.071	1.85	30x35
250	560	567LMB250M2EC	444.07	1.78	35x25
250	680	687LMB250M2CH	365.705	2.14	25x50
250	680	687LMB250M2DE	365.705	2.04	30x35
250	680	687LMB250M2DF	365.705	2	30x40
250	680	687LMB250M2ED	365.705	2.1	35x30
250	820	827LMB250M2DG	303.268	2.49	30x45
250	820	827LMB250M2EE	303.268	2.45	35x35
250	1000	108LMB250M2DH	248.68	2.7	30x50
250	1000	108LMB250M2EF	248.68	2.56	35x40
250	1200	128LMB250M2EG	207.233	2.85	35x45
250	1500	158LMB250M2EH	165.786	3.28	35x50
350	68	686LMB350M2AC	6095.09	0.47	20x25
350	82	826LMB350M2AD	5054.46	0.54	20x30
350	82	826LMB350M2BC	5054.46	0.43	22x25
350	100	107LMB350M2AD	4144.66	0.6	20x30
350	100	107LMB350M2BC	4144.66	0.69	22x25
350	100	107LMB350M2BD	4144.66	0.51	22x30
350	100	107LMB350M2CC	4144.66	0.51	25x25
350	120	127LMB350M2AE	3453.88	0.68	20x35
350	120	127LMB350M2BD	3453.88	0.55	22x30
350	120	127LMB350M2CC	3453.88	0.55	25x25
350	150	157LMB350M2AF	2763.11	0.78	20x40
350	150	157LMB350M2BE	2763.11	0.66	22x35
350	150	157LMB350M2CD	2763.11	0.67	25x30
350	150	157LMB350M2DC	2763.11	0.69	30x25
350	180	187LMB350M2BF	2302.59	0.77	22x40
350	180	187LMB350M2CD	2302.59	0.92	25x30
350	180	187LMB350M2CE	2302.59	0.78	25x35
350	180	187LMB350M2DC	2302.59	0.9	30x25
350	180	187LMB350M2DD	2302.59	0.82	30x30
350	220	227LMB350M2BG	2302.59	1.05	22x45
350	220	227LMB350M2CE	2302.59	1.04	25x35
350	220	227LMB350M2CF	1130.36	0.91	25x40
350	220	227LMB350M2DD	2302.59	0.9	30x30
350	220	227LMB350M2EC	2302.59	0.92	35x25
350	270	277LMB350M2BH	1535.06	1.16	22x50
350	270	277LMB350M2CF	1535.06	1.18	25x40
350	270	277LMB350M2CG	1535.06	1.07	25x45
350	270	277LMB350M2DD	1535.06	1.17	30x30
350	270	277LMB350M2DE	1535.06	1.06	30x35
350	270	277LMB350M2EC	1535.06	1.17	35x25
350	270	277LMB350M2ED	1535.06	1.1	35x30
350	330	337LMB350M2CG	1255.96	1.29	25x45
350	330	337LMB350M2CH	753.574	1.23	25x50
350	330	337LMB350M2DE	1255.96	1.34	30x35
350	330	337LMB350M2DF	53.57	1.24	30x40
350	330	337LMB350M2ED	1255.96	1.21	35x30
350	390	397LMB350M2CH	1062.73	1.51	25x50
350	390	397LMB350M2DF	1062.73	1.51	30x40
350	390	397LMB350M2DG	637.64	1.42	30x45
350	390	397LMB350M2EE	1062.73	1.4	35x35
350	470	477LMB350M2DG	881.842	1.65	30x45

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
350	470	477LMB350M2EE	881.842	1.69	35x35
350	470	477LMB350M2EF	529.106	1.62	35x40
350	560	567LMB350M2DH	740.118	1.85	30x50
350	560	567LMB350M2ED	740.118	1.91	35x30
350	560	567LMB350M2EF	740.118	1.9	35x40
350	560	567LMB350M2EG	740.118	1.86	35x45
350	680	687LMB350M2EG	609.509	2.2	35x45
400	56	566LMB400M2AC	7401.18	0.51	20x25
400	68	686LMB400M2AD	6095.09	0.56	20x30
400	68	686LMB400M2BC	6095.09	0.53	22x25
400	82	826LMB400M2AD	5054.46	0.64	20x30
400	82	826LMB400M2BC	5054.46	0.64	22x25
400	82	826LMB400M2BD	5054.46	0.56	22x30
400	82	826LMB400M2CC	5054.46	0.56	25x25
400	100	107LMB400M2AE	4144.66	0.7	20x35
400	100	107LMB400M2BD	4144.66	0.68	22x30
400	100	107LMB400M2CC	4144.66	0.68	25x25
400	120	127LMB400M2BE	3453.88	0.72	22x35
400	120	127LMB400M2BF	3453.88	0.75	22x40
400	120	127LMB400M2CC	3453.88	0.73	25x25
400	120	127LMB400M2CD	3453.88	0.76	25x30
400	150	157LMB400M2BF	2763.11	0.85	22x40
400	150	157LMB400M2CD	2763.11	0.85	25x30
400	150	157LMB400M2DC	2763.11	0.9	30x25
400	180	187LMB400M2BG	2302.59	0.98	22x45
400	180	187LMB400M2CE	2302.59	1	25x35
400	180	187LMB400M2DD	2302.59	0.99	30x30
400	180	187LMB400M2EC	2302.59	1.01	35x25
400	220	227LMB400M2BH	2302.59	1.1	22x50
400	220	227LMB400M2CF	2302.59	1.15	25x40
400	220	227LMB400M2DD	2302.59	1.1	30x30
400	220	227LMB400M2EC	2302.59	1.1	35x25
400	270	277LMB400M2CG	1535.06	1.3	25x45
400	270	277LMB400M2CH	1535.06	1.29	25x50
400	270	277LMB400M2DE	1535.06	1.26	30x35
400	270	277LMB400M2ED	1535.06	1.27	35x30
400	330	337LMB400M2DF	753.57	1.5	30x40
400	330	337LMB400M2DG	1255.96	1.55	30x45
400	330	337LMB400M2ED	1255.96	1.5	35x30
400	390	397LMB400M2DG	1062.73	1.6	30x45
400	390	397LMB400M2EE	1062.73	1.7	35x35
400	470	477LMB400M2EF	881.842	2.07	35x40
400	560	567LMB400M2EG	40.118	2.36	35x45
400	680	687LMB400M2EH	609.509	2.4	35x50
450	47	476LMB450M2AC	8818.43	0.39	20x25
450	47	476LMB450M2BC	5291.06	0.39	22x25
450	56	566LMB450M2AD	7401.18	0.46	20x30
450	56	566LMB450M2BC	7401.18	0.5	22x25
450	68	686LMB450M2AE	6095.09	0.56	20x35
450	68	686LMB450M2BD	6095.09	0.54	22x30
450	68	686LMB450M2CC	6095.09	0.5	25x25
450	82	826LMB450M2AE	5054.46	0.64	20x35
450	82	826LMB450M2BD	5054.46	0.64	22x30
450	82	826LMB450M2BE	5054.46	0.61	22x35
450	82	826LMB450M2CC	5054.46	0.64	25x25
450	82	826LMB450M2CD	3032.68	0.6	25x30
450	100	107LMB450M2BC	4144.66	0.69	22x25
450	100	107LMB450M2BE	4144.66	0.69	22x35

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+105°C, Extended Life, 3000 hours

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
450	100	107LMB450M2CC	4144.66	0.65	25x25
450	100	107LMB450M2DC	4144.66	0.68	30x25
450	120	127LMB450M2BF	3453.88	0.8	22x40
450	120	127LMB450M2BG	3453.88	0.8	22x45
450	120	127LMB450M2CD	3453.88	0.8	25x30
450	120	127LMB450M2CE	3453.88	0.77	25x35
450	120	127LMB450M2DC	3453.88	0.8	30x25
450	120	127LMB450M2DD	3453.88	0.8	30x30
450	120	127LMB450M2EC	3453.88	0.82	35x25
450	150	157LMB450M2BG	2763.11	0.88	22x45
450	150	157LMB450M2CE	2763.11	0.88	25x35
450	150	157LMB450M2CF	2763.11	0.96	25x40
450	150	157LMB450M2DD	2763.11	0.88	30x30
450	150	157LMB450M2DE	2763.11	0.96	30x35
450	150	157LMB450M2ED	2763.11	0.99	35x30
450	180	187LMB450M2CF	2302.59	1.1	25x40
450	180	187LMB450M2DD	2302.59	1	30x30

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
450	180	187LMB450M2DE	2302.59	1.05	30x35
450	180	187LMB450M2ED	2302.59	1.08	35x30
450	220	227LMB450M2CG	2302.59	1.12	25x45
450	220	227LMB450M2DE	2302.59	1.12	30x35
450	220	227LMB450M2ED	2302.59	1.12	35x30
450	220	227LMB450M2EE	2302.59	1.27	35x35
450	270	277LMB450M2DF	1535.06	1.28	30x40
450	270	277LMB450M2DG	1535.06	1.48	30x45
450	270	277LMB450M2EE	1535.06	1.49	35x35
450	330	337LMB450M2DH	1255.96	1.45	30x50
450	330	337LMB450M2EF	1255.96	1.45	35x40
450	330	337LMB450M2EG	1255.96	1.72	35x45
450	390	397LMB450M2EF	1062.73	1.55	35x40
450	390	397LMB450M2EH	1062.73	1.96	35x50
450	470	477LMB450M2EH	529.11	1.85	35x50
450	560	567LMB450M2EH	740.12	2.15	35x50

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LMH

Aluminum Electrolytic Capacitors

+105°C Long Life Snap-Mount

FEATURES	Multiple Case Sizes - High Voltage _ High Current
APPLICATIONS	Filtering _ Switching Power Supplies

Operating Temperature Range		**-40°C to +105°C (≤250WVDC) -25°C to +105°C (>250WVDC)**													
Capacitance Tolerance		**±20% at 120 Hz, 20°C**													
Surge Voltage	**WVDC**	**10**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	SVDC	13	20	32	44	63	79	100	120	200	250	300	400	450	500
Dissipation Factor tan δ (120 Hz)	**WVDC**	**10**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
		.55	.5	.45	.4	.35	.3	.25	.2	.15	.15	.15	.15	.15	.15
		For capacitances above 33000uF, add to DF value (Capacitance-33000) *0.1 / 10000													
Leakage Current @20°C, Rated WVDC applied		Time	**5 Minutes**												
			3√CV												
Impedance Ratio (120 Hz)	**WVDC**	**10**	**16**	**25**	**35**	**50**	**63**	**80**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	-25°C/+20°C	4	4	4	4	4	4	4	4	3	3	3	8	8	8
	-40°C/+20°C	15	15	15	15	15	15	15	15	15	15	15	-	-	-
Load Life		**2000 hours with rated voltage and rated ripple current applied at 105°C**													
		Capacitance Change	≤20% of initial measured value												
		Dissipation Factor	≤200% of maximum specified value												
		Leakage Current	≤100% of maximum specified value												
Shelf Life		**1000 hours at 105°C with no voltage applied**													
		Capacitance Change	≤20% of initial measured value												
		Dissipation Factor	≤200% of maximum specified value												
		Leakage Current	≤100% of maximum specified value												

Ripple Current Multipliers		**Frequency (Hz)**						**Temperature (°C)**				
	WVDC	60	120	400	1k	10k	50k	40	60	70	85	105
	≤100	0.8	1.0	1.1	1.15	1.25	1.25	2.5	2.2	2	1.8	1
	≥160	0.8	1.0	1.1	1.15	1.47	1.47	2.5	2.2	2	1.8	1

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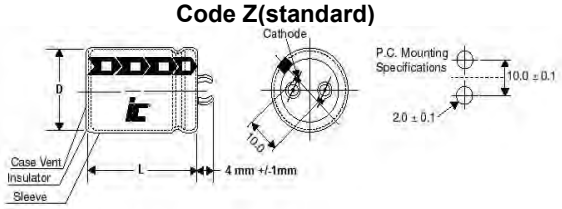
Aluminum Electrolytic Capacitors

+105°C Long Life Snap-Mount

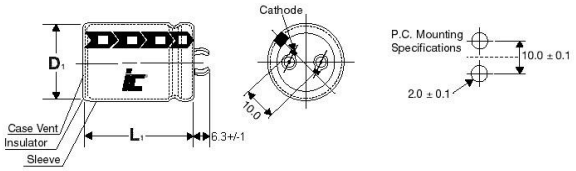
Lead Style Options

Code Z(standard)



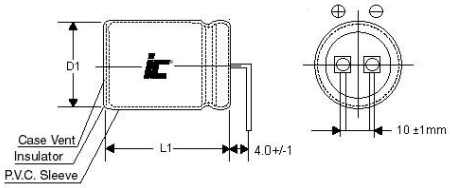
Diameter 20 to 40 mm

Code W



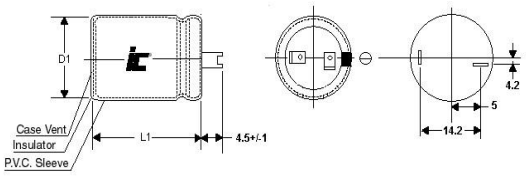
Diameter 20 to 40 mm

Code P



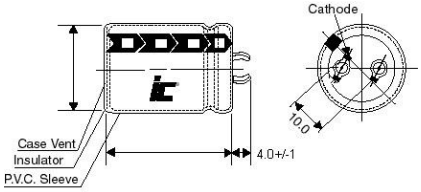
Diameter 22 to 35 mm

Code D



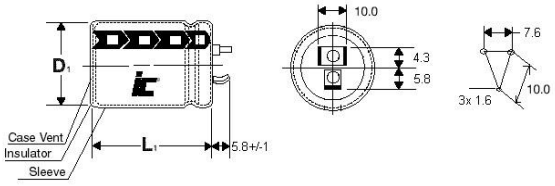
Diameter 30 to 40 mm

Code 9



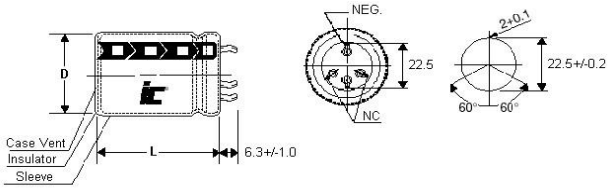
Diameter 25 to 35 mm

Code T



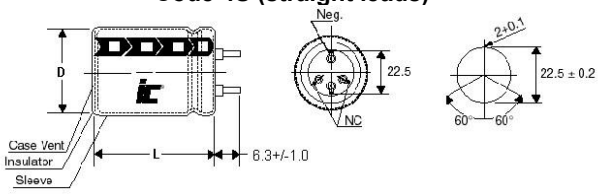
Diameter 25 to 35 mm

Code 4



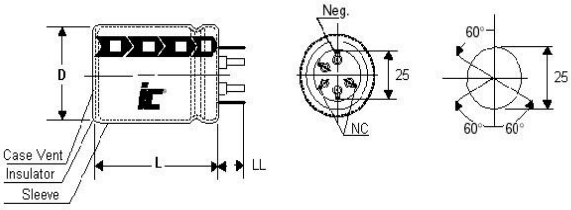
Diameter 35 to 45 mm

Code 4S (straight leads)



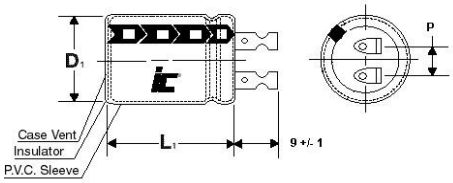
Diameter 35 to 45 mm

Code 5



Diameter 40 to 50 mm

Code G



D	35	40	50	63	76
P	14	14	18	25	25

Diameter 35 to 76 mm

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LMH

+105°C, Standard, 2000 hrs

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
10	12000	129LMH010MZBC	75.99	2.2	22x25
10	15000	159LMH010MZBD	60.79	2.3	22x30
10	18000	189LMH010MZBD	50.657	2.4	22x30
10	18000	189LMH010MZCC	50.657	2.4	25x25
10	22000	229LMH010MZBE	41.45	2.6	22x35
10	22000	229LMH010MZCD	41.45	2.6	25x30
10	27000	279LMH010MZBF	33.77	3.1	22x40
10	27000	279LMH010MZCE	33.77	3.1	25x35
10	33000	339LMH010MZBG	27.63	3.4	22x45
10	33000	339LMH010MZCF	27.63	3.4	25x40
10	39000	399LMH010MZCG	25.93	3.7	25x45
10	39000	399LMH010MZDD	25.93	3.7	30x30
10	39000	399LMH010MZEC	25.93	3.7	35x25
10	47000	479LMH010MZCH	24.34	4.2	25x50
10	47000	479LMH010MZDE	24.34	4.2	30x35
10	47000	479LMH010MZED	24.34	4.2	35x30
10	56000	569LMH010MZDF	23.09	5	30x40
10	56000	569LMH010MZEE	23.09	5	35x35
10	68000	689LMH010MZDG	21.94	5.4	30x45
10	68000	689LMH010MZEF	21.94	5.4	35x40
10	82000	829LMH010MZEG	21.03	5.9	35x45
10	100000	104LMH010MZEH	20.2259	6.5	35x50
16	10000	109LMH016MZBC	82.89	2.6	22x25
16	12000	129LMH016MZBD	69.08	2.9	22x30
16	12000	129LMH016MZCC	69.08	2.9	25x25
16	15000	159LMH016MZBE	55.262	3.2	22x35
16	18000	189LMH016MZBF	46.05	3.5	22x40
16	18000	189LMH016MZCD	46.05	3.5	25x30
16	22000	229LMH016MZBG	37.68	3.8	22x45
16	22000	229LMH016MZCE	37.68	3.8	25x35
16	22000	229LMH016MZDC	37.68	3.8	30x25
16	27000	279LMH016MZBH	30.7	4.2	22x50
16	27000	279LMH016MZCF	30.7	4.2	25x40
16	27000	279LMH016MZDD	30.7	4.2	30x30
16	27000	279LMH016MZEC	30.7	4.2	35x25
16	33000	339LMH016MZCG	25.12	4.7	25x45
16	33000	339LMH016MZDE	25.12	4.7	30x35
16	39000	399LMH016MZDF	21.26	5.1	30x40
16	39000	399LMH016MZED	21.26	5.1	35x30
16	47000	479LMH016MZDG	22.58	5.5	30x45
16	47000	479LMH016MZEE	22.58	5.5	35x35
16	56000	569LMH016MZDH	21.61	6	30x50
16	56000	569LMH016MZEH	21.61	6	35x50
16	68000	689LMH016MZEG	20.72	6.4	35x45
25	6800	688LMH025MZBC	109.71	2.4	22x25
25	8200	828LMH025MZBD	109.71	2.7	22x30
25	8200	828LMH025MZCC	109.71	2.7	25x25
25	10000	109LMH025MZBE	74.6	3	22x35
25	12000	129LMH025MZBF	62.17	3.2	22x40
25	12000	129LMH025MZCD	62.17	3.2	25x30
25	15000	159LMH025MZBG	49.74	3.6	22x45
25	15000	159LMH025MZCE	49.74	3.6	25x35
25	15000	159LMH025MZDC	49.74	3.6	30x25
25	18000	189LMH025MZBH	41.45	3.9	22x50
25	18000	189LMH025MZCF	41.45	3.9	25x40
25	18000	189LMH025MZDD	41.45	3.9	30x30
25	18000	189LMH025MZEC	41.45	3.9	35x25
25	22000	229LMH025MZCG	33.91	4.3	25x45

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
25	22000	229LMH025MZDE	33.91	4.3	30x35
25	22000	229LMH025MZED	33.91	4.3	35x30
25	27000	279LMH025MZDF	27.63	4.8	30x40
25	27000	279LMH025MZEE	27.63	4.8	35x35
25	33000	339LMH025MZDG	22.61	5.5	30x45
25	33000	339LMH025MZEF	22.61	5.5	35x40
25	39000	399LMH025MZDH	19.13	5.8	30x50
25	39000	399LMH025MZEG	19.13	5.8	35x45
25	47000	479LMH025MZEH	20.81	6.3	35x50
35	4700	478LMH035MZBC	141.1	2.2	22x25
35	5600	568LMH035MZBD	118.42	2.4	22x30
35	5600	568LMH035MZCC	118.42	2.4	25x25
35	6800	688LMH035MZBE	97.52	2.6	22x35
35	8200	828LMH035MZBF	97.52	2.9	22x40
35	8200	828LMH035MZCD	97.52	2.9	25x30
35	10000	109LMH035MZBG	66.32	3.2	22x45
35	10000	109LMH035MZCE	66.32	3.2	25x35
35	10000	109LMH035MZDC	66.32	3.2	30x25
35	12000	129LMH035MZBH	55.26	3.5	22x50
35	12000	129LMH035MZCF	55.26	3.5	25x40
35	12000	129LMH035MZDD	55.26	3.5	30x30
35	12000	129LMH035MZEC	55.26	3.5	35x25
35	15000	159LMH035MZCG	44.21	3.9	25x45
35	15000	159LMH035MZDE	44.21	3.9	30x35
35	15000	159LMH035MZED	44.21	3.9	35x30
35	18000	189LMH035MZDF	36.84	4.3	30x40
35	18000	189LMH035MZEE	36.84	4.3	35x35
35	22000	229LMH035MZDG	30.14	5	30x45
35	22000	229LMH035MZEF	30.14	5	35x40
35	27000	279LMH035MZEG	24.56	5.3	35x45
35	33000	339LMH035MZEH	20.1	5.9	35x50
50	2700	278LMH050MZBC	214.91	1.8	22x25
50	3300	338LMH050MZBD	175.83	2	22x30
50	3900	398LMH050MZBE	148.78	2.2	22x35
50	3900	398LMH050MZCC	148.78	2.2	25x25
50	4700	478LMH050MZBF	123.46	2.5	22x40
50	4700	478LMH050MZCD	123.46	2.5	25x30
50	5600	568LMH050MZBG	103.62	2.8	22x45
50	5600	568LMH050MZCE	103.62	2.8	25x35
50	5600	568LMH050MZD	103.62	2.8	30x25
50	6800	688LMH050MZBH	85.33	3.3	22x50
50	6800	688LMH050MZCF	85.33	3.3	25x40
50	6800	688LMH050MZDD	85.33	3.3	30x30
50	6800	688LMH050MZEC	85.33	3.3	35x25
50	8200	828LMH050MZCG	85.33	3.6	25x45
50	8200	828LMH050MZDE	85.33	3.6	30x35
50	10000	109LMH050MZCH	58.03	4	25x50
50	10000	109LMH050MZDF	58.03	4	30x40
50	10000	109LMH050MZED	58.03	4	35x30
50	12000	129LMH050MZDG	48.35	4.5	30x45
50	12000	129LMH050MZEE	48.35	4.5	35x35
50	15000	159LMH050MZDH	38.68	4.8	30x50
50	15000	159LMH050MZEF	38.68	4.8	35x40
50	18000	189LMH050MZEG	32.24	5.2	35x45
63	2200	228LMH063MZBC	226.07	2	22x25
63	2700	278LMH063MZBD	184.207	2.2	22x30
63	2700	278LMH063MZCC	184.207	2.2	25x25
63	3300	338LMH063MZBE	153.51	2.5	22x35

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LMH

+105°C, Standard, 2000 hrs

WVDC	(µF) Capacitance	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
63	3900	398LMH063MZBF	127.528	2.7	22x40
63	3900	398LMH063MZCD	127.528	2.7	25x30
63	3900	398LMH063MZDC	127.528	2.7	30x25
63	4700	478LMH063MZBG	105.82	3	22x45
63	4700	478LMH063MZCE	105.82	3	25x35
63	5600	568LMH063MZBH	88.81	3.3	22x50
63	5600	568LMH063MZCF	88.81	3.3	25x40
63	5600	568LMH063MZDD	88.81	3.3	30x30
63	5600	568LMH063MZEC	88.81	3.3	35x25
63	6800	688LMH063MZCG	73.14	3.6	25x45
63	6800	688LMH063MZDE	73.14	3.6	30x35
63	6800	688LMH063MZED	73.14	3.6	35x30
63	8200	828LMH063MZDF	73.14	3.9	30x40
63	8200	828LMH063MZEE	73.14	3.9	35x35
63	10000	109LMH063MZDG	49.74	4.4	30x45
63	10000	109LMH063MZEF	49.74	4.4	35x40
63	12000	129LMH063MZEG	365.71	4.8	35x45
63	15000	159LMH063MZEH	188.39	5.4	35x50
80	1200	128LMH080MZBC	365.71	1.5	22x25
80	1500	158LMH080MZBD	276.21	1.7	22x30
80	1500	158LMH080MZCC	276.21	1.7	25x25
80	1800	188LMH080MZBE	230.26	1.8	22x35
80	2200	228LMH080MZBF	188.394	2.1	22x40
80	2200	228LMH080MZCD	188.394	2.1	25x30
80	2700	278LMH080MZBG	92.104	2.4	22x45
80	2700	278LMH080MZCE	154.51	2.4	25x35
80	2700	278LMH080MZDC	154.51	2.4	30x25
80	3300	338LMH080MZBH	153.51	2.6	22x50
80	3300	338LMH080MZCF	153.51	2.6	25x40
80	3300	338LMH080MZDD	153.51	2.6	30x30
80	3300	338LMH080MZEC	153.51	2.6	35x25
80	3900	398LMH080MZCG	106.27	3	25x45
80	3900	398LMH080MZDE	106.27	3	30x35
80	4700	478LMH080MZCH	141.1	3.3	25x50
80	4700	478LMH080MZDF	88.184	3.3	30x40
80	4700	478LMH080MZED	88.184	3.3	35x30
80	5600	568LMH080MZDG	74.01	3.7	30x45
80	5600	568LMH080MZEE	74.01	3.7	35x35
80	6800	688LMH080MZDH	60.951	3.9	30x50
80	6800	688LMH080MZEF	60.951	3.9	35x40
80	8200	828LMH080MZEG	60.951	4.3	35x45
100	820	827LMH100MZBC	404.357	1.4	22x25
100	1000	108LMH100MZBD	121.902	1.7	22x30
100	1200	128LMH100MZBD	276.31	1.8	22x30
100	1200	128LMH100MZCC	276.31	1.8	25x25
100	1500	158LMH100MZBE	221.05	2.1	22x35
100	1500	158LMH100MZCD	221.05	2.1	25x30
100	1800	188LMH100MZBF	184.207	2.3	22x40
100	1800	188LMH100MZCE	184.207	2.3	25x35
100	1800	188LMH100MZDC	184.207	2.3	30x25
100	2200	228LMH100MZCF	150.715	2.6	25x40
100	2200	228LMH100MZDD	150.715	2.6	30x30
100	2200	228LMH100MZEC	150.715	2.6	35x25
100	2700	278LMH100MZCG	122.805	2.9	25x45
100	2700	278LMH100MZDE	122.805	2.9	30x35
100	3300	338LMH100MZCH	100.48	3.2	25x50
100	3300	338LMH100MZDF	100.48	3.2	30x40
100	3300	338LMH100MZED	100.48	3.2	35x30

WVDC	(µF) Capacitance	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
100	3900	398LMH100MZDG	85.02	3.6	30x45
100	3900	398LMH100MZEE	85.02	3.6	35x35
100	4700	478LMH100MZDH	70.547	3.8	30x50
100	5600	568LMH100MZEG	59.21	4.1	35x45
160	150	157LMH160MZBD	1657.86	0.71	22x30
160	470	477LMH160MZBC	529.11	1.4	22x25
160	560	567LMH160MZBC	444.07	1.4	22x25
160	680	1687LMH160MZBD	365.71	1.7	22x30
160	680	687LMH160MZCC	365.71	1.7	25x25
160	820	827LMH160MZBE	303.27	2	22x35
160	820	827LMH160MZCD	303.27	2	25x30
160	1000	108LMH160MZBF	248.68	2.2	22x40
160	1000	108LMH160MZCE	248.68	2.2	25x35
160	1000	108LMH160MZDC	248.68	2.2	30x25
160	1200	128LMH160MZCF	207.23	2.3	25x40
160	1200	128LMH160MZDD	207.23	2.3	30x30
160	1200	128LMH160MZEC	207.23	2.33	35x25
160	1500	158LMH160MZCG	165.79	2.5	25x45
160	1500	158LMH160MZDE	165.79	2.5	30x35
160	1500	158LMH160MZED	165.79	2.5	35x30
160	1800	188LMH160MZCH	138.16	2.7	25x50
160	1800	188LMH160MZDF	138.16	2.7	30x40
160	1800	188LMH160MZED	138.16	2.7	35x30
160	2200	228LMH160MZDG	113.06	2.9	30x45
160	2200	228LMH160MZEE	113.06	2.9	35x35
160	2700	278LMH160MZDH	92.1	3.1	30x50
160	2700	278LMH160MZEF	92.1	3.1	35x40
160	3300	338LMH160MZEG	75.358	3.1	35x45
160	3300	338LMH160MZEH	75.358	3.3	35x50
200	390	397LMH200MZBC	637.64	1.31	22x25
200	470	477LMH200MZBD	529.11	1.44	22x30
200	560	567LMH200MZBD	444.071	1.48	22x30
200	560	567LMH200MZCC	444.071	1.48	25x25
200	680	687LMH200MZBF	365.71	1.75	22x40
200	680	687LMH200MZCD	365.71	1.75	25x30
200	820	827LMH200MZBF	303.27	1.75	22x40
200	820	827LMH200MZBG	303.27	2.04	22x45
200	820	827LMH200MZCE	303.27	2.04	25x35
200	820	827LMH200MZDC	303.27	1.92	30x25
200	1000	108LMH200MZBG	248.68	2.04	22x45
200	1000	108LMH200MZBH	248.68	2.3	22x50
200	1000	108LMH200MZCG	248.68	2.3	25x45
200	1000	108LMH200MZDD	248.68	2.3	30x30
200	1000	108LMH200MZEC	248.68	2.3	35x25
200	1200	128LMH200MZCG	207.23	2.65	25x45
200	1200	128LMH200MZCH	207.23	2.65	25x50
200	1200	128LMH200MZDE	207.23	2.65	30x35
200	1200	128LMH200MZEC	207.23	2.3	35x25
200	1200	128LMH200MZED	207.23	2.65	35x30
200	1500	158LMH200MZCH	165.79	2.57	25x50
200	1500	158LMH200MZDF	165.79	2.8	30x40
200	1500	158LMH200MZED	165.79	2.49	35x30
200	1800	188LMH200MZDG	138.16	2.68	30x45
200	1800	188LMH200MZEF	138.16	2.08	35x40
200	2200	228LMH200MZDH	113.036	2.92	30x50
200	2200	228LMH200MZEF	113.036	2.92	35x40
200	2200	228LMH200MZEG	113.06	3.48	35x45
200	2700	278LMH200MZEG	92.104	3.27	35x45

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LMH

+105°C, Standard, 2000 hrs

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
250	220	227LMH250MZBC	1130.62	0.89	22x25
250	270	277LMH250MZBC	921.04	1.1	22x25
250	330	337LMH250M2BD	753.58	1.2	22x30
250	330	337LMH250MZCC	753.58	1.2	25x25
250	390	397LMH250MZBD	637.64	1.3	22x30
250	390	397LMH250MZBE	637.64	1.3	22x35
250	390	397LMH250MZCC	637.64	1.3	25x25
250	470	477LMH250M2BF	529.11	1.4	22x40
250	470	477LMH250MZBE	529.11	1.4	22x35
250	470	477LMH250MZCD	529.11	1.4	25x30
250	560	567LMH250MZBF	444.071	1.4	22x40
250	560	567LMH250MZCE	444.071	1.49	25x35
250	560	567LMH250MZDC	444.071	1.44	30x25
250	680	687LMH250MZBG	365.71	1.7	22x45
250	680	687LMH250MZBH	365.71	1.7	22x50
250	680	687LMH250MZCF	365.71	1.73	25x40
250	680	687LMH250MZDD	365.71	1.71	30x30
250	680	687LMH250MZEC	365.71	1.7	35x25
250	820	827LMH250MZCG	303.27	2	25x45
250	820	827LMH250MZDE	303.27	2	30x35
250	820	827LMH250MZED	303.27	2	35x30
250	1000	108LMH250MZCH	248.68	2.2	25x50
250	1000	108LMH250MZDF	248.68	2.2	30x40
250	1000	108LMH250MZED	248.68	2.2	35x30
250	1200	128LMH250MZDG	207.23	2.3	30x45
250	1200	128LMH250MZEE	207.23	2.3	35x35
250	1500	158LMH250MZDH	165.786	2.3	30x50
250	1500	158LMH250MZEF	165.786	2.3	35x40
250	1500	158LMH250MZEG	165.79	2.5	35x45
250	1800	188LMH250MZEG	138.16	2.5	35x45
250	1800	188LMH250MZEH	138.16	2.7	35x50
350	120	127LMH350MZBC	2072.33	0.75	22x25
350	180	187LMH350MZBD	1381.55	0.9	22x30
350	180	187LMH350MZCC	1381.55	0.9	25x25
350	220	227LMH350MZBE	1130.62	1	22x35
350	220	227LMH350MZCD	1130.62	1	25x30
350	270	277LMH350M2BF	921.04	1.1	22x40
350	270	277LMH350MZCD	921.04	1.1	25x30
350	270	277LMH350MZDC	921.04	1.1	30x25
350	330	337LMH350MZBG	753.58	1.2	22x45
350	330	337LMH350MZCG	753.58	1.2	25x45
350	330	337LMH350MZDD	753.58	1.2	30x30
350	390	397LMH350MZCG	637.64	1.3	25x45
350	390	397LMH350MZDE	637.64	1.3	30x35
350	470	477LMH350MZCH	529.11	1.4	25x50
350	470	477LMH350MZDE	529.11	1.4	30x35
350	470	477LMH350MZED	529.11	1.4	35x30
350	560	567LMH350MZDG	444.071	1.5	30x45
350	560	567LMH350MZEE	444.071	1.5	35x35
350	680	687LMH350MZDH	365.71	1.7	30x50
350	680	687LMH350MZEF	365.71	1.7	35x40
350	820	827LMH350MZEG	303.27	2	35x45
400	100	107LMH400MZBC	2486.8	0.7	22x25
400	120	127LMH400MZBC	2072.33	0.68	22x25
400	120	127LMH400MZBD	2072.33	0.75	22x30
400	150	157LMH400MZBD	1657.86	0.88	22x30
400	150	157LMH400MZCC	1657.86	0.88	25x25
400	180	187LMH400MZBD	1381.55	0.73	22x30

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
400	180	187LMH400MZBE	1381.55	0.95	22x35
400	180	187LMH400MZCC	1381.55	0.73	25x25
400	180	187LMH400MZCD	1381.55	0.95	25x30
400	220	227LMH400MZBE	1130.62	0.85	22x35
400	220	227LMH400MZBG	1130.62	1.1	22x45
400	220	227LMH400MZCD	1130.62	0.85	25x30
400	220	227LMH400MZCE	1130.62	1.1	25x35
400	220	227LMH400MZDC	1130.62	1.1	30x25
400	270	277LMH400MZBF	921.04	1	22x40
400	270	277LMH400MZBH	921.04	1.22	22x50
400	270	277LMH400MZCE	921.04	1	25x35
400	270	277LMH400MZCF	921.04	1.22	25x40
400	270	277LMH400MZDC	921.04	1	30x25
400	270	277LMH400MZDD	921.04	1.22	30x30
400	270	277LMH400MZEC	921.04	1.22	35x25
400	330	337LMH400MZBH	753.58	1.15	22x50
400	330	337LMH400MZCF	753.58	1.15	25x40
400	330	337LMH400MZCG	753.58	1.44	25x45
400	330	337LMH400MZDD	753.58	1.44	30x30
400	330	337LMH400MZDE	753.58	1.37	30x35
400	330	337LMH400MZEC	753.58	1.15	35x25
400	330	337LMH400MZED	753.58	1.44	35x30
400	390	397LMH400MZCG	637.64	1.4	25x45
400	390	397LMH400MZCH	637.64	1.55	25x50
400	390	397LMH400MZDF	637.64	1.58	30x40
400	390	397LMH400MZED	637.64	1.55	35x30
400	470	477LMH400MZCH	529.11	1.55	25x50
400	470	477LMH400MZDF	529.11	1.55	30x40
400	470	477LMH400MZDG	529.11	1.68	30x45
400	470	477LMH400MZED	529.11	1.55	35x30
400	470	477LMH400MZEE	529.11	1.68	35x35
400	560	567LMH400MZDG	444.071	1.9	30x45
400	560	567LMH400MZDH	444.071	1.9	30x50
400	560	567LMH400MZEE	444.071	1.63	35x35
400	560	567LMH400MZEF	444.071	1.9	35x40
400	680	687LMH400MZDH	365.71	1.8	30x50
400	680	687LMH400MZEF	365.71	1.8	35x40
400	680	687LMH400MZEG	365.71	2.12	35x45
400	820	827LMH400MZEG	303.27	1.9	35x45
400	820	827LMH400MZEH	303.27	2.3	35x50
450	68	686LMH450MZBC	365.71	0.47	22x25
450	82	826LMH450MZBD	3032.68	0.55	22x30
450	100	107LMH450MZBC	2486.8	0.64	22x25
450	100	107LMH450MZCC	2486.8	0.64	25x25
450	120	127LMH450MZBD	2072.33	0.69	22x30
450	120	127LMH450MZBE	2072.33	0.72	22x35
450	120	127LMH450MZCC	2072.33	0.69	25x25
450	120	127LMH450MZCD	2072.33	0.72	25x30
450	150	157LMH450MZBE	1657.86	0.79	22x35
450	150	157LMH450MZCD	1657.86	0.79	25x30
450	150	157LMH450MZDC	1657.86	0.79	30x25
450	180	187LMH450MZBF	1381.55	0.79	22x40
450	180	187LMH450MZBG	1381.55	0.87	22x45
450	180	187LMH450MZCD	1381.55	0.79	25x30
450	180	187LMH450MZCF	1381.55	0.87	25x40
450	180	187LMH450MZDD	1381.55	0.87	30x30
450	220	227LMH450MZBG	1130.62	0.87	22x45
450	220	227LMH450MZCE	1130.62	0.87	25x35

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LMH

+105°C, Standard, 2000 hrs

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
450	220	227LMH450MZCG	1130.62	1	25x45
450	220	227LMH450MZDD	1130.62	1	30x30
450	220	227LMH450MZEC	1130.62	1	35x25
450	270	277LMH450MZBH	921.04	1.05	22x50
450	270	277LMH450MZCF	921.04	1.05	25x40
450	270	277LMH450MZCH	921.04	1.19	25x50
450	270	277LMH450MZDD	921.04	1.05	30x30
450	270	277LMH450MZDF	921.04	1.19	30x40
450	270	277LMH450MZEC	921.04	1.05	35x25
450	270	277LMH450MZED	921.04	1.19	35x30
450	330	337LMH450MZCH	753.58	1.2	25x50
450	330	337LMH450MZDE	753.58	1.2	30x35

WVDC	Capacitance (µF)	IC PART NUMBER	Maximum ESR (mΩ) 120 Hz, +20°C	Maximum RMS Ripple Current (A) 120 Hz, +105°C	Dims DxL (mm)
450	330	337LMH450MZDG	753.58	1.38	30x45
450	330	337LMH450MZED	753.58	1.38	35x30
450	330	337LMH450MZEE	753.58	1.38	35x35
450	390	397LMH450MZDF	637.64	1.38	30x40
450	390	397LMH450MZDH	637.64	1.74	30x50
450	390	397LMH450MZEE	637.64	1.55	35x35
450	470	477LMH450MZDG	529.11	1.55	30x45
450	470	477LMH450MZEF	529.11	1.55	35x40
450	470	477LMH450MZEG	529.11	1.74	35x45
450	560	567LMH450MZEG	444.071	1.7	35x45
450	560	567LMH450MZEH	444.071	1.9	35x50
450	680	687LMH450MZEH	365.71	1.91	35x50

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Type SLP 105 °C Snap-In Aluminum Electrolytic

Best Value 105 °C Snap-In Type

Type SLP is the best value package snap-in series for 105 ºC, 3000 h operation. This series is the most cost-effective choice for DC filtering and power supply applications where high temperature, long life and high ripple capability are needed.

Highlights

- 3000 h ripple load life at rated voltage
- 105 ºC rated
- Small case size with high capacitance
- Best for switching power supplies
- 22 mm to 35 mm diameter, 10 mm lead spacing
- Best value snap-in type
- High ripple current

Specifications

Temperature Range	–40 ºC to +105 ºC ≤ 100 Vdc –25 ºC to +105 ºC ≥ 160 Vdc
Rated Voltage Range	10 Vdc to 450 Vdc
Capacitance Range	47 µF to 56,000 µF
Capacitance Tolerance	±20%
Leakage Current	≤ 3 $\sqrt{CV}$ µA at 5 minutes
Ripple Current Multipliers	Ambient Temperature **20 ºC - 45 ºC** | **65 ºC** | **85 ºC** | **105 ºC** 2.00 | 1.89 | 1.52 | 1.00 Frequency **Voltage** | **60 Hz** | **120 Hz** | **1 kHz** | **10 kHz & Up** 10 - 100 Vdc | 0.90 | 1.00 | 1.15 | 1.25 160 - 450 Vdc | 0.80 | 1.00 | 1.25 | 1.47 To apply multipliers, see ratings tables for ripple current values
Low Temperature Characteristics	Impedance ratio: $Z_{-20ºC}/Z_{+25ºC}$ ≤ 10 (10 Vdc) ≤ 8 (16–50 Vdc) ≤ 4 (63–100 Vdc) ≤ 3 (150–450 Vdc)
Endurance Life	3,000 h @ full load @105 ºC Δ Capacitance ±20% ESR ≤200% of limit DCL 100 % of limit
Shelf Life	1,000 h @ 105 ºC Δ Capacitance ±20% ESR ≤150% of limit DCL 100 % of limit
Vibration	10 Hz to 55 Hz , 0.06" and 10g max 2 h for each plane
RoHS Compliant	

Type SLP 105 °C Snap-In Aluminum Electrolytic

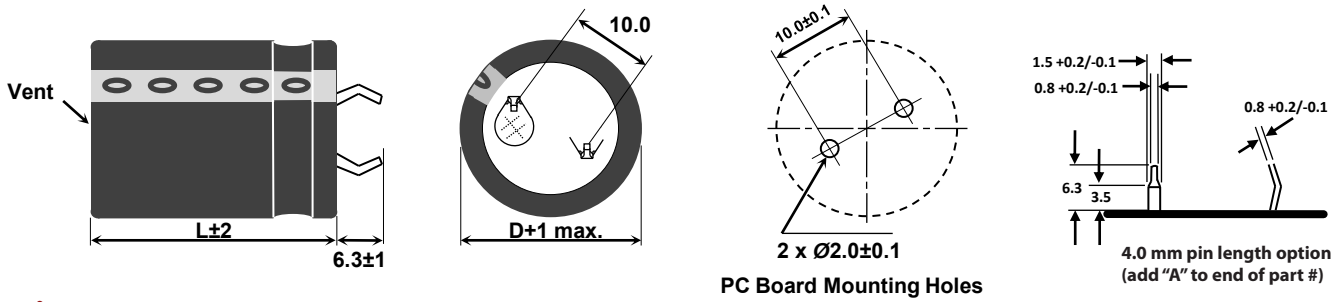
Best Value 105 °C Snap-In Type

Part Numbering System

SLP	562	M	025	A3	P	3	A
Type	Cap	Tolerance	Voltage	Case Code	Polarity	Insulating Sleeve	Pin Style
SLP	**821** = 820 µF **332** = 3300 µF **103** = 10,000 µF	**M =** ±20%	**025** = 25 Vdc **250** = 250 Vdc		**P** = Polarized	**3** = PVC	**Blank** = 2 pins snap-in 6.3 mm L **A** = 2 pins snap-in 4.0 mm L

Diameter		Length mm (in)					
		25	30	35	40	45	50
mm	(in)	(1.00)	(1.18)	(1.38)	(1.57)	(1.77)	(2.00)
22	(0.87)	A1	A3	A5	A7	A4	A9
25	(1.00)	C1	C3	C5	C7	C4	C9
30	(1.18)	E1	E3	E5	E7	E4	E9
35	(1.38)	H1	H3	H5	H7	H4	H9

Outline Drawing



Ratings

Additional Voltages and Sizes available at www.cde.com/catalogs/SLP.pdf

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
10 Vdc (13 Vdc Surge)						
10000	SLP103M010A1P3	0.073	0.055	1.80	2.25	22 x 25
12000	SLP123M010A3P3	0.061	0.046	2.20	2.75	22 x 30
12000	SLP123M010C1P3	0.061	0.046	2.20	2.75	25 x 25
15000	SLP153M010A5P3	0.049	0.037	2.30	2.88	22 x 35
15000	SLP153M010C1P3	0.049	0.037	2.30	2.88	25 x 25
18000	SLP183M010A7P3	0.041	0.031	2.52	3.15	22 x 40
18000	SLP183M010C3P3	0.041	0.031	2.40	3.00	25 x 30
22000	SLP223M010A4P3	0.033	0.025	2.60	3.25	22 x 45
22000	SLP223M010C5P3	0.033	0.025	2.60	3.25	25 x 35
27000	SLP273M010A9P3	0.027	0.020	3.19	3.99	22 x 50
27000	SLP273M010C7P3	0.027	0.020	3.10	3.88	25 x 40
33000	SLP333M010C4P3	0.022	0.017	3.40	4.25	25 x 45
33000	SLP333M010H3P3	0.022	0.017	3.40	4.25	35 x 30
39000	SLP393M010E7P3	0.019	0.014	3.79	4.74	30 x 40
39000	SLP393M010H3P3	0.019	0.014	3.70	4.63	35 x 30
47000	SLP473M010E4P3	0.016	0.012	4.26	5.33	30 x 45
47000	SLP473M010H5P3	0.016	0.012	4.20	5.25	35 x 35
56000	SLP563M010H7P3	0.013	0.010	5.00	6.25	35 x 40
16 Vdc (20 Vdc Surge)						
6800	SLP682M016A1P3	0.098	0.074	2.20	2.75	22 x 25
8200	SLP822M016A3P3	0.081	0.061	2.40	3.00	22 x 30
10000	SLP103M016A3P3	0.066	0.050	2.60	3.25	22 x 30

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
16 Vdc (20 Vdc Surge)						
10000	SLP103M016C1P3	0.066	0.050	2.60	3.25	25 x 25
12000	SLP123M016A5P3	0.055	0.041	2.90	3.63	22 x 35
12000	SLP123M016C3P3	0.055	0.041	2.90	3.63	25 x 30
15000	SLP153M016A7P3	0.044	0.033	3.20	4.00	22 x 40
15000	SLP153M016C5P3	0.044	0.033	3.25	4.06	25 x 35
15000	SLP153M016E1P3	0.044	0.033	3.11	3.89	30 x 25
18000	SLP183M016A4P3	0.037	0.028	3.50	4.38	22 x 45
18000	SLP183M016C7P3	0.037	0.028	3.50	4.38	25 x 40
18000	SLP183M016E3P3	0.037	0.028	3.50	4.38	30 x 30
22000	SLP223M016C4P3	0.030	0.023	3.80	4.75	25 x 45
22000	SLP223M016E3P3	0.030	0.023	3.80	4.75	30 x 30
22000	SLP223M016H3P3	0.030	0.023	3.80	4.75	35 x 30
27000	SLP273M016C9P3	0.025	0.019	4.20	5.25	25 x 50
27000	SLP273M016E5P3	0.025	0.019	4.20	5.25	30 x 35
27000	SLP273M016H3P3	0.025	0.019	4.20	5.25	35 x 30
33000	SLP333M016E7P3	0.020	0.015	4.70	5.88	30 x 40
33000	SLP333M016H5P3	0.020	0.015	4.70	5.88	35 x 35
39000	SLP393M016E4P3	0.017	0.013	4.90	6.13	30 x 45
39000	SLP393M016H7P3	0.017	0.013	5.10	6.38	35 x 40
47000	SLP473M016E9P3	0.014	0.011	5.27	6.59	30 x 50
47000	SLP473M016H4P3	0.014	0.011	5.50	6.88	35 x 45

Type SLP 105 °C Snap-In Aluminum Electrolytic

Best Value 105 °C Snap-In Type

Additional Voltages and Sizes available at www.cde.com/catalogs/SLP.pdf

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
25 Vdc (32 Vdc Surge)						
3300	SLP332M025A1P3	0.181	0.136	1.70	2.13	22 x 25
4700	SLP472M025A1P3	0.127	0.095	2.00	2.50	22 x 25
5600	SLP562M025A3P3	0.107	0.080	2.20	2.75	22 x 30
6800	SLP682M025A3P3	0.088	0.066	2.40	3.00	22 x 30
6800	SLP682M025C1P3	0.088	0.066	2.40	3.00	25 x 25
8200	SLP822M025A5P3	0.073	0.055	2.70	3.38	22 x 35
8200	SLP822M025C3P3	0.073	0.055	2.70	3.38	25 x 30
8200	SLP822M025E1P3	0.073	0.055	2.70	3.38	30 x 25
10000	SLP103M025A7P3	0.060	0.045	3.00	3.75	22 x 40
10000	SLP103M025C5P3	0.060	0.045	3.00	3.75	25 x 35
10000	SLP103M025E3P3	0.060	0.045	3.00	3.75	30 x 30
12000	SLP123M025A9P3	0.050	0.038	3.20	4.00	22 x 50
12000	SLP123M025C7P3	0.050	0.038	3.20	4.00	25 x 40
15000	SLP153M025C4P3	0.040	0.030	3.60	4.50	25 x 45
15000	SLP153M025E5P3	0.040	0.030	3.60	4.50	30 x 35
15000	SLP153M025H3P3	0.040	0.030	3.60	4.50	35 x 30
18000	SLP183M025E7P3	0.033	0.025	3.90	4.88	30 x 40
18000	SLP183M025H5P3	0.033	0.025	3.90	4.88	35 x 35
22000	SLP223M025E4P3	0.027	0.020	4.30	5.38	30 x 45
22000	SLP223M025H5P3	0.027	0.020	4.30	5.38	35 x 35
27000	SLP273M025H4P3	0.022	0.017	4.80	6.00	35 x 45
33000	SLP333M025H9P3	0.018	0.014	5.55	6.94	35 x 50
35 Vdc (44 Vdc Surge)						
3900	SLP392M035A3P3	0.136	0.102	2.00	2.50	22 x 30
4700	SLP472M035A5P3	0.113	0.085	2.20	2.75	22 x 35
4700	SLP472M035C1P3	0.113	0.085	2.20	2.75	25 x 25
4700	SLP472M035C5P3	0.113	0.085	2.53	3.16	25 x 35
5600	SLP562M035A5P3	0.095	0.071	2.40	3.00	22 x 35
5600	SLP562M035C3P3	0.095	0.071	2.40	3.00	25 x 30
6800	SLP682M035A7P3	0.078	0.059	2.60	3.25	22 x 40
6800	SLP682M035C5P3	0.078	0.059	2.60	3.25	25 x 35
6800	SLP682M035E1P3	0.078	0.059	2.78	3.48	30 x 25
8200	SLP822M035A9P3	0.065	0.049	2.90	3.63	22 x 50
8200	SLP822M035C7P3	0.065	0.049	2.90	3.63	25 x 40
8200	SLP822M035E3P3	0.065	0.049	2.90	3.63	30 x 30
10000	SLP103M035C4P3	0.053	0.040	3.20	4.00	25 x 45
10000	SLP103M035E5P3	0.053	0.040	3.20	4.00	30 x 35
10000	SLP103M035C7P3	0.053	0.040	3.04	3.80	25 x 40
12000	SLP123M035C9P3	0.044	0.033	3.50	4.38	25 x 50
12000	SLP123M035E7P3	0.044	0.033	3.50	4.38	30 x 40
12000	SLP123M035H3P3	0.044	0.033	3.50	4.38	35 x 30
15000	SLP153M035E4P3	0.035	0.026	3.90	4.88	30 x 45
15000	SLP153M035H5P3	0.035	0.026	3.90	4.88	35 x 35

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
35 Vdc (44 Vdc Surge)						
18000	SLP183M035H7P3	0.029	0.022	4.51	5.64	35 x 40
22000	SLP223M035H4P3	0.024	0.018	5.24	6.55	35 x 45
22000	SLP223M035H9P3	0.024	0.018	5.48	6.85	35 x 50
50 Vdc (63 Vdc Surge)						
1800	SLP182M050A1P3	0.258	0.194	1.50	1.88	22 x 25
2200	SLP222M050A3P3	0.211	0.158	1.70	2.13	22 x 30
2700	SLP272M050A3P3	0.172	0.129	1.80	2.25	22 x 30
2700	SLP272M050C1P3	0.172	0.129	1.80	2.25	25 x 25
3300	SLP332M050A5P3	0.141	0.106	2.00	2.50	22 x 35
3300	SLP332M050C3P3	0.141	0.106	2.00	2.50	25 x 30
3900	SLP392M050A7P3	0.119	0.089	2.23	2.79	22 x 40
3900	SLP392M050C3P3	0.119	0.089	2.20	2.75	25 x 30
3900	SLP392M050E1P3	0.119	0.089	2.20	2.75	30 x 25
4700	SLP472M050A4P3	0.099	0.074	2.50	3.13	22 x 45
4700	SLP472M050C5P3	0.099	0.074	2.43	3.04	25 x 35
4700	SLP472M050E3P3	0.099	0.074	2.50	3.13	30 x 30
5600	SLP562M050A9P3	0.083	0.062	2.80	3.50	22 x 50
5600	SLP562M050C7P3	0.083	0.062	2.80	3.50	25 x 40
5600	SLP562M050E3P3	0.083	0.062	2.76	3.45	30 x 30
6800	SLP682M050C4P3	0.068	0.051	3.30	4.13	25 x 45
6800	SLP682M050E5P3	0.068	0.051	3.30	4.13	30 x 35
6800	SLP682M050H3P3	0.068	0.051	3.30	4.13	35 x 30
8200	SLP822M050E7P3	0.057	0.043	3.71	4.64	30 x 40
8200	SLP822M050H5P3	0.057	0.043	3.85	4.81	35 x 35
10000	SLP103M050E9P3	0.046	0.035	4.51	5.64	30 x 50
10000	SLP103M050H7P3	0.046	0.035	4.49	5.61	35 x 40
12000	SLP123M050H4P3	0.039	0.029	4.56	5.70	35 x 45
15000	SLP153M050H9P3	0.031	0.023	4.80	6.00	35 x 50
63 Vdc (79 Vdc Surge)						
1200	SLP122M063A1P3	0.332	0.249	1.40	1.75	22 x 25
1500	SLP152M063A3P3	0.265	0.199	1.50	1.88	22 x 30
1800	SLP182M063A3P3	0.221	0.166	1.70	2.13	22 x 30
1800	SLP182M063C1P3	0.221	0.166	1.70	2.13	25 x 25
2200	SLP222M063A5P3	0.181	0.136	2.00	2.50	22 x 35
2200	SLP222M063C3P3	0.181	0.136	2.00	2.50	25 x 30
2700	SLP272M063A7P3	0.147	0.110	2.20	2.75	22 x 40
2700	SLP272M063C5P3	0.147	0.110	2.20	2.75	25 x 35
2700	SLP272M063E1P3	0.147	0.110	2.20	2.75	30 x 25
3300	SLP332M063A4P3	0.121	0.091	2.60	3.25	22 x 45
3300	SLP332M063C5P3	0.121	0.091	2.39	2.99	25 x 35
3300	SLP332M063E3P3	0.121	0.091	2.50	3.13	30 x 30
3900	SLP392M063C7P3	0.102	0.077	2.57	3.21	25 x 40
3900	SLP392M063E5P3	0.102	0.077	2.70	3.38	30 x 35

Type SLP 105 °C Snap-In Aluminum Electrolytic

Best Value 105 °C Snap-In Type

Additional Voltages and Sizes available at www.cde.com/catalogs/SLP.pdf

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
63 Vdc (79 Vdc Surge)						
4700	SLP472M063C9P3	0.085	0.064	3.00	3.75	25 x 50
4700	SLP472M063E7P3	0.085	0.064	3.00	3.75	30 x 40
4700	SLP472M063H3P3	0.085	0.064	3.00	3.75	35 x 30
5600	SLP562M063E7P3	0.071	0.053	3.22	4.03	30 x 40
5600	SLP562M063H5P3	0.071	0.053	3.30	4.13	35 x 35
6800	SLP682M063E9P3	0.059	0.044	3.86	4.83	30 x 50
6800	SLP682M063H7P3	0.059	0.044	3.84	4.80	35 x 40
8200	SLP822M063H4P3	0.049	0.037	4.43	5.54	35 x 45
10000	SLP103M063H9P3	0.040	0.030	5.11	6.39	35 x 50
10000	SLP103M063H4P3	0.040	0.030	4.89	6.11	35 x 45
80 Vdc (100 Vdc Surge)						
1000	SLP102M080A1P3	0.332	0.249	1.19	1.49	22 x 25
1200	SLP122M080A3P3	0.276	0.207	1.50	1.88	22 x 30
1500	SLP152M080A3P3	0.221	0.166	1.59	1.99	22 x 30
1500	SLP152M080C1P3	0.221	0.166	1.59	1.99	25 x 25
1800	SLP182M080A5P3	0.184	0.138	1.79	2.24	22 x 35
1800	SLP182M080C3P3	0.184	0.138	1.71	2.14	25 x 30
2200	SLP222M080A7P3	0.151	0.113	2.03	2.54	22 x 40
2200	SLP222M080C5P3	0.151	0.113	2.10	2.63	25 x 35
2200	SLP222M080E1P3	0.151	0.113	1.98	2.48	30 x 25
2700	SLP272M080A4P3	0.123	0.092	2.39	2.99	22 x 45
2700	SLP272M080C7P3	0.123	0.092	2.35	2.94	25 x 40
2700	SLP272M080E3P3	0.123	0.092	2.35	2.94	30 x 30
3300	SLP332M080C4P3	0.101	0.076	2.64	3.30	25 x 45
3300	SLP332M080E5P3	0.101	0.076	2.61	3.26	30 x 35
3300	SLP332M080H3P3	0.101	0.076	2.60	3.25	35 x 30
3900	SLP392M080C9P3	0.085	0.064	2.92	3.65	25 x 50
3900	SLP392M080E7P3	0.085	0.064	2.82	3.53	30 x 40
3900	SLP392M080H3P3	0.085	0.064	2.97	3.71	35 x 30
4700	SLP472M080E4P3	0.071	0.053	3.34	4.18	30 x 45
4700	SLP472M080H5P3	0.071	0.053	3.38	4.23	35 x 35
5600	SLP562M080E9P3	0.059	0.044	3.80	4.75	30 x 50
5600	SLP562M080H7P3	0.059	0.044	3.80	4.75	35 x 40
6800	SLP682M080H4P3	0.049	0.037	3.90	4.88	35 x 45
8200	SLP822M080H9P3	0.040	0.030	4.20	5.25	35 x 50
100 Vdc (125 Vdc Surge)						
680	SLP681M100A1P3	0.390	0.293	1.09	1.36	22 x 25
820	SLP821M100A3P3	0.324	0.243	1.40	1.75	22 x 30
1000	SLP102M100A3P3	0.265	0.199	1.47	1.84	22 x 30
1000	SLP102M100C1P3	0.265	0.199	1.45	1.81	25 x 25
1200	SLP122M100A5P3	0.221	0.166	1.69	2.11	22 x 35
1200	SLP122M100C3P3	0.221	0.166	1.68	2.10	25 x 30
1500	SLP152M100A7P3	0.177	0.133	1.97	2.46	22 x 40

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
100 Vdc (125 Vdc Surge)						
1500	SLP152M100C5P3	0.177	0.133	1.98	2.48	25 x 35
1500	SLP152M100E1P3	0.177	0.133	1.95	2.44	30 x 25
1500	SLP152M100E3P3	0.177	0.133	2.09	2.61	30 x 30
1800	SLP182M100A4P3	0.147	0.110	2.23	2.79	22 x 45
1800	SLP182M100C7P3	0.147	0.110	2.20	2.75	25 x 40
1800	SLP182M100E3P3	0.147	0.110	2.20	2.75	30 x 30
2200	SLP222M100C4P3	0.121	0.091	2.53	3.16	25 x 45
2200	SLP222M100E5P3	0.121	0.091	2.55	3.19	30 x 35
2200	SLP222M100H3P3	0.121	0.091	2.60	3.25	35 x 30
2700	SLP272M100C9P3	0.098	0.074	2.82	3.53	25 x 50
2700	SLP272M100E7P3	0.098	0.074	2.86	3.58	30 x 40
2700	SLP272M100H5P3	0.098	0.074	2.90	3.63	35 x 35
3300	SLP332M100E4P3	0.080	0.060	3.30	4.13	30 x 45
3300	SLP332M100H5P3	0.080	0.060	3.25	4.06	35 x 35
3900	SLP392M100E9P3	0.068	0.051	3.60	4.50	30 x 50
3900	SLP392M100H7P3	0.068	0.051	3.67	4.59	35 x 40
4700	SLP472M100H4P3	0.056	0.042	3.80	4.75	35 x 45
5600	SLP562M100H9P3	0.047	0.035	4.05	5.06	35 x 50
160 Vdc (200Vdc Surge)						
330	SLP331M160A1P3	0.603	0.452	1.20	1.76	22 x 25
390	SLP391M160A3P3	0.510	0.383	1.30	1.91	22 x 30
470	SLP471M160A3P3	0.423	0.317	1.55	2.28	22 x 30
470	SLP471M160C1P3	0.423	0.317	1.55	2.28	25 x 25
560	SLP561M160A5P3	0.355	0.266	1.67	2.45	22 x 35
560	SLP561M160C3P3	0.355	0.266	1.67	2.45	25 x 30
680	SLP681M160A7P3	0.293	0.220	1.82	2.68	22 x 40
680	SLP681M160C5P3	0.293	0.220	1.85	2.72	25 x 35
680	SLP681M160E1P3	0.293	0.220	1.82	2.68	30 x 25
820	SLP821M160A4P3	0.243	0.182	2.04	3.00	22 x 45
820	SLP821M160C7P3	0.243	0.182	2.04	3.00	25 x 40
820	SLP821M160E3P3	0.243	0.182	2.04	3.00	30 x 30
1000	SLP102M160C4P3	0.199	0.149	2.40	3.53	25 x 45
1000	SLP102M160E5P3	0.199	0.149	2.25	3.31	30 x 35
1200	SLP122M160C9P3	0.166	0.125	2.62	3.85	25 x 50
1200	SLP122M160E7P3	0.166	0.125	2.49	3.66	30 x 40
1200	SLP122M160H3P3	0.166	0.125	2.49	3.66	35 x 30
1500	SLP152M160E4P3	0.133	0.100	2.84	4.17	30 x 45
1500	SLP152M160H5P3	0.133	0.100	2.84	4.17	35 x 35
1800	SLP182M160E9P3	0.111	0.083	3.32	4.88	30 x 50
1800	SLP182M160H7P3	0.111	0.083	3.00	4.41	35 x 40
2200	SLP222M160H4P3	0.090	0.068	3.50	5.15	35 x 45
180 Vdc (225Vdc Surge)						
270	SLP271M180A1P3	0.737	0.553	1.00	1.47	22 x 25

Type SLP 105 °C Snap-In Aluminum Electrolytic

Best Value 105 °C Snap-In Type

Additional Voltages and Sizes available at www.cde.com/catalogs/SLP.pdf

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
180 Vdc (225Vdc Surge)						
330	SLP331M180A3P3	0.603	0.452	1.20	1.76	22 x 30
390	SLP391M180A3P3	0.510	0.383	1.35	1.98	22 x 30
390	SLP391M180C1P3	0.510	0.383	1.35	1.98	25 x 25
470	SLP471M180A5P3	0.423	0.317	1.50	2.21	22 x 35
470	SLP471M180C3P3	0.423	0.317	1.50	2.21	25 x 30
560	SLP561M180A7P3	0.355	0.266	1.67	2.45	22 x 40
560	SLP561M180C3P3	0.355	0.266	1.67	2.45	25 x 30
560	SLP561M180E1P3	0.355	0.266	1.67	2.45	30 x 25
680	SLP681M180A4P3	0.293	0.220	1.78	2.62	22 x 45
680	SLP681M180C5P3	0.293	0.220	1.78	2.62	25 x 35
680	SLP681M180E3P3	0.293	0.220	1.78	2.62	30 x 30
820	SLP821M180A9P3	0.243	0.182	2.04	3.00	22 x 50
820	SLP821M180C7P3	0.243	0.182	2.04	3.00	25 x 40
820	SLP821M180E3P3	0.243	0.182	2.04	3.00	30 x 30
1000	SLP102M180C4P3	0.199	0.149	2.30	3.38	25 x 45
1000	SLP102M180E5P3	0.199	0.149	2.30	3.38	30 x 35
1000	SLP102M180H3P3	0.199	0.149	2.30	3.38	35 x 30
1200	SLP122M180E7P3	0.166	0.125	2.55	3.75	30 x 40
1200	SLP122M180H5P3	0.166	0.125	2.55	3.75	35 x 35
1500	SLP152M180E4P3	0.133	0.100	2.90	4.26	30 x 45
1500	SLP152M180H7P3	0.133	0.100	2.90	4.26	35 x 40
1800	SLP182M180H4P3	0.111	0.083	3.30	4.85	35 x 45
2200	SLP222M180H9P3	0.090	0.068	3.65	5.37	35 x 50
200 Vdc (250 Vdc Surge)						
220	SLP221M200A1P3	0.905	0.679	0.99	1.46	22 x 25
220	SLP221M200A3P3	0.905	0.679	1.07	1.57	22 x 30
270	SLP271M200A1P3	0.737	0.553	1.10	1.62	22 x 25
330	SLP331M200A3P3	0.603	0.452	1.25	1.84	22 x 30
330	SLP331M200C1P3	0.603	0.452	1.25	1.84	25 x 25
330	SLP331M200C3P3	0.603	0.452	1.35	1.98	25 x 30
390	SLP391M200A5P3	0.510	0.383	1.35	1.98	22 x 35
390	SLP391M200C3P3	0.510	0.383	1.35	1.98	25 x 30
470	SLP471M200A7P3	0.423	0.317	1.50	2.21	22 x 40
470	SLP471M200C3P3	0.423	0.317	1.50	2.21	25 x 30
470	SLP471M200C5P3	0.423	0.317	1.60	2.35	25 x 35
470	SLP471M200E1P3	0.423	0.317	1.50	2.21	30 x 25
560	SLP561M200A4P3	0.355	0.266	1.67	2.45	22 x 45
560	SLP561M200C5P3	0.355	0.266	1.70	2.50	25 x 35
560	SLP561M200E1P3	0.355	0.266	1.67	2.45	30 x 25
680	SLP681M200A9P3	0.293	0.220	1.78	2.62	22 x 50
680	SLP681M200C5P3	0.293	0.220	1.72	2.53	25 x 35
680	SLP681M200C7P3	0.293	0.220	1.82	2.68	25 x 40
680	SLP681M200E3P3	0.293	0.220	1.78	2.62	30 x 30
820	SLP821M200C4P3	0.243	0.182	2.10	3.09	25 x 45
820	SLP821M200E5P3	0.243	0.182	2.04	3.00	30 x 35
820	SLP821M200H3P3	0.243	0.182	2.04	3.00	35 x 30
1000	SLP102M200C9P3	0.199	0.149	2.42	3.56	25 x 50
1000	SLP102M200E7P3	0.199	0.149	2.30	3.38	30 x 40
1000	SLP102M200H5P3	0.199	0.149	2.30	3.38	35 x 35
1200	SLP122M200E4P3	0.166	0.125	2.65	3.90	30 x 45
1200	SLP122M200H5P3	0.166	0.125	2.65	3.90	35 x 35
1200	SLP122M200H3P3	0.166	0.125	2.49	3.66	35 x 30
1500	SLP152M200H7P3	0.133	0.100	3.08	4.53	35 x 40
1800	SLP182M200H4P3	0.111	0.083	3.48	5.12	35 x 45
1800	SLP182M200H7P3	0.111	0.083	3.31	4.87	35 x 40
220 Vdc (270 Vdc Surge)						
220	SLP221M220A1P3	0.905	0.679	1.00	1.47	22 x 25
270	SLP271M220A3P3	0.737	0.553	1.15	1.69	22 x 30
330	SLP331M220A5P3	0.603	0.452	1.25	1.84	22 x 35
330	SLP331M220C1P3	0.603	0.452	1.25	1.84	25 x 25
390	SLP391M220A5P3	0.510	0.383	1.40	2.06	22 x 35
390	SLP391M220C3P3	0.510	0.383	1.40	2.06	25 x 30
470	SLP471M220A7P3	0.423	0.317	1.51	2.22	22 x 40
470	SLP471M220C3P3	0.423	0.317	1.44	2.12	25 x 30
470	SLP471M220E1P3	0.423	0.317	1.50	2.21	30 x 25
560	SLP561M220A4P3	0.355	0.266	1.70	2.50	22 x 45
560	SLP561M220C5P3	0.355	0.266	1.64	2.41	25 x 35
560	SLP561M220E3P3	0.355	0.266	1.70	2.50	30 x 30
560	SLP561M220H1P3	0.355	0.266	1.71	2.51	35 x 25
680	SLP681M220C7P3	0.293	0.220	1.84	2.70	25 x 40
680	SLP681M220E5P3	0.293	0.220	1.93	2.84	30 x 35
680	SLP681M220H3P3	0.293	0.220	1.89	2.78	35 x 30
820	SLP821M220C4P3	0.243	0.182	2.08	3.06	25 x 45
820	SLP821M220E7P3	0.243	0.182	2.19	3.22	30 x 40
820	SLP821M220H3P3	0.243	0.182	2.16	3.18	35 x 30
1000	SLP102M220E4P3	0.199	0.149	2.50	3.68	30 x 45
1000	SLP102M220H5P3	0.199	0.149	2.44	3.59	35 x 35
1200	SLP122M220H7P3	0.166	0.125	2.79	4.10	35 x 40
1500	SLP152M220H4P3	0.133	0.100	3.22	4.73	35 x 45
250 Vdc (300 Vdc Surge)						
180	SLP181M250A1P3	1.106	0.830	0.88	1.29	22 x 25
180	SLP181M250C1P3	1.106	0.830	0.95	1.40	25 x 25
220	SLP221M250A3P3	0.905	0.679	1.00	1.47	22 x 30
220	SLP221M250C1P3	0.905	0.679	1.08	1.59	25 x 25
270	SLP271M250A5P3	0.737	0.553	1.18	1.73	22 x 35
270	SLP271M250C3P3	0.737	0.553	1.27	1.87	25 x 30

Type SLP 105 °C Snap-In Aluminum Electrolytic

Best Value 105 °C Snap-In Type

Additional Voltages and Sizes available at www.cde.com/catalogs/SLP.pdf

Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
250 Vdc (300 Vdc Surge)						
330	SLP331M250A7P3	0.603	0.452	1.30	1.91	22 x 40
330	SLP331M250C3P3	0.603	0.452	1.30	1.91	25 x 30
330	SLP331M250E1P3	0.603	0.452	1.35	1.98	30 x 25
330	SLP331M250A3P3	0.603	0.452	1.15	1.69	22 x 30
390	SLP391M250A4P3	0.510	0.383	1.49	2.19	22 x 45
390	SLP391M250C5P3	0.510	0.383	1.49	2.19	25 x 35
390	SLP391M250E3P3	0.510	0.383	1.49	2.19	30 x 30
470	SLP471M250A9P3	0.423	0.317	1.65	2.43	22 x 50
470	SLP471M250C7P3	0.423	0.317	1.65	2.43	25 x 40
470	SLP471M250E3P3	0.423	0.317	1.65	2.43	30 x 30
560	SLP561M250C4P3	0.355	0.266	1.80	2.65	25 x 45
560	SLP561M250E5P3	0.355	0.266	1.80	2.65	30 x 35
680	SLP681M250C9P3	0.293	0.220	2.03	2.98	25 x 50
680	SLP681M250E7P3	0.293	0.220	2.00	2.94	30 x 40
680	SLP681M250H3P3	0.293	0.220	2.00	2.94	35 x 30
820	SLP821M250E4P3	0.243	0.182	2.30	3.38	30 x 45
820	SLP821M250H5P3	0.243	0.182	2.30	3.38	35 x 35
1000	SLP102M250E9P3	0.199	0.149	2.70	3.97	30 x 50
1000	SLP102M250H7P3	0.199	0.149	2.69	3.95	35 x 40
1200	SLP122M250H4P3	0.166	0.125	3.09	4.54	35 x 45
1500	SLP152M250H9P3	0.133	0.100	3.61	5.31	35 x 50
315 Vdc (365 Vdc Surge)						
120	SLP121M315A1P3	2.765	2.074	0.75	1.10	22 x 25
150	SLP151M315A3P3	2.212	1.659	0.82	1.21	22 x 30
150	SLP151M315C1P3	2.212	1.659	0.82	1.21	25 x 25
180	SLP181M315A5P3	1.843	1.382	0.92	1.35	22 x 35
180	SLP181M315C3P3	1.843	1.382	0.93	1.37	25 x 30
220	SLP221M315A7P3	1.508	1.131	1.04	1.53	22 x 40
220	SLP221M315C3P3	1.508	1.131	1.04	1.53	25 x 30
220	SLP221M315E1P3	1.508	1.131	1.04	1.53	30 x 25
270	SLP271M315A4P3	1.229	0.922	1.16	1.71	22 x 45
270	SLP271M315C5P3	1.229	0.922	1.16	1.71	25 x 35
270	SLP271M315E1P3	1.229	0.922	1.16	1.71	30 x 25
330	SLP331M315A9P3	1.005	0.754	1.33	1.96	22 x 50
330	SLP331M315C7P3	1.005	0.754	1.33	1.96	25 x 40
330	SLP331M315E3P3	1.005	0.754	1.33	1.96	30 x 30
390	SLP391M315C4P3	0.851	0.638	1.47	2.16	25 x 45
390	SLP391M315E5P3	0.851	0.638	1.47	2.16	30 x 35
390	SLP391M315H3P3	0.851	0.638	1.47	2.16	35 x 30
470	SLP471M315E7P3	0.706	0.530	1.70	2.50	30 x 40
470	SLP471M315H3P3	0.706	0.530	1.70	2.50	35 x 30
560	SLP561M315E4P3	0.592	0.444	2.05	3.01	30 x 45
560	SLP561M315H5P3	0.592	0.444	2.05	3.01	35 x 35
680	SLP681M315H7P3	0.488	0.366	2.17	3.19	35 x 40
820	SLP821M315H4P3	0.405	0.304	2.20	3.23	35 x 45
350 Vdc (400 Vdc Surge)						
100	SLP101M350A1P3	3.317	2.488	0.69	1.01	22 x 25
120	SLP121M350A3P3	2.765	2.074	0.75	1.10	22 x 30
120	SLP121M350C1P3	2.765	2.074	0.75	1.10	25 x 25
150	SLP151M350A5P3	2.212	1.659	0.82	1.21	22 x 35
150	SLP151M350C3P3	2.212	1.659	0.83	1.22	25 x 30
180	SLP181M350A7P3	1.843	1.382	0.92	1.35	22 x 40
180	SLP181M350C3P3	1.843	1.382	0.92	1.35	25 x 30
180	SLP181M350E1P3	1.843	1.382	0.90	1.32	30 x 25
220	SLP221M350A4P3	1.508	1.131	1.05	1.54	22 x 45
220	SLP221M350C5P3	1.508	1.131	1.04	1.53	25 x 35
220	SLP221M350E3P3	1.508	1.131	1.02	1.50	30 x 30
270	SLP271M350A9P3	1.229	0.922	1.16	1.71	22 x 50
270	SLP271M350C7P3	1.229	0.922	1.18	1.73	25 x 40
270	SLP271M350E3P3	1.229	0.922	1.17	1.72	30 x 30
330	SLP331M350C4P3	1.005	0.754	1.29	1.90	25 x 45
330	SLP331M350E5P3	1.005	0.754	1.34	1.97	30 x 35
330	SLP331M350H3P3	1.005	0.754	1.22	1.79	35 x 30
390	SLP391M350C9P3	0.851	0.638	1.51	2.22	25 x 50
390	SLP391M350E7P3	0.851	0.638	1.51	2.22	30 x 40
390	SLP391M350H5P3	0.851	0.638	1.47	2.16	35 x 35
470	SLP471M350E4P3	0.706	0.530	1.65	2.43	30 x 45
470	SLP471M350H5P3	0.706	0.530	1.69	2.48	35 x 35
560	SLP561M350E9P3	0.592	0.444	1.85	2.72	30 x 50
560	SLP561M350H7P3	0.592	0.444	1.90	2.79	35 x 40
680	SLP681M350H4P3	0.488	0.366	2.20	3.23	35 x 45
385 Vdc (435 Vdc Surge)						
68	SLP680M385A1P3	4.879	3.659	0.45	0.66	22 x 25
82	SLP820M385A3P3	4.046	3.035	0.52	0.76	22 x 30
100	SLP101M385A3P3	3.317	2.488	0.58	0.85	22 x 30
120	SLP121M385A5P3	2.765	2.074	0.68	1.00	22 x 35
150	SLP151M385A7P3	2.212	1.659	0.79	1.16	22 x 40
150	SLP151M385E1P3	2.212	1.659	0.75	1.10	30 x 25
180	SLP181M385A4P3	1.843	1.382	0.94	1.38	22 x 45
180	SLP181M385E3P3	1.843	1.382	0.88	1.29	30 x 30
220	SLP221M385E3P3	1.508	1.131	1.00	1.47	30 x 30
270	SLP271M385E7P3	1.229	0.922	1.14	1.68	30 x 40
270	SLP271M385H3P3	1.229	0.922	1.10	1.62	35 x 30
330	SLP331M385E4P3	1.005	0.754	1.31	1.93	30 x 45
330	SLP331M385H5P3	1.005	0.754	1.32	1.94	35 x 35
390	SLP391M385E9P3	0.851	0.638	1.48	2.18	30 x 50
390	SLP391M385H7P3	0.851	0.638	1.48	2.18	35 x 40
470	SLP471M385H4P3	0.706	0.530	1.76	2.59	35 x 45
560	SLP561M385H9P3	0.592	0.444	1.95	2.87	35 x 50

Type SLP 105 °C Snap-In Aluminum Electrolytic

Best Value 105 °C Snap-In Type

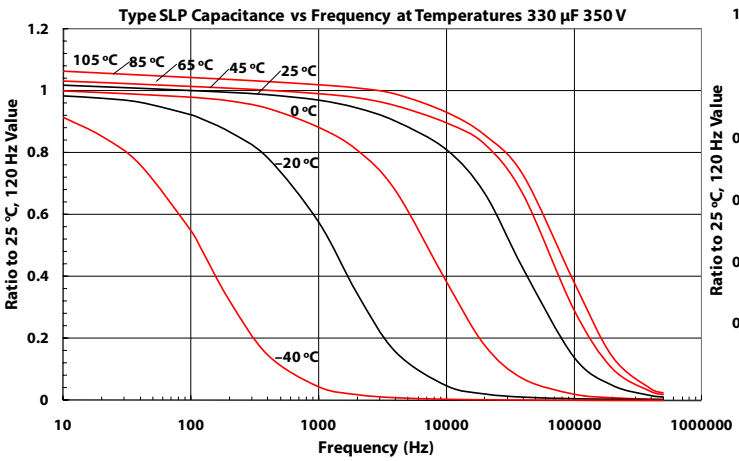
Additional Voltages and Sizes available at www.cde.com/catalogs/SLP.pdf

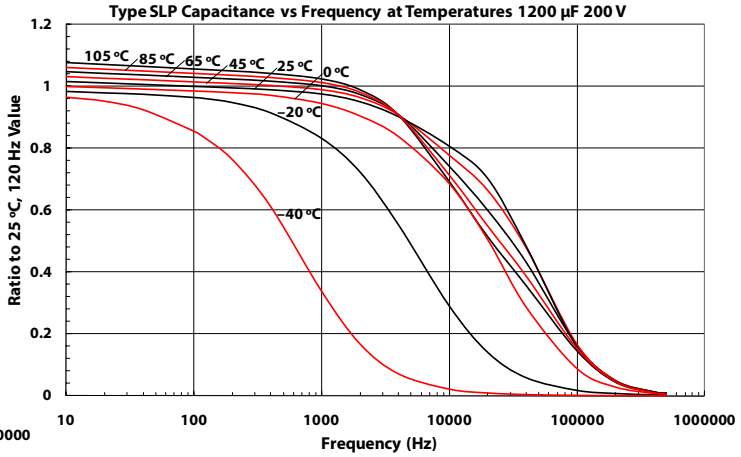
Cap (µF)	3000 h @ 105 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 105 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
400 Vdc (450 Vdc Surge)						
47	SLP470M400A1P3	7.058	5.294	0.42	0.62	22 x 25
68	SLP680M400A1P3	4.879	3.659	0.50	0.74	22 x 25
82	SLP820M400A1P3	4.046	3.035	0.64	0.94	22 x 25
100	SLP101M400A3P3	3.317	2.488	0.70	1.03	22 x 30
100	SLP101M400C1P3	3.317	2.488	0.70	1.03	25 x 25
120	SLP121M400A5P3	2.765	2.074	0.75	1.10	22 x 35
120	SLP121M400C3P3	2.765	2.074	0.75	1.10	25 x 30
150	SLP151M400A7P3	2.212	1.659	0.88	1.29	22 x 40
150	SLP151M400C5P3	2.212	1.659	0.89	1.31	25 x 35
150	SLP151M400E1P3	2.212	1.659	0.88	1.29	30 x 25
150	SLP151M400C3P3	2.212	1.659	0.83	1.22	25 x 30
180	SLP181M400A4P3	1.843	1.382	0.98	1.44	22 x 45
180	SLP181M400E3P3	1.843	1.382	0.98	1.44	30 x 30
220	SLP221M400A9P3	1.508	1.131	1.10	1.62	22 x 50
220	SLP221M400C5P3	1.508	1.131	1.04	1.53	25 x 35
220	SLP221M400C7P3	1.508	1.131	1.10	1.62	25 x 40
220	SLP221M400E3P3	1.508	1.131	1.10	1.62	30 x 30
220	SLP221M400E5P3	1.508	1.131	1.28	1.88	30 x 35
270	SLP271M400C9P3	1.229	0.922	1.29	1.90	25 x 50
270	SLP271M400E5P3	1.229	0.922	1.22	1.79	30 x 35
270	SLP271M400H3P3	1.229	0.922	1.22	1.79	35 x 30
330	SLP331M400E4P3	1.005	0.754	1.55	2.28	30 x 45
330	SLP331M400H3P3	1.005	0.754	1.44	2.12	35 x 30
330	SLP331M400E5P3	1.005	0.754	1.39	2.04	30 x 35
390	SLP391M400E4P3	0.851	0.638	1.60	2.35	30 x 45
390	SLP391M400H5P3	0.851	0.638	1.60	2.35	35 x 35
470	SLP471M400H7P3	0.706	0.530	1.90	2.79	35 x 40
560	SLP561M400H4P3	0.592	0.444	2.12	3.12	35 x 45
680	SLP681M400H4P3	0.488	0.366	2.34	3.44	35 x 45
420 Vdc (470 Vdc Surge)						
68	SLP680M420A1P3	4.879	3.659	0.55	0.81	22 x 25
82	SLP820M420A1P3	4.046	3.035	0.64	0.94	22 x 25
82	SLP820M420C1P3	4.046	3.035	0.58	0.85	25 x 25
100	SLP101M420A3P3	3.317	2.488	0.70	1.03	22 x 30
100	SLP101M420C1P3	3.317	2.488	0.70	1.03	25 x 25
120	SLP121M420A5P3	2.765	2.074	0.75	1.10	22 x 35
120	SLP121M420C3P3	2.765	2.074	0.75	1.10	25 x 30
120	SLP121M420E1P3	2.765	2.074	0.78	1.15	30 x 25
150	SLP151M420A7P3	2.212	1.659	0.88	1.29	22 x 40
150	SLP151M420C5P3	2.212	1.659	0.88	1.29	25 x 35
150	SLP151M420E1P3	2.212	1.659	0.88	1.29	30 x 25
180	SLP181M420A4P3	1.843	1.382	0.95	1.40	22 x 45
180	SLP181M420C7P3	1.843	1.382	0.97	1.43	25 x 40
180	SLP181M420E3P3	1.843	1.382	0.96	1.41	30 x 30
180	SLP181M420H1P3	1.843	1.382	0.94	1.38	35 x 25
220	SLP221M420C4P3	1.508	1.131	1.13	1.66	25 x 45
220	SLP221M420E5P3	1.508	1.131	1.10	1.62	30 x 35
220	SLP221M420H1P3	1.508	1.131	1.10	1.62	35 x 25
270	SLP271M420C9P3	1.229	0.922	1.37	2.01	25 x 50
270	SLP271M420E7P3	1.229	0.922	1.25	1.84	30 x 40
270	SLP271M420H3P3	1.229	0.922	1.22	1.79	35 x 30
330	SLP331M420E4P3	1.005	0.754	1.49	2.19	30 x 45
330	SLP331M420H5P3	1.005	0.754	1.45	2.13	35 x 35
390	SLP391M420E9P3	0.851	0.638	1.67	2.45	30 x 50
390	SLP391M420H7P3	0.851	0.638	1.66	2.44	35 x 40
470	SLP471M420H4P3	0.706	0.530	1.90	2.79	35 x 45
450 Vdc (500 Vdc Surge)						
47	SLP470M450A1P3	7.060	5.295	0.40	0.59	22 x 25
56	SLP560M450A1P3	5.924	4.443	0.50	0.74	22 x 25
68	SLP680M450A3P3	4.879	3.659	0.53	0.78	22 x 30
68	SLP680M450C1P3	4.879	3.659	0.53	0.78	25 x 25
82	SLP820M450A3P3	4.046	3.035	0.64	0.94	22 x 30
82	SLP820M450C1P3	4.046	3.035	0.64	0.94	25 x 25
100	SLP101M450A5P3	3.317	2.488	0.69	1.01	22 x 35
100	SLP101M450C3P3	3.317	2.488	0.69	1.01	25 x 30
100	SLP101M450E1P3	3.317	2.488	0.72	1.06	30 x 25
100	SLP101M450C7P3	3.317	2.488	0.78	1.15	25 x 40
100	SLP101M450A3P3	3.317	2.488	0.65	0.96	22 x 30
120	SLP121M450A7P3	2.765	2.074	0.80	1.18	22 x 40
120	SLP121M450C3P3	2.765	2.074	0.80	1.18	25 x 30
120	SLP121M450E1P3	2.765	2.074	0.80	1.18	30 x 25
150	SLP151M450A4P3	2.212	1.659	0.88	1.29	22 x 45
150	SLP151M450C5P3	2.212	1.659	0.88	1.29	25 x 35
150	SLP151M450E3P3	2.212	1.659	0.88	1.29	30 x 30
150	SLP151M450C3P3	2.121	1.591	0.82	1.21	25 x 30
180	SLP181M450C7P3	1.843	1.382	1.00	1.47	25 x 40
180	SLP181M450E3P3	1.843	1.382	1.00	1.47	30 x 30
220	SLP221M450C4P3	1.508	1.131	1.12	1.65	25 x 45
220	SLP221M450E5P3	1.508	1.131	1.12	1.65	30 x 35
220	SLP221M450H3P3	1.508	1.131	1.12	1.65	35 x 30
220	SLP221M450E3P3	1.508	1.131	1.05	1.54	30 x 30
270	SLP271M450E7P3	1.229	0.922	1.28	1.88	30 x 40
270	SLP271M450H5P3	1.229	0.922	1.28	1.88	35 x 35
330	SLP331M450E9P3	1.005	0.754	1.45	2.13	30 x 50
330	SLP331M450H5P3	1.005	0.754	1.37	2.01	35 x 35
330	SLP331M450H7P3	1.005	0.754	1.45	2.13	35 x 40
390	SLP391M450H7P3	0.851	0.638	1.55	2.28	35 x 40
470	SLP471M450H4P3	0.706	0.530	1.77	2.60	35 x 45
470	SLP471M450H9P3	0.706	0.530	1.85	2.72	35 x 50
560	SLP561M450H9P3	0.590	0.443	2.00	2.94	35 x 50

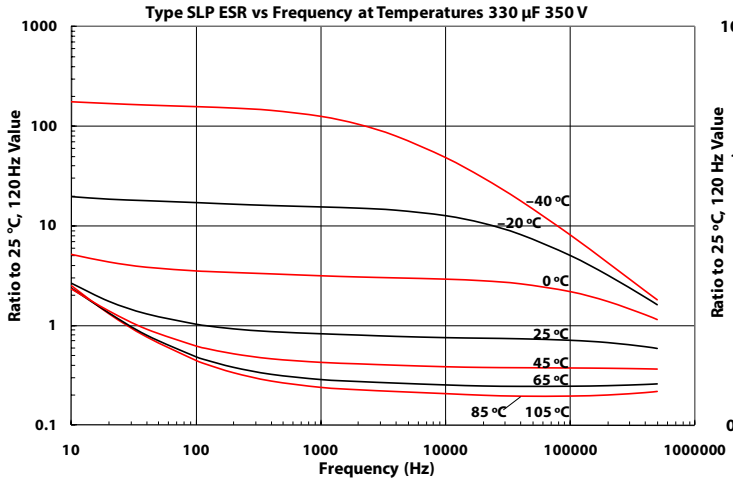
Type SLP 105 °C Snap-In Aluminum Electrolytic

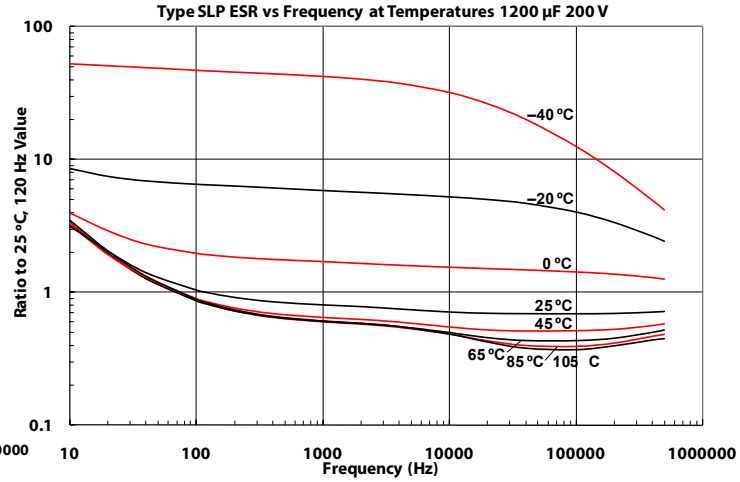
Best Value 105 °C Snap-In Type

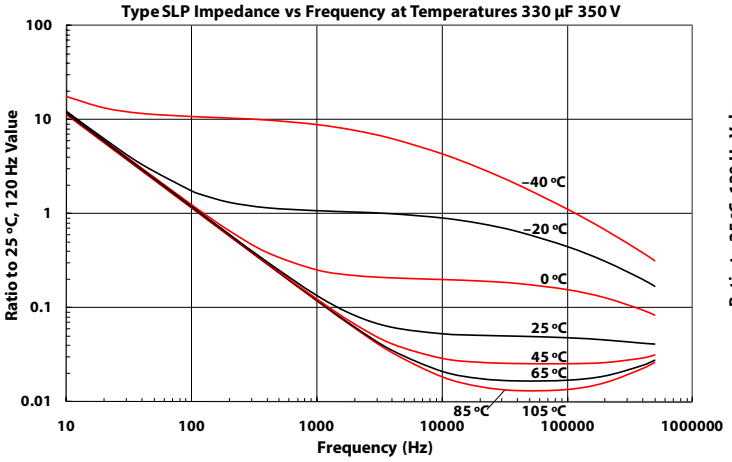
Typical Performance Curves

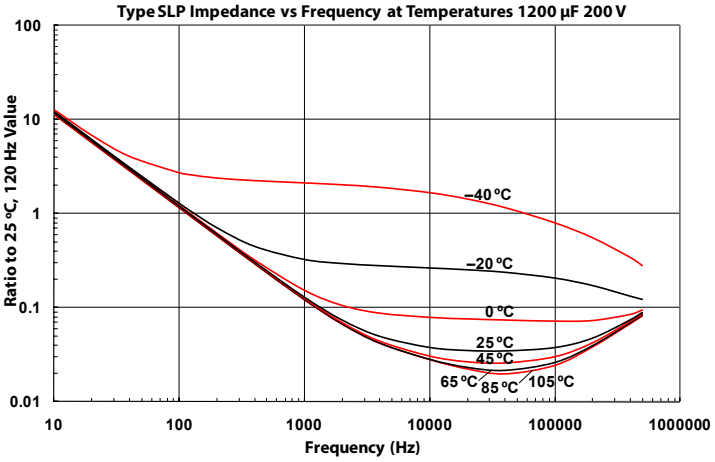












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Type SLPX 85 °C Snap-In Aluminum Electrolytic

Best Value 85 °C Snap-In Type

Type SLPX is the best value package snap-in series for 85 °C, 3000 h operation. This series is the most cost-effective choice for DC filtering and power supply applications where long life and high ripple capability are needed.

Highlights

- 3000 h ripple load life at rated voltage
- 85 °C rated
- Small case size with high capacitance
- Best for switching power supplies
- 22 mm to 35 mm diameter, 10 mm lead spacing
- Great value snap-in type
- High ripple current

Specifications

Temperature Range	–40 °C to +85 °C ≤ 250 Vdc –25 °C to +85 °C ≥ 315 Vdc
Rated Voltage Range	10 Vdc to 450 Vdc
Capacitance Range	68 µF to 82,000 µF
Capacitance Tolerance	±20%
Leakage Current	≤ 3 $\sqrt{CV}$ µA at 5 minutes
Ripple Current Multipliers	Ambient Temperature **20 °C - 45 °C** / **55 °C** / **65 °C - 75 °C** / **85 °C** 1.58 / 1.41 / 1.22 / 1.00 Frequency **Voltage** / **60 Hz** / **120 Hz** / **1 kHz** / **10 kHz & Up** 10 - 100 Vdc / 0.90 / 1.00 / 1.15 / 1.25 160 - 450 Vdc / 0.80 / 1.00 / 1.15 / 1.47 To apply multipliers, see ratings tables for ripple current values
Low Temperature Characteristics	Impedance ratio: $Z_{-20°C}/Z_{+25°C}$ ≤ 10 (10 Vdc) ≤ 8 (16–50 Vdc) ≤ 4 (63–100 Vdc) ≤ 3 (150–450 Vdc)
Endurance Life	3,000 h @ full load @ 85 °C Δ Capacitance ±20% ESR ≤200% of limit DCL 100 % of limit
Shelf Life	1,000 h @ 85 °C Δ Capacitance ±15% ESR ≤150% of limit DCL 100 % of limit
Vibration	10 Hz to 55 Hz 0.06" and 10g max 2 h in each plane
RoHS Compliant	

Type SLPX 85 °C Snap-In Aluminum Electrolytic

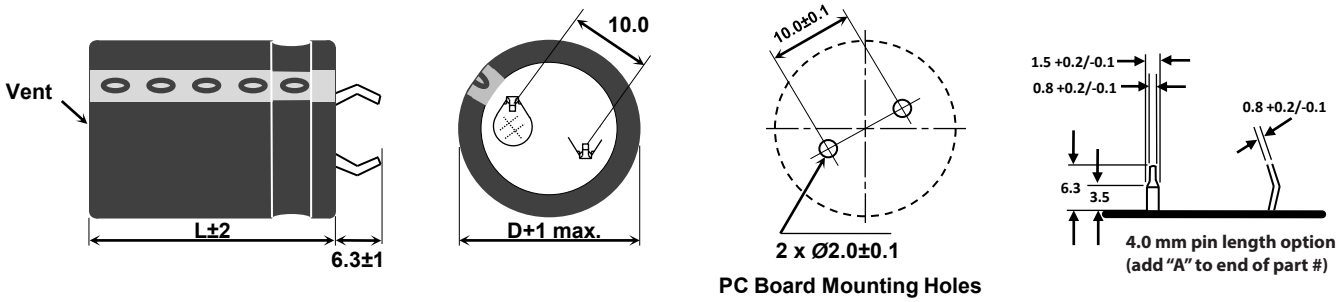
Best Value 85 °C Snap-In Type

Part Numbering System

SLPX	562	M	025	A1	P	3	A
Type	Cap	Tolerance	Voltage	Case Code	Polarity	Insulating Sleeve	Pin Style
SLPX	**821** = 820 µF **332** = 3300 µF **103** = 10,000 µF	**M =** ±20%	**025** = 25 Vdc **250** = 250 Vdc		**P** = Polarized	**3** = PVC	**Blank** = 2 pins snap-in 6.3 mm L **A** = 2 pins snap-in 4.0 mm L

Diameter		Length mm (in)					
		25	30	35	40	45	50
mm	(in)	(1.00)	(1.18)	(1.38)	(1.57)	(1.77)	(2.00)
22	(0.87)	A1	A3	A5	A7	A4	A9
25	(1.00)	C1	C3	C5	C7	C4	C9
30	(1.18)	E1	E3	E5	E7	E4	E9
35	(1.38)	H1	H3	H5	H7	H4	H9

Outline Drawing



Ratings

Additional Voltages and Sizes available at www.cde.com/catalogs/SLPX.pdf

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
10 Vdc (13 Vdc Surge)						
12000	SLPX123M010A1P3	0.061	0.046	2.41	3.01	22 x 25
15000	SLPX153M010A3P3	0.049	0.037	2.88	3.60	22 x 30
15000	SLPX153M010C1P3	0.049	0.037	2.88	3.60	25 x 25
18000	SLPX183M010A5P3	0.041	0.031	3.22	4.03	22 x 35
18000	SLPX183M010C3P3	0.041	0.031	3.08	3.85	25 x 30
22000	SLPX223M010A7P3	0.033	0.025	3.79	4.74	22 x 40
22000	SLPX223M010C3P3	0.033	0.025	3.66	4.58	25 x 30
22000	SLPX223M010E1P3	0.033	0.025	3.53	4.41	30 x 25
27000	SLPX273M010A4P3	0.027	0.020	4.04	5.05	22 x 45
27000	SLPX273M010C5P3	0.027	0.020	4.04	5.05	25 x 35
27000	SLPX273M010E3P3	0.027	0.020	3.99	4.99	30 x 30
33000	SLPX333M010A9P3	0.022	0.017	4.58	5.73	22 x 50
33000	SLPX333M010C7P3	0.022	0.017	4.56	5.70	25 x 40
33000	SLPX333M010E3P3	0.022	0.017	4.58	5.73	30 x 30
39000	SLPX393M010C4P3	0.019	0.014	5.29	6.61	25 x 45
39000	SLPX393M010E5P3	0.019	0.014	5.21	6.51	30 x 35
39000	SLPX393M010H3P3	0.019	0.014	5.50	6.88	35 x 30
47000	SLPX473M010C9P3	0.016	0.012	5.78	7.23	25 x 50
47000	SLPX473M010E7P3	0.016	0.012	5.78	7.23	30 x 40
47000	SLPX473M010H5P3	0.016	0.012	5.55	6.94	35 x 35
56000	SLPX563M010E4P3	0.013	0.010	6.59	8.24	30 x 45
56000	SLPX563M010H5P3	0.013	0.010	6.40	8.00	35 x 35
68000	SLPX683M010E9P3	0.011	0.008	7.50	9.38	30 x 50
68000	SLPX683M010H7P3	0.011	0.008	7.48	9.35	35 x 40
82000	SLPX823M010H9P3	0.009	0.007	8.50	10.63	35 x 50
16 Vdc (20 Vdc Surge)						
8200	SLPX822M016A1P3	0.081	0.061	2.56	3.20	22 x 25
10000	SLPX103M016A3P3	0.066	0.050	2.89	3.61	22 x 30
12000	SLPX123M016A3P3	0.055	0.041	3.13	3.91	22 x 30
12000	SLPX123M016C1P3	0.055	0.041	3.01	3.76	25 x 25
15000	SLPX153M016A5P3	0.044	0.033	3.69	4.61	22 x 35
15000	SLPX153M016C3P3	0.044	0.033	3.64	4.55	25 x 30
15000	SLPX153M016E1P3	0.044	0.033	3.73	4.66	30 x 25
18000	SLPX183M016A7P3	0.037	0.028	3.98	4.98	22 x 40
18000	SLPX183M016C5P3	0.037	0.028	3.98	4.98	25 x 35
18000	SLPX183M016E3P3	0.037	0.028	3.88	4.85	30 x 30
22000	SLPX223M016A9P3	0.030	0.023	4.52	5.65	22 x 50
22000	SLPX223M016C7P3	0.030	0.023	4.44	5.55	25 x 40
22000	SLPX223M016E3P3	0.030	0.023	4.38	5.48	30 x 30
27000	SLPX273M016C4P3	0.025	0.019	4.98	6.23	25 x 45
27000	SLPX273M016E5P3	0.025	0.019	4.95	6.19	30 x 35
27000	SLPX273M016H3P3	0.025	0.019	4.82	6.03	35 x 30
33000	SLPX333M016C9P3	0.020	0.015	5.49	6.86	25 x 50
33000	SLPX333M016E7P3	0.020	0.015	5.60	7.00	30 x 40

Type SLPX 85 °C Snap-In Aluminum Electrolytic

Best Value 85 °C Snap-In Type

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
16 Vdc (20 Vdc Surge)						
33000	SLPX333M016H3P3	0.020	0.015	5.46	6.83	35 x 30
39000	SLPX393M016E4P3	0.017	0.013	6.21	7.76	30 x 45
39000	SLPX393M016H5P3	0.017	0.013	6.12	7.65	35 x 35
47000	SLPX473M016E9P3	0.014	0.011	6.93	8.66	30 x 50
47000	SLPX473M016H7P3	0.014	0.011	6.89	8.61	35 x 40
56000	SLPX563M016H4P3	0.012	0.009	7.69	9.61	35 x 45
25 Vdc (32 Vdc Surge)						
5600	SLPX562M025A1P3	0.107	0.080	2.31	2.89	22 x 25
6800	SLPX682M025A3P3	0.088	0.066	2.56	3.20	22 x 30
8200	SLPX822M025A5P3	0.073	0.055	2.86	3.58	22 x 35
8200	SLPX822M025C1P3	0.073	0.055	2.78	3.48	25 x 25
10000	SLPX103M025A5P3	0.060	0.045	3.31	4.14	22 x 35
10000	SLPX103M025C3P3	0.060	0.045	3.16	3.95	25 x 30
10000	SLPX103M025E1P3	0.060	0.045	3.28	4.10	30 x 25
12000	SLPX123M025A7P3	0.050	0.038	3.77	4.71	22 x 40
12000	SLPX123M025C5P3	0.050	0.038	3.63	4.54	25 x 35
12000	SLPX123M025E1P3	0.050	0.038	3.80	4.75	30 x 25
15000	SLPX153M025A9P3	0.040	0.030	4.21	5.26	22 x 50
15000	SLPX153M025C7P3	0.040	0.030	4.10	5.13	25 x 40
15000	SLPX153M025E3P3	0.040	0.030	4.00	5.00	30 x 30
18000	SLPX183M025C4P3	0.033	0.025	4.68	5.85	25 x 45
18000	SLPX183M025E5P3	0.033	0.025	4.66	5.83	30 x 35
18000	SLPX183M025H3P3	0.033	0.025	4.68	5.85	35 x 30
22000	SLPX223M025C9P3	0.027	0.020	5.29	6.61	25 x 50
22000	SLPX223M025E7P3	0.027	0.020	5.33	6.66	30 x 40
22000	SLPX223M025H5P3	0.027	0.020	5.26	6.58	35 x 35
27000	SLPX273M025E4P3	0.022	0.017	6.02	7.53	30 x 45
27000	SLPX273M025H7P3	0.022	0.017	6.02	7.53	35 x 40
33000	SLPX333M025E9P3	0.018	0.014	5.29	6.61	30 x 50
33000	SLPX333M025H4P3	0.018	0.014	6.75	8.44	35 x 45
39000	SLPX393M025H9P3	0.015	0.011	7.56	9.45	35 x 50
35 Vdc (44 Vdc Surge)						
3900	SLPX392M035A1P3	0.136	0.102	2.22	2.78	22 x 25
4700	SLPX472M035A3P3	0.113	0.085	2.46	3.08	22 x 30
4700	SLPX472M035C1P3	0.113	0.085	2.43	3.04	25 x 25
5600	SLPX562M035A3P3	0.095	0.071	2.61	3.26	22 x 30
5600	SLPX562M035A5P3	0.095	0.071	2.79	3.49	22 x 35
5600	SLPX562M035C3P3	0.095	0.071	2.75	3.44	25 x 30
6800	SLPX682M035A7P3	0.078	0.059	2.97	3.71	22 x 40
6800	SLPX682M035C3P3	0.078	0.059	2.89	3.61	25 x 30
6800	SLPX682M035E1P3	0.078	0.059	3.09	3.86	30 x 25
8200	SLPX822M035A4P3	0.065	0.049	3.47	4.34	22 x 45
8200	SLPX822M035C5P3	0.065	0.049	3.33	4.16	25 x 35
8200	SLPX822M035E3P3	0.065	0.049	3.29	4.11	30 x 30
10000	SLPX103M035A9P3	0.053	0.040	3.75	4.69	22 x 50

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
35 Vdc (44 Vdc Surge)						
10000	SLPX103M035C7P3	0.053	0.040	3.65	4.56	25 x 40
10000	SLPX103M035E3P3	0.053	0.040	3.61	4.51	30 x 30
12000	SLPX123M035C4P3	0.044	0.033	4.15	5.19	25 x 45
12000	SLPX123M035E5P3	0.044	0.033	4.14	5.18	30 x 35
12000	SLPX123M035H3P3	0.044	0.033	4.27	5.34	35 x 30
15000	SLPX153M035C9P3	0.035	0.026	4.77	5.96	25 x 50
15000	SLPX153M035E7P3	0.035	0.026	4.80	6.00	30 x 40
15000	SLPX153M035H5P3	0.035	0.026	4.95	6.19	35 x 35
18000	SLPX183M035E4P3	0.029	0.022	5.30	6.63	30 x 45
18000	SLPX183M035H7P3	0.029	0.022	5.71	7.14	35 x 40
22000	SLPX223M035H4P3	0.024	0.018	6.38	7.98	35 x 45
27000	SLPX273M035H9P3	0.020	0.015	6.90	8.63	35 x 50
50 Vdc (63 Vdc Surge)						
2200	SLPX222M050A1P3	0.211	0.158	1.93	2.41	22 x 25
2700	SLPX272M050A3P3	0.172	0.129	2.21	2.76	22 x 30
3300	SLPX332M050A3P3	0.141	0.106	2.41	3.01	22 x 30
3300	SLPX332M050C1P3	0.141	0.106	2.38	2.98	25 x 25
3900	SLPX392M050A5P3	0.119	0.089	2.72	3.40	22 x 35
3900	SLPX392M050C3P3	0.119	0.089	2.68	3.35	25 x 30
4700	SLPX472M050A7P3	0.099	0.074	3.02	3.78	22 x 40
4700	SLPX472M050C3P3	0.099	0.074	3.07	3.84	25 x 30
4700	SLPX472M050E1P3	0.099	0.074	3.01	3.76	30 x 25
5600	SLPX562M050A7P3	0.083	0.062	3.26	4.08	22 x 40
5600	SLPX562M050A4P3	0.083	0.062	3.43	4.29	22 x 45
5600	SLPX562M050C5P3	0.083	0.062	3.47	4.34	25 x 35
5600	SLPX562M050E3P3	0.083	0.062	3.43	4.29	30 x 30
6800	SLPX682M050A9P3	0.068	0.051	3.94	4.93	22 x 50
6800	SLPX682M050C7P3	0.068	0.051	3.87	4.84	25 x 40
6800	SLPX682M050E5P3	0.068	0.051	3.93	4.91	30 x 35
8200	SLPX822M050C4P3	0.057	0.043	4.44	5.55	25 x 45
8200	SLPX822M050E5P3	0.057	0.043	4.47	5.59	30 x 35
8200	SLPX822M050H3P3	0.057	0.043	4.41	5.51	35 x 30
10000	SLPX103M050E7P3	0.046	0.035	5.08	6.35	30 x 40
10000	SLPX103M050H5P3	0.046	0.035	4.92	6.15	35 x 35
12000	SLPX123M050E9P3	0.039	0.029	5.72	7.15	30 x 50
12000	SLPX123M050H7P3	0.039	0.029	5.69	7.11	35 x 40
15000	SLPX153M050H4P3	0.031	0.023	6.56	8.20	35 x 45
18000	SLPX183M050H9P3	0.026	0.020	7.14	8.93	35 x 50
22000	SLPX223M050H9P3	0.021	0.016	7.89	9.86	35 x 50
63 Vdc (79 Vdc Surge)						
1800	SLPX182M063A1P3	0.221	0.166	1.90	2.38	22 x 25
2200	SLPX222M063A3P3	0.181	0.136	2.35	2.94	22 x 30
2200	SLPX222M063C1P3	0.181	0.136	2.30	2.88	25 x 25
2700	SLPX272M063A5P3	0.147	0.110	2.50	3.13	22 x 35
2700	SLPX272M063C3P3	0.147	0.110	2.52	3.15	25 x 30

Type SLPX 85 °C Snap-In Aluminum Electrolytic

Best Value 85 °C Snap-In Type

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
63 Vdc (79 Vdc Surge)						
3300	SLPX332M063A7P3	0.121	0.091	2.72	3.40	22 x 40
3300	SLPX332M063C3P3	0.121	0.091	2.74	3.43	25 x 30
3300	SLPX332M063E1P3	0.121	0.091	2.78	3.48	30 x 25
3900	SLPX392M063A4P3	0.102	0.077	3.09	3.86	22 x 45
3900	SLPX392M063C5P3	0.102	0.077	3.13	3.91	25 x 35
3900	SLPX392M063E3P3	0.102	0.077	3.09	3.86	30 x 30
4700	SLPX472M063A9P3	0.085	0.064	3.69	4.61	22 x 50
4700	SLPX472M063C7P3	0.085	0.064	3.59	4.49	25 x 40
4700	SLPX472M063E3P3	0.085	0.064	3.54	4.43	30 x 30
5600	SLPX562M063C4P3	0.071	0.053	4.01	5.01	25 x 45
5600	SLPX562M063E5P3	0.071	0.053	4.00	5.00	30 x 35
5600	SLPX562M063H3P3	0.071	0.053	3.75	4.69	35 x 30
6800	SLPX682M063C9P3	0.059	0.044	4.52	5.65	25 x 50
6800	SLPX682M063E7P3	0.059	0.044	4.55	5.69	30 x 40
6800	SLPX682M063H3P3	0.059	0.044	4.44	5.55	35 x 30
8200	SLPX822M063E4P3	0.049	0.037	5.12	6.40	30 x 45
8200	SLPX822M063H5P3	0.049	0.037	5.05	6.31	35 x 35
10000	SLPX103M063E9P3	0.040	0.030	5.78	7.23	30 x 50
10000	SLPX103M063H7P3	0.040	0.030	5.75	7.19	35 x 40
12000	SLPX123M063E9P3	0.033	0.025	6.20	7.75	30 x 50
12000	SLPX123M063H4P3	0.033	0.025	6.47	8.09	35 x 45
12000	SLPX123M063H9P3	0.033	0.025	6.76	8.45	35 x 50
80 Vdc (100 Vdc Surge)						
1200	SLPX122M080A1P3	0.276	0.207	1.77	2.21	22 x 25
1500	SLPX152M080A3P3	0.221	0.166	2.01	2.51	22 x 30
1800	SLPX182M080A3P3	0.184	0.138	2.11	2.64	22 x 30
1800	SLPX182M080C1P3	0.184	0.138	2.26	2.83	25 x 25
2200	SLPX222M080A7P3	0.151	0.113	2.53	3.16	22 x 40
2200	SLPX222M080C3P3	0.151	0.113	2.53	3.16	25 x 30
2200	SLPX222M080E1P3	0.151	0.113	2.56	3.20	30 x 25
2700	SLPX272M080A4P3	0.123	0.092	2.93	3.66	22 x 45
2700	SLPX272M080C5P3	0.123	0.092	2.93	3.66	25 x 35
2700	SLPX272M080E3P3	0.123	0.092	2.91	3.64	30 x 30
3300	SLPX332M080A9P3	0.101	0.076	3.23	4.04	22 x 50
3300	SLPX332M080C7P3	0.101	0.076	3.29	4.11	25 x 40
3300	SLPX332M080E3P3	0.101	0.076	3.25	4.06	30 x 30
3900	SLPX392M080C4P3	0.085	0.064	3.62	4.53	25 x 45
3900	SLPX392M080E5P3	0.085	0.064	3.70	4.63	30 x 35
4700	SLPX472M080C9P3	0.071	0.053	4.28	5.35	25 x 50
4700	SLPX472M080E7P3	0.071	0.053	4.23	5.29	30 x 40
4700	SLPX472M080H3P3	0.071	0.053	4.12	5.15	35 x 30
5600	SLPX562M080E4P3	0.059	0.044	4.70	5.88	30 x 45
5600	SLPX562M080H5P3	0.059	0.044	4.64	5.80	35 x 35
6800	SLPX682M080E9P3	0.049	0.037	5.27	6.59	30 x 50
6800	SLPX682M080H7P3	0.049	0.037	5.24	6.55	35 x 40

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
80 Vdc (100 Vdc Surge)						
8200	SLPX822M080H4P3	0.040	0.030	5.89	7.36	35 x 45
10000	SLPX103M080H9P3	0.033	0.025	6.63	8.29	35 x 50
100 Vdc (125 Vdc Surge)						
820	SLPX821M100A1P3	0.324	0.243	1.86	2.33	22 x 25
1000	SLPX102M100A3P3	0.265	0.199	2.02	2.53	22 x 30
1200	SLPX122M100A3P3	0.221	0.166	2.12	2.65	22 x 30
1200	SLPX122M100C1P3	0.221	0.166	2.11	2.64	25 x 25
1500	SLPX152M100A5P3	0.177	0.133	2.45	3.06	22 x 35
1500	SLPX152M100C3P3	0.177	0.133	2.47	3.09	25 x 30
1800	SLPX182M100A7P3	0.147	0.110	2.77	3.46	22 x 40
1800	SLPX182M100C5P3	0.147	0.110	2.81	3.51	25 x 35
1800	SLPX182M100E1P3	0.147	0.110	2.65	3.31	30 x 25
2200	SLPX222M100A4P3	0.121	0.091	3.15	3.94	22 x 45
2200	SLPX222M100C7P3	0.121	0.091	3.21	4.01	25 x 40
2200	SLPX222M100E3P3	0.121	0.091	3.17	3.96	30 x 30
2700	SLPX272M100C4P3	0.098	0.074	3.66	4.58	25 x 45
2700	SLPX272M100E5P3	0.098	0.074	3.65	4.56	30 x 35
2700	SLPX272M100H3P3	0.098	0.074	3.77	4.71	35 x 30
3300	SLPX332M100C9P3	0.080	0.060	4.15	5.19	25 x 50
3300	SLPX332M100E7P3	0.080	0.060	4.18	5.23	30 x 40
3300	SLPX332M100H5P3	0.080	0.060	4.07	5.09	35 x 35
3900	SLPX392M100E4P3	0.068	0.051	4.67	5.84	30 x 45
3900	SLPX392M100H5P3	0.068	0.051	4.61	5.76	35 x 35
4700	SLPX472M100H7P3	0.056	0.042	5.23	6.54	35 x 40
4700	SLPX472M100E9P3	0.056	0.042	5.26	6.58	30 x 50
5600	SLPX562M100H4P3	0.047	0.035	5.88	7.35	35 x 45
6800	SLPX682M100H9P3	0.039	0.029	6.01	7.51	35 x 50
160 Vdc (200 Vdc Surge)						
390	SLPX391M160A1P3	0.510	0.383	1.63	2.40	22 x 25
470	SLPX471M160A3P3	0.423	0.317	1.86	2.73	22 x 30
470	SLPX471M160C1P3	0.423	0.317	1.86	2.73	25 x 25
560	SLPX561M160A3P3	0.355	0.266	2.15	3.16	22 x 30
560	SLPX561M160C3P3	0.355	0.266	2.15	3.16	25 x 30
680	SLPX681M160A7P3	0.293	0.220	2.35	3.45	22 x 40
680	SLPX681M160C3P3	0.293	0.220	2.33	3.43	25 x 30
680	SLPX681M160E1P3	0.293	0.220	2.33	3.43	30 x 25
820	SLPX821M160A4P3	0.243	0.182	2.68	3.94	22 x 45
820	SLPX821M160C5P3	0.243	0.182	2.65	3.90	25 x 35
820	SLPX821M160E3P3	0.243	0.182	2.64	3.88	30 x 30
1000	SLPX102M160A9P3	0.199	0.149	3.02	4.44	22 x 50
1000	SLPX102M160C7P3	0.199	0.149	3.00	4.41	25 x 40
1000	SLPX102M160E3P3	0.199	0.149	2.96	4.35	30 x 30
1200	SLPX122M160C4P3	0.166	0.125	3.43	5.04	25 x 45
1200	SLPX122M160E5P3	0.166	0.125	3.41	5.01	30 x 35
1200	SLPX122M160H3P3	0.166	0.125	3.40	5.00	35 x 30

Type SLPX 85 °C Snap-In Aluminum Electrolytic

Best Value 85 °C Snap-In Type

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
160 Vdc (200 Vdc Surge)						
1500	SLPX152M160E7P3	0.133	0.100	3.96	5.82	30 x 40
1500	SLPX152M160H5P3	0.133	0.100	3.94	5.79	35 x 35
1800	SLPX182M160E4P3	0.111	0.083	4.31	6.34	30 x 45
1800	SLPX182M160H5P3	0.111	0.083	4.28	6.29	35 x 35
2200	SLPX222M160H7P3	0.090	0.068	4.96	7.29	35 x 40
2700	SLPX272M160H9P3	0.074	0.056	5.57	8.19	35 x 50
180 Vdc (225 Vdc Surge)						
330	SLPX331M180A1P3	0.603	0.452	1.49	2.19	22 x 25
390	SLPX391M180A1P3	0.510	0.383	1.84	2.70	22 x 25
470	SLPX471M180A3P3	0.423	0.317	1.91	2.81	22 x 30
470	SLPX471M180C1P3	0.423	0.317	2.08	3.06	25 x 25
560	SLPX561M180A5P3	0.355	0.266	2.25	3.31	22 x 35
560	SLPX561M180C1P3	0.355	0.266	2.25	3.31	25 x 25
680	SLPX681M180A5P3	0.293	0.220	2.48	3.65	22 x 35
680	SLPX681M180C3P3	0.293	0.220	2.50	3.68	25 x 30
680	SLPX681M180E1P3	0.293	0.220	2.46	3.62	30 x 25
820	SLPX821M180A7P3	0.243	0.182	2.86	4.20	22 x 40
820	SLPX821M180C5P3	0.243	0.182	2.75	4.04	25 x 35
820	SLPX821M180E1P3	0.243	0.182	2.69	3.95	30 x 25
1000	SLPX102M180C7P3	0.199	0.149	3.06	4.50	25 x 40
1000	SLPX102M180E3P3	0.199	0.149	3.10	4.56	30 x 30
1200	SLPX122M180C4P3	0.166	0.125	3.63	5.34	25 x 45
1200	SLPX122M180E5P3	0.166	0.125	3.55	5.22	30 x 35
1200	SLPX122M180H3P3	0.166	0.125	3.49	5.13	35 x 30
1500	SLPX152M180E7P3	0.133	0.100	4.10	6.03	30 x 40
1500	SLPX152M180H5P3	0.133	0.100	4.02	5.91	35 x 35
1800	SLPX182M180E4P3	0.111	0.083	4.55	6.69	30 x 45
1800	SLPX182M180H5P3	0.111	0.083	4.54	6.67	35 x 35
2200	SLPX222M180H7P3	0.090	0.068	4.83	6.04	35 x 40
2700	SLPX272M180H9P3	0.074	0.056	5.30	6.63	35 x 50
200 Vdc (250 Vdc Surge)						
270	SLPX271M200A1P3	0.737	0.553	1.37	2.01	22 x 25
330	SLPX331M200A3P3	0.603	0.452	1.63	2.40	22 x 30
330	SLPX331M200A1P3	0.603	0.452	1.51	2.22	22 x 25
390	SLPX391M200A3P3	0.510	0.383	1.73	2.54	22 x 30
390	SLPX391M200C1P3	0.510	0.383	1.71	2.51	25 x 25
470	SLPX471M200A3P3	0.423	0.317	1.97	2.90	22 x 30
470	SLPX471M200C3P3	0.423	0.317	1.95	2.87	25 x 30
560	SLPX561M200A7P3	0.355	0.266	2.18	3.20	22 x 40
560	SLPX561M200C3P3	0.355	0.266	2.15	3.16	25 x 30
560	SLPX561M200E1P3	0.355	0.266	2.15	3.16	30 x 25
680	SLPX681M200A4P3	0.293	0.220	2.48	3.65	22 x 45
680	SLPX681M200C5P3	0.293	0.220	2.48	3.65	25 x 35
680	SLPX681M200E3P3	0.293	0.220	2.48	3.65	30 x 30
820	SLPX821M200A9P3	0.243	0.182	2.81	4.13	22 x 50

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
200 Vdc (250 Vdc Surge)						
820	SLPX821M200C7P3	0.243	0.182	2.79	4.10	25 x 40
820	SLPX821M200E3P3	0.243	0.182	2.75	4.04	30 x 30
1000	SLPX102M200C4P3	0.199	0.149	3.28	4.82	25 x 45
1000	SLPX102M200E5P3	0.199	0.149	3.15	4.63	30 x 35
1000	SLPX102M200H3P3	0.199	0.149	3.25	4.78	35 x 30
1200	SLPX122M200C9P3	0.166	0.125	3.61	5.31	25 x 50
1200	SLPX122M200E7P3	0.166	0.125	3.61	5.31	30 x 40
1200	SLPX122M200E4P3	0.166	0.125	3.80	5.59	30 x 45
1200	SLPX122M200H5P3	0.166	0.125	3.57	5.25	35 x 35
1500	SLPX152M200E4P3	0.133	0.100	4.13	6.07	30 x 45
1500	SLPX152M200H5P3	0.133	0.100	3.85	5.66	35 x 35
1500	SLPX152M200H7P3	0.133	0.100	4.06	5.97	35 x 40
1500	SLPX152M200H4P3	0.133	0.100	4.26	6.26	35 x 45
1800	SLPX182M200H4P3	0.111	0.083	4.59	6.75	35 x 45
2200	SLPX222M200H9P3	0.090	0.068	5.25	7.72	35 x 50
220 Vdc (270 Vdc Surge)						
220	SLPX221M220A1P3	0.905	0.679	1.30	1.91	22 x 25
270	SLPX271M220A1P3	0.737	0.553	1.42	2.09	22 x 25
330	SLPX331M220A3P3	0.603	0.452	1.59	2.34	22 x 30
330	SLPX331M220C1P3	0.603	0.452	1.59	2.34	25 x 25
390	SLPX391M220A5P3	0.510	0.383	1.80	2.65	22 x 35
390	SLPX391M220C1P3	0.510	0.383	1.75	2.57	25 x 25
470	SLPX471M220A5P3	0.423	0.317	2.06	3.03	22 x 35
470	SLPX471M220C3P3	0.423	0.317	2.08	3.06	25 x 30
470	SLPX471M220E1P3	0.423	0.317	2.16	3.18	30 x 25
560	SLPX561M220A7P3	0.355	0.266	2.22	3.26	22 x 40
560	SLPX561M220C5P3	0.355	0.266	2.38	3.50	25 x 35
560	SLPX561M220E1P3	0.355	0.266	2.18	3.20	30 x 25
680	SLPX681M220A4P3	0.293	0.220	2.62	3.85	22 x 45
680	SLPX681M220C7P3	0.293	0.220	2.56	3.76	25 x 40
680	SLPX681M220E3P3	0.293	0.220	2.52	3.70	30 x 30
820	SLPX821M220C4P3	0.243	0.182	2.91	4.28	25 x 45
820	SLPX821M220E5P3	0.243	0.182	2.84	4.17	30 x 35
820	SLPX821M220H3P3	0.243	0.182	2.79	4.10	35 x 35
1000	SLPX102M220C9P3	0.199	0.149	3.53	5.19	25 x 50
1000	SLPX102M220E7P3	0.199	0.149	3.36	4.94	30 x 40
1000	SLPX102M220H3P3	0.199	0.149	3.29	4.84	35 x 30
1200	SLPX122M220E7P3	0.166	0.125	3.54	5.20	30 x 40
1200	SLPX122M220E4P3	0.166	0.125	3.72	5.47	30 x 45
1200	SLPX122M220H5P3	0.166	0.125	3.68	5.41	35 x 35
1500	SLPX152M220H7P3	0.133	0.100	4.10	5.13	35 x 40
1800	SLPX182M220H4P3	0.111	0.083	4.52	5.65	35 x 45
250 Vdc (300 Vdc Surge)						
220	SLPX221M250A1P3	0.905	0.679	1.24	1.82	22 x 25
270	SLPX271M250A3P3	0.737	0.553	1.50	2.21	22 x 30

Type SLPX 85 °C Snap-In Aluminum Electrolytic

Best Value 85 °C Snap-In Type

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
250 Vdc (300 Vdc Surge)						
330	SLPX331M250A3P3	0.603	0.452	1.66	2.44	22 x 30
330	SLPX331M250C1P3	0.603	0.452	1.61	2.37	25 x 25
390	SLPX391M250A5P3	0.510	0.383	1.88	2.76	22 x 35
390	SLPX391M250C3P3	0.510	0.383	1.88	2.76	25 x 30
470	SLPX471M250A7P3	0.423	0.317	2.15	3.16	22 x 40
470	SLPX471M250C5P3	0.423	0.317	2.15	3.16	25 x 35
470	SLPX471M250E1P3	0.423	0.317	2.04	3.00	30 x 25
560	SLPX561M250A4P3	0.355	0.266	2.48	3.65	22 x 45
560	SLPX561M250C5P3	0.355	0.266	2.35	3.45	25 x 35
560	SLPX561M250E3P3	0.355	0.266	2.35	3.45	30 x 30
680	SLPX681M250C7P3	0.293	0.220	2.67	3.92	25 x 40
680	SLPX681M250E5P3	0.293	0.220	2.71	3.98	30 x 35
820	SLPX821M250C9P3	0.243	0.182	3.01	4.42	25 x 50
820	SLPX821M250E5P3	0.243	0.182	2.98	4.38	30 x 35
820	SLPX821M250H3P3	0.243	0.182	2.96	4.35	35 x 30
1000	SLPX102M250E5P3	0.199	0.149	3.20	4.70	30 x 35
1000	SLPX102M250E4P3	0.199	0.149	3.56	5.23	30 x 45
1000	SLPX102M250E9P3	0.199	0.149	3.73	5.48	30 x 50
1000	SLPX102M250H5P3	0.199	0.149	3.48	5.12	35 x 35
1200	SLPX122M250E9P3	0.166	0.125	3.99	5.87	30 x 50
1200	SLPX122M250H7P3	0.166	0.125	3.84	5.64	35 x 40
1500	SLPX152M250H4P3	0.133	0.100	4.33	6.37	35 x 45
1800	SLPX182M250H9P3	0.111	0.083	4.54	6.67	35 x 50
315 Vdc (365 Vdc Surge)						
180	SLPX181M315A3P3	1.106	0.830	1.29	1.90	22 x 30
180	SLPX181M315C1P3	1.106	0.830	1.38	2.03	25 x 25
220	SLPX221M315A5P3	0.905	0.679	1.41	2.07	22 x 35
220	SLPX221M315C3P3	0.905	0.679	1.47	2.16	25 x 30
270	SLPX271M315A7P3	0.737	0.553	1.70	2.50	22 x 40
270	SLPX271M315C3P3	0.737	0.553	1.70	2.50	25 x 30
330	SLPX331M315A4P3	0.603	0.452	1.91	2.81	22 x 45
330	SLPX331M315C5P3	0.603	0.452	1.94	2.85	25 x 35
330	SLPX331M315E3P3	0.603	0.452	1.98	2.91	30 x 30
390	SLPX391M315A9P3	0.510	0.383	2.07	3.04	22 x 50
390	SLPX391M315C7P3	0.510	0.383	2.11	3.10	25 x 40
390	SLPX391M315E3P3	0.510	0.383	2.15	3.16	30 x 30
470	SLPX471M315C4P3	0.423	0.317	2.39	3.51	25 x 45
470	SLPX471M315E5P3	0.423	0.317	2.38	3.50	30 x 35
470	SLPX471M315H3P3	0.423	0.317	2.36	3.47	35 x 30
560	SLPX561M315E7P3	0.355	0.266	2.63	3.87	30 x 40
560	SLPX561M315H5P3	0.355	0.266	2.69	3.95	35 x 35
680	SLPX681M315E4P3	0.293	0.220	2.80	4.12	30 x 45
680	SLPX681M315H7P3	0.293	0.220	3.05	4.48	35 x 40
820	SLPX821M315E9P3	0.243	0.182	3.28	4.82	30 x 50
820	SLPX821M315H4P3	0.243	0.182	3.45	5.07	35 x 45

Cap (µF)	3000 h @ 85 °C Catalog Part Number	Max 25 °C ESR (Ω) 120 Hz	20kHz	Max 85 °C Ripple (A_{rms}) 120 Hz	20kHz	Nominal Size (DxL) (mm)
315 Vdc (365 Vdc Surge)						
1000	SLPX102M315H9P3	0.199	0.149	3.57	4.46	35 x 50
350 Vdc (400 Vdc Surge)						
120	SLPX121M350A1P3	1.659	1.244	1.04	1.53	22 x 25
150	SLPX151M350A3P3	1.327	0.995	1.20	1.76	22 x 30
150	SLPX151M350C1P3	1.327	0.995	1.22	1.79	25 x 25
180	SLPX181M350A3P3	1.106	0.830	1.34	1.97	22 x 30
180	SLPX181M350C1P3	1.106	0.830	1.37	2.01	25 x 25
220	SLPX221M350A5P3	0.905	0.679	1.47	2.16	22 x 35
220	SLPX221M350C3P3	0.905	0.679	1.53	2.25	25 x 30
220	SLPX221M350E1P3	0.905	0.679	1.54	2.26	30 x 25
270	SLPX271M350A7P3	0.737	0.553	1.70	2.50	22 x 40
270	SLPX271M350C5P3	0.737	0.553	1.73	2.54	25 x 35
270	SLPX271M350E1P3	0.737	0.553	1.80	2.65	30 x 25
330	SLPX331M350A4P3	0.603	0.452	1.87	2.75	22 x 45
330	SLPX331M350C7P3	0.603	0.452	1.97	2.90	25 x 40
330	SLPX331M350E3P3	0.603	0.452	2.03	2.98	30 x 30
390	SLPX391M350C7P3	0.510	0.383	2.14	3.15	25 x 40
390	SLPX391M350E5P3	0.510	0.383	2.23	3.28	30 x 35
390	SLPX391M350H3P3	0.510	0.383	2.30	3.38	35 x 30
470	SLPX471M350E5P3	0.423	0.317	2.53	3.72	30 x 35
470	SLPX471M350H3P3	0.423	0.317	2.55	3.75	35 x 30
560	SLPX561M350E7P3	0.355	0.266	2.73	4.01	30 x 40
560	SLPX561M350H5P3	0.355	0.266	2.75	4.04	35 x 35
680	SLPX681M350H7P3	0.293	0.220	3.15	4.63	35 x 40
820	SLPX821M350H4P3	0.243	0.182	3.47	5.10	35 x 45
1000	SLPX102M350H9P3	0.199	0.149	3.60	5.29	35 x 50
385 Vdc (435 Vdc Surge)						
82	SLPX820M385A1P3	2.427	1.820	0.76	1.12	22 x 25
100	SLPX101M385A3P3	1.990	1.493	0.89	1.31	22 x 30
120	SLPX121M385A3P3	1.659	1.244	0.98	1.44	22 x 30
120	SLPX121M385C1P3	1.659	1.244	1.02	1.50	25 x 25
150	SLPX151M385A5P3	1.327	0.995	1.12	1.65	22 x 35
150	SLPX151M385C3P3	1.327	0.995	1.14	1.68	25 x 30
180	SLPX181M385A7P3	1.106	0.830	1.27	1.87	22 x 40
180	SLPX181M385C5P3	1.106	0.830	1.30	1.91	25 x 35
180	SLPX181M385E1P3	1.106	0.830	1.37	2.01	30 x 25
220	SLPX221M385A4P3	0.905	0.679	1.42	2.09	22 x 45
220	SLPX221M385C5P3	0.905	0.679	1.48	2.18	25 x 35
220	SLPX221M385E3P3	0.905	0.679	1.49	2.19	30 x 30
270	SLPX271M385C7P3	0.737	0.553	1.61	2.37	25 x 40
270	SLPX271M385E5P3	0.737	0.553	1.64	2.41	30 x 35
330	SLPX331M385C9P3	0.603	0.452	1.80	2.65	25 x 50
330	SLPX331M385E7P3	0.603	0.452	1.85	2.72	30 x 40
330	SLPX331M385H3P3	0.603	0.452	1.87	2.75	35 x 30
390	SLPX391M385E7P3	0.510	0.383	2.05	3.01	30 x 40

Type SLPX 85 °C Snap-In Aluminum Electrolytic

Best Value 85 °C Snap-In Type

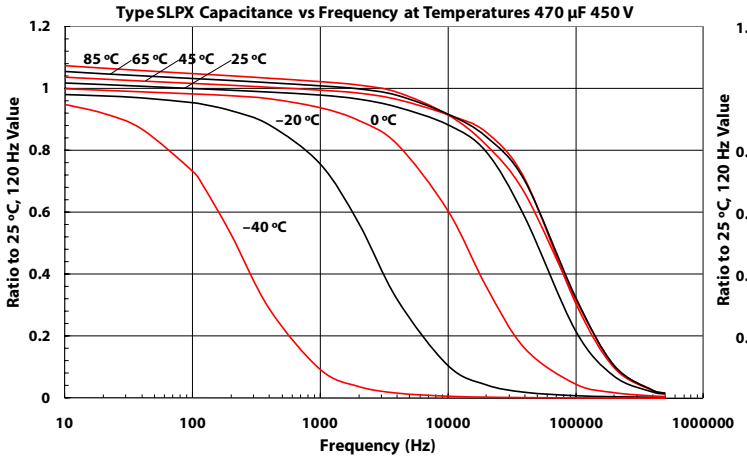
Cap µF	Catalog Part Number 3000 h @ 85 °C	Max ESR Ω @ 25°C 120 Hz	Max ESR Ω @ 25°C 20kHz	Max Ripple (A_{rms}) max @ 85°C 120 Hz	Max Ripple (A_{rms}) max @ 85°C 20kHz	Nominal Size (DxL) (mm)
385 Vdc (435 Vdc Surge)						
390	SLPX391M385H5P3	0.510	0.383	2.07	3.04	35 x 35
470	SLPX471M385E9P3	0.423	0.317	2.26	3.32	30 x 50
470	SLPX471M385H7P3	0.423	0.317	2.26	3.32	35 x 40
560	SLPX561M385H4P3	0.355	0.266	2.59	3.81	35 x 45
680	SLPX681M385H9P3	0.293	0.220	2.80	4.12	35 x 50
400 Vdc (450 Vdc Surge)						
82	SLPX820M400A1P3	2.427	1.820	0.84	1.23	22 x 25
100	SLPX101M400A3P3	1.990	1.493	0.99	1.46	22 x 30
120	SLPX121M400C1P3	1.659	1.244	1.13	1.66	25 x 25
120	SLPX121M400A3P3	1.659	1.244	1.09	1.60	22 x 30
150	SLPX151M400A5P3	1.327	0.995	1.24	1.82	22 x 35
150	SLPX151M400C3P3	1.327	0.995	1.27	1.87	25 x 30
180	SLPX181M400A7P3	1.106	0.830	1.41	2.07	22 x 40
180	SLPX181M400C3P3	1.106	0.830	1.44	2.12	25 x 30
180	SLPX181M400E1P3	1.106	0.830	1.52	2.23	30 x 25
220	SLPX221M400A4P3	0.905	0.679	1.58	2.32	22 x 45
220	SLPX221M400C3P3	0.900	0.675	1.54	2.26	25 x 30
220	SLPX221M400C5P3	0.905	0.679	1.64	2.41	25 x 35
220	SLPX221M400E3P3	0.905	0.679	1.66	2.44	30 x 30
270	SLPX271M400C7P3	0.737	0.553	1.79	2.63	25 x 40
270	SLPX271M400E3P3	0.737	0.553	1.82	2.68	30 x 30
330	SLPX331M400E3P3	0.603	0.452	2.05	3.01	30 x 30
330	SLPX331M400H3P3	0.603	0.452	2.05	3.01	35 x 30
330	SLPX331M400C4P3	0.603	0.452	2.00	2.94	25 x 45
390	SLPX391M400E7P3	0.510	0.383	2.26	3.32	30 x 40
390	SLPX391M400H5P3	0.510	0.383	2.28	3.35	35 x 35
470	SLPX471M400E4P3	0.423	0.317	2.51	3.69	30 x 45
470	SLPX471M400H7P3	0.423	0.317	2.54	3.73	35 x 40
560	SLPX561M400H9P3	0.355	0.266	3.13	4.60	35 x 50
560	SLPX561M400H7P3	0.355	0.266	2.85	4.19	35 x 40
680	SLPX681M400H9P3	0.293	0.220	3.10	3.88	35 x 50
820	SLPX821M400H9P3	0.240	0.180	3.40	4.25	35 x 50
420 Vdc (470 Vdc Surge)						
82	SLPX820M420A1P3	2.427	1.820	0.85	1.25	22 x 25
100	SLPX101M420A3P3	1.990	1.493	0.97	1.43	22 x 30
100	SLPX101M420C1P3	1.990	1.493	0.98	1.44	25 x 25
120	SLPX121M420A3P3	1.659	1.244	1.07	1.57	22 x 30
120	SLPX121M420C1P3	1.659	1.244	1.08	1.59	25 x 25
150	SLPX151M420A5P3	1.327	0.995	1.21	1.78	22 x 35
150	SLPX151M420C3P3	1.327	0.995	1.26	1.85	25 x 30
150	SLPX151M420E1P3	1.327	0.995	1.30	1.91	30 x 25
180	SLPX181M420A7P3	1.106	0.830	1.33	1.96	22 x 40

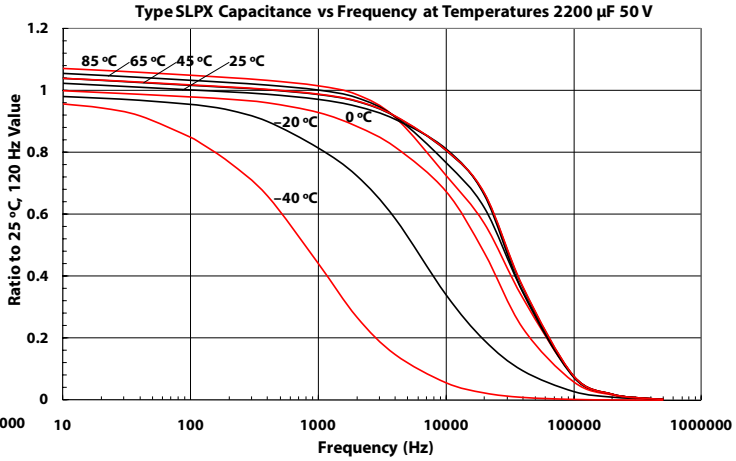
Cap µF	Catalog Part Number 3000 h @ 85 °C	Max ESR Ω @ 25°C 120 Hz	Max ESR Ω @ 25°C 20kHz	Max Ripple (A_{rms}) max @ 85°C 120 Hz	Max Ripple (A_{rms}) max @ 85°C 20kHz	Nominal Size (DxL) (mm)
420 Vdc (470 Vdc Surge)						
180	SLPX181M420C5P3	1.106	0.830	1.42	2.09	25 x 35
180	SLPX181M420E1P3	1.106	0.830	1.48	2.18	30 x 25
220	SLPX221M420A4P3	0.905	0.679	1.55	2.28	22 x 45
220	SLPX221M420C5P3	0.905	0.679	1.58	2.32	25 x 35
220	SLPX221M420E3P3	0.905	0.679	1.65	2.43	30 x 30
270	SLPX271M420C7P3	0.737	0.553	1.74	2.56	25 x 40
270	SLPX271M420E5P3	0.737	0.553	1.90	2.79	30 x 35
270	SLPX271M420H3P3	0.737	0.553	1.94	2.85	35 x 30
330	SLPX331M420C9P3	0.603	0.452	2.20	3.23	25 x 50
330	SLPX331M420E5P3	0.603	0.452	1.98	2.91	30 x 35
330	SLPX331M420H5P3	0.603	0.452	2.17	3.19	35 x 35
390	SLPX391M420E7P3	0.510	0.383	2.22	3.26	30 x 40
390	SLPX391M420H5P3	0.510	0.383	2.27	3.34	35 x 35
470	SLPX471M420E4P3	0.423	0.317	2.50	3.68	30 x 45
470	SLPX471M420H7P3	0.423	0.317	2.61	3.84	35 x 40
560	SLPX561M420H4P3	0.355	0.266	2.95	4.34	35 x 45
450 Vdc (500 Vdc Surge)						
68	SLPX680M450A1P3	3.903	2.927	0.71	1.04	22 x 25
82	SLPX820M450A1P3	3.236	2.427	0.86	1.26	22 x 25
100	SLPX101M450C1P3	2.654	1.991	0.97	1.43	25 x 25
120	SLPX121M450A3P3	2.212	1.659	1.00	1.47	22 x 30
120	SLPX121M450C3P3	2.212	1.659	1.09	1.60	25 x 30
120	SLPX121M450E1P3	2.212	1.659	1.12	1.65	30 x 25
150	SLPX151M450A7P3	1.769	1.327	1.18	1.73	22 x 40
150	SLPX151M450C3P3	1.769	1.327	1.25	1.84	25 x 30
150	SLPX151M450E1P3	1.769	1.327	1.29	1.90	30 x 25
180	SLPX181M450E1P3	1.470	1.103	1.35	1.98	30 x 25
180	SLPX181M450A4P3	1.474	1.106	1.32	1.94	22 x 45
180	SLPX181M450C5P3	1.474	1.106	1.40	2.06	25 x 35
220	SLPX221M450C7P3	1.206	0.905	1.59	2.34	25 x 40
220	SLPX221M450E3P3	1.206	0.905	1.64	2.41	30 x 30
220	SLPX221M450H3P3	1.206	0.905	1.66	2.44	35 x 30
270	SLPX271M450C4P3	0.983	0.737	1.73	2.54	25 x 45
270	SLPX271M450E3P3	0.983	0.737	1.78	2.62	30 x 30
270	SLPX271M450E5P3	0.983	0.737	1.89	2.78	30 x 35
270	SLPX271M450H3P3	0.983	0.737	1.90	2.79	35 x 30
330	SLPX331M450H5P3	0.804	0.603	2.15	3.16	35 x 35
330	SLPX331M450E7P3	0.804	0.603	2.12	3.12	30 x 40
390	SLPX391M450E4P3	0.680	0.510	2.35	3.45	30 x 45
390	SLPX391M450H7P3	0.680	0.510	2.38	3.50	35 x 40
470	SLPX471M450H9P3	0.565	0.424	2.80	4.12	35 x 50
470	SLPX471M450H4P3	0.565	0.424	2.68	3.94	35 x 45

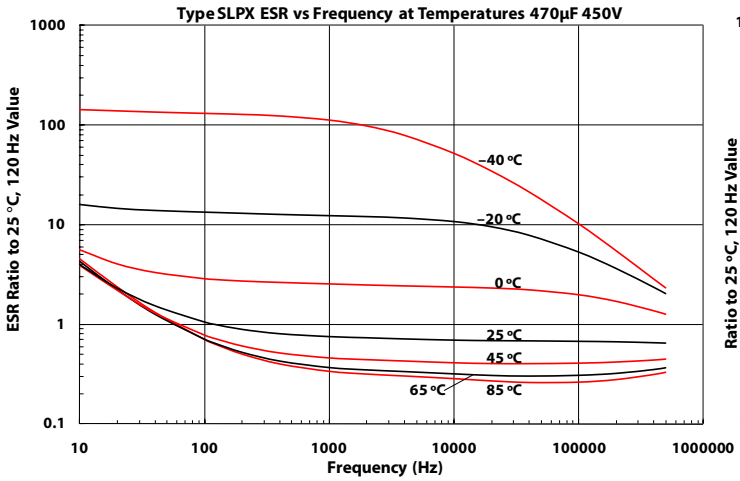
Type SLPX 85 °C Snap-In Aluminum Electrolytic

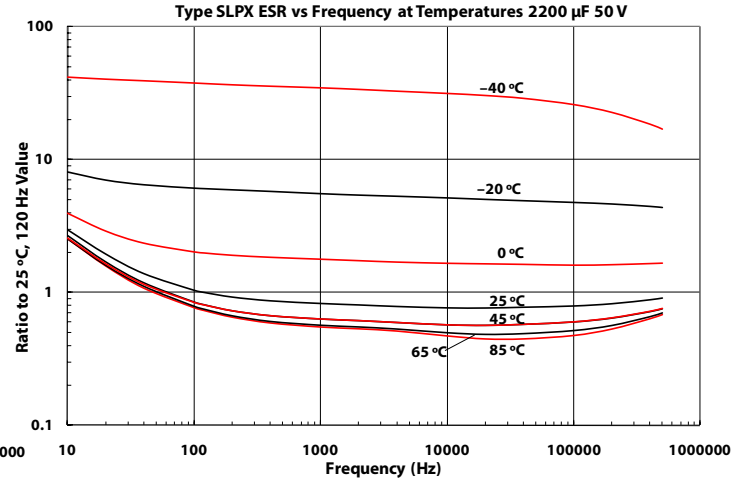
Best Value 85 °C Snap-In Type

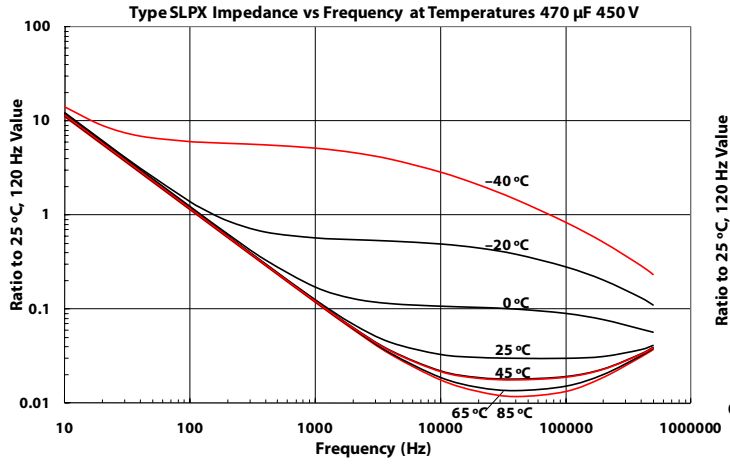
Typical Performance Curves

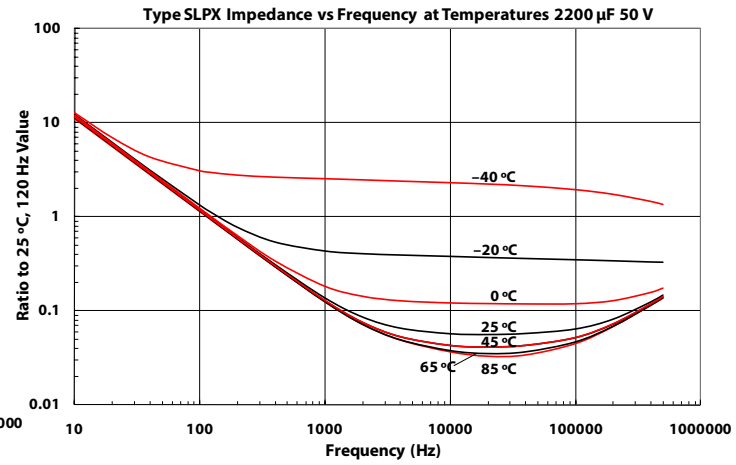












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Type HZA -55 ºC to +105 ºC

SMT Hybrid Polymer-Aluminum Electrolytic Capacitors

For filtering, Bypassing and Power Supply Decoupling with Long Life Requirements

Rated for 105°C, type HZA combines the advantages of aluminum electrolytic and aluminum polymer technology. These hybrid capacitors have the ultra-low ESR characteristics of conductive aluminum polymer capacitors packaged in a V-chip, SMT case with high capacitance and voltage ratings

Highlights

- +105 °C, Up to 10,000 Hours Load Life
- Low Leakage Current
- Very Low ESR and High Ripple Current
- 260 °C reflow soldering
- AEC-Q200 Compliant

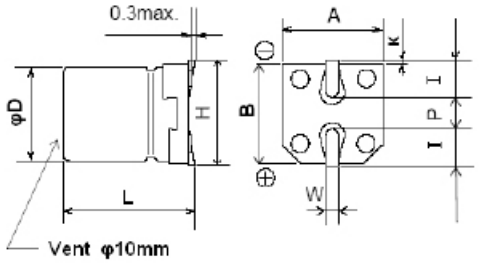
Specifications

Capacitance Range	10 to 330 µF
Capacitance Tolerance	±20% @ 120 Hz/+20 °C
Rated Voltage	25, 35, 50, 63, 80 Vdc
Leakage Current (at 20°C)	I = .01CV or 3 µA max., whichever is greater after 2 minutes I = leakage current in µAmps C = rated capacitance in µF V = rated DC Working voltage in Volts
Low Temperature Characteristics (at 120 Hz)	Z(-25 ºC)/Z(+20 ºC): 2 Z(-55 ºC)/Z(+20 ºC): 2.5
Ripple Current Frequency Multiplier	

Frequency	120 Hz	1000 Hz	10,000 Hz	100 KHz
Correction Factor	0.1	0.3	0.6	1

RoHS Compliant

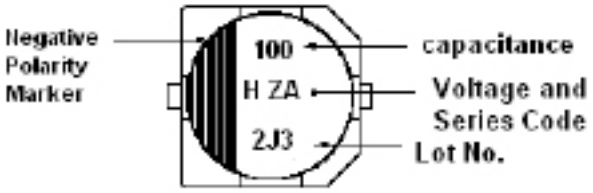
Outline Drawing



mm

Case Code	D (± 0.5)	L (± 0.3)	A (± 0.2)	B (± 0.2)	H (max.)	I (ref.)	W	P (ref.)	K
C	5.0	5.8	5.3	5.3	6.5	2.2	0.65 ± 0.1	1.5	$0.35^{+0.15/-0.20}$
D	6.3	5.8	6.6	6.6	7.8	2.6	0.65 ± 0.1	1.8	$0.35^{+0.15/-0.20}$
X	6.3	7.7	6.6	6.6	7.8	2.6	0.65 ± 0.1	1.8	$0.35^{+0.15/-0.20}$
F	8.0	10.2	8.3	8.3	10.0	3.4	0.90 ± 0.2	3.1	0.70 ± 0.2
G	10.0	10.2	10.3	10.3	12.0	3.5	0.90 ± 0.2	4.6	0.70 ± 0.2

Capacitor Markings



Lot, Number: Year, Line, Month

Voltage Code	Voltage Vdc
E	25
V	35
H	50
J	63
K	80

Type HZA -55 ºC to +105 ºC

SMT Hybrid Polymer-Aluminum Electrolytic Capacitors

Part Numbering System

HZA	227	M	25	F	24T	–F
Type	Capacitance	Capacitance Tolerance	Voltage Code	Case Code	Packaging Code	RoHS Compliant Indicator
	227 = 220 µF	M = ±20%	25 = 25 Vdc	See Ratings Table	24 = Tape carrier width (mm) T = Tape & Reel	

Ratings

Capacitance (µF)	Voltage Rating (Vdc)	CDE Part Number	MAX DCL (µA)	MAX DF @ 120 Hz/20°C	MAX E.S.R. @ 100kHz/+20°C (ohms)	MAX Ripple Current @ 100kHz/+105°C (A rms)	D (mm)	L (mm)	Case Code	QTY/reel
25 Vdc (32 Vdc Surge)										
33	25	HZA336M025C12T-F	8.2	0.14	0.080	0.9	5.0	5.8	C	1000
56	25	HZA566M025D16T-F	14.0	0.14	0.050	1.3	6.3	5.8	D	1000
100	25	HZA107M025X16T-F	25.0	0.14	0.030	2.0	6.3	7.7	X	900
220	25	HZA227M025F24T-F	55.0	0.14	0.027	2.3	8.0	10.2	F	500
330	25	HZA337M025G24T-F	82.5	0.14	0.020	2.5	10.0	10.2	G	500
35 Vdc (44 Vdc Surge)										
22	35	HZA226M035C12T-F	7.7	0.12	0.100	0.9	5.0	5.8	C	1000
27	35	HZA276M035D16T-F	9.4	0.12	0.060	1.3	6.3	5.8	D	1000
47	35	HZA476M035D16T-F	16.4	0.12	0.060	1.3	6.3	5.8	D	1000
68	35	HZA686M035X16T-F	23.8	0.12	0.035	2.0	6.3	7.7	X	900
150	35	HZA157M035F24T-F	52.5	0.12	0.027	2.3	8.0	10.2	F	500
270	35	HZA277M035G24T-F	94.5	0.12	0.020	2.5	10.0	10.2	G	500
50 Vdc (63 Vdc Surge)										
10	50	HZA106M050C12T-F	5.0	0.10	0.120	0.75	5.0	5.8	C	1000
22	50	HZA226M050D16T-F	11.0	0.10	0.080	1.1	6.3	5.8	D	1000
33	50	HZA336M050X16T-F	16.5	0.10	0.040	1.6	6.3	7.7	X	900
68	50	HZA686M050F24T-F	34.0	0.10	0.030	1.8	8.0	10.2	F	500
100	50	HZA107M050G24T-F	50.0	0.10	0.028	2.0	10.0	10.2	G	500
63 Vdc (79 Vdc Surge)										
10	63	HZA106M063D16T-F	6.3	0.08	0.120	1.0	6.3	5.8	D	1000
22	63	HZA226M063X16T-F	13.8	0.08	0.080	1.5	6.3	7.7	X	900
33	63	HZA336M063F24T-F	20.7	0.08	0.040	1.7	8.0	10.2	F	500
56	63	HZA566M063G24T-F	35.2	0.08	0.030	1.8	10.0	10.2	G	500
80 Vdc (100 Vdc Surge)										
22	80	HZA226M080F24T-F	17.6	0.08	0.045	1.55	8.0	10.2	F	500
33	80	HZA336M080G24T-F	26.4	0.08	0.036	1.70	10.0	10.2	G	500

Type HZA -55 ºC to +105 ºC

SMT Hybrid Polymer-Aluminum Electrolytic Capacitors

Load Life Test

Test	Apply the maximum rated voltage for 10,000 hrs at +105 °C with full rated ripple current. After the test measure the capacitance, DF, DCL and ESR at +20 °C. Also measure the ESR at -40 °C and 100kHz.
ΔC at 120Hz	Capacitance will be within ±30% of the initial measured value
DF at 120 Hz	DF will be ≤ 200% of the initial specified value
DCL after 2 minute charge	Leakage current will be ≤ the initial specified value
ESR at 100kHz/+20 °C	ESR will be ≤ 200% of the initial specified value
Max. ESR at 100kHz/-40 °C after Load Life test	Case Code C : 2.0 Ω; Case Code D : 1.4 Ω; Case Code X : 0.8 Ω; Case Code F : 0.4 Ω; Case Code G : 0.3 Ω

Shelf Life Test

Test	Subject the capacitor to 1000 hrs at +105 °C without voltage. After the test, return the capacitor to room temperature for two hours and then apply rated voltage for 30 minutes. The after test measurements for capacitance, DF, DCL and ESR at +20 °C will meet the following.
ΔC at 120 Hz	Capacitance will be within ±30% of the initial measured value
DF at 120 Hz	DF will be ≤ 200% of the initial specified value
DCL after 2 minute charge	Leakage current will be ≤ the initial specified value
ESR at 100Khz/+20 °C	ESR will be ≤ 200% of the initial specified value

Moisture Resistance Test

Test	Subject the capacitor to 2000 hrs at +85 °C/85%RH with rated voltage. After the test, return the capacitor to room temperature and humidity for two hours. The after test measurements for capacitance, DF, DCL and ESR at +20 °C will meet the following.
ΔC at 120 Hz	Capacitance will be within ±30% of the initial measured value
DF at 120 Hz	DF will be ≤ 200% of the initial specified value
DCL after 2 minute charge	Leakage current will be ≤ the initial specified value
ESR at 100Khz/+20 °C	ESR will be ≤ 200% of the initial specified value

Temperature Cycle Test

Test	Subject the capacitor to 1000 cycles of temperature change from -55 °C to +105 °C using the following sequence and durations.

Step	Temperature	Time at Temperature
1	-55 ºC	30 minutes
2	+20 ºC	3 minutes max
3	+105 ºC	30 minutes
4	+20 ºC	3 minutes max

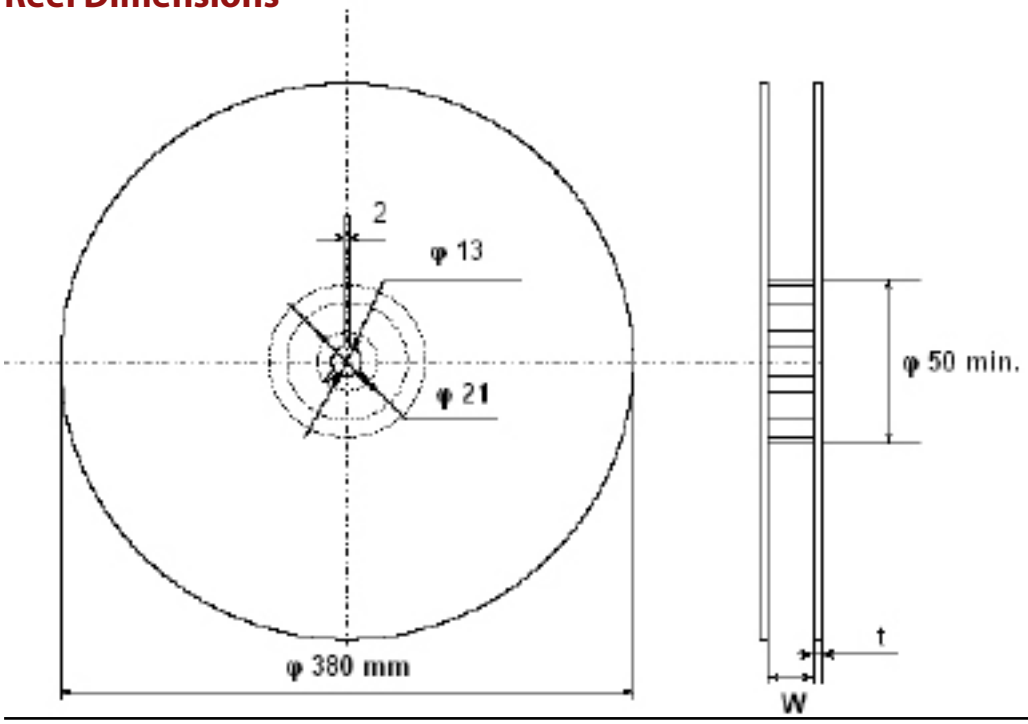
After the test, return the capacitor to +20°C for one to two hours before measurement. The after test measurements for capacitance, DF, and DCL at +20 °C will meet the following;

ΔC at 120 Hz	Capacitance will be within ±20% of the initial measured value
DF at 120 Hz	DF will be ≤ 200% of the initial specified value
DCL after 2 minute charge	Leakage current will be ≤ the initial specified value
Appearance	No significant change in appearance

Type HZA -55 ºC to +105 ºC

SMT Hybrid Polymer-Aluminum Electrolytic Capacitors

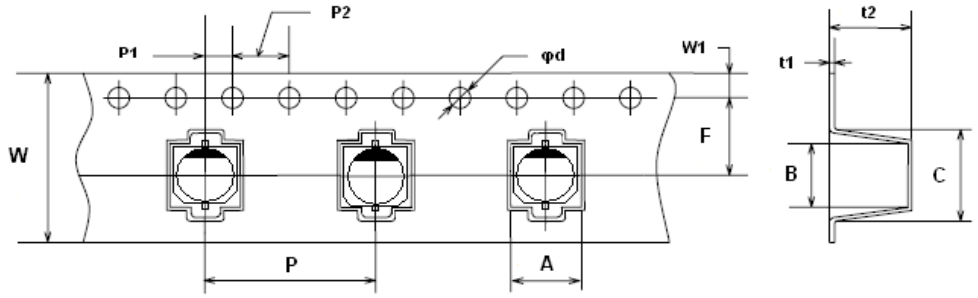
Reel Dimensions



mm

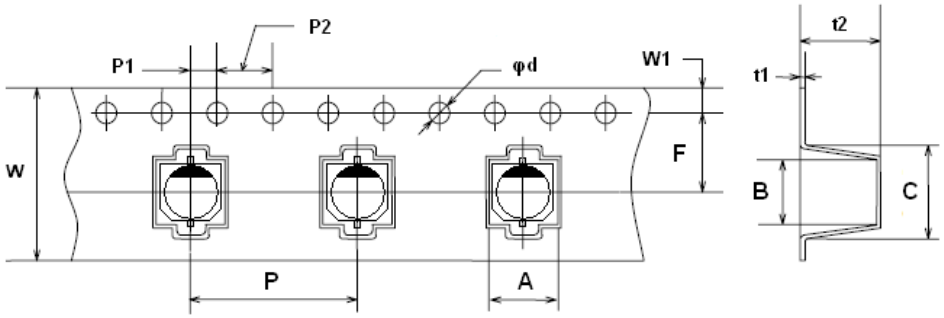
Case Dia.	5	6.3	8	10
W	14	18	26	26
t	3	3	3	3

Tape Dimensions



mm

Case Size (mm)	Case Code	W ± 0.3	A ± 0.2	B +0.3/-0.2	C ± 0.5	F ± 0.1	P ± 0.1	t1	t2 ± 0.2	φd +0.1/-0	P1 ± 0.1	P2 ± 0.1	W1 ± 0.1
5 x 5.8	C	12	5.7	5.7	8.0	5.5	12	0.4	6.4	1.5	2	4	1.75



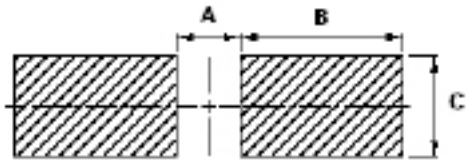
mm

Case Size (mm)	Case Code	W ± 0.3	A ± 0.2	B +0.3/-0.2	C ± 0.5	F ± 0.1	P ± 0.1	t1	t2 ± 0.2	φd +0.1/-0	P1 ± 0.1	P2 ± 0.1	W1 ± 0.1
6.3 x 5.8	D	16	7	7	9.0	7.5	12	0.4	6.4	1.5	2	4	1.75
6.3 x 7.7	X								8.4				
8 x 10.2	F	24	8.7	8.7	12.5	11.5	16	0.4	11				
10 x 10.2	G		10.7	10.7	14.5								

Type HZA -55 ºC to +105 ºC

SMT Hybrid Polymer-Aluminum Electrolytic Capacitors

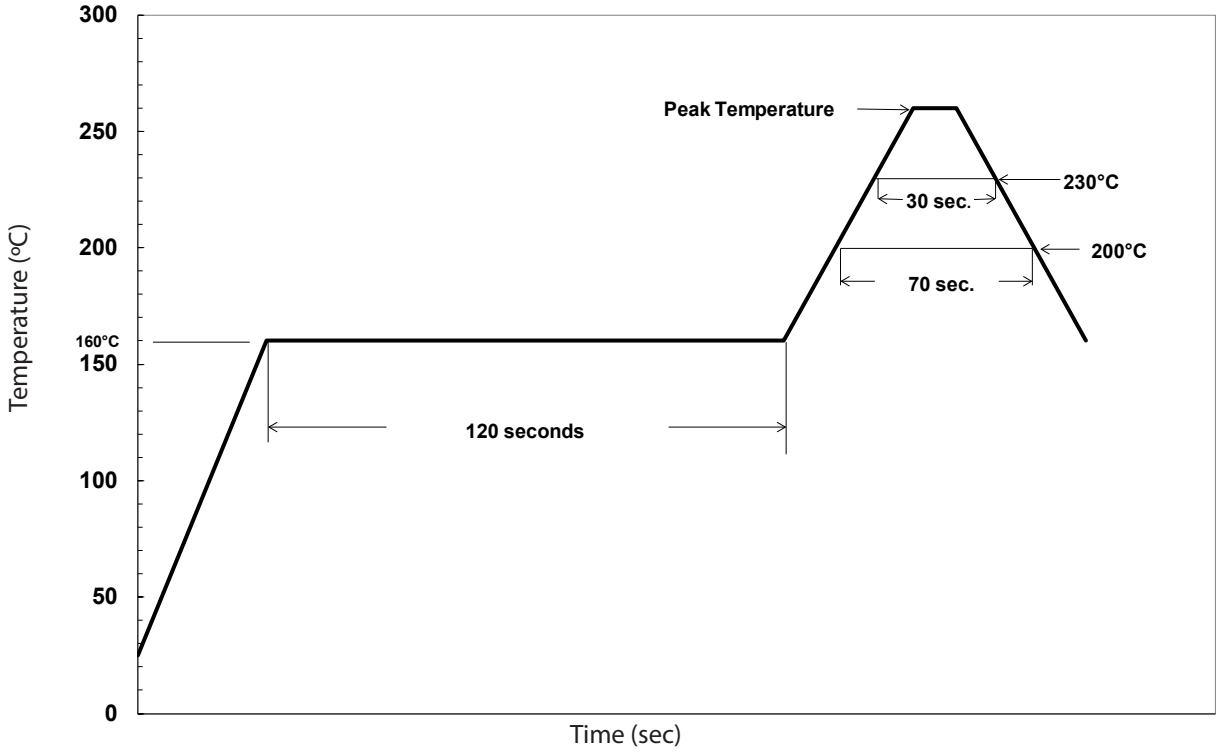
Recommended Land Dimensions



mm

Case Code	D (mm)	A	B	C
C	5	1.5	2.8	1.6
D	6.3	1.8	3.2	1.6
X	6.3	1.8	3.2	1.6
F	8	3.1	4.0	2.0
G	10	4.6	4.1	2.0

Recommended Reflow Soldering



Case Code	Case Dia. (mm)	Peak Temperature	Time at or above 250 °C	Time at or above 230 °C	Time at or above 217 °C	Time at or above 200 °C	Number of Reflow Processes
C	5	260°C	5 seconds	30 seconds	40 seconds	70 seconds	2
D	6.3						
X	6.3						
F	8						1
G	10						

Notes:

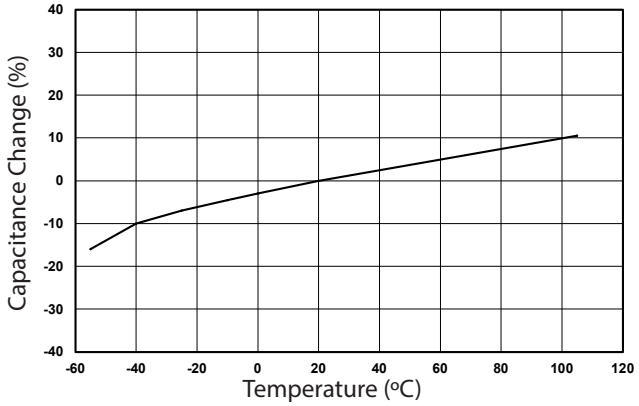
1. For 5mm and 6.3 mm case dia., if the peak temperature does not exceed 255 °C the time at or above 250 °C can increase to 10 seconds.
2. The capacitors in the 8m and 10 mm case dia. can withstand 2 reflow processes, if the peak temperature does not exceed 245 °C and the time at or above 240 °C does not exceed 10 seconds.
3. The 2nd reflow process should be performed after the capacitors have returned to room temperature.
4. Temperature should be measured with a thermal couple placed on the top surface of the capacitor.
5. After reflow soldering, the leakage current, D.F., and e.s.r., will meet the initial specifications, and the capacitance will be within ±10% of the initial measured value when measured at room conditions.

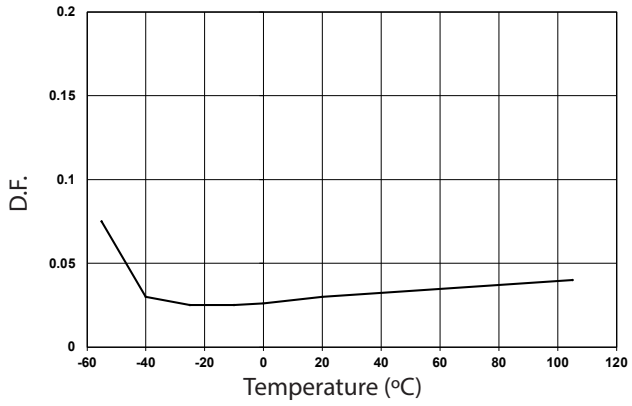
Type HZA -55 ºC to +105 ºC

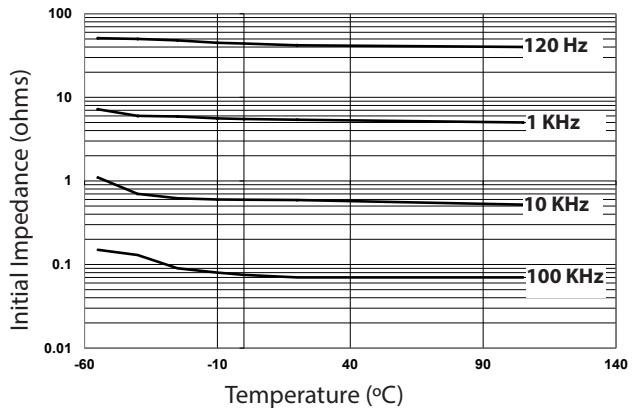
SMT Hybrid Polymer-Aluminum Electrolytic Capacitors

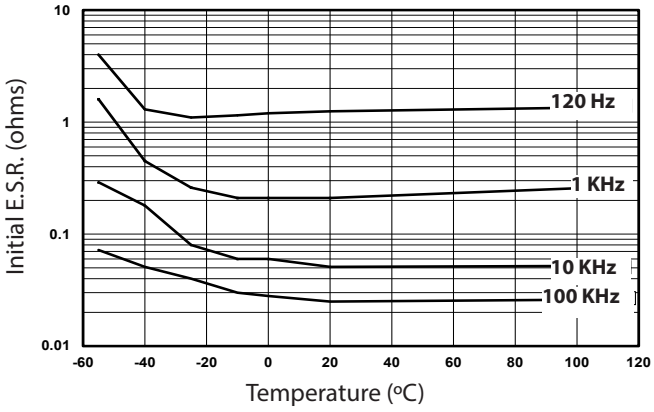
Capacitor Temperature Characteristics

33 µF/25V



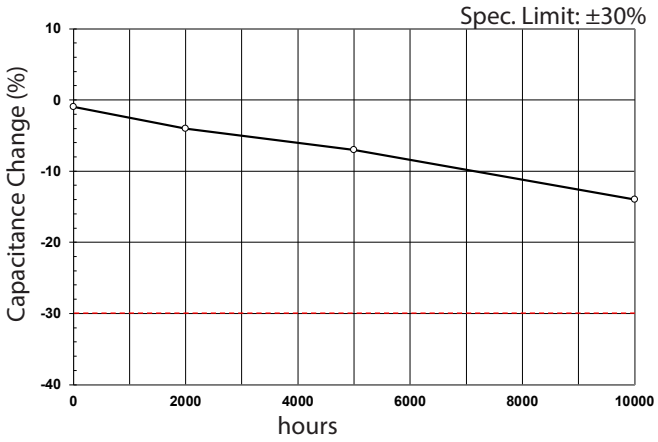


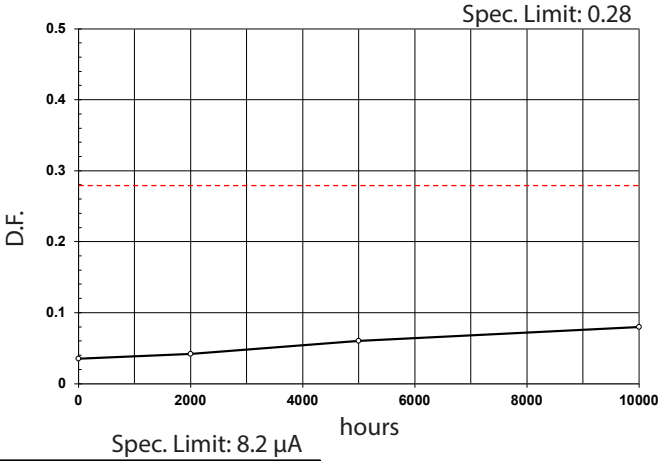


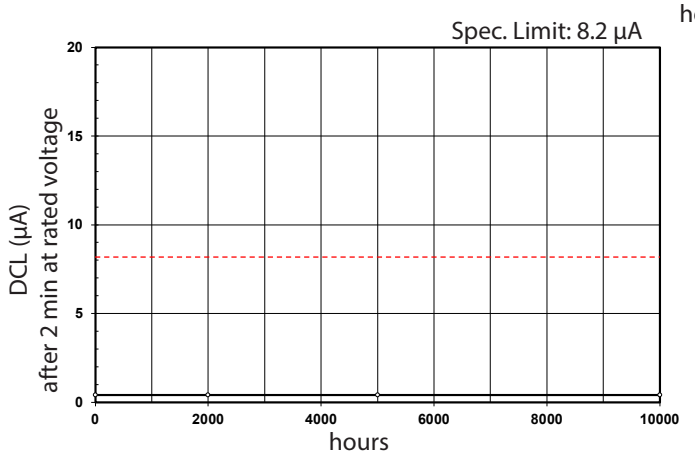


Life Test Results

33 µF/25V at +105 ºC with rated voltage







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