

160 Series Metallized Polyester / Radial Leads



- Radial Leaded (10 mm to 27.5 mm)
- Non Inductively Wound
- Non-Polar
- Flame Retardant Case Meets UL94V-0
- Epoxy Encapsulant Meets UL94V-0
- Lead Material Tinned Copper Clad Steel

Excellent choice for general purpose applications such as bypass, decoupling, smoothing and some timing, energy storage/ discharge and arc suppression.

GENERAL SPECIFICATIONS

Operating Temperature: -55°C to +125°C with voltage derating above 85°C
 Voltage Range: 63 VDC to 1000 VDC
 Capacitance Range: 0.0022 μ F to 10 μ F
 Capacitance Tolerance: \pm 5%, \pm 10%, \pm 20%
 CECC Approval: Detail Specification 30401-009

Total Self Inductance (L):

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

Dielectric Withstand Voltage: 1.6 x Rated Voltage for 2 sec at +25°C \pm 5°C

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

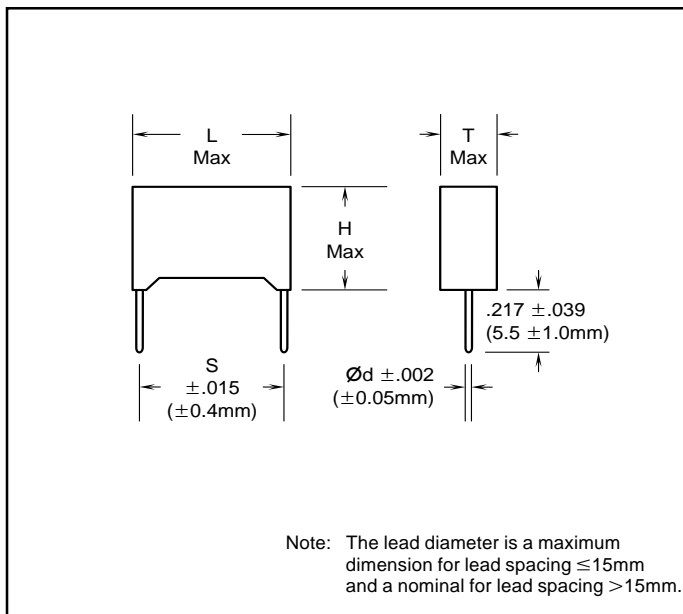
kHz	C \leq 1 μ F	C > 1 μ F
1	\leq 100	\leq 100
10	\leq 150	\leq 150

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 (See table dv/dt) with the ratio Vn/V.

Outline Dimensions



Test Method and Performance

Insulation Resistance	
Test Conditions	Temperature 25°C \pm 5°C
	Voltage Charge Time 1 minute
	Voltage Charge 50 VDC for Vn < 100 VDC
	100 VDC for Vn \geq 100 VDC
Performance	For Vn > 100 VDC \geq 30,000 M Ω for C \leq 0.33 μ F
	\geq 10,000 M Ω x μ F for C > 0.33 μ F
	For Vn \leq 100 VDC \geq 10,000 M Ω for C \leq 0.1 μ F
	\geq 1,000 M Ω x μ F for C > 0.1 μ F
Damp Heat Test	
Test Conditions	Temperature +40°C
	Relative Humidity 95%
	Test Duration 21 days
Performance	Capacitance Change Δ C/C \leq \pm 5%
	DF Change Δ tg δ \leq 50 x 10 ⁻⁴ at 1kHz
	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 Δ C/C \leq \pm 5%
	DF Change Δ tg δ \leq 30 x 10 ⁻⁴ at 10kHz for C \leq 1 μ F
	\leq 20 x 10 ⁻⁴ at 1kHz for C > 1 μ F
	Insulation Resistance \geq 50% of limit value
Soldering	
Test Conditions	Soldering Temperature 260°C \pm 5°C
	Soldering Duration 10 sec \pm 1 sec
Performance	Capacitance Change Δ C/C \leq \pm 2%
	DF Change Δ tg δ \leq 30 x 10 ⁻⁴ at 10kHz for C \leq 1 μ F
	\leq 20 x 10 ⁻⁴ at 1kHz for C > 1 μ F
Long Term Stability (after two years)	
Storage Performance	Standard Environmental Conditions
	Capacitance Change Δ C/C \leq \pm 3%
Corona (Partial Discharge Inception Voltage)	200 VAC for 100 VDC, 200 VDC
	250 VAC for 400 VDC, 630 VDC,
	300 VAC for 1000 VDC

160 Series Metallized Polyester / Radial Leads



Film Capacitors

Catalog Number	Cap μ F	Inches					Millimeters				
		L	T	H	S	\varnothing d	L	T	H	S	\varnothing d
63 VDC/40 VAC											
160224*63C	.22	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160274*63C	.27	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160334*63C	.33	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160394*63C	.39	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160474*63D	.47	.512	.197	.433	.394	.031	13	5	11	10	.8
160564*63D	.56	.512	.197	.433	.394	.031	13	5	11	10	.8
160684*63D	.68	.512	.197	.433	.394	.031	13	5	11	10	.8
160684*63F	.68	.709	.197	.433	.591	.031	18	5	11	15	.8
160824*63E	.82	.512	.236	.472	.394	.031	13	6	12	10	.8
160824*63F	.82	.709	.197	.433	.591	.031	18	5	11	15	.8
160105*63E	1.0	.512	.236	.472	.394	.031	13	6	12	10	.8
160105*63F	1.0	.709	.197	.433	.591	.031	18	5	11	15	.8
160155*63F	1.5	.709	.197	.433	.591	.031	18	5	11	15	.8
160225*63G	2.2	.709	.236	.472	.591	.031	18	6	12	15	.8
160335*63M	3.3	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160475*63N	4.7	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160685*63O	6.8	1.043	.394	.748	.886	.031	26.5	10	19	22.5	.8
160106*63P	10	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
100 VDC/63 VAC											
# 160104*100C	.10	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160124*100C	.12	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160154*100C	.15	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160184*100C	.18	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160224*100D	.22	.512	.197	.433	.394	.031	13	5	11	10	.8
160274*100D	.27	.512	.197	.433	.394	.031	13	5	11	10	.8
160334*100E	.33	.512	.236	.472	.394	.031	13	6	12	10	.8
160334*100F	.33	.709	.197	.433	.591	.031	18	5	11	15	.8
160394*100D	.39	.512	.197	.433	.394	.031	13	5	11	10	.8
160394*100F	.39	.709	.197	.433	.591	.031	18	5	11	15	.8
160474*100E	.47	.512	.236	.472	.394	.031	13	6	12	10	.8
160474*100F	.47	.709	.197	.433	.591	.031	18	5	11	15	.8
160564*100G	.56	.709	.236	.472	.591	.031	18	6	12	15	.8
160684*100G	.68	.709	.236	.472	.591	.031	18	6	12	15	.8
160824*100H	.82	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160105*100H	1.0	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160155*100M	1.5	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160225*100N	2.2	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160335*100O	3.3	1.043	.394	.748	.886	.031	26.5	10	19	22.5	.8
160475*100P	4.7	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160685*100Q	6.8	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8
160106*100S	10	1.457	.709	1.299	1.083	.031	32	18	33	27.5	.8
250 VDC/160 VAC											
160333*250C	.033	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160393*250C	.039	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160473*250C	.047	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160563*250C	.056	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160683*250C	.068	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160823*250D	.082	.512	.197	.433	.394	.031	13	5	11	10	.8
160104*250D	.10	.512	.197	.433	.394	.031	13	5	11	10	.8
160104*250F	.10	.709	.197	.433	.591	.031	18	5	11	15	.8
160124*250D	.12	.512	.197	.433	.394	.031	13	5	11	10	.8
160124*250F	.12	.709	.197	.433	.591	.031	18	5	11	15	.8
160154*250E	.15	.512	.236	.472	.394	.031	13	6	12	10	.8
160154*250F	.15	.709	.197	.433	.591	.031	18	5	11	15	.8
160184*250E	.18	.512	.236	.472	.394	.031	13	6	12	10	.8
160184*250F	.18	.709	.197	.433	.591	.031	18	5	11	15	.8
160224*250F	.22	.709	.197	.433	.591	.031	18	5	11	15	.8
160274*250G	.27	.709	.236	.472	.591	.031	18	6	12	15	.8
160334*250G	.33	.709	.236	.472	.591	.031	18	6	12	15	.8
160394*250H	.39	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160474*250H	.47	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160474*250L	.47	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160564*250I	.56	.709	.335	.571	.591	.031	18	8.5	14.5	15	.8
160564*250M	.56	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160684*250I	.68	.709	.335	.571	.591	.031	18	8.5	14.5	15	.8
160684*250M	.68	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160824*250M	.82	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8

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

Also available in 160 VDC

160 Series Metallized Polyester / Radial Leads



Film Capacitors

Catalog Number	Cap μ F	Inches					Millimeters				
		L	T	H	S	ϕ d	L	T	H	S	ϕ d
250 VDC/160 VAC											
160105*250N	1.0	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160155*250O	1.5	1.043	.394	.748	.886	.031	26.5	10	19	22.5	.8
160225*250P	2.2	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160335*250Q	3.3	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8
160475*250R	4.7	1.260	.591	1.181	1.083	.031	32	15	30	27.5	.8
160685*250S	6.8	1.457	.709	1.299	1.083	.031	32	18	33	27.5	.8

400 VDC/200 VAC											
160123*400C	.012	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160153*400C	.015	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160183*400C	.018	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160223*400C	.022	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160273*400C	.027	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160333*400D	.033	.512	.197	.433	.394	.031	13	5	11	10	.8
160393*400D	.039	.512	.197	.433	.394	.031	13	5	11	10	.8
160473*400E	.047	.512	.236	.472	.394	.031	13	6	12	10	.8
160473*400F	.047	.709	.197	.433	.591	.031	18	5	11	15	.8
160563*400F	.056	.709	.197	.433	.591	.031	18	5	11	15	.8
160683*400F	.068	.709	.197	.433	.591	.031	18	5	11	15	.8
160823*400F	.082	.709	.197	.433	.591	.031	18	5	11	15	.8
160104*400G	.10	.709	.236	.472	.591	.031	18	6	12	15	.8
160124*400G	.12	.709	.236	.472	.591	.031	18	6	12	15	.8
160154*400H	.15	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160154*400L	.15	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160184*400L	.18	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160224*400L	.22	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160274*400M	.27	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160334*400M	.33	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160394*400N	.39	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160474*400N	.47	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160564*400O	.56	1.043	.394	.748	.886	.031	26.5	10	19	22.5	.8
160684*400P	.68	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160824*400P	.82	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160105*400P	1.0	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160105*400Q	1.0	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8

630 VDC/220 VAC											
160392*630C	.0039	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160472*630C	.0047	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160562*630C	.0056	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160682*630C	.0068	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160822*630C	.0082	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160103*630C	.010	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160123*630D	.012	.512	.197	.433	.394	.031	13	5	11	10	.8
160153*630D	.015	.512	.197	.433	.394	.031	13	5	11	10	.8
160183*630D	.018	.512	.197	.433	.394	.031	13	5	11	10	.8
160223*630E	.022	.512	.236	.472	.394	.031	13	6	12	10	.8
160273*630F	.027	.709	.197	.433	.591	.031	18	5	11	15	.8
160333*630F	.033	.709	.197	.433	.591	.031	18	5	11	15	.8
160393*630G	.039	.709	.236	.472	.591	.031	18	6	12	15	.8
160473*630G	.047	.709	.236	.472	.591	.031	18	6	12	15	.8
160563*630G	.056	.709	.236	.472	.591	.031	18	6	12	15	.8
160683*630H	.068	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160683*630L	.068	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160823*630L	.082	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160104*630L	.10	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160124*630M	.12	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160154*630M	.15	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160184*630N	.18	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160224*630N	.22	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160274*630Q	.27	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8
160334*630P	.33	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160394*630P	.39	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160474*630Q	.47	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8

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

160 Series Metallized Polyester / Radial Leads



Film Capacitors

Catalog Number	Cap μ F	Inches					Millimeters				
		L	T	H	S	\varnothing d	L	T	H	S	\varnothing d
1000 VDC/250 VAC											
160222*1000C	.0022	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160272*1000C	.0027	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160332*1000C	.0033	.512	.157	.374	.394	.031	13	4	9.5	10	.8
160392*1000D	.0039	.512	.197	.433	.394	.031	13	5	11	10	.8
160472*1000D	.0047	.512	.197	.433	.394	.031	13	5	11	10	.8
160562*1000D	.0056	.512	.197	.433	.394	.031	13	5	11	10	.8
160682*1000D	.0068	.512	.197	.433	.394	.031	13	5	11	10	.8
160822*1000D	.0082	.512	.197	.433	.394	.031	13	5	11	10	.8
160103*1000F	.010	.709	.197	.433	.591	.031	18	5	11	15	.8
160123*1000F	.012	.709	.197	.433	.591	.031	18	5	11	15	.8
160153*1000F	.015	.709	.197	.433	.591	.031	18	5	11	15	.8
160183*1000G	.018	.709	.236	.472	.591	.031	18	6	12	15	.8
160223*1000G	.022	.709	.236	.472	.591	.031	18	6	12	15	.8
160273*1000H	.027	.709	.295	.531	.591	.031	18	7.5	13.5	15	.8
160333*1000L	.033	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160393*1000L	.039	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160473*1000L	.047	1.043	.236	.591	.886	.031	26.5	6	15	22.5	.8
160563*1000M	.056	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160683*1000M	.068	1.043	.276	.630	.886	.031	26.5	7	16	22.5	.8
160823*1000N	.082	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160104*1000N	.10	1.043	.335	.669	.886	.031	26.5	8.5	17	22.5	.8
160124*1000O	.12	1.043	.394	.748	.886	.031	26.5	10	19	22.5	.8
160154*1000P	.15	1.260	.433	.787	1.083	.031	32	11	20	27.5	.8
160184*1000Q	.18	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8
160224*1000Q	.22	1.260	.512	.886	1.083	.031	32	13	22.5	27.5	.8

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