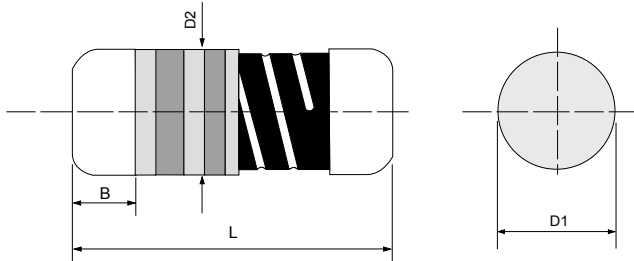


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Specifications Per

- IEC 60115-1
- EN 140401-803

Features

- Handles much higher working voltage than general purpose resistors
- Pure tin-plated termination for excellent solderability
- Excellent in heat dissipation than chip resistor
- Stronger mechanical structure to seismic vibration and thermal shock
- SMD enabled structure
- Anti-surge feature available
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

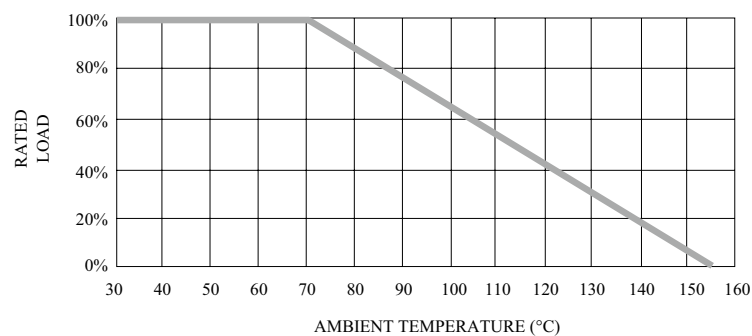
DIMENSIONS

Type	Body Length (L, mm)	Cap Diameter (D1, mm)	Body Diameter (D2, mm)	Soldering Spot (B, mm)	Net Weight Per 1000 pcs
MVM204	3.52 ± 0.15	1.35 ± 0.1	D+0.05/ -0.15	0.6 Min.	17 grams
MVM101	5.90 ± 0.20	2.20 ± 0.1	D+0.05/ -0.2	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
MVM204	2/5W	750V DC 600V RMS	1,000V DC 800V RMS	340KΩ	40MΩ	±1~5%	E-24 / E-96
MVM101	1W	1,000V DC 700V RMS	2,000V DC 1,400V RMS	340KΩ	30MΩ	±1~5%	E-24 / E-96

POWER DERATING CURVE



MVM Medium Voltage MELF Resistor

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■ PART NUMBER

Example: MVM204J40M0TKZTR3K0

MVM204	J	40M0	TKZ	TR3K0
Type	Tolerance*	Resistance	TCR	Packaging
	F (1%) G (2%) J (5%)	40MΩ 4-character code containing - 3 significant digits 1 letter multiplier <u>OHM MULTIPLIER</u> R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	3-character code TKZ = Default Product Temperature Coefficient. Information of typical product temperature coefficient can be found in the Technical Summary Section of the datasheet.**	5-character code TR = Tape Reel (pieces per reel) <u>MVM204</u> 3K0 = 3,000 6K0 = 6,000 10K = 10,000 <u>MVM101</u> 2K0 = 2,000 6K0 = 6,000*** 10K = 10,000***

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

** For the availabilities of non-default temperature coefficient, please check with us. Reference for TCR letter codes can be found in section (4) of Part Number Construction in the Appendices.

*** upon request

■ TECHNICAL SUMMARY

Characteristics	Limits
Dielectric Withstanding Voltage, VAC or DC	MVM204: 300 MVM101: 500
Temperature Coefficient, PPM / °C*	±200, ±400, ±800, ±1200
Operating Temperature Range, °C	-55 ~ +155
Insulation Resistance, MΩ	>10 ⁴
Failure Rate in Time, pcs / 10 ⁹ device hours	<5
Tin Whisker (JESD201 Temperature Cycling & High Temp. /Humidity Storage), μm	<5

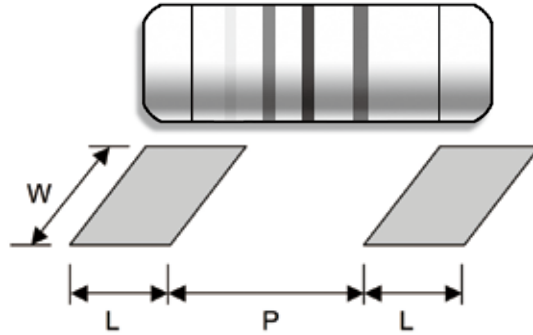
* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

■ 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)	±2.5%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over max. working voltage) at (40±2)°C and (93±3)% relative humidity	±3%
Load Life	IEC 60115-1 4.25.1 Rated load (not over max. working voltage) 1,000 hours with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±3%
Periodic Electric Overload	IEC 60115-1 4.39 3.9x rated voltage (not over max. overload voltage) with 0.1s ON, 2.5s OFF for 1,000 cycles	±2.5%
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Dip the resistor into a solder bath having a temperature of (260±5)°C and hold it for a 10±1 seconds	±1%
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	95% Min. coverage
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±1%
Thermal Endurance	IEC 60115-1 4.25.3 1000hoursat155°C withoutload	±5%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±2%
Single pulse high voltage overload	IEC 60115-1 4.27 5 pulses of 1.2/50µs at 10x rated voltage (not over max. overload voltage) with interval of 12 sec.	±2%
Electrostatic discharge (Human body model)	IEC 60115-1 4.38 3 positive & 3 negative discharges with 2KV for MVM16 or 4KV for MVM25 (For continuous surge application please see Surge Performance paragraph)	±2.5%
Climatic test	IEC 60115-1 4.23 4.23.2 - dry heat: 16 hours 155°C 4.23.3 - damp heat: 24 hours 55°C with 95% relative humidity 4.23.4 - cold: 2 hours -55°C 4.23.5 - negative air pressure: 2 hour 8.5KPa at (25±10)°C 4.23.6 - damp heat cyclic: 5 days 55°C with 95% relative humidity 4.23.7 - DC load: rated voltage at -55°C and 155°C each 1 min.	±2%
Bending test	IEC 60115-1 4.33 Pressing depth 2mm, 3 times	±1%

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■ SUGGESTED PAD LAYOUT



MVM

Type	Soldering Mode	Pad Length (L, mm, Min.)	Pad Spacing (P, mm)	Pad Width (W, mm, Min.)
MVM204	Reflow	1.3	1.6 ± 0.1	1.6
	Wave	1.5	1.5 ± 0.1	1.8
MVM101	Reflow	2.0	3.0 ± 0.1	3.0
	Wave	2.5	3.0 ± 0.1	3.0

For better heat dissipation / lower heat resistance, increase W & L.

■ COVER TAPE PEELING SPECIFICATION

Recommended peeling force:

MVM204, MVM101: 50±5gf

