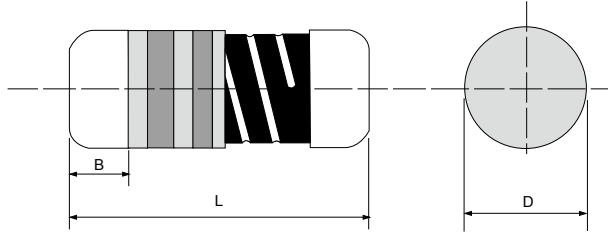


Quality • Reliability
Cost-Down via Technology

MM(P)



Specifications Per

- IEC 60115-1, IEC 60115-2
- EN 140401-803

Features

- SMD enabled structure
- Excellent solderability termination
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

■ DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Soldering Spot (B, mm)	Net Weight Per 1000 pcs
MM16P	3.52 ± 0.08	1.35 ± 0.1	0.6 Min.	17 grams
MM204P	3.52 ± 0.08	1.35 ± 0.1	0.6 Min.	17 grams
MM207P	5.90 ± 0.20	2.20 ± 0.1	1.0 Min.	66 grams
MM52P	5.90 ± 0.20	2.20 ± 0.1	1.0 Min.	66 grams

■ GENERAL SPECIFICATIONS

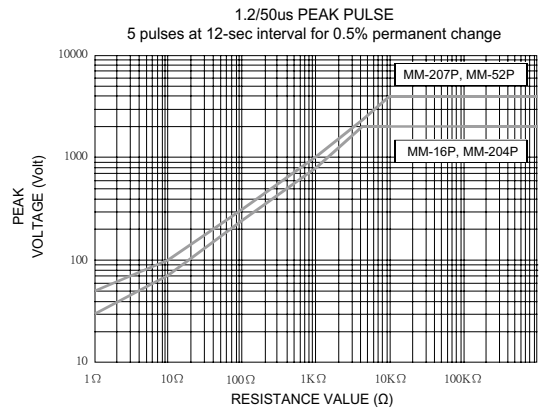
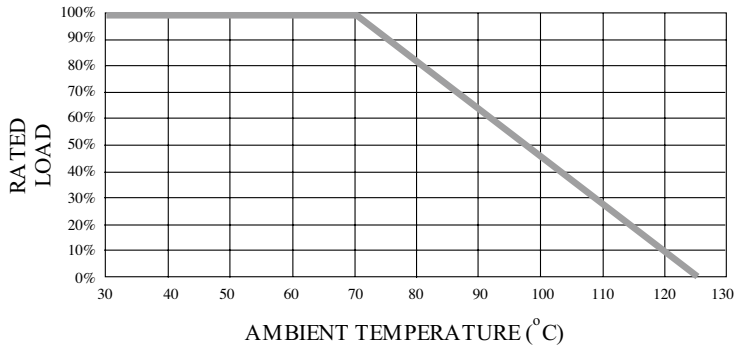
Type	Power Rating At 70°C	Maximum Working Voltage	Maximum Overload Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
MM16P	1/6W	200V	400V	0.1Ω	100KΩ	±1%	E-24/E-96
						±2%, ±5%	E-24
MM204P	1/4W	200V	400V	0.1Ω	100KΩ	±1%	E-24/E-96
						±2%, ±5%	E-24
MM207P	1/3W	300V	500V	0.1Ω	330KΩ	±1%	E-24/E-96
						±2%, ±5%	E-24
MM52P	1/2W	300V	500V	0.1Ω	330KΩ	±1%	E-24/E-96
						±2%, ±5%	E-24

For zero-ohm jumper, please see ZMM series. For 1m~510mΩ please see CSM series.
Special sizes and specifications available on request.

MM PULSE WITHSTANDING Metal Film MELF Resistor

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POWER DERATING CURVE



PART NUMBER

Example: MM52PJ10K0TKSTR2K0

MM52P	J	10K0	TKS	TR2K0
Type	Tolerance*	Resistance	TCR*	Packaging
	F (1%) G (2%) J (5%)	10KΩ 4-character code containing - 3 significant digits 1 letter multiplier <u>MULTIPLIER</u> R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	100ppm 3-character code TKR = ± 50ppm TKS = ± 100ppm	5-character code TR = Tape Reel (pieces per reel) <u>MM16P/MM204P</u> 3K0 = 3,000 6K0 = 6,000** 10K = 10,000** <u>MM207P/MM52P</u> 2K0 = 2,000 6K0 = 6,000** 10K = 10,000**

* Listed values may not be applicable across product types or to all resistance values. Please check with us before placing order.

** upon request

MM(P)

TECHNICAL SUMMARY

Characteristics	Limits			
Dielectric Withstanding Voltage, VAC or DC	MM16P, MM204P: 200 MM207P, MM52P: 500			
Temperature Coefficient, PPM / °C*	±1%, ±2%	±50		
	±5%	±100		
Operating Temperature Range, °C	-55 ~ +125			
Film Temperature, °C	MM16P	MM204P	MM207P	MM52P
	125	125	125	140
Insulation Resistance, MΩ	>10 ⁴			
Tin Whisker (JESD201 Temperature Cycling & High Temp. / Humidity Storage), μm	< 5			

* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

PERFORMANCE SPECIFICATIONS

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%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load at (40±2)°C and (93±3)% relative humidity	±1.5%
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±1.5%
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Dip the resistor into a solder bath measured (260±5)°C and hold it for a 10±1 seconds	±0.5%
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	95% Min.
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz.	±1%
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 125°C without load	±0.5%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +125°C 30minutes, 5 cycles	±0.5%