

### SINGLE-ENDED LEADS - Low Impedance 105°C / 2000 to 3000 h

#### Description

Capacitors for high frequency applications.

#### Applications

High frequency switching mode circuits.

#### Features

Case with  $\varnothing D \geq 6.0$  mm has the safety vent at the bottom.

#### Marking

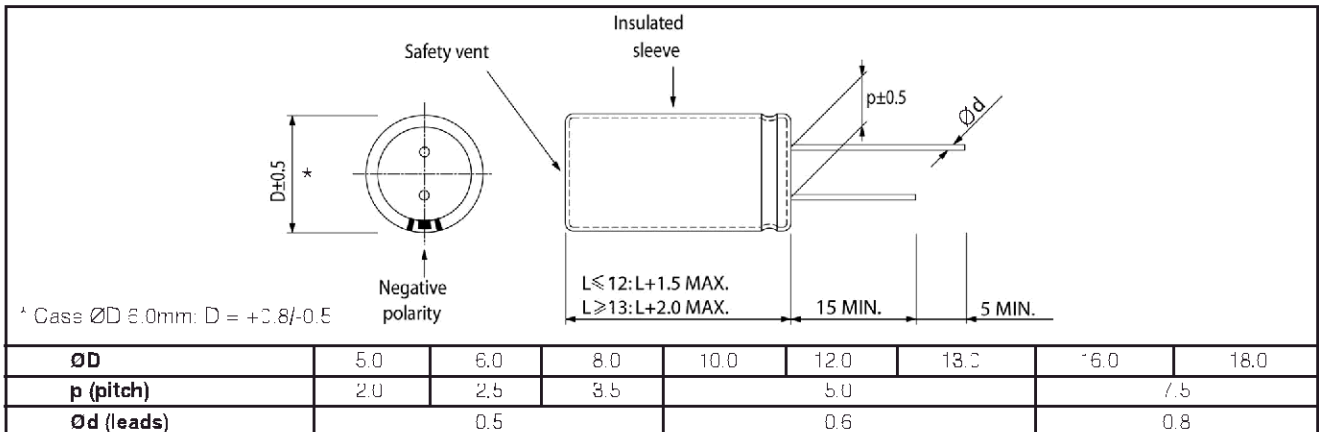
ARCOTRONICS' logo

Series: (ESC), Operating temperature: (105°C)

Rated capacitance ( $\mu\text{F}$ ), Rated voltage: (Vdc),

Negative polarity: (gold line), Date code

Diagram of dimensions (Units=mm)



#### Electrical characteristics

Rated voltage	6.3 to 100 Vdc
Operating temperature	-40 to +105°C
Capacitance range	1.0 $\mu\text{F}$ to 15000 $\mu\text{F}$
Capacitance tolerance	$\pm 20\%$ at 120-z / 25°C
Endurance test	2000 to 3000 h (see conditions in Test method and performance)
Leakage current	$I = 0.01 CV (\mu\text{A})$ or $5\mu\text{A}$ whichever is greater C = rated capacitance ( $\mu\text{F}$ ); V = rated voltage (Vdc) (after than D.C. rated working voltage at 20°C has been applied for 2 min)

#### Impedance Z characteristics at 120 Hz

Rated voltage (Vdc)	6.3	10	16	25	35	50	63	100
Z (-40°C) / Z (20°C)	10	8	5	4	4	4	4	4

#### Compensation factor of ripple current (R.C.) vs. frequency

Capacitance range	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz	100 kHz
1.0 to 4.7 $\mu\text{F}$	0.30	0.40	0.50	0.70	0.80	1.00
5.6 to 33 $\mu\text{F}$	0.40	0.50	0.60	0.80	0.90	1.00
47 to 330 $\mu\text{F}$	0.60	0.70	0.80	0.90	0.95	1.00
470 to 1000 $\mu\text{F}$	0.65	0.80	0.90	0.98	1.00	1.00
1200 to 15000 $\mu\text{F}$	0.85	0.90	0.95	0.98	1.00	1.00

#### Compensation factor of ripple current (R.C.) vs. temperature

Temperature	65°C	85°C	105°C
Multiplier factors	1.90	1.60	1.00

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#### Test method and performance

Conditions	Load life test	Shelf life test
Temperature: Test duration: Ripple current: Voltage	+105°C Z D 5x11 to 10x12 mm: 2000 h Z D ≥10x15 mm: 3000 h max ripple current at 100kHz 105°C specified in the table. the sum of D.C. voltage and the peak A.C. voltage must not exceed the rated voltage of capacitor.	105°C 1000 hours no ripple current applied. no voltage applied.
<b>Performance</b>	The following specifications will be satisfied when the capacitors are restored at 20°C	
Capacitance change: Dissipation factor: Leakage current:	within 20% of initial value. not exceed 200% of the initial requirement. not exceed initial requirement.	within 20% of initial value. not exceed 200% of the initial requirement. not exceed initial requirement.

#### Technical data and ordering codes

Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	6.3 Vdc Rated voltage - 8 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	Arcotronics P/N
		D.F. 120 Hz 25°C (tgδ %)	Z 100 kHz 25°C (Ω)	R.C. 100kHz 105°C (mA <sub>rms</sub> )	L.C. 20°C 2 min. (μA)		
150	5 x 11	15	0.420	200	9	ESC157M6H3AC3AA	
220	6 x 11	15	0.320	250	14	ESC227M6R3AE3AA	
330	8 x 11	15	0.180	400	21	ESC337M6R3AG3AA	
470	8 x 11	15	0.140	550	30	ESC477M6R3AG3AA	
680	8 x 15	15	0.100	700	43	ESC687M6H3AG4AA	
820	8 x 20	15	0.085	750	52	ESC827M6R3AG6AA	
1000	8 x 20	15	0.069	800	63	ESC108M6R3AG6AA	
1200	10 x 15	15	0.064	1000	76	ESC128M6R3AH2AA	
1500	10 x 19	15	0.044	1250	94	ESC158M6H3AH4AA	
2200	13 x 20	15	0.043	1450	139	ESC228M6R3AL3AA	
3300	13 x 25	15	0.035	1700	208	ESC338M6R3AL4AA	
4700	16 x 25	15	0.028	1800	296	ESC478M6R3AM7AA	
6800	16 x 32	15	0.024	2000	428	ESC688M6R3AM2AA	
8200	16 x 32	15	0.019	2350	517	ESC828M6R3AM2AA	
10000	16 x 36	15	0.019	2550	630	ESC109M6R3AM3AA	
15000	18 x 36	15	0.019	3000	945	ESC159M6R3AN2AA	

For capacitor whose capacitance exceeds 1000 μF the value of D.F. (%) is increased by 2% for every addition of 1000 μF

### SINGLE-ENDED LEADS - Low Impedance 105°C / 2000 to 3000 h

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	10 Vdc Rated voltage - 13 Vdc Surge voltage			L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C (tg $\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C (mA <sub>rms</sub> )		
100	5 x 11	14	0.420	150	10	ESC107M010AC3AA
120	5 x 11	14	0.370	200	12	ESC127M010AC3AA
150	6 x 11	14	0.320	250	15	ESC157M010AE3AA
220	6 x 11	14	0.220	300	22	ESC227M010AE3AA
330	8 x 11	14	0.140	550	33	ESC337M010AG3AA
470	8 x 15	14	0.100	750	47	ESC477M010AG4AA
470	10 x 12	14	0.120	630	47	ESC477M010AH1AA
680	10 x 12	14	0.085	800	68	ESC687M010AH1AA
820	10 x 15	14	0.064	1050	82	ESC827M010AH2AA
1000	8 x 20	14	0.065	1080	100	ESC108M010AG6AA
1200	10 x 19	14	0.044	1250	120	ESC128M010AH4AA
1500	10 x 19	14	0.039	1450	150	ESC158M010AH4AA
2200	13 x 20	14	0.038	1600	220	ESC228M010AL3AA
3300	13 x 25	14	0.028	2000	330	ESC338M010AL4AA
4700	16 x 25	14	0.024	2200	470	ESC478M010AM7AA
6800	16 x 36	14	0.019	2550	680	ESC688M010AM3AA
8200	18 x 36	14	0.019	2800	820	ESC828M010AN2AA

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	16 Vdc Rated voltage - 20 Vdc Surge voltage			L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C (tg $\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C (mA <sub>rms</sub> )		
68	5 x 11	12	0.420	150	11	ESC686M016AC3AA
100	5 x 11	12	0.370	200	16	ESC107M016AC3AA
120	6 x 11	12	0.320	250	19	ESC127M016AE3AA
150	6 x 11	12	0.220	300	24	ESC157M016AE3AA
220	8 x 11	12	0.140	550	35	ESC227M016AG3AA
330	8 x 15	12	0.100	750	53	ESC337M016AG4AA
470	10 x 12	12	0.085	800	75	ESC477M016AH1AA
680	10 x 15	12	0.064	1050	109	ESC687M016AH2AA
820	10 x 19	12	0.044	1100	131	ESC827M016AH4AA
1000	10 x 19	12	0.039	1250	160	ESC108M016AH4AA
1200	13 x 20	12	0.038	1450	192	ESC128M016AL3AA
1500	13 x 20	12	0.034	1600	240	ESC158M016AL3AA
2200	13 x 25	12	0.028	2000	352	ESC228M016AL4AA
3300	16 x 25	12	0.024	2200	528	ESC338M016AM7AA
4700	16 x 36	12	0.019	2550	752	ESC478M016AM3AA
6800	18 x 36	12	0.019	2800	1088	ESC688M016AN2AA

For capacitor whose capacitance exceeds 1000  $\mu\text{F}$  the value of D.F. (%) is increased by 2% for every addition of 1000  $\mu\text{F}$

### SINGLE-ENDED LEADS - Low Impedance 105°C / 2000 to 3000 h

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	25 Vdc Rated voltage - 32 Vdc Surge voltage			L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	$Z$ 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C ( $\text{mA}_{\text{rms}}$ )		
47	5 x 11	10	0.420	150	12	ESC476M025AC3AA
68	6 x 11	10	0.370	200	17	ESC686M025AE3AA
100	6 x 11	10	0.220	250	25	ESC107M025AE3AA
120	8 x 11	10	0.200	300	30	ESC127M025AG3AA
150	8 x 11	10	0.140	550	37	ESC157M025AG3AA
220	8 x 15	10	0.100	750	55	ESC227M025AG4AA
330	8 x 20	10	0.069	800	82	ESC337M025AG6AA
470	10 x 15	10	0.064	1050	117	ESC477M025AH2AA
680	10 x 19	10	0.039	1100	170	ESC687M025AH4AA
820	10 x 19	10	0.039	1250	205	ESC827M025AH4AA
1000	13 x 20	10	0.038	1450	250	ESC108M025AL3AA
1200	13 x 25	10	0.029	1600	300	ESC128M025AL4AA
1500	16 x 25	10	0.028	2000	375	ESC158M025AM7AA
2200	16 x 32	10	0.024	2200	550	ESC228M025AM2AA
3300	16 x 36	10	0.019	2550	825	ESC338M025AM3AA
4700	18 x 36	10	0.019	2800	1175	ESC478M025AN2AA

Rated cap. 120 Hz 20°C ( $\mu\text{F}$ )	Case size DxL (mm)	35 Vdc Rated voltage - 44 Vdc Surge voltage			L.C. 20°C 2 min. ( $\mu\text{A}$ )	Arcotronics P/N
		D.F. 120 Hz 25°C ( $\text{tg}\delta$ %)	$Z$ 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C ( $\text{mA}_{\text{rms}}$ )		
4.7	5 x 11	10	1.200	115	3	ESC475M035AC3AA
6.8	5 x 11	10	1.000	120	3	ESC685M035AC3AA
10	5 x 11	10	0.900	140	3	ESC106M035AC3AA
15	5 x 11	10	0.690	170	5	ESC156M035AC3AA
22	5 x 11	10	0.420	190	8	ESC226M035AC3AA
33	5 x 11	10	0.420	200	11	ESC336M035AC3AA
47	6 x 11	10	0.370	250	16	ESC476M035AE3AA
68	6 x 11	10	0.220	300	24	ESC686M035AE3AA
100	8 x 11	10	0.140	450	35	ESC107M035AG3AA
120	8 x 11	10	0.130	550	42	ESC127M035AG3AA
150	8 x 15	10	0.100	650	52	ESC157M035AG4AA
220	8 x 20	10	0.085	780	77	ESC227M035AG6AA
220	10 x 12	10	0.069	800	77	ESC227M035AH1AA
330	10 x 19	10	0.044	1050	115	ESC337M035AH4AA
470	10 x 19	10	0.039	1300	164	ESC477M035AH4AA
680	13 x 20	10	0.038	1400	238	ESC687M035AL3AA
820	13 x 20	10	0.034	1550	287	ESC827M035AL3AA
1000	13 x 25	10	0.029	1700	350	ESC108M035AL4AA
1200	16 x 25	10	0.028	1900	420	ESC128M035AM7AA
1500	16 x 25	10	0.024	2100	525	ESC158M035AM7AA
2200	16 x 32	10	0.021	2500	770	ESC228M035AM2AA
2200	16 x 36	10	0.019	2550	770	ESC228M035AM3AA
3300	18 x 36	10	0.019	2800	1155	ESC338M035AN2AA

For capacitor whose capacitance exceeds 1000  $\mu\text{F}$  the value of D.F. (%) is increased by 2% for every addition of 1000  $\mu\text{F}$

### SINGLE-ENDED LEADS - Low Impedance 105°C / 2000 to 3000 h

Rated cap. 120 Hz 20°C ( $\mu$ F)	Case size DxL (mm)	50Vdc Rated voltage - 63 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu$ A)	Arcotronics P/N
		D.F. 120 Hz 25°C (tg $\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C (mA <sub>rms</sub> )			
1.0	5 x 11	8	2.400	40	3	ESC105M050AC3AA	
4.7	5 x 11	8	2.000	115	3	ESC475M050AC3AA	
6.8	5 x 11	8	1.850	120	3	ESC685M050AC3AA	
10	5 x 11	8	1.700	140	5	ESC106M050AC3AA	
15	5 x 11	8	1.200	180	7	ESC156M050AC3AA	
22	5 x 11	8	0.700	200	11	ESC226M050AC3AA	
33	6 x 11	8	0.600	250	16	ESC336M050AE3AA	
47	6 x 11	8	0.520	300	23	ESC476M050AE3AA	
68	8 x 11	8	0.350	450	34	ESC686M050AG3AA	
100	8 x 15	8	0.250	550	50	ESC107M050AG4AA	
120	8 x 20	8	0.210	650	60	ESC127M050AG6AA	
150	10 x 12	8	0.160	800	75	ESC157M050AH1AA	
220	10 x 15	8	0.100	1050	110	ESC227M050AH2AA	
330	10 x 19	8	0.072	1300	165	ESC337M050AH4AA	
470	13 x 20	8	0.060	1400	235	ESC477M050AL3AA	
680	13 x 25	8	0.050	1550	340	ESC687M050AL4AA	
820	16 x 25	8	0.040	1700	410	ESC827M050AM7AA	
1000	16 x 25	8	0.039	1900	500	ESC108M050AM7AA	
1200	16 x 32	8	0.025	2100	600	ESC128M050AM2AA	
1500	16 x 36	8	0.025	2550	750	ESC158M050AM3AA	
2200	18 x 40	8	0.025	2800	1100	ESC228M050AN3AA	

Rated cap. 120 Hz 20°C ( $\mu$ F)	Case size DxL (mm)	63 Vdc Rated voltage - 79 Vdc Surge voltage				L.C. 20°C 2 min. ( $\mu$ A)	Arcotronics P/N
		D.F. 120 Hz 25°C (tg $\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C (mA <sub>rms</sub> )			
4.7	5 x 11	8	2.200	115	3	ESC475M063AC3AA	
6.8	5 x 11	8	2.000	120	4	ESC685M063AC3AA	
10	5 x 11	8	1.850	140	6	ESC106M063AC3AA	
15	5 x 11	8	1.700	200	9	ESC156M063AC3AA	
22	6 x 11	8	1.200	250	14	ESC226M063AE3AA	
33	6 x 11	8	0.900	300	21	ESC336M063AE3AA	
47	8 x 11	8	0.700	450	30	ESC476M063AG3AA	
68	8 x 11	8	0.520	550	43	ESC686M063AG3AA	
100	8 x 20	8	0.350	650	63	ESC107M063AG6AA	
120	10 x 15	8	0.300	800	76	ESC127M063AH2AA	
150	10 x 15	8	0.200	1050	94	ESC157M063AH2AA	
220	10 x 19	8	0.150	1300	139	ESC227M063AH4AA	
330	13 x 20	8	0.100	1400	208	ESC337M063AL3AA	
470	13 x 25	8	0.064	1550	296	ESC477M063AL4AA	
680	16 x 25	8	0.052	1700	428	ESC687M063AM7AA	
820	16 x 32	8	0.048	1900	517	ESC827M063AM2AA	
1000	16 x 32	8	0.042	2100	630	ESC108M063AM2AA	
1200	16 x 36	8	0.036	2550	756	ESC128M063AM3AA	
1500	18 x 36	8	0.033	2800	945	ESC158M063AN2AA	

For capacitor whose capacitance exceeds 1000  $\mu$ F the value of D.F. (%) is increased by 2% for every addition of 1000  $\mu$ F

### SINGLE-ENDED LEADS - Low Impedance 105°C / 2000 to 3000 h

Rated cap. 120 Hz 20°C ( $\mu$ F)	Case size DxL (mm)	100 Vdc Rated voltage - 125 Vdc Surge voltage			L.C. 20°C 2 min. ( $\mu$ A)	Arcotronics P/N
		D.F. 120 Hz 25°C (tg $\delta$ %)	Z 100 kHz 25°C ( $\Omega$ )	R.C. 100kHz 105°C (mA <sub>rms</sub> )		
4.7	5 x 11	7	2.000	120	5	ESC475M100AC3AA
6.8	5 x 11	7	1.850	140	7	ESC685M100AC3AA
10	6 x 11	7	1.500	200	10	ESC106M100AE3AA
15	6 x 11	7	1.200	250	15	ESC156M100AE3AA
22	8 x 11	7	0.790	300	22	ESC226M100AG3AA
33	8 x 15	7	0.590	450	33	ESC336M100AG4AA
47	10 x 15	7	0.350	550	47	ESC476M100AH2AA
68	10 x 19	7	0.240	650	68	ESC686M100AH4AA
100	13 x 20	7	0.180	800	100	ESC107M100AL3AA
120	13 x 25	7	0.150	1050	120	ESC127M100AL4AA
150	13 x 25	7	0.110	1300	150	ESC157M100AL4AA
220	16 x 25	7	0.071	1400	220	ESC227M100AM7AA
330	16 x 32	7	0.049	1550	330	ESC337M100AM2AA
470	18 x 36	7	0.038	1700	470	ESC477M100AN2AA