

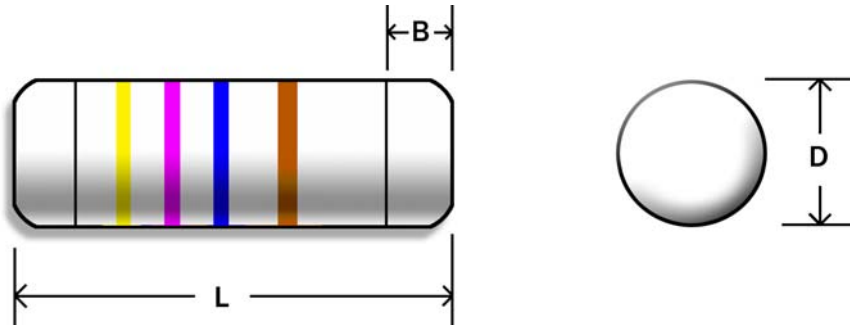
MM- Metal Film MELF Resistor

Specifications Per

- IEC 115-1 115-2
- CECC 40101
- DIN 44061

Features

- SMD enabled structure
- Conformal Multi-layer Coating Against Humidity
- Excellent Solderability Termination
- 5% is 3-band coded, 1% and under is 4-band coded



Dimensions

Type	Body Length (L) , mm	Body Diameter (D) , mm	Soldering spot (B) , mm	Net Weight Per 1000 pcs
MM16	3.45 ± 0.1	1.35 ± 0.1	0.6 Min.	17 grams
MM204	3.45 ± 0.1	1.35 ± 0.1	0.6 Min.	17 grams
MM207	5.90 ± 0.2	2.20 ± 0.1	1.0 Min.	66 grams
MM52	5.90 ± 0.2	2.20 ± 0.1	1.0 Min.	66 grams

General Specifications

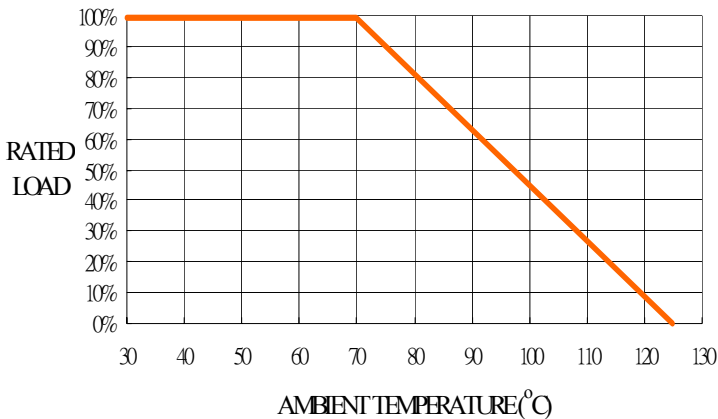
Type	Power Rating (at 70°C)	Max. Working Voltage	Max. Overload Voltage	Resistance Range Min.	Resistance Range Max.	Resistance Tolerance	Standard Resistance Value
MM16	1/6W	200V	400V	0 & 0.1Ω	1MΩ	±1%	E-24/E-96
						±2%, 5%	E-24
MM204	1/4W	200V	400V	0 & 0.1Ω	1MΩ	±1%	E-24/E-96
						±2%, 5%	E-24
MM207	1/3W	300V	500V	0 & 0.1Ω	10MΩ	±1%	E-24/E-96
						±2%, 5%	E-24
MM52	1/2W	300V	500V	0 & 0.1Ω	10MΩ	±1%	E-24/E-96
						±2%, 5%	E-24

For zero-ohm jumper, resistance value is under 20 mΩ. Rated current is 2A for MM16 & MM204, 4A for MM207 and MM52. For 1m~100mΩ please see CSM series. Special sizes, values, and specifications not listed available on special order.

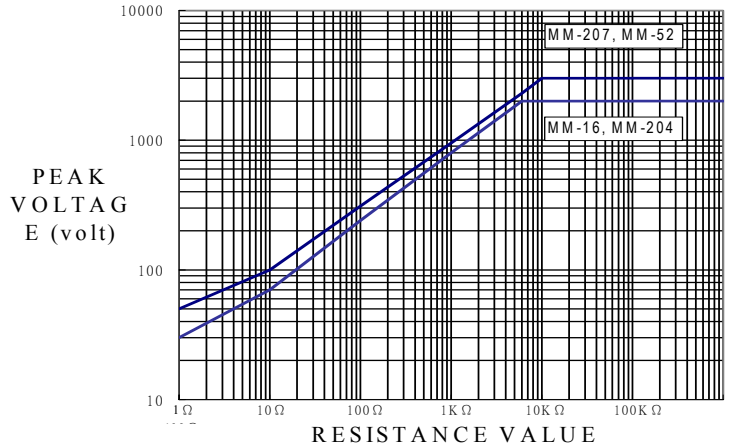
Jul. 28, 2004

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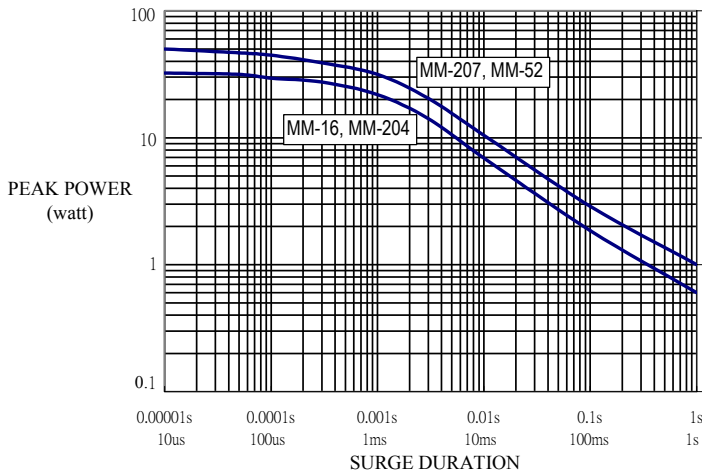
POWER DERATING CURVE



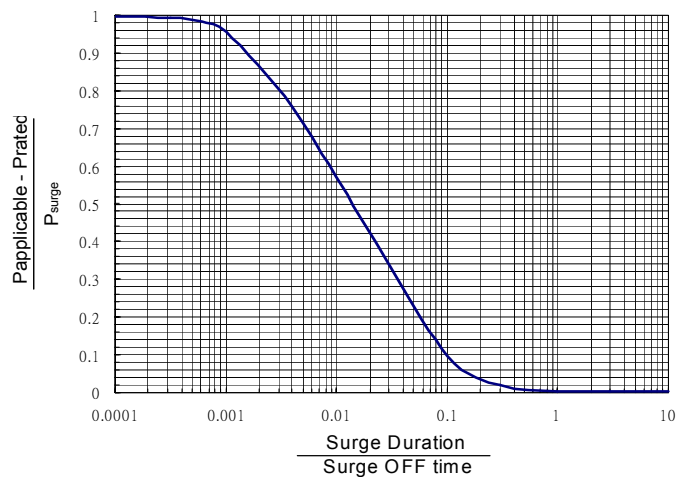
1.2/50us PEAK PULSE
5 pulses at 12-sec interval for 0.5% permanent change



SINGLE SURGE PERFORMANCE



SURGE POWER DERATING CURVE



Notes:

1. Above graph is accurate for NON REPETITIVE applications operating in an ambient temperature of 70°C or less. For temperatures above 70°C, the graph power must be derated further linearly down to zero at 125°C.
2. For applicable surge power in continuous-surge applications please see SURGE POWER DERATING CURVE below

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Technical Summary:

Characteristics	Limits			
Dielectric Withstanding Voltage, VAC or DC	MM16, MM204: 200 MM207, MM52: 500			
Temperature Coefficient, PPM /°C	±1%, 2%	±50		
	±5%	±100		
Operating Temperature Range, °C	-55 ~ +125			
Film Temperature, °C	MM16	MM204	MM207	MM52
	125	125	125	140
Insulation Resistance, MΩ	>10 ⁴			

Performance Specifications

Test Characteristics	Test Conditions	Limits
Short Time Overload	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over max. overload voltage)	±(0.5%+0.05R)
Load Life In Humidity	IEC 60115-1 4.24 56 days at 40°C and 93% relative humidity	±(1.5%+0.05R)
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load 1.5 hours ON, 0.5 hours OFF, at 70°C	±(1.5%+0.05R)
Resistance To Soldering Heat	IEC 60115-1 4.18 10 seconds at 260°C solder bath temperature	±(0.5%+0.05R)
Solderability	MIL-STD-202 Method 208 Solder area covered after 230±5°C/5±0.5 seconds w/ flux applied	95% Min.
Vibration	MIL-STD-202 Method 204 Six hours in each parallel and axial direction w/ a simple harmonic motion having an amplitude of 1.52mm and 10 to 20,000 Hz.	±(1%+0.1R)
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 125°C without load	±(0.5%+0.05R)
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +125°C 30minutes, 5 cycles	±(0.5%+0.05R)

Ordering Information

Type	Tolerance	Temperature Coefficient	Resistance Value	Packaging	Special Request (Optional)
MM204 MM207	F (1%) G (2%) J (5%)	TK50 TK100	562R 84K5 1M69	TR (Tape/Reel)	LV (Low value)

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