BREL INTERNATIONAL COMPONENTS
1621 WEST UNIVERSITY PARKWAY, SARASOTA, FL 34243
SALES: (800) 237-4564 PHONE: (941) 355-9791 FAX: (941) 355-1530

ALUMINUM ELECTROLYTIC CAPACITORS

Operating temperature range: -40°C ~ +105°C.

Capacitance and tolerance: Capacitance measurements shall be made by the bridge method at a frequency $120Hz^{+10}_{-5}Hz$. The capacitance shall be within the specified tolerance of ±20%.

Leakage current: Measurements shall be made at rated DC voltage with an application of a steady source of power, such as a regulated power supply. A current-limiting resistor of 1,000 ohms shall be connected in series with each capacitor under test. Rated DC working voltage shall be applied to the capacitor for 5 minutes before making the leakage current measurements.

The maximum leakage current for the capacitors shall not exceed the value determined from the following equation or 3μA, whichever is greater:

$I = 0.03CV$

where: I = Leakage Current (μA)
C = Nominal Capacitance (μF)
V = Rated DC Voltage (V. DC)

Dissipation factor: Measured at a frequency of $120 Hz^{+10}_{-5}Hz$, the dissipation factor shall be less than the values in Table 1.

Table 1.

Rated Voltage (V.DC)	Dissipation Factor (%)
6.3	22
10	19
16	16
25	14
35	12
50	10
63	9
80, 100	8

Low-temperature characteristics: The ratio of the impedance of -25°C or -40°C to that of +20°C shall be less than the values listed in Table 2.

Table 2.

Rated Voltage (V. DC)	Ratio of Impedance	
	Z@-25°C / Z@+20°C	Z@-40°C / Z@+20°C
6.3	3	6
10	3	6
16	2	4
25	2	4
35	2	4
50	2	4
63	2	4
80	2	4
100	2	4

Life test: The capacitors shall be placed in an air-circulating thermostatic test chamber and be exposed to full-rated DC voltage through a series protective resistor (100 ohms) for a period of 1,000 hours ±24 hours at a temperature of +105°C ±2°C (shielded from direct heat radiation).

The capacitors shall then be removed from the test chamber and stabilized at room temperature for 2 hours after which they shall meet each of the values listed in Table 3.

Table 3.

Leakage current	Same as specified under **Leakage Current**
Capacitance	Within ±20% of initial measurements
Dissipation factor	200% less of values in Table 1
Appearance	Free from leakage of electrolyte and/or other noticeable deformation

Shelf life test: Prior to testing, each capacitor in the test group is measured for capacitance, dissipation factor and DC leakage current.

The capacitors are then stored with no voltage applied at a temperature of +105°C ±2°C for 1,000 hours ±12 hours. Following this period the capacitors shall be removed from the test chamber and be allowed to stabilize at room temperature. Next they shall be connected to a series limiting resistor with DC rated voltage applied for 30 minutes after which the capacitors shall be discharged. After completion of these procedures, the capacitors shall meet each of the requirements as listed in Table 3.

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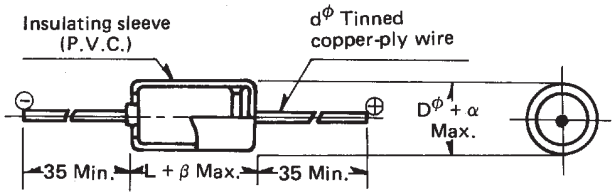
Wide Temperature Type – (General Purpose 105°C) Axial – Type MSA/ET (105° C)

- CONFIGURATION



Dimensions: mm

Outside Diameter	D^{ϕ}	6	8	10	13	16	18	22	25.4
Tolerance	α	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
Length Tolerance	β	1	1	1	1	1	2	2	2
Lead Wire	d^{ϕ}	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8

RIPPLE CURRENT in mA-RMS (at 120Hz, +85°C)—peak voltage not to exceed rated DC voltage—

Rated Voltage (V) / Surge Voltage (V) / CAP. (μF)	6.3 / 8	10 / 13	16 / 20	25 / 32	35 / 44	50 / 63	63 / 79	80 / 100	100 / 125
0.47	28	28	28	28	28	28	28	28	28
1.0	41	41	41	41	41	41	41	41	41
2.2	61	61	61	61	61	61	61	63	63
3.3	75	75	75	75	75	75	75	77	77
4.7	89	89	89	89	89	89	89	94	94
10	115	115	115	115	115	125	135	140	140
22	165	165	165	165	175	190	200	210	210
33	185	185	185	200	220	230	250	260	260
47	200	200	220	250	260	290	310	320	320
100	300	300	330	370	400	430	460	490	490
220	450	450	510	560	610	650	710	800	800
330	560	560	630	730	770	830	890	930	930
470	690	690	770	870	1012	1023	1155	1177	1298
1000	1030	1400	1580	1580	1700	1980	2260	2080	2080
2200	1960	2180	2450	2610	2800	2910	2910	3750	4040
3300	2520	2740	2870	2870	3380	4000	4340	4940	
4700	3010	3060	3100	3760	4530	5180	6100		
10000	4450	4810	5690	7180	8450				

DIMENSIONS: Diameter (D^{ϕ}) x Length (L): mm

Rated Voltage (V) / Surge Voltage (V) / CAP. (μF)	6.3 / 8	10 / 13	16 / 20	25 / 32	35 / 44	50 / 63	63 / 79	80 / 100	100 / 125
0.47	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12
1.0	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12
2.2	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12
3.3	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12
4.7	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x12
10	6x12	6x12	6x12	6x12	6x12	6x12	6x12	6x16	6x16
22	6x12	6x12	6x12	6x12	6x12	6x12	6x16	8x16	8x16
33	6x12	6x12	6x12	6x12	6x16	6x16	6x16	8x16	8x20
47	6x12	6x12	6x12	6x16	6x16	6x16	8x16	8x20	10x21
100	6x12	6x12	6x16	6x16	8x16	8x16	8x20	10x26	10x26
220	6x16	6x16	8x16	8x16	8x20	10x20	10x26	13x26	13x31.5
330	8x16	8x16	8x16	8x20	10x20	10x25	13x26	13x26	16x25
470	8x16	8x16	8x20	10x20	10x26	13x25	13x26	16x31.5	16x41.5
1000	10x20	10x20	10x26	13x26	13x26	16x25	16x30	18x40	22x40
2200	13x25	13x25	13x30	16x25	16x30	18x40	22x40	25.4x52	25.4x61
3300	13x25	13x30	16x25	16x30	16x40	22x42	22x50	25.4x61	
4700	13x30	16x25	16x30	18x40	22x40	22x50	25.4x50		
10000	16x40	18x40	22x40	22x50	25.4x50				