

# EST Aluminium Electrolytic Capacitors



Single-Ended Leads - Low Impedance 105°C / 4000 to 10000 h

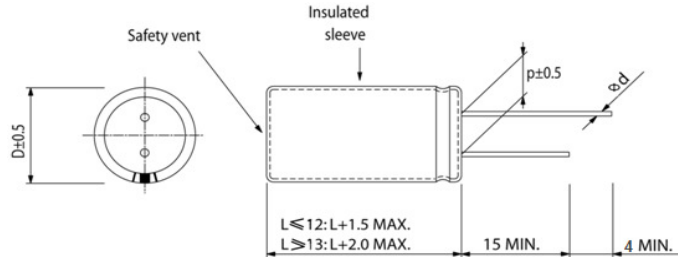
**Description:** Low Impedance, long life up to 10000 hours

**Features:** Case with  $\text{ØD} \geq 6.0\text{mm}$ , has safety vent on the capacitor base

**Standards:** IEC60384-4

**Applications:** SMPS, power supplies, adaptors, chargers, monitors, computers

**Marking:** Kemet Logo, Series: ESW, Operating Temperature, Rated Voltage (Vdc), Capacitance ( $\mu\text{F}$ ), Negative Polarity, Date Code



\* Case  $\text{ØD} 6.0\text{mm}$ :  $D = +0.8/-0.5$

ØD	5.0	6.3	8.0	10.0	13.0	16.0	18.0
P (pitch)	2.0	2.5	3.5	5.0		7.5	
Ød (Leads)	0.5		0.6			0.8	

## Electrical Characteristics

Rated Voltage	6.3 to 63Vdc
Operating Temperature	-40 °C to +105 °C
Capacitance Range	10 $\mu\text{F}$ to 15000 $\mu\text{F}$
Capacitance Tolerance	±20% at 120Hz / 20 °C
Endurance Test	4000 to 10000 hours (see conditions in test method and performance)
Leakage Current	$I = 0.01\text{CV}$ ( $\mu\text{A}$ ) or $3\mu\text{A}$ whichever is greater C = rated capacitance ( $\mu\text{F}$ ); V = rated voltage (Vdc) (after DC rated working voltage has been applied for 2 minutes at 20 °C)

## Test method and performance

Conditions	Load Life Test	Shelf Life Test
Temperature:	105 °C	105 °C
Test Duration:	$\leq \text{Ø} 6.3\text{mm}$ : V $\leq 10\text{Vdc}$ : 4000 hours $\leq \text{Ø} 6.3\text{mm}$ : V $\geq 16\text{Vdc}$ : 5000 hours $8.0 \leq \text{Ø} \leq 10.0\text{mm}$ : V $\leq 10\text{Vdc}$ : 6000 hours $8.0 \leq \text{Ø} \leq 10.0\text{mm}$ : V $\geq 16\text{Vdc}$ : 7000 hours $\geq \text{Ø} 12.5\text{mm}$ : V $\leq 10\text{Vdc}$ : 8000 hours $\geq \text{Ø} 12.5\text{mm}$ : V $\geq 16\text{Vdc}$ : 10000 hours	1000 hours
Ripple Current:	max ripple current specified at 100KHz 105 °C	no ripple current applied
Voltage:	the sum of DC voltage and the peak AC voltage must not exceed the rated voltage of the capacitor.	no voltage applied
Performance	The following specifications will be satisfied when the capacitors will be restored at 20 °C	
Capacitance Change:	within ±25% of the initial value.	within ±25% of the initial value.
Dissipation Factor:	not exceed 200% of the specified value.	not exceed 200% of the specified value.
Leakage Current:	not exceed specified value.	not exceed specified value.

## Multiplier for Ripple Current

Frequency Coefficients

Capacitance Range ( $\mu\text{f}$ )	Frequency			
	120Hz	1KHz	10KHz	100KHz
6.8 to 180 $\mu\text{F}$	0.40	0.75	0.90	1.00
220 to 560 $\mu\text{F}$	0.50	0.85	0.94	1.00
680 to 1800 $\mu\text{F}$	0.60	0.87	0.95	1.00
2200 to 3900 $\mu\text{F}$	0.75	0.90	0.95	1.00
$\geq 4700\mu\text{F}$	0.85	0.95	0.98	1.00

Capacitance (µF)	Rated Voltage Vdc											
	6.3			10			16			25		
	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C
47												
56							5x11	210	0.720			
100				5x11	210	0.720	6.3x11	340	0.380	6.3x11	340	0.380
150	5x11	210	0.720							8x11	640	0.200
220				6.3x11	340	0.380	8x11	640	0.200	8x11	640	0.200
330	6.3x11	340	0.380				8x15	701	0.160	8x15	840	0.160
470				8x11	640	0.200	8x15	840	0.160	10x15	1210	0.084
680	8x11	640	0.200	8x15	840	0.160	10x15	1210	0.084	10x20	1400	0.062
820	8x15	840	0.160							10x25	1650	0.052
1000	10x12	865	0.120	10x15	1210	0.084	10x20	1400	0.062	13x20	1900	0.046
1500	8x20	1050	0.110	10x20	1400	0.062	10x25	1650	0.052	13x25	2230	0.034
	10x15	1210	0.084									
2200	10x20	1400	0.062	10x25	1650	0.052	13x25	2230	0.034	13x25	2880	0.027
2700	10x25	1650	0.052	13x20	1900	0.046	13x30	2650	0.030	16x25	2930	0.028
3300	13x20	1900	0.046	13x25	2230	0.034	13x35	2880	0.027	16x32	3450	0.025
3900	13x25	2230	0.034	13x30	2650	0.030	13x40	3350	0.024	18x32	4170	0.015
4700	13x30	2650	0.030	13x35	2880	0.027	16x32	3450	0.028	18x36	4280	0.014
5600	13x35	2880	0.027	13x40	3350	0.024	16x36	3610	0.018			
				16x25	2930	0.028	18x32	4170	0.015			
6800	13x40	3350	0.024	16x32	3450	0.025	18x36	4220	0.014			
	16x25	2930	0.028									
8200	16x32	3450	0.025	16x36	3610	0.018						
10000	16x36	3610	0.018	18x36	4220	0.014						
12000	18x32	4170	0.015									
15000	18x36	4220	0.014									

Capacitance (µF)	Rated Voltage Vdc								
	35			50			63		
	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C	ØD x L (mm)	RC (mA) 100KHz 105°C	ESR (Ω) 100KHz 20°C
10				5x11	120	3.500	5x11	55	2.300
22				5x11	210	2.300			
33	5x11	210	0.720	6.3x11	340	1.200	6.3x11	115	1.200
47	6.3x11	340	0.380	6.3x11	340	1.200			
56							8x11	232	0.630
100				8x11	555	0.630			
120				8x15	730	0.450	10x16	357	0.310
150	8x11	640	0.200	8x20	910	0.330			
180							10x20	466	0.210
220	8x15	840	0.160	10x16	1050	0.310	10x25	531	0.200
270							10x30	663	0.150
330	10x20	1400	0.062	10x20	1400	0.210	13x20	690	0.160
470	10x25	1650	0.052	10x30	1690	0.150	13x30	905	0.100
				13x20	1660	0.160			
560				13x25	1950	0.120	13x35	1050	0.083
680	10x30	1910	0.044	13x30	2310	0.100	13x40	1180	0.071
	13x20	1900	0.046						
820	13x25	2230	0.034	13x35	2510	0.083	16x32	1570	0.054
1000	13x25	2230	0.034	16x25	2555	0.073	16x36	1790	0.045
1200	13x30	2650	0.030	16x32	3010	0.054	16x40	2020	0.040
1500	13x35	2880	0.027	16x36	3150	0.045			
1800	13x40	3350	0.024	18x32	3635	0.047			
2200	16x32	3450	0.025	18x36	3680	0.040			
2700	16x36	3610	0.018	18x40	3800	0.036			
3300	18x36	4220	0.014						

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