

SINGLE-ENDED LEADS – Low Impedance and long life 105°C / 5000 h

Description

Long life 5000 hours and high reliability.

Applications

Electronic ballast and other long life equipment.
Special designs are available upon request.

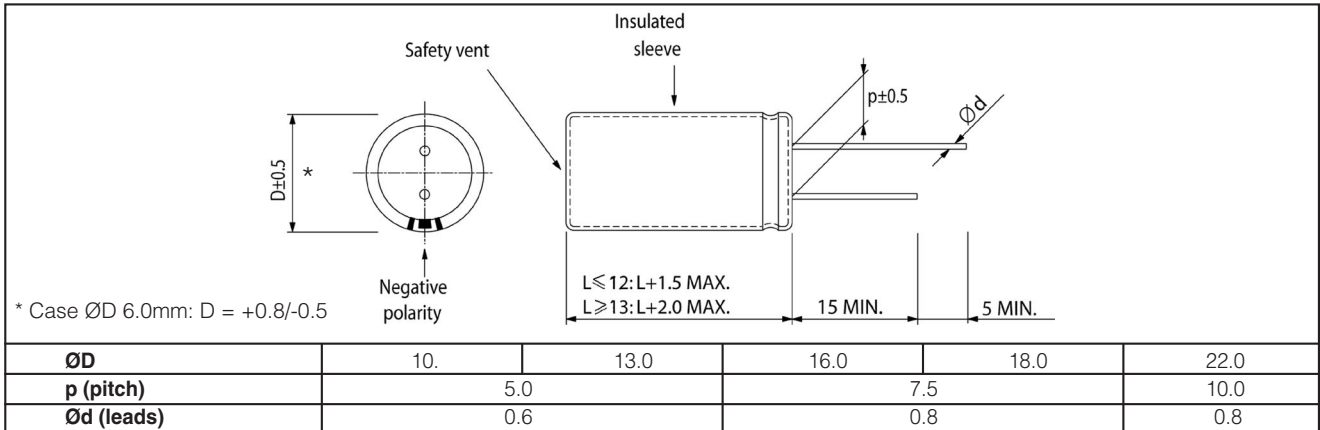
Features

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

Marking

Series: (ESG), Operating temperature: (105°C)
Capacitance (μF), Rated voltage: (Vdc),
Negative polarity: (white line), Date code

Diagram of dimensions (Units=mm)



Electrical characteristics

Rated voltage	160 to 400 Vdc	450 Vdc
Operating temperature	-40 to +105°C	-25 to +105°C
Capacitance range	3.3 μF to 330 μF	
Capacitance tolerance	$\pm 20\%$ at 120Hz / 20°C	
Endurance test	5000 h (see conditions in Test method and performance)	
Leakage current	$I = 0.06 CV (\mu\text{A}) + 10\mu\text{A}$ C = rated capacitance (μF); 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)	160	200	250	350	400	450
Z (-25°C) / Z (20°C)	3	3	3	5	5	6
Z (-40°C) / Z (20°C)	6	6	6	6	6	

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

Frequency	50 to 60 Hz	120 Hz	300 Hz	1 kHz	10 to 100 kHz
Multiplier factors	0.80	1.00	1.20	1.40	1.60

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

Temperature	65°C	85°C	105°C
Multiplier factors	1.70	1.40	1.00

Test method and performance

Conditions	Load life test	Shelf life test
Temperature: Test duration: Ripple current:	105°C 5000 hours max ripple current at 120Hz 105°C specified in the table	105°C 1000 hours no ripple current applied.
Voltage:	the sum of D.C. voltage and the peak A.C. voltage must not exceed the rated voltage of capacitor.	no voltage applied.
Performance	The following specifications will be satisfied when the capacitors will be 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.

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Technical data and ordering codes

Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	160 Vdc Rated voltage - 200 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	P/N
		D.F. 120 Hz 25°C ($\text{tg}\delta$ %)	Z 100 kHz 25°C (Ω)	R.C. 120 Hz 105°C (mA_{rms})			
22	10 x 19	15	1.52	160	221	ESG226M160AH4AA	
33	10 x 19	15	1.30	210	327	ESG336M160AH4AA	
47	13 x 20	15	0.95	260	461	ESG476M160AL3AA	
68	13 x 25	15	0.60	360	663	ESG686M160AL4AA	
68	16 x 20	15	0.55	430	663	ESG686M160AM5AA	
100	16 x 25	15	0.30	475	970	ESG107M160AM7AA	
100	18 x 20	15	0.31	465	970	ESG107M160AN4AA	
150	16 x 32	15	0.22	650	1450	ESG157M160AM2AA	
150	18 x 25	15	0.24	625	1450	ESG157M160AN5AA	
220	16 x 32	15	0.22	750	2122	ESG227M160AM2AA	
220	18 x 25	15	0.24	725	2122	ESG227M160AN5AA	
330	18 x 32	15	0.22	960	3178	ESG337M160AN1AA	

Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	200 Vdc Rated voltage - 250 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	P/N
		D.F. 120 Hz 25°C ($\text{tg}\delta$ %)	Z 100 kHz 25°C (Ω)	R.C. 120 Hz 105°C (mA_{rms})			
10	10 x 12	15	6.00	60	130	ESG106M200AH1AA	
22	10 x 19	15	1.50	160	274	ESG226M200AH4AA	
33	13 x 20	15	0.95	210	406	ESG336M200AL3AA	
47	13 x 20	15	0.91	260	574	ESG476M200AL3AA	
68	13 x 25	15	0.60	360	826	ESG686M200AL4AA	
68	16 x 20	15	0.55	430	826	ESG686M200AM5AA	
100	16 x 25	15	0.30	475	1210	ESG107M200AM7AA	
100	18 x 20	15	0.31	465	1210	ESG107M200AN4AA	
150	18 x 25	15	0.27	650	1810	ESG157M200AN5AA	
220	18 x 32	15	0.22	780	2650	ESG227M200AN1AA	

Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	250 Vdc Rated voltage - 300 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	P/N
		D.F. 120 Hz 25°C ($\text{tg}\delta$ %)	Z 100 kHz 25°C (Ω)	R.C. 120 Hz 105°C (mA_{rms})			
10	10 x 19	15	3.50	100	160	ESG106M250AH4AA	
22	13 x 20	15	2.50	160	340	ESG226M250AL3AA	
33	13 x 20	15	1.90	210	505	ESG336M250AL3AA	
47	13 x 25	15	1.70	270	715	ESG476M250AL4AA	
47	16 x 20	15	1.50	275	715	ESG476M250AM5AA	
68	16 x 25	15	0.80	380	1030	ESG686M250AM7AA	
68	18 x 20	15	0.95	375	1030	ESG686M250AN4AA	
100	16 x 32	15	0.65	520	1510	ESG107M250AM2AA	
100	18 x 25	15	0.65	500	1510	ESG107M250AN5AA	
150	18 x 32	15	0.45	650	2260	ESG157M250AN1AA	
220	18 x 40	15	0.35	820	3310	ESG227M250AN3AA	

Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	350 Vdc Rated voltage - 400 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	P/N
		D.F. 120 Hz 25°C ($\text{tg}\delta$ %)	Z 100 kHz 25°C (Ω)	R.C. 120 Hz 105°C (mA_{rms})			
10	10 x 19	20	3.00	100	220	ESG106M350AH4AA	
22	13 x 20	20	2.10	160	472	ESG226M350AL3AA	
33	13 x 25	20	1.00	230	703	ESG336M350AL4AA	
33	16 x 20	20	0.91	250	703	ESG336M350AM5AA	
47	16 x 25	20	0.75	300	997	ESG476M350AM7AA	
47	18 x 20	20	0.80	315	997	ESG476M350AN4AA	
68	16 x 32	20	0.50	400	1438	ESG686M350AM2AA	
68	18 x 25	20	0.55	380	1438	ESG686M350AN5AA	
100	18 x 32	20	0.40	530	2110	ESG107M350AN1AA	

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Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	400 Vdc Rated voltage - 450 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	P/N
		D.F. 120 Hz 25°C ($\text{tg}\delta$ %)	Z 100 kHz 25°C (Ω)	R.C. 120 Hz 105°C (mA_{rms})			
1.5	10 x 12	24	18.0	35	46	ESG155M400AH1AA	
2.2	10 x 12	24	12.5	40	63	ESG225M400AH1AA	
3.3	10 x 12	24	8.00	45	90	ESG335M400AH1AA	
4.7	10 x 15	24	3.50	50	123	ESG475M400AH2AA	
6.8	10 x 19	24	3.30	70	173	ESG685M400AH4AA	
10	10 x 19	24	2.90	100	250	ESG106M400AH4AA	
22	13 x 25	24	1.35	170	538	ESG226M400AL4AA	
22	16 x 20	24	1.00	200	538	ESG226M400AM5AA	
33	16 x 25	24	0.95	230	802	ESG336M400AM7AA	
33	18 x 20	24	0.91	250	802	ESG336M400AN4AA	
47	16 x 32	24	0.75	300	1138	ESG476M400AM2AA	
47	18 x 25	24	0.80	325	1138	ESG476M400AN5AA	
68	18 x 36	24	0.49	420	1642	ESG686M400AN2AA	
100	18 x 40	24	0.34	545	2410	ESG107M400AN3AA	
150	22 x 40	24	0.30	650	3610	ESG157M400AQ4AA	

Rated cap. 120 Hz 20°C (μF)	Case size DxL (mm)	450 Vdc Rated voltage - 500 Vdc Surge voltage				L.C. 20°C 2 min. (μA)	P/N
		D.F. 120 Hz 25°C ($\text{tg}\delta$ %)	Z 100 kHz 25°C (Ω)	R.C. 120 Hz 105°C (mA_{rms})			
3.3	10 x 19	24	6.50	60	99	ESG335M450AH4AA	
4.7	13 x 20	24	3.60	80	137	ESG475M450AL3AA	
6.8	10 x 19	24	3.40	90	194	ESG685M450AH4AA	
10	13 x 20	24	3.00	110	280	ESG106M450AL3AA	
22	16 x 25	24	1.80	190	604	ESG226M450AM7AA	
22	18 x 20	24	2.20	200	604	ESG226M450AN4AA	
33	16 x 32	24	1.30	275	901	ESG336M450AM2AA	
33	18 x 25	24	1.20	280	901	ESG336M450AN5AA	
47	18 x 32	24	1.00	340	1279	ESG476M450AN1AA	
68	18 x 40	24	0.80	460	1846	ESG686M450AN3AA	
100	22 x 40	24	0.60	580	2710	ESG107M450AQ4AA	