

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 arc suppression.

Highlights

- ♦ Rugged plastic case
- ♦ Case and epoxy fill meets UL94V0
- ♦ 10 mm through 27.5 mm lead spacings
- ♦ Non-inductively wound
- ♦ Non-polar

Specifications

Capacitance Range: 0.0022 μ F to 10.0 μ F

Voltage Range: 63 Vdc to 1000 Vdc (40 Vac to 250 Vac, 60 Hz)

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

Operating Temperature Range: -55 $^{\circ}$ C to +125 $^{\circ}$ C (with 50% Vdc derating >85 $^{\circ}$ C)

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

Dissipation Factor (DF): $\text{tg}\delta \times 10^{-4}$ 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

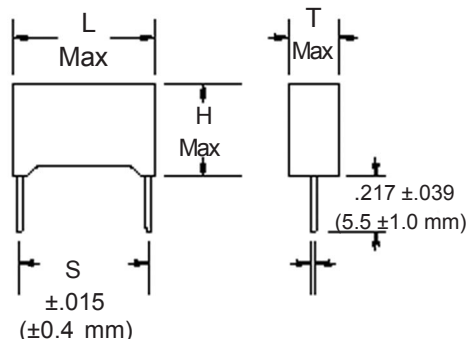
Maximum Pulse Rise Time (dv/dt):

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.

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Outline Drawing



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

Soldering	
Test Conditions	
Soldering Temperature	260 °C ±5 °C
Soldering Duration	10 sec ±1 sec
Performance	
Capacitance Change $\Delta C/C$	≤ ±2%
DF Change $\Delta tg\delta$	≤ 30 x 10 ⁻⁴ at 10 kHz for C ≤ 1.0 μF ≤ 20 x 10 ⁻⁴ at 1 kHz for C > 1.0 μF

Test Method and Performance

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	≥ 30,000 M Ω for ≤ 0.33 μF ≥ 10,000 M Ω x μF for C > 0.33 μF
For Vn ≤ 100 Vdc	≥ 10,000 M Ω for C ≤ 0.1 μF ≥ 1,000 M Ω x μF for C > 0.1 μF
Damp Heat Test	
Test Conditions	
Temperature	+40 °C
Test Duration	95%
Voltage Applied	21 days
Performance	
Capacitance Change $\Delta C/C$	≤ ±5%
DF Change $\Delta tg\delta$	≤ 50 x 10 ⁻⁴ at 1 kHz
Insulation Resistance	≥ 50% of limit value
Life Test	
Test Conditions	
Temperature	+85 °C
Test Duration	1000 hrs
Voltage Applied	1.25 x Vn
Performance	
Capacitance Change $\Delta C/C$	≤ ±5%
DF Change $\Delta tg\delta$	≤ 30 x 10 ⁻⁴ at 10 kHz for C ≤ 1.0 μF ≤ 20 x 10 ⁻⁴ at 1 kHz for C > 1.0 μF
Insulation Resistance	≥ 50% of limit value

Ratings

Catalog Part Number	Cap (μ F)	Inches					Millimeters				
		L	T	H	S	Ød	L	T	H	S	Ød
63 Vdc / 40 Vac											
160224*63C	0.22	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160274*63C	0.27	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160334*63C	0.33	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160394*63C	0.39	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160474*63D	0.47	0.512	0.197	0.433	0.394	0.031	13	5	11	10	0.8
160564*63D	0.56	0.512	0.197	0.433	0.394	0.031	13	5	11	10	0.8
160684*63D	0.68	0.512	0.197	0.433	0.394	0.031	13	5	11	10	0.8
160684*63F	0.68	0.709	0.197	0.433	0.591	0.031	18	5	11	15	0.8
160824*63E	0.82	0.512	0.236	0.472	0.394	0.031	13	6	12	10	0.8
160824*63F	0.82	0.709	0.197	0.433	0.591	0.031	18	5	11	15	0.8
160105*63E	1.0	0.512	0.236	0.472	0.394	0.031	13	6	12	10	0.8
160105*63F	1.0	0.709	0.197	0.433	0.591	0.031	18	5	11	15	0.8
160155*63F	1.5	0.709	0.197	0.433	0.591	0.031	18	5	11	15	0.8
160225*63G	2.2	0.709	0.236	0.472	0.591	0.031	18	6	12	15	0.8
160335*63M	3.3	1.043	0.276	0.630	0.886	0.031	26.5	7	16	22.5	0.8
160475*63N	4.7	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17	22.5	0.8
160685*63O	6.8	1.043	0.394	0.748	0.886	0.031	26.5	10.0	19	22.5	0.8
160106*63P	10	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20	27.5	0.8

* Indicates capacitance tolerance: J = ±5%, K = ±10%, M = ±20%

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Catalog Part Number	Cap (µF)	Inches					Millimeters				
		L	T	H	S	Ød	L	T	H	S	Ød
100 Vdc / 63 Vac											
160104*100C	0.10	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160124*100C	0.12	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160154*100C	0.15	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160184*100C	0.18	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160224*100D	0.22	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160274*100D	0.27	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160334*100E	0.33	0.512	0.236	0.472	0.394	0.031	13	6	12.0	10	0.8
160334*100F	0.33	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160394*100D	0.39	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160394*100F	0.39	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160474*100E	0.47	0.512	0.236	0.472	0.394	0.031	13	6	12.0	10	0.8
160474*100F	0.47	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160564*100G	0.56	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160684*100G	0.68	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160824*100H	0.82	0.709	0.295	0.531	0.591	0.031	18	7.5	13.5	15	0.8
160105*100H	1.0	0.709	0.295	0.531	0.591	0.031	18	7.5	13.5	15	0.8
160155*100M	1.5	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160225*100N	2.2	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160335*100O	3.3	1.043	0.394	0.748	0.886	0.031	26.5	10.0	19.0	22.5	0.8
160475*100P	4.7	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160685*100Q	6.8	1.260	0.512	0.886	1.083	0.031	32.0	13.0	22.5	27.5	0.8
160106*100S	10.0	1.457	0.709	1.299	1.083	0.031	37.0	18.0	33.0	27.5	0.8
250 Vdc / 160 Vac											
160333*250C	0.033	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160393*250C	0.039	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160473*250C	0.047	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160563*250C	0.056	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160683*250C	0.068	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160823*250D	0.082	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160104*250D	0.10	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160104*250F	0.10	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160124*250D	0.12	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160124*250F	0.12	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160154*250E	0.15	0.512	0.236	0.472	0.394	0.031	13	6	12.0	10	0.8
160154*250F	0.15	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160184*250E	0.18	0.512	0.236	0.472	0.394	0.031	13	6	12.0	10	0.8
160184*250F	0.18	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160224*250F	0.22	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160274*250G	0.27	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160334*250G	0.33	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160394*250H	0.39	0.709	0.295	0.531	0.591	0.031	18	7.5	13.5	15	0.8
160474*250H	0.47	0.709	0.295	0.531	0.591	0.031	18	7.5	13.5	15	0.8
160474*250L	0.47	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160564*250I	0.56	0.709	0.335	0.571	0.591	0.031	18.0	8.5	14.5	15.0	0.8
160564*250M	0.56	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160684*250I	0.68	0.709	0.335	0.571	0.591	0.031	18.0	8.5	14.5	15.0	0.8
160684*250M	0.68	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160824*250M	0.82	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8

* Indicates capacitance tolerance: J = ±5%, K = ±10%, M = ±20%

Also available in 160 Vdc

Type 160 Metallized Polyester Radial Lead Capacitors

Catalog Part Number	Cap (µF)	Inches					Millimeters				
		L	T	H	S	Ød	L	T	H	S	Ød
250 Vdc / 160 Vac											
160105*250N	1.0	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17	22.5	0.8
160155*250O	1.5	1.043	0.394	0.748	0.886	0.031	26.5	10	19	22.5	0.8
160225*250P	2.2	1.260	0.433	0.787	1.083	0.031	32	11	20	27.5	0.8
160335*250Q	3.3	1.260	0.512	0.886	1.083	0.031	32	13	22.5	27.5	0.8
160475*250R	4.7	1.260	0.591	1.181	1.083	0.031	32	15	30.0	27.5	0.8
160685*250S	6.8	1.457	0.709	1.299	1.083	0.031	37	18	33.0	27.5	0.8
400 Vdc / 200 Vac											
160123*400C	0.012	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160153*400C	0.015	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160183*400C	0.018	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160223*400C	0.022	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160273*400C	0.027	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160333*400D	0.033	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160393*400D	0.039	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160473*400E	0.047	0.512	0.236	0.472	0.394	0.031	13	6	12.0	10	0.8
160473*400F	0.047	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160563*400F	0.056	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160683*400F	0.068	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160823*400F	0.082	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160104*400G	0.10	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160124*400G	0.12	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160154*400H	0.15	0.709	0.295	0.531	0.591	0.031	18	7.5	13.5	15	0.8
160154*400L	0.15	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160184*400L	0.18	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160224*400L	0.22	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160274*400M	0.27	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160334*400M	0.33	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160394*400N	0.39	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160474*400N	0.47	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160564*400O	0.56	1.043	0.394	0.748	0.886	0.031	26.5	10.0	19.0	22.5	0.8
160684*400P	0.68	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160824*400P	0.82	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160105*400P	1.00	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160105*400Q	1.00	1.260	0.512	0.886	1.083	0.031	32.0	13.0	22.5	27.5	0.8
630 Vdc / 220 Vac											
160392*630C	0.0039	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160472*630C	0.0047	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160562*630C	0.0056	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160682*630C	0.0068	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160822*630C	0.0082	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160103*630C	0.010	0.512	0.157	0.374	0.394	0.031	13	4	9.5	10	0.8
160123*630D	0.012	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160153*630D	0.015	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160183*630D	0.018	0.512	0.197	0.433	0.394	0.031	13	5	11.0	10	0.8
160223*630E	0.022	0.512	0.236	0.472	0.394	0.031	13	6	12.0	10	0.8
160273*630F	0.027	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160333*630F	0.033	0.709	0.197	0.433	0.591	0.031	18	5	11.0	15	0.8
160393*630G	0.039	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160473*630G	0.047	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8
160563*630G	0.056	0.709	0.236	0.472	0.591	0.031	18	6	12.0	15	0.8

* Indicates capacitance tolerance: J = ±5%, K = ±10%, M = ±20%

Type 160 Metallized Polyester Radial Lead Capacitors

Catalog Part Number	Cap (μF)	Inches					Millimeters				
		L	T	H	S	Ød	L	T	H	S	Ød
630 Vdc / 220 Vac											
160683*630H	0.068	0.709	0.295	0.531	0.591	0.031	18	7.5	13.5	15	0.8
160683*630L	0.068	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160823*630L	0.082	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160104*630L	0.10	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160124*630M	0.12	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160154*630M	0.15	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160184*630N	0.18	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160224*630N	0.22	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160274*630Q	0.27	1.260	0.512	0.886	1.083	0.031	32.0	13.0	22.5	27.5	0.8
160334*630P	0.33	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160394*630P	0.39	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160474*630Q	0.47	1.260	0.512	0.886	1.083	0.031	32.0	13.0	22.5	27.5	0.8
1000 Vdc / 250 Vac											
160222*1000C	0.0022	0.512	0.157	0.374	0.394	0.031	13.0	4.0	9.5	10.0	0.8
160272*1000C	0.0027	0.512	0.157	0.374	0.394	0.031	13.0	4.0	9.5	10.0	0.8
160332*1000C	0.0033	0.512	0.157	0.374	0.394	0.031	13.0	4.0	9.5	10.0	0.8
160392*1000D	0.0039	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
160472*1000D	0.0047	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
160562*1000D	0.0056	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
160682*1000D	0.0068	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
160822*1000D	0.0082	0.512	0.197	0.433	0.394	0.031	13.0	5.0	11.0	10.0	0.8
160103*1000F	0.010	0.709	0.197	0.433	0.591	0.031	18.0	5.0	11.0	15.0	0.8
160123*1000F	0.012	0.709	0.197	0.433	0.591	0.031	18.0	5.0	11.0	15.0	0.8
160153*1000F	0.015	0.709	0.197	0.433	0.591	0.031	18.0	5.0	11.0	15.0	0.8
160183*1000G	0.018	0.709	0.236	0.472	0.591	0.031	18.0	6.0	12.0	15.0	0.8
160223*1000G	0.022	0.709	0.236	0.472	0.591	0.031	18.0	6.0	12.0	15.0	0.8
160273*1000H	0.027	0.709	0.295	0.531	0.591	0.031	18.0	7.5	13.5	15.0	0.8
160333*1000L	0.033	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160393*1000L	0.039	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160473*1000L	0.047	1.043	0.236	0.591	0.886	0.031	26.5	6.0	15.0	22.5	0.8
160563*1000M	0.056	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160683*1000M	0.068	1.043	0.276	0.630	0.886	0.031	26.5	7.0	16.0	22.5	0.8
160823*1000N	0.082	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160104*1000N	0.10	1.043	0.335	0.669	0.886	0.031	26.5	8.5	17.0	22.5	0.8
160124*1000O	0.12	1.043	0.394	0.748	0.886	0.031	26.5	10.0	19.0	22.5	0.8
160154*1000P	0.15	1.260	0.433	0.787	1.083	0.031	32.0	11.0	20.0	27.5	0.8
160184*1000Q	0.18	1.260	0.512	0.886	1.083	0.031	32.0	13.0	22.5	27.5	0.8
160224*1000Q	0.22	1.260	0.512	0.886	1.083	0.031	32.0	13.0	22.5	27.5	0.8

* Indicates capacitance tolerance: J = ±5%, K = ±10%, M = ±20%

Part Numbering System

160	104	K	100	C
Series	Capacitance	Tolerance	Voltage	Case Code
160	392 = .0039 μF	J = ±5%	100 = 100 Vdc	C
	103 = .01 μF	K = ±10%	250 = 250 Vdc	D
	104 = .1 μF	M = ±20%	630 = 630 Vdc	E
	105 = 1.0 μF		1000 = 1000 Vdc	F
				etc.