## 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	3

#### **Ripple Curent Multipliers:**



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

50 Hz	120 Hz	1 kHz	10 kHz up				
Multiplier							
0.80	1.00	1.15	1.25				
0.80	1.00	1.25	1.40				
0.80	1.00	1.35	1.50				
0.70	1.00	1.35	1.50				
	0.80 0.80 0.80	0.80 1.00 0.80 1.00 0.80 1.00 0.80 1.00	Multiplier   0.80 1.00 1.15   0.80 1.00 1.25   0.80 1.00 1.35				

2000 h @ 85 °C Life Test:

△ Capacitance ±20% (4 WV: ±30%)

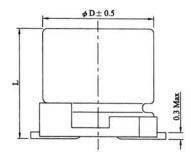
DF:  $\leq 200\%$  of limit (4 WV:  $\pm 30\%$ )

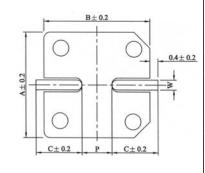
DCL: ≤ 100% of limit

**Shelf Test:** 1000 h @ 85 °C

△ Capacitance ±20% (4 WV: ±30%) DF:  $\leq 200\%$  of limit (4 WV:  $\pm 30\%$ )

#### **Outline Drawing -**

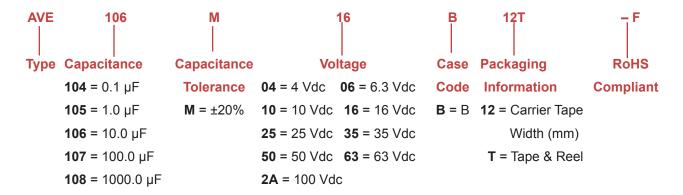




Case		Dimensions in millimeters (mm)										
Code	$\emptyset$ D	L	Α	В	C	W	P±0.2					
Α	3	5.3±0.2	3.3	3.3	1.5	.45 ~ 0.75	8.0					
В	4	5.3±0.2	4.3	4.3	2.0	0.5 to 0.8	1.0					
С	5	5.3±0.2	5.3	5.3	2.3	0.5 to 0.8	1.5					
D	6.3	5.3±0.2	6.6	6.6	2.7	0.5 to 0.8	2.0					
X	6.3	7.7±0.3	6.6	6.6	2.7	0.5 to 0.8	2.0					
Е	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**



#### Ratings -

Kating	<u> </u>							
					Max.			
	Catalog	Max. DCL	Max. DF	Max. E.S.R.	<b>Ripple Current</b>	Case	Size	Qty.
Сар	Part Number	2 min.	@120Hz/20°C	@120Hz/20°C	@120Hz/85°C	Code	D x L	Per Reel
(µF)		(µA)	(%)	(Ω)	(mA)		(mm)	(Each)
			4 Vdc ( 5 V	dc Surge )				
22	AVE226M04A12T-F	3	0.42	31.65	14	Α	3x5.3	2000
33	AVE336M04B12T-F	3	0.42	21.10	31	В	4x5.3	2000
47	AVE476M04B12T-F	3	0.42	14.81	37	В	4x5.3	2000
68	AVE686M04C12T-F	3	0.42	10.24	63	С	5x5.3	1000
100	AVE107M04D16T-F	4	0.42	6.96	110	D	6.3x5.3	1000
			6.3 Vdc ( 8 V	Vdc Surge )				
22	AVE226M06B12T-F	3	0.28	21.10	23	В	4x5.3	2000
33	AVE336M06B12T-F	3	0.28	14.07	31	В	4x5.3	2000
47	AVE476M06C12T-F	3	0.28	9.88	52	С	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	Х	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	Е	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					
10	AVE106M10B12T-F	3	0.24	39.79	23	В	4x5.3	2000
22	AVE226M10C12T-F	3	0.24	18.09	39	С	5x5.3	1000
33	AVE336M10C12T-F	3.3	0.24	12.06	48	С	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	Е	8x6.5	1000
220	AVE227M10X16T-F	22	0.24	1.81	130	Χ	6.3x7.7	1000
220	AVE227M10E16T-F	22	0.24	1.81	155	Е	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

					Max.			
	Catalog	Max. DCL	Max. DF	Max. E.S.R.	<b>Ripple Current</b>	Case	Size	Qty.
Сар	Part Number	2 min.	@120Hz/20°C	@120Hz/20°C	@120Hz/85°C	Code	D x L	Per Reel
(µF)		(µA)	(%)	(Ω)	(mA)		(mm)	(Each)
			16 Vdc ( 2	0 Vdc Surge )				
10	AVE106M16A12T-F	3.0	0.2	33.16	14	Α	3x5.3	2000
10	AVE106M16B12T-F	3.0	0.2	33.16	26	В	4x5.3	2000
22	AVE226M16C12T-F	3.5	0.2	15.07	44	С	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	Χ	6.3x7.7	1000
100	AVE107M16E16T-F	16.0	0.2	3.32	155	Ε	8x6.5	1000
220	AVE227M16X16T-F	35.2	0.2	1.51	124	Χ	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 ( 3	1 Vdc Surge )				
4.7	AVE475M25B12T-F	3.0	0.14	49.38	19	В	4x5.3	2000
10	AVE106M25C12T-F	3.0	0.14	23.21	32	С	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	Χ	6.3x7.7	1000
47	AVE476M25E16T-F	11.8	0.14	4.94	155	Е	8x6.5	1000
68	AVE686M25X16T-F	17.0	0.14	3.41	109	Χ	6.3x7.7	1000
68	AVE686M25E16T-F	17.0	0.14	3.41	155	Е	8x6.5	1000
100	AVE107M25X16T-F	25.0	0.14	2.32	124	Χ	6.3x7.7	1000
100	AVE107M25E16T-F	25.0	0.14	2.32	155	Е	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 ( 4	4 Vdc Surge)				
3.3	AVE335M35A12T-F	3.0	0.12	60.28	8	Α	3x5.3	2000
4.7	AVE475M35B12T-F	3.0	0.12	42.33	20	В	4x5.3	2000
10	AVE106M35C12T-F	3.5	0.12	19.89	34	С	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	Χ	6.3x7.7	1000
33	AVE336M35E16T-F	11.6	0.12	6.03	155	Е	8x6.5	1000
47	AVE476M35X16T-F	16.5	0.12	4.23	98	Χ	6.3x7.7	1000
47	AVE476M35E16T-F	16.5	0.12	4.23	155	Ε	8x6.5	1000
68	AVE686M35X16T-F	23.8	0.12	2.93	109	Χ	6.3x7.7	1000
68	AVE686M35E16T-F	23.8	0.12	2.93	155	Е	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 Ratings**

					Max.			
	Catalog	Max. DCL	Max. DF	Max. E.S.R.	<b>Ripple Current</b>	Case	Size	Qty.
Сар	<b>Part Number</b>	2 min.	@120Hz/20°C	@120Hz/20°C	@120Hz/85°C	Code	D x L	Per Reel
(µF)		(µ <b>A</b> )	(%)	(Ω)	(mA)		(mm)	(Each)
	50 Vdc ( 63 Vdc Surge )							
.10	AVE104M50B12T-F	3.0	0.1	1657.83	3	В	4x5.3	2000
.22	AVE224M50B12T-F	3.0	0.1	753.56	5	В	4x5.3	2000
.33	AVE334M50B12T-F	3.0	0.1	502.37	6	В	4x5.3	2000
.47	AVE474M50B12T-F	3.0	0.1	352.73	7	В	4x5.3	2000
1	AVE105M50B12T-F	3.0	0.1	165.78	10	В	4x5.3	2000
2.2	AVE225M50B12T-F	3.0	0.1	75.36	15	В	4x5.3	2000
3.3	AVE335M50B12T-F	3.0	0.1	50.24	19	В	4x5.3	2000
4.7	AVE475M50C12T-F	3.0	0.1	35.27	26	С	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	Χ	6.3x7.7	1000
22	AVE226M50E16T-F	11.0	0.1	7.54	155	Ε	8x6.5	1000
33	AVE336M50X16T-F	16.5	0.1	5.02	82	Χ	6.3x7.7	1000
33	AVE336M50E16T-F	16.5	0.1	5.02	155	Ε	8x6.5	1000
47	AVE476M50X16T-F	23.5	0.1	3.53	98	Χ	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 \	/dc Surge )				
10	AVE106M63E16T-F	6.3	0.1	16.58	75	Ε	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