

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(-25°C)/Z(+20°C)	7	4	3	2	2	2	2	2	2
	Ratio	Z(-40°C)/Z(+20°C)	15	8	5	4	3	3	3	3

Ripple Current 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

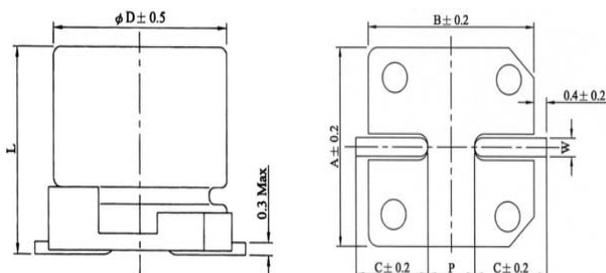


Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

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	Voltage	Case	Packaging	RoHS
	104 = 0.1 μ F	Tolerance	04 = 4 Vdc 06 = 6.3 Vdc	Code	Information	Compliant
	105 = 1.0 μ F	M = \pm 20%	10 = 10 Vdc 16 = 16 Vdc	B = B	12 = Carrier Tape	
	106 = 10.0 μ F		25 = 25 Vdc 35 = 35 Vdc		Width (mm)	
	107 = 100.0 μ F		50 = 50 Vdc 63 = 63 Vdc		T = Tape & Reel	
	108 = 1000.0 μ F		2A = 100 Vdc			

Ratings

Cap (μ F)	Catalog Part Number	Max. DCL 2 min. (μ A)	Max. DF @120Hz/20°C	Max. E.S.R. @120Hz/20°C (Ω)	Max. Ripple Current @120Hz/85°C (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 (μ F)	Catalog Part Number	Max. DCL 2 min. (μ A)	Max. DF @120Hz/20°C	Max. E.S.R. @120Hz/20°C (Ω)	Max.	Case Code	Size D x L (mm)	Qty. Per Reel (Each)
					Ripple Current @120Hz/85°C (mA)			
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

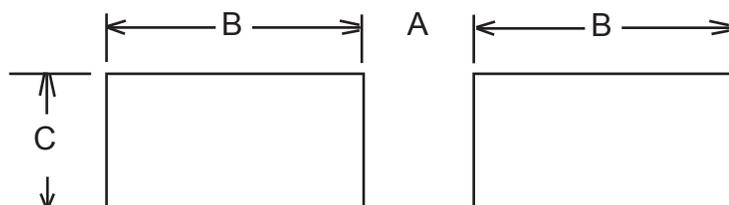
Type AVE -40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

Cap (µF)	Catalog Part Number	Max. DCL 2 min. (µA)	Max. DF @120Hz/20°C	Max. E.S.R. @120Hz/20°C (Ω)	Max.		Case Code	Size D x L (mm)	Qty. Per Reel (Each)
					Ripple Current @120Hz/85°C (mA)				
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

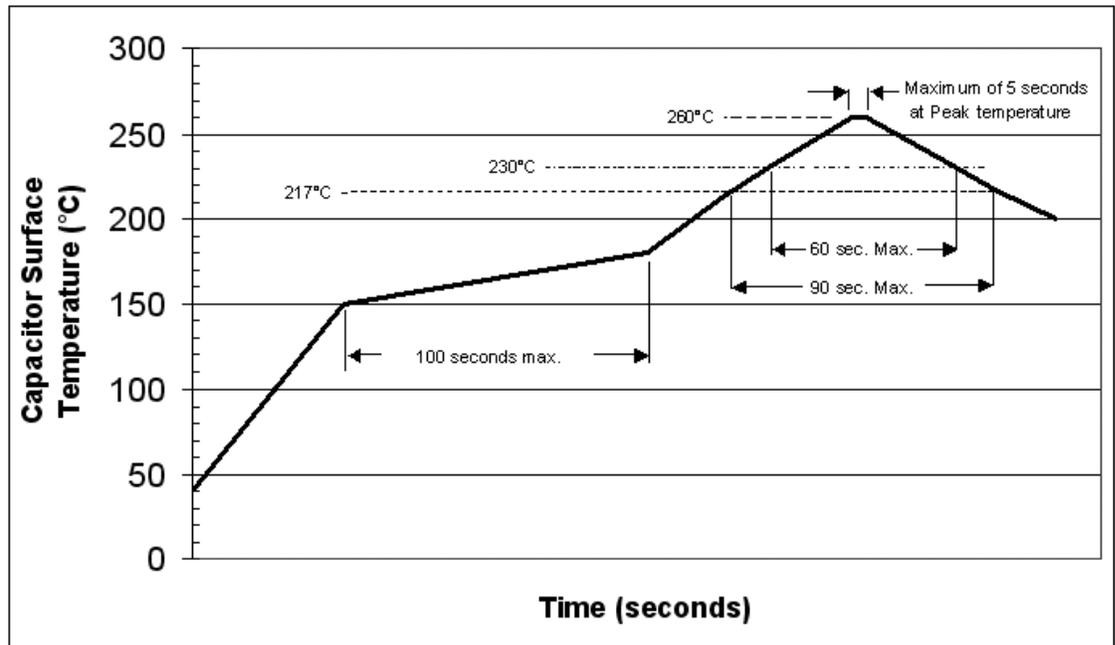
Type AVE -40 °C to 85 °C General Purpose SMT Capacitors

Aluminum Electrolytic Capacitors for Filtering and Bypass

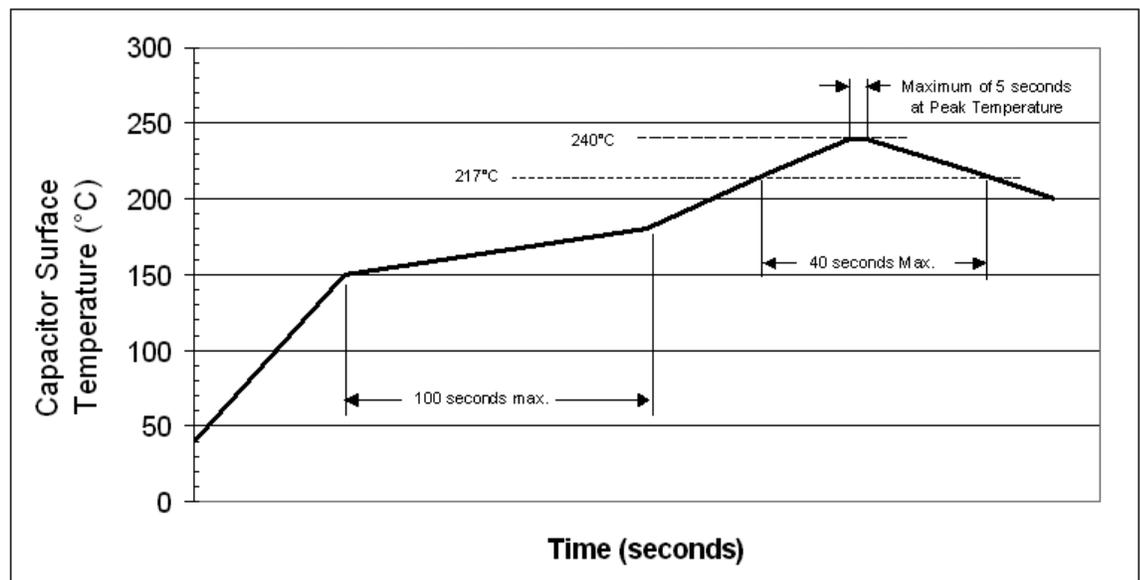
Recommended Soldering Methods

Recommended Reflow Soldering Profile:

For case diameters
3 thru 6.3 mm



For case diameters
8 and 10 mm



Case sizes 4 thru 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 $350 \pm 5^\circ\text{C}$ for 3 to 4 seconds.

Aluminum Electrolytic Capacitors for Filtering and Bypass

Notice and Disclaimer: All product drawings, descriptions, specifications, statements, information and data (collectively, the “Information”) in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements (“Cornell Dubilier”) has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Aluminium Electrolytic Capacitors - SMD category](#):

Click to view products by [Cornell Dubilier manufacturer](#):

Other Similar products are found below :

[EEV-FK1E332W](#) [22927](#) [MAL214099813E3](#) [HUB1800-S](#) [34610](#) [RYK-50V101MG5TT-FL](#) [107AXZ016MQ5](#) [EMF1EM101E83D00R](#)
[EMK1AM221E83D00R](#) [EMK1EM471GB0D00R](#) [EMK1VM101E83D00R](#) [EMVY350ARA221MHA0G](#) [UV2G3R3M0810VG](#)
[RVT2A4R7M0605](#) [MAL214097402E3](#) [MAL215375471E3](#) [MAL224699909E3](#) [MAL224699813E3](#) [MAL215099017E3](#) [MAL215099117E3](#)
[MAL215099818E3](#) [AEH1010471M010R](#) [AEA0810101M035R](#) [AEA1010681M016R](#) [AEA1010471M025R](#) [AEA0810331M010R](#)
[AEA1616102M050R](#) [AEH1010101M050R](#) [AEA1010102M010R](#) [AEA1010102M016R](#) [AEH0810470M050R](#) [AEA0810220M100R](#)
[AEA0810151M035R](#) [AEA0810331M016R](#) [AEA0810331M025R](#) [AEA0810470M063R](#) [AEA1213102M025R](#) [AEA1213221M063R](#)
[AEA1213471M035R](#) [AEH0608101M016R](#) [AEH0608330M050R](#) [AEH0608470M025R](#) [AEH0608470M035R](#) [HV100M100E077ETR](#)
[RC0J226M04005VR](#) [RC0J476M05005VR](#) [RC1A227M08010VR](#) [RC1C476M6L005VR](#) [MAL214099111E3](#) [50SEV1M4X5.5](#)