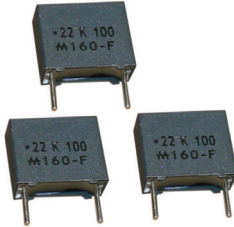


Type 160 Metallized Polyester Radial Lead Capacitors

Radial Box Metallized Polyester Capacitors



The Type 160 series radial lead metallized polyester box capacitors are constructed in rugged rectangular plastic cases with lead spacings that are standard in the electronics industry. All Type 160 capacitors are available in bulk with a .217" $\pm$.039" lead length, and they are good for general purpose applications such as bypass, decoupling, energy storage/discharge and

Highlights

- RoHS compliant
- Rugged plastic case
- Case and epoxy fill meets UL94V0
- 10 mm through 27.5 mm lead spacings
- Non-inductively wound
- Non-polar
- Wire lead material, tinned copper clad steel

Specifications

Capacitance Range: 0.0022 μ F to 10.0 μ F

Voltage Range: 63 Vdc to 1000 Vdc (40 Vac - 250 Vac 50/60 Hz)

Capacitance Tolerance: $\pm$ 5%, $\pm$ 10%, $\pm$ 20%

Operating Temperature Range: -55 $^{\circ}$ C to +125 $^{\circ}$ C (derating voltage to 1.25% per $^{\circ}$ C above 85 $^{\circ}$ C)

Dielectric Withstand Voltage: 1.6 x rated voltage for 2 sec @ +25 $^{\circ}$ C $\pm$ 5 $^{\circ}$ C

Dissipation Factor (DF): $\tan \delta \times 10^{-4}$ at 25 $^{\circ}$ C $\pm$ 5 $^{\circ}$ C

kHz	C $\leq$ 1 μ F	C >1 μ F
1	$\leq$ 100	$\leq$ 100
10	$\geq$ 150	

Total Self Inductance (L):

Pitch (mm)	10	15	22.5	27.5
L (nH) $\approx$	9	10	18	18

Long Term Stability (after two years): Capacitance change $\Delta C/C \leq \pm 3\%$ under standard environmental conditions

Corona (Partial Discharge Inception Voltage): 200 Vac for 100 Vdc, 200 Vdc
250 Vac for 400 Vdc, 630 Vdc
300 Vac for 1000 Vdc



Maximum Pulse Rise Time (dv/dt):

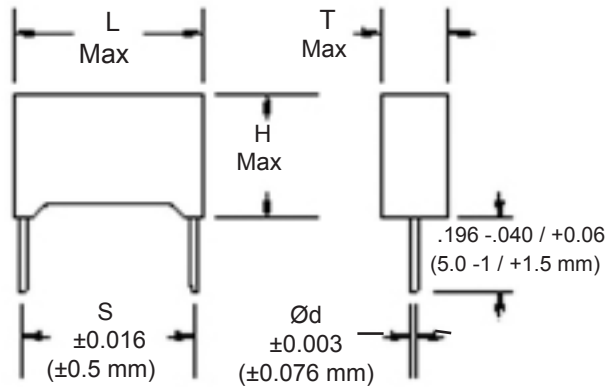
Vn	Pitch (mm)			
	10	15	22.5	27.5
63	3	1.5	1	1
100/160	6/8	3	2	1
250	11	7	4	3
400	20	10	5.5	5
630	30	15	8	7
1000	60	25	15	10

If the working voltage (V) is less than the nominal voltage (Vn), the capacitor can work at higher dv/dt. In this case, the maximum value allowed is obtained by multiplying the above value with the ratio Vn/V.

Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

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Capacitor Outline Drawing



Note: The lead diameter is a maximum dimension for lead spacing ≤ 15 mm and a nominal for lead spacing > 15 mm

Test Method and Performance

Soldering	
Test Conditions	
Soldering Temperature	260 °C ± 5 °C
Soldering Duration	10 sec ± 1 sec
Performance	
Capacitance Change $\Delta C/C$	$\leq \pm 2\%$
DF Change $\Delta \tan \delta$	$\leq 30 \times 10^{-4}$ at 10 kHz for C ≤ 1.0 μF $\leq 20 \times 10^{-4}$ at 1 kHz for C > 1.0 μF

Insulation Resistance	
Test Conditions	
Temperature	25 °C ± 5 °C
Voltage Charge Time	1 minute
Voltage Charge	50 Vdc for Vn < 100 Vdc 100 Vdc for Vn ≥ 100 Vdc
Performance	
For Vn > 100 Vdc	$\geq 30,000$ M Ω for $\leq 0.33 \mu F$ $\geq 10,000$ M $\Omega \times \mu F$ for C $> 0.33 \mu F$
For Vn ≤ 100 Vdc	$\geq 10,000$ M Ω for C $\leq 0.1 \mu F$ $\geq 1,000$ M $\Omega \times \mu F$ for $\leq 0.1 \mu F$
Damp Heat Test	
Test Conditions	
Temperature	+40 °C
Relative Humidity	95%
Test Duration	21 days
Performance	
Capacitance Change $\Delta C/C$	$\leq \pm 5\%$
DF Change $\Delta \tan \delta$	$\leq 50 \times 10^{-4}$ at 1 kHz
Insulation Resistance	$\geq 50\%$ of limit value
Life Test	
Test Conditions	
Temperature	+85 °C
Test Duration	1000 hrs
Voltage Applied	1.25 x Vn
Performance	
Capacitance Change $\Delta C/C$	$\leq \pm 5\%$
DF Change $\Delta \tan \delta$	$\leq 30 \times 10^{-4}$ at 10 kHz for C ≤ 1.0 μF $\leq 20 \times 10^{-4}$ at 1 kHz for C > 1.0 μF
Insulation Resistance	$\geq 50\%$ of limit value

Ratings

RoHS Compliant

Cap (μ F)	Catalog Part Number	Inches					Millimeters				
		L	T	H	S	Ød	L	T	H	S	Ød
	63 Vdc / 40 Vac										
.22	160224*63C-F	0.512	0.157	0.374	0.394	0.031	13.0	5.0	11.0	10.0	0.8
.27	160274*63C-F	0.512	0.157	0.374	0.394	0.031	13.0	5.0	11.0	10.0	0.8
.33	160334*63C-F	0.512	0.157	0.374	0.394	0.031	13.0	6.0	12.0	10.0	0.8
.39	160394*63C-F	0.512	0.157	0.374	0.394	0.031	13.0	6.0	12.0	10.0	0.8
.47	160474*63D-F	0.512	0.197	0.433	0.394	0.031	13.0	6.0	12.0	10.0	0.8
.56	160564*63D-F	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
.68	160684*63D-F	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
.68	160684*63F-F	0.709	0.236	0.472	0.591	0.031	18.0	6.0	12.0	15.0	0.8
.82	160824*63E-F	0.512	0.236	0.472	0.394	0.031	13.0	6.0	12.0	10.0	0.8
.82	160824*63F-F	0.709	0.197	0.433	0.591	0.031	18.0	7.0	13.0	15.0	0.8
1.0	160105*63F-F	0.709	0.197	0.433	0.591	0.031	18.0	7.5	13.5	15.0	0.8
1.5	160155*63F-F	0.709	0.236	0.472	0.591	0.031	18.0	6.0	12.5	15.0	0.8
2.2	160225*63G-F	0.709	0.295	0.531	0.591	0.031	18.0	7.5	14.0	15.0	0.8
3.3	160335*63M-F	1.043	0.276	0.650	0.886	0.031	18.0	10.0	16.0	15.0	0.8
4.7	160475*63N-F	1.043	0.335	0.669	0.886	0.031	26.0	8.5	17.0	22.5	0.8
6.8	160685*63O-F	1.043	0.394	0.748	0.886	0.031	26.0	10.0	19.0	22.5	0.8
10.0	160106*63P-F	1.260	0.433	0.787	1.083	0.031	26.0	12.0	21.5	22.5	0.8

* Indicates capacitance tolerance: J = $\pm 5\%$, K = $\pm 10\%$, M = $\pm 20\%$

