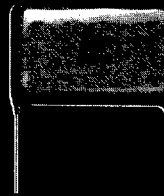


MMR

Small Size Epoxy Dipped Radial Lead Metallized Polyester Capacitors



NEW!

For all general purpose film capacitor applications

FEATURES

- Small Size
- Self Healing
- Capacitance Range 0.01 μF to 10.0 μF
- Voltage Range 100WVDC to 630WVDC

SPECIFICATIONS

Capacitance Tolerance		$\pm 10\%$ at 1kHz, 25°C				
Operating Temperature Range		-40°C to 105°C				
Voltage Range	WVDC	100	250	400	630	
	VAC	63	150	200	250	
Dissipation Factor		1.0% at 1 kHz, 25°C				
Insulation Resistance	Capacitance	Insulation Resistance				
	$\leq 0.33 \mu\text{F}$	9,000 M Ω				
	$> 0.33 \mu\text{F}$	3,000 M $\Omega \times \mu\text{F}$				
Load Life	2,000 hours, +85°C with 125% rated DC voltage					
	Capacitance Change	$\leq 5\%$ maximum				
	Dissipation Factor Change	$< 200\%$ maximum specification				
	Insulation Resistance	$\geq 50\%$ of minimum initial limits				
Humidity Test	250 hours, 95% RH, 25°C and no applied voltage					
	Capacitance Change	$< 5\%$ of initial readings @ +25°C, 1kHz				
	Dissipation Factor Change	$\leq 200\%$ of initial +25°C 1kHz				
	Insulation Resistance	$\geq 50\%$ of minimum initial limit				
Self-inductance	≤ 1 nH/mm along the capacitor pitch					
Capacitance Drift Factor	(after 2 years) $\leq 1.0\%$ up to 40°C					
Capacitance Temperature Coefficient	+400 ppm/°C, ± 200 ppm/°C					

PERFORMANCE RATINGS/TESTS

RATED WVDC TEMPERATURE DERATING

Operating Temperature	WVDC Rating
+25°C	100%
+85°C	100%
+105°C	75%

RATED AC VOLTAGE (VAC)

The AC working voltage must be derated when used at frequencies other than 60Hz due to dielectric effects.

NOTE: The peak value of the AC voltage superimposed upon the DC voltage should not exceed the rated DC voltage.

DIELECTRIC STRENGTH

150% Rated DC for 1 minute at +25°C.

INSULATION RESISTANCE (IR)

@+25°C (< 70%RH) for 1 minute

Capacitance	Insulation Resistance
$\leq 0.33 \mu\text{F}$	$\geq 9,000 \text{ M}\Omega$
$> 0.33 \mu\text{F}$	$\geq 3,000 \text{ M}\Omega \times \mu\text{F}$

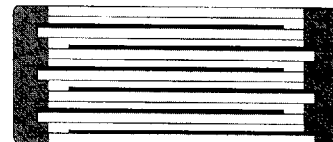
Rated WVDC	Test Voltage
≤ 630	100WVDC

RELIABILITY

Failure rate: 382 ppm/1000 hrs
MT TF: 2.6×10^6 hours

CONSTRUCTION

Type	Extended metallized film
Dielectric	Polyester film
Electrodes	Vacuum deposited aluminum layers
Leads	Tinned copper wire (minimum lead content 5%)
Coating	Flame retardant epoxy sealed resin (UL 94V-0)



Extended metallized film design



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Film Capacitors

STANDARD PART LISTING

Capacitance μF	WVDC	IC PART NUMBER	dv/dt (v/μs)
0.01	250	103MMR250K	48
0.01	400	103MMR400K	131
0.01	630	103MMR630K	273
0.015	250	153MMR250K	48
0.015	400	153MMR400K	131
0.015	630	153MMR630K	273
0.022	250	223MMR250K	48
0.022	400	223MMR400K	131
0.022	630	223MMR630K	273
0.033	250	333MMR250K	48
0.033	400	333MMR400K	131
0.033	630	333MMR630K	273
0.047	250	473MMR250K	48
0.047	400	473MMR400K	78
0.047	630	473MMR630K	273
0.068	250	683MMR250K	48
0.068	400	683MMR400K	78
0.068	630	683MMR630K	116
0.100	250	104MMR250K	48

Capacitance μF	WVDC	IC PART NUMBER	dv/dt (v/μs)
0.10	400	104MMR400K	78
0.10	630	104MMR630K	116
0.15	250	154MMR250K	48
0.15	400	154MMR400K	37
0.15	630	154MMR630K	116
0.22	250	224MMR250K	33
0.22	400	224MMR400K	37
0.22	630	224MMR630K	116
0.33	250	334MMR250K	33
0.33	400	334MMR400K	37
0.33	630	334MMR630K	63
0.47	250	474MMR250K	18
0.47	400	474MMR400K	37
0.47	630	474MMR630K	63
0.68	250	684MMR250K	18
0.68	400	684MMR400K	22
0.68	630	684MMR630K	63
1.0	100	105MMR100K	22
1.0	250	105MMR250K	18

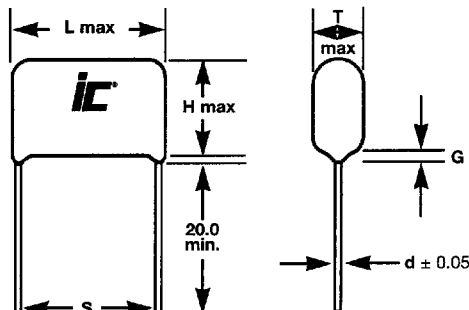
Capacitance μF	WVDC	IC PART NUMBER	dv/dt (v/μs)
1.0	400	105MMR400K	22
1.0	630	105MMR630K	48
1.5	100	155MMR100K	11
1.5	250	155MMR250K	18
1.5	400	155MMR400K	22
1.5	630	155MMR630K	48
2.2	100	225MMR100K	11
2.2	250	225MMR250K	10
2.2	400	225MMR400K	18
2.2	630	225MMR630K	48
3.3	100	335MMR100K	11
3.3	250	335MMR250K	10
4.7	100	475MMR100K	6
4.7	250	475MMR250K	10
6.8	100	685MMR100K	6
6.8	250	685MMR250K	8
10.0	100	106MMR100K	6
10.0	250	106MMR250K	8

PHYSICAL DIMENSIONS

WVDC (VAC) μF	100 (63)	250 (150)	400 (200)	630 (250)
0.010	→	10.5x7.5x4.5	10.5x7.5x4.5	12x7.5x4.5
0.015	→	10.5x7.5x4.5	10.5x7.5x4.5	12x8.5x5
0.022	→	10.5x7.5x4.5	10.5x8x5	12x10.5x5.5
0.033	→	10.5x7.5x4.5	10.5x9x6	12x12x6
0.047	→	10.5x7.5x4.5	12x8.5x5	12x13.5x6.5
0.068	→	10.5x7.5x4.5	12x10.5x5.5	18.5x11x6
0.10	→	10.5x8.5x6	12x12x6.5	18.5x14x6.5
0.15	→	10.5x11x6	18.5x12.5x5	18.5x15.5x7.5
0.22	→	12x10.5x5.5	18.5x13x6	18.5x16.5x9
0.33	→	12x12x6.5	18.5x15x7	26x17x8
0.47	→	18.5x12.5x5.5	18.5x17x8	26x18.5x9.5
0.68	→	18.5x13.5x6	26x16.5x7	26x21x11.5
1.0	12x14x7	18.5x15x7.5	26x18x8.5	31x22x12.5
1.5	18.5x13.5x6	18.5x17x9	31x19x9.5	31x25x15.5
2.2	18.5x15x7	26x16.5x8.5	31x22x11	31x29x19.5
3.3	18.5x16.5x8.5	26x18x10.5		
4.7	26x17x7.5	26x21.5x12		
6.8	26x18.5x9	31x22.5x13		
10.0	26x21x11.5	31x26x16		

Convert to inches divide by 25.4

LxHxT(mm)



WVDC	Capacitance Range (μf)	Lead Dia. d	Meniscus G Max.
100	C ≤ 6.8 C > 6.8	0.8 0.8	1.0 1.5
250	C ≤ 0.47 0.68 ≤ C ≤ 2.7 C > 2.7	0.6 0.8 0.8	1.0 1.0 1.5
400	C ≤ 0.22 0.33 ≤ C ≤ 1.5 C > 1.5	0.6 0.8 0.8	1.0 1.0 1.5
630	C ≤ 0.1 0.15 ≤ C ≤ 0.47 C > 0.47	0.6 0.8 0.8	1.0 1.0 1.5

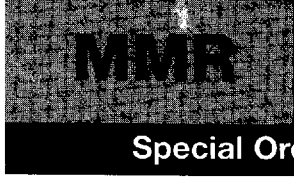
mm

Lead Spacing (S ± 1.0mm)

L	10.5	12	18.5	26	31
S	7.5	10.0	15.0	22.5	27.5



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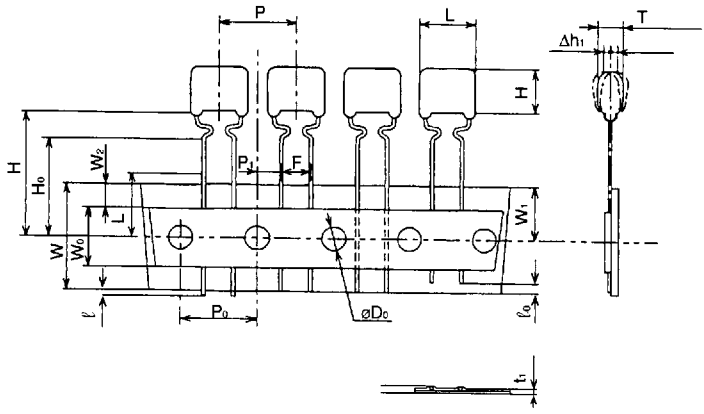


Small Size Epoxy Dipped
Radial Lead Metallized
Polyester Capacitors

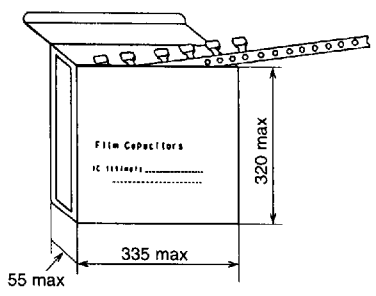
Special Order Options

TAPE / AMMO BOX STYLE

Part Number Suffix: SA



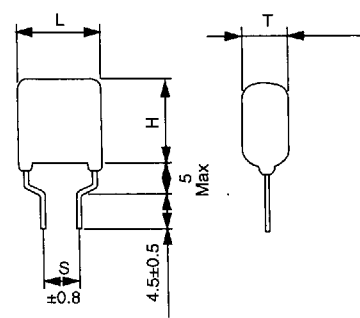
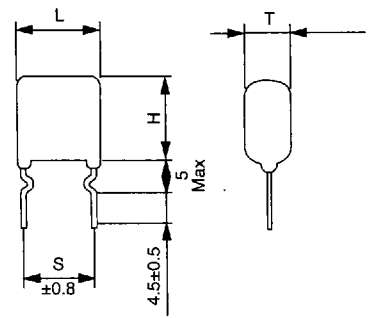
Packing case size and style



Maximum Case Size (LxHxT) 12x12x6		
TAPING		
SPECIFICATIONS	mm	Tol.
Lead Spacing (F)	5.0	+0.8/ -0.2
Capacitor pitch (P)	12.7	±1.0
Feed Hole Pitch (P ₀)	3.85	±0.2
Carrier Width (W)	18.0	±0.5
Feed Hole Position (W ₁)	9.0	±0.5
Height of Seating Plane (H)	22.0	±0.75
Lead Wire Clinch Height (H ₀)	16.0	±0.5
Feed Hole Diameter (D ₀)	4.0	±0.2
Front to Back Inclination (Δh ₁)	0.0	±2.0
Tape Thickness(t ₁)	0.7	±0.2

PACKAGE QUANTITIES		
L	T	Quantity
10.3	≤5.5	1000
12.0	-	500

CUT AND FORMED LEADS



WVDC	Capacitance Range (μF)	Formed Lead Spacing (S)	Suffix
100	.68 to 1.0	10.0	F3
250	0.01 to 0.15 0.22 to 0.33	7.5 10.0	F2 F3
400	0.01 to 0.033 0.047 to 0.1	7.5 10.0	F2 F3
630	0.01 to 0.047	10.0	F3

WVDC	Capacitance Range (μf)	Formed Lead Spacing (S)	Suffix
100	1.2 to 3.3 4.7 to 10.0	10.0 15.0	M3 M5
250	0.47 to 1.5 2.2 to 4.7 6.8 to 10.0	10.0 10.0 22.5	M3 M5 M8
400	0.15 to 0.47 0.68 to 1.0 1.5 to 2.2	10.0 15.0 22.5	M3 M5 M8
630	0.068 to 0.22 0.33 to 0.68 1.0 to 2.2	10.0 15.0 22.5	M3 M5 M8

Film Capacitors



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