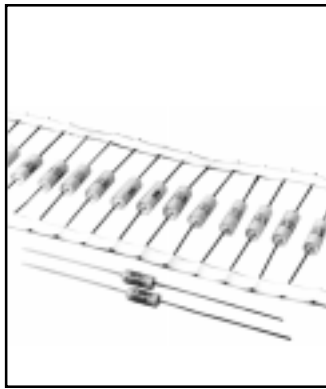


150 Series Metallized Polyester / Axial Leads



- Low Leakage
- Non-Polar
- Axial Leads
Lead Material - Tinned Copper
Wire (Min. Lead content 5%)
- Available Tape and Reel
- Tape Wrapped with Epoxy
End Fill
- Non Inductively Wound
- Flame Retardant Polyester
Wrap Meets UL510
- Epoxy End Fill Meets UL94V-0

GENERAL SPECIFICATIONS

Operating Temperature: -55° C to +125° C with voltage derating above 85° C

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

Voltage Range: 63 VDC to 1000 VDC

CECC Approval: Detail Specification 30401-021

Capacitance Range: 0.001 μF to 10 μF

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

Capacitance Tolerance: ±5%, ±10%, ±20%

Total Self Inductance (L): 1nH maximum per 1mm lead and capacitor length

Dissipation Factor (DF) tgδ x 10⁻⁴ at +25° C ± 5° C

	KHz	C ≤ 0.1 μF	0.1 μF < C ≤ 1 μF	C > 1 μF
Max Value	1	80	80	100
Typical Value	10	150	150	—
	100	250	—	—

Maximum Pulse Rise Time dv/dt and Pulse Characteristic (Wo)

Vn	L max				
	≤ 16.5	19-20.5	26.5-28	31.5-33	
50-63	4	2	1.5	1	dv/dt (V/μsec)
	504	252	189	126	Wo (V ² /μsec)
100	5	3	2	1	dv/dt (V/μsec)
	1,000	600	400	300	Wo (V ² /μsec)
250	10	7	4	2.5	dv/dt (V/μsec)
	5,000	3,500	2,000	1,250	Wo (V ² /μsec)
400	13.5	10	6.5	4	dv/dt (V/μsec)
	10,800	8,000	5,200	3,200	Wo (V ² /μsec)
630	20	15	10	6	dv/dt (V/μsec)
	25,200	18,900	12,600	7,560	Wo (V ² /μsec)

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. The pulse characteristic (Wo) is a function of the peak-to-peak voltage and may not exceed the value given in the above table.

Tape and Reel Specifications[^]

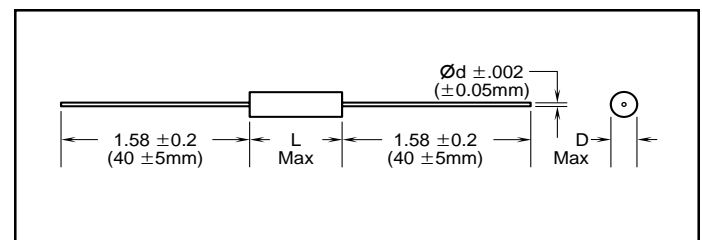
L Max (Body Length)		Lead Spacing		Distance Between Reel Flanges		Class
Inches	mm	Inches	mm	Inches	mm	
≤ .433	≤ 11	2.06	52.4	3.0	75	1
.551 - .808	14 - 20.5	2.5	63.6	3.4	86	2
≥ 1.03	≥ 26	2.87	73	3.7	95	3

[^] Add class number (1, 2, or 3) to Catalog Number to indicate tape and reel

Diameter		Quantity per Reel
Inches	mm	
.197	5	3,000
.236 thru .256	6.0 thru 6.5	1,200
.276	7	1,100
.315 thru .346	8 thru 8.5	800
.354 thru .413	9 thru 10.5	500
.433 thru .512	11 thru 13	300
.551 thru .571	14 thru 14.5	200
> .571	> 14.5	Not available

Test Method and Performance

Insulation Resistance	
Test Conditions	25° C ± 5° C
Temperature	1 minute
Voltage Charge Time	50 VDC for Vn < 100 VDC
Voltage Charge	100 VDC for Vn ≥ 100 VDC
Performance	
For Vn > 100 VDC	≥ 30,000 MΩ for C ≤ 0.33 μF
	≥ 10,000 MΩ x μF for C > 0.33 μF
For Vn ≤ 100 VDC	≥ 10,000 MΩ for C ≤ 0.1 μF
	≥ 1,000 MΩ x μF for C > 0.1 μF
Damp Heat Test	
Test Conditions	+40° C
Temperature	95%
Relative Humidity	21 days
Test Duration	
Performance	
Capacitance Change ΔC/C	≤ ± 5%
DF Change Δtgδ	≤ 50 x 10 ⁻⁴ at 1kHz
Insulation Resistance	≥ 50% of limit value
Life Test	
Test Conditions	+85° C
Temperature	1000 hrs
Test Duration	1.25 x Vn
Voltage Applied	
Performance	
Capacitance Change ΔC/C	≤ ± 5%
DF Change Δtgδ	≤ 30 x 10 ⁻⁴ at 10kHz for C ≤ 1 μF
	≤ 20 x 10 ⁻⁴ at 1kHz for C > 1 μF
Insulation Resistance	≥ 50% of limit value
Soldering	
Test Conditions	260° C ± 5° C
Soldering Temperature	10 sec ± 1 sec
Soldering Duration	
Performance	
Capacitance Change ΔC/C	≤ ± 2%
DF Change Δtgδ	≤ 30 x 10 ⁻⁴ at 10kHz for C ≤ 1 μF
	≤ 20 x 10 ⁻⁴ at 1kHz for C > 1 μF
Insulation Resistance	≥ 50% of limit value
Long Term Stability (after two years)	
Storage Performance	Standard Environmental Conditions
Capacitance Change ΔC/C	≤ ± 3%



150 Series Metallized Polyester / Axial Leads



Film Capacitors

Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
63 VDC/40 VAC							
150154*63AA^	.15	.197	.433	.024	5.0	11.0	.6
150184*63AA^	.18	.197	.433	.024	5.0	11.0	.6
150224*63BB^	.22	.236	.650	.024	6.0	16.5	.6
150274*63BB^	.27	.236	.650	.024	6.0	16.5	.6
150334*63BB^	.33	.236	.650	.024	6.0	16.5	.6
150394*63CB^	.39	.256	.650	.024	6.5	16.5	.6
150474*63DB^	.47	.276	.650	.024	7.0	16.5	.6
150564*63DB^	.56	.276	.650	.024	7.0	16.5	.6
150684*63DC^	.68	.276	.807	.024	7.0	20.5	.6
150824*63EC^	.82	.315	.807	.031	8.0	20.5	.8
150105*63EC^	1.0	.315	.807	.031	8.0	20.5	.8
150155*63HC^	1.5	.374	.807	.031	9.5	20.5	.8
150225*63HE^	2.2	.374	1.102	.031	9.5	28.0	.8
150335*63KE^	3.3	.433	1.102	.031	11.0	28.0	.8
150475*63ME^	4.7	.492	1.102	.031	12.5	28.0	.8
150685*63QF^	6.8	.571	1.299	.031	14.5	33.0	.8
150106*63TF^	10.0	.610	1.299	.031	15.5	33.0	.8

Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
100 VDC/63 VAC							
150683*100AA^	.068	.197	.433	.024	5.0	11.0	.6
150823*100AA^	.082	.197	.433	.024	5.0	11.0	.6
150104*100AA^	.1	.197	.433	.024	5.0	11.0	.6
150124*100BB^	.12	.236	.650	.024	6.0	16.5	.6
150154*100BB^	.15	.236	.650	.024	6.0	16.5	.6
150184*100CB^	.18	.256	.650	.024	6.5	16.5	.6
150224*100CB^	.22	.256	.650	.024	6.5	16.5	.6
150274*100CB^	.27	.256	.650	.024	6.5	16.5	.6
150334*100EB^	.33	.315	.650	.031	8.0	16.5	.8
150394*100EB^	.39	.315	.650	.031	8.0	16.5	.8
150474*100DC^	.47	.276	.807	.031	7.0	20.5	.8
150564*100EC^	.56	.315	.807	.031	8.0	20.5	.8
150684*100FC^	.68	.335	.807	.031	8.5	20.5	.8
150824*100HC^	.82	.374	.807	.031	9.5	20.5	.8
150105*100IC^	1.0	.394	.807	.031	10.0	20.5	.8
150155*100IE^	1.5	.394	1.102	.031	10.0	28.0	.8
150225*100LE^	2.2	.453	1.102	.031	11.5	28.0	.8
150335*100PE^	3.3	.531	1.102	.031	13.5	28.0	.8
150475*100RF^	4.7	.591	1.299	.031	15.0	33.0	.8
150685*100WF^	6.8	.689	1.299	.031	17.5	33.0	.8
150106*100YF^	10.0	.807	1.299	.031	20.5	33.0	.8

Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
250 VDC/160 VAC							
150123*250AA^	.012	.197	.433	.024	5.0	11.0	.6
150153*250AA^	.015	.197	.433	.024	5.0	11.0	.6
150183*250AA^	.018	.197	.433	.024	5.0	11.0	.6
150223*250AA^	.022	.197	.433	.024	5.0	11.0	.6
150273*250AA^	.027	.197	.433	.024	5.0	11.0	.6
150333*250AA^	.033	.197	.433	.024	5.0	11.0	.6
150393*250AA^	.039	.197	.433	.024	5.0	11.0	.6
150473*250AA^	.047	.197	.433	.024	5.0	11.0	.6
150563*250AA^	.056	.197	.433	.024	5.0	11.0	.6
150683*250BB^	.068	.236	.650	.024	6.0	16.5	.6
150823*250BB^	.082	.236	.650	.024	6.0	16.5	.6
150104*250CB^	.10	.256	.650	.024	6.5	16.5	.6
150124*250DB^	.12	.276	.650	.024	7.0	16.5	.6
150154*250EB^	.15	.315	.650	.031	8.0	16.5	.8
150184*250EB^	.18	.315	.650	.031	8.0	16.5	.8
150224*250FB^	.22	.335	.650	.031	8.5	16.5	.8
150274*250EC^	.27	.315	.807	.031	8.0	20.5	.8
150334*250FC^	.33	.335	.807	.031	8.5	20.5	.8
150394*250GC^	.39	.354	.807	.031	9.0	20.5	.8
150474*250HC^	.47	.374	.807	.031	9.5	20.5	.8
150564*250IC^	.56	.394	.807	.031	10.0	20.5	.8
150684*250GE^	.68	.354	1.102	.031	9.0	28.0	.8
150824*250HE^	.82	.374	1.102	.031	9.5	28.0	.8
150105*250JE^	1.0	.413	1.102	.031	10.5	28.0	.8
150155*250ME^	1.5	.492	1.102	.031	12.5	28.0	.8
150225*250PF^	2.2	.531	1.299	.031	13.5	33.0	.8
150335*250TF^	3.3	.610	1.299	.031	15.5	33.0	.8
150475*250XF^	4.7	.728	1.299	.031	18.5	33.0	.8
150685*250ZF^	6.8	.845	1.299	.031	21.5	33.0	.8

Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
400 VDC/200 VAC							
150822*400AA^	.0082	.197	.433	.024	5.0	11.0	.6
150103*400AA^	.01	.197	.433	.024	5.0	11.0	.6
150123*400AA^	.012	.197	.433	.024	5.0	11.0	.6
150153*400BB^	.015	.236	.650	.024	6.0	16.5	.6
150183*400BB^	.018	.236	.650	.024	6.0	16.5	.6
150223*400BB^	.022	.236	.650	.024	6.0	16.5	.6
150273*400BB^	.027	.236	.650	.024	6.0	16.5	.6
150333*400BB^	.033	.236	.650	.024	6.0	16.5	.6
150393*400CB^	.039	.256	.650	.024	6.5	16.5	.6
150473*400DB^	.047	.276	.650	.024	7.0	16.5	.6
150563*400EB^	.056	.315	.650	.024	8.0	16.5	.6
150683*400DC^	.068	.276	.807	.024	7.0	20.5	.6
150823*400EC^	.082	.315	.807	.031	8.0	20.5	.8
150104*400EC^	.10	.315	.807	.031	8.0	20.5	.8
150124*400EC^	.12	.315	.807	.031	8.0	20.5	.8
150154*400GC^	.15	.354	.807	.031	9.0	20.5	.8
150184*400EE^	.18	.315	1.102	.031	8.0	28.0	.8
150224*400FE^	.22	.335	1.102	.031	8.5	28.0	.8
150274*400GE^	.27	.354	1.102	.031	9.0	28.0	.8
150334*400IE^	.33	.394	1.102	.031	10.0	28.0	.8
150394*400JE^	.39	.413	1.102	.031	10.5	28.0	.8
150474*400LF^	.47	.453	1.299	.031	11.5	33.0	.8
150564*400LF^	.56	.453	1.299	.031	11.5	33.0	.8
150684*400MF^	.68	.492	1.299	.031	12.5	33.0	.8
150824*400PF^	.82	.531	1.299	.031	13.5	33.0	.8
150105*400QF^	1.0	.571	1.299	.031	14.5	33.0	.8
150155*400WF^	1.5	.689	1.299	.031	17.5	33.0	.8
150225*400YF^	2.2	.807	1.299	.031	20.5	33.0	.8

Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
630 VDC/220 VAC							
150102*630AA^	.001	.197	.433	.024	5.0	11.0	.6
150122*630AA^	.0012	.197	.433	.024	5.0	11.0	.6
150152*630AA^	.0015	.197	.433	.024	5.0	11.0	.6
150182*630AA^	.0018	.197	.433	.024	5.0	11.0	.6
150222*630AA^	.0022	.197	.433	.024	5.0	11.0	.6
150272*630AA^	.0027	.197	.433	.024	5.0	11.0	.6
150332*630AA^	.0033	.197	.433	.024	5.0	11.0	.6
150392*630AA^	.0039	.197	.433	.024	5.0	11.0	.6
150472*630AA^	.0047	.197	.433	.024	5.0	11.0	.6
150562*630AA^	.0056	.197	.433	.024	5.0	11.0	.6
150682*630AA^	.0068	.197	.433	.024	5.0	11.0	.6
150822*630BB^	.0082	.236	.650	.024	6.0	16.5	.6
150103*630BB^	.01	.236	.650	.024	6.0	16.5	.6
150123*630BB^	.012	.236	.650	.024	6.0	16.5	.6
150153*630BB^	.015	.236	.650	.024	6.0	16.5	.6
150183*630CB^	.018	.256	.650	.024	6.5	16.5	.6
150223*630DB^	.022	.276	.650	.024	7.0	16.5	.6
150273*630CC^	.027	.256	.807	.024	6.5	20.5	.6
150333*630EC^	.033	.315	.807	.031	8.0	20.5	.8
150393*630EC^	.039	.315	.807	.031	8.0	20.5	.8
150473*630EC^	.047	.315	.807	.031	8.0	20.5	.8
150563*630FC^	.056	.335	.807	.031	8.5	20.5	.8
150683*630GC^	.068	.354	.807	.031	9.0	20.5	.8
150823*630HC^	.082	.374	.807	.031	9.5	20.5	.8
150104*630FE^	.10	.335	1.102	.031	8.5	28.0	.8
150124*630GE^	.12	.354	1.102	.031	9.0	28.0	.8
150154*630IE^	.15	.394	1.102	.031	10.0	28.0	.8
150184*630JE^	.18	.413	1.102	.031	10.5	28.0	.8
150224*630LE^	.22	.453	1.102	.031	11.5	28.0	.8
150274*630ME^	.27	.492	1.102	.031	12.5	28.0	.8
150334*630NF^	.33	.512	1.299	.031	13.0	33.0	.8
150394*630QF^	.39	.571	1.299	.031	14.5	33.0	.8
150474*630RF^	.47	.591	1.299	.031	15.0	33.0	.8
150564*630TF^	.56	.610	1.299	.031	15.5	33.0	.8
150684*630WF^	.68	.689	1.299	.031	17.5	33.0	.8
150824*630XF^	.82	.728	1.299	.031	18.5	33.0	.8
150105*630YF^	1.0	.807	1.299	.031	20.5	33.0	.8

* Indicate capacitance tolerance

J = $\pm 5\%$

K = $\pm 10\%$

M = $\pm 20\%$

^ If ordering Tape & Reel, insert 1, 2, or 3

(See page 194 to determine which class applies)

150 Series Metallized Polyester / Axial Leads



Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
1000 VDC/250 VAC							
150102*1000CB^	.001	.256	.650	.031	6.5	16.5	.8
150152*1000CB^	.0015	.256	.650	.031	6.5	16.5	.8
150222*1000CB^	.0022	.256	.650	.031	6.5	16.5	.8
150332*1000CB^	.0033	.256	.650	.031	6.5	16.5	.8
150472*1000DB^	.0047	.276	.650	.031	7.0	16.5	.8
150682*1000EB^	.0068	.315	.650	.031	8.0	16.5	.8
150103*1000DC^	.01	.276	.807	.031	7.0	20.5	.8
150153*1000FC^	.015	.335	.807	.031	8.5	20.5	.8
150223*1000HC^	.022	.374	.807	.031	9.5	20.5	.8

Catalog Number	Cap μ F	Inches			Millimeters		
		D Max	L Max	\varnothing d	D Max	L Max	\varnothing d
1000 VDC/250 VAC							
150333*1000FE^	.033	.335	1.102	.031	8.5	28.0	.8
150473*1000HE^	.047	.374	1.102	.031	9.5	28.0	.8
150683*1000KE^	.068	.433	1.102	.031	11.0	28.0	.8
150104*1000NE^	.1	.512	1.102	.031	13.0	28.0	.8
150154*1000OF^	.15	.551	1.299	.031	14.0	33.0	.8
150224*1000WF^	.22	.689	1.299	.031	17.5	33.0	.8
150334*1000YF^	.33	.807	1.299	.031	20.5	33.0	.8
150474*1000Z1F^	.47	.945	1.299	.031	24.0	33.0	.8

* Indicate capacitance tolerance

J = \pm 5%

K = \pm 10%

M = \pm 20%

^ If ordering Tape & Reel, insert 1, 2, or 3

(See page 194 to determine which class applies)