THE DATASHEET OF

AVEZ475M50C12T-F

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

Capacitance Range	1.0 µF to 220 µF
Capacitance Tolerance	±20% @ 120 Hz and +20 °C
Rated Voltage	6.3, 10, 16, 25, 35, 50 Vdc
Operating Temperature Range	–55 °C to +105 °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
Dissipation Factor (Tan d at 120 Hz, 20 °C)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Tan δ Max</td><td>0.30</td><td>0.26</td><td>0.22</td><td>0.16</td><td>0.13</td><td>0.12</td></tr></table>
Low Temperature Characteristics @ 120 Hz	<table><tr><th colspan="2">Rated Voltage</th><th>6.3</th><th>10</th><th>16</th><th>25</th><th>35</th><th>50</th></tr><tr><td rowspan="2">Impedance Ratio</td><td>Z(–25 °C) / Z(+20 °C)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(–40 °C) / Z(+20 °C)</td><td>8</td><td>5</td><td>4</td><td>3</td><td>3</td><td>3</td></tr></table>
Ripple Curent Multipliers	<table><tr><th>Vdc / Freq. (Hz)</th><th>50, 60</th><th>120</th><th>1 k</th><th>10 k up</th></tr><tr><td>6.3 ~ 50</td><td>0.64</td><td>0.80</td><td>0.93</td><td>1.00</td></tr></table>
Load Life Test	<table><tr><td>Test Time</td><td>1,000 Hours</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr><tr><td>Dissipation Factor</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> 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 Life Test	Test time: 1000 hours; other items are the same as those for life test.

Regulatory information

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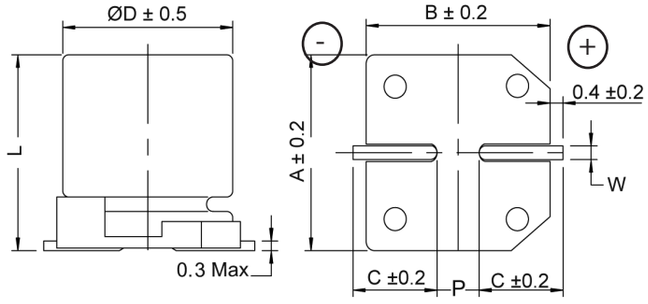
Outline Drawing, Case Code & Dimensions Table

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 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)
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

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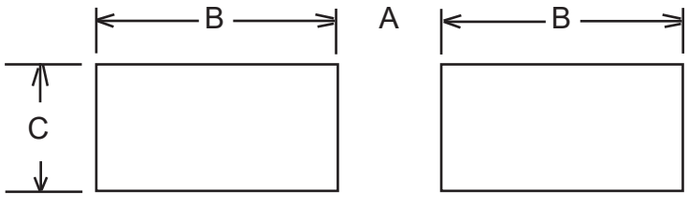
Cap (µF)	Catalog Part Number	Max DCL 2 min. (µA)	Max DF 120 Hz 20 ºC	Max Impedance 100 kHz 20 ºC (ohms)	Max Ripple Current 100 kHz 105 °C (mA)	Case Code	Size D x L (mm)	Quantity per Reel (each)
16 Vdc (13 Vdc Surge)								
10	AVEZ106M16B12T-F	3.0	0.2	3.20	65	B	4 x 5.3	2000
22	AVEZ226M16C12T-F	3.0	0.2	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

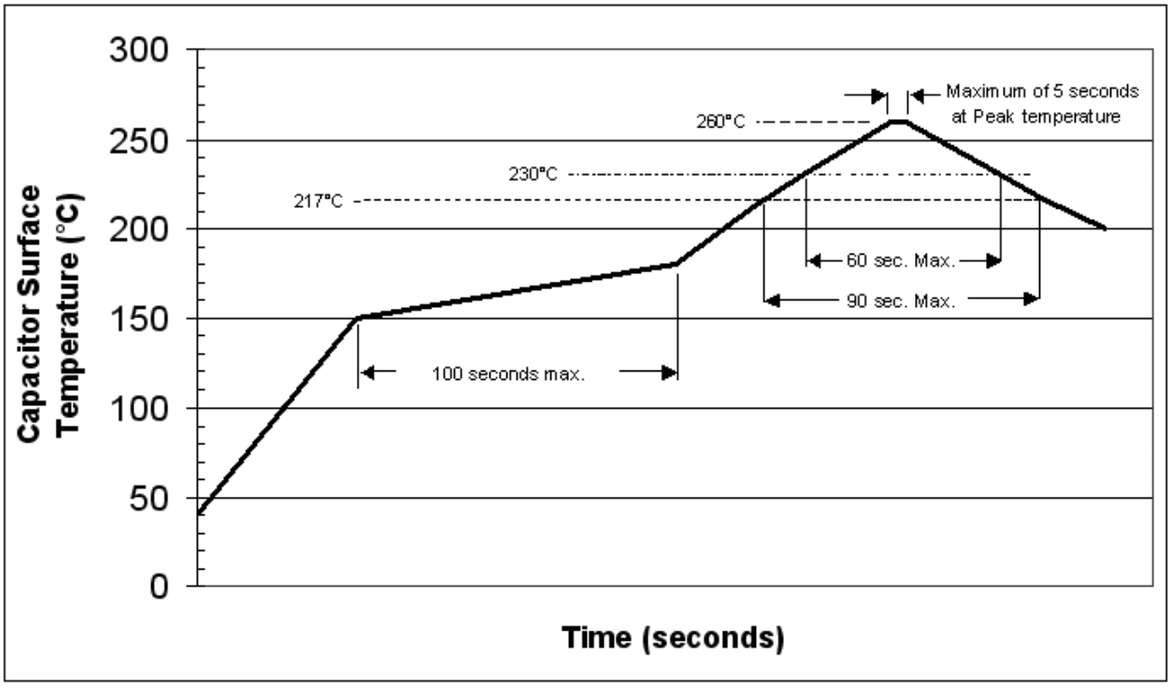
Recommended Land Patterns by case size for AVEZ series



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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