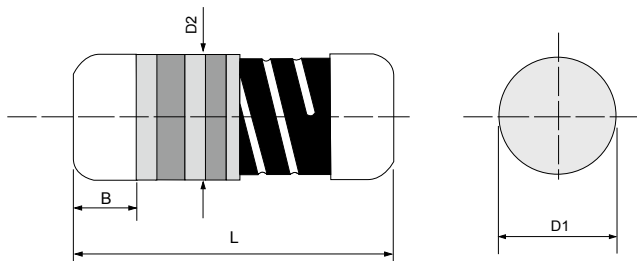


Quality • Reliability
Cost-Down via Innovation

MVM



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
- 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

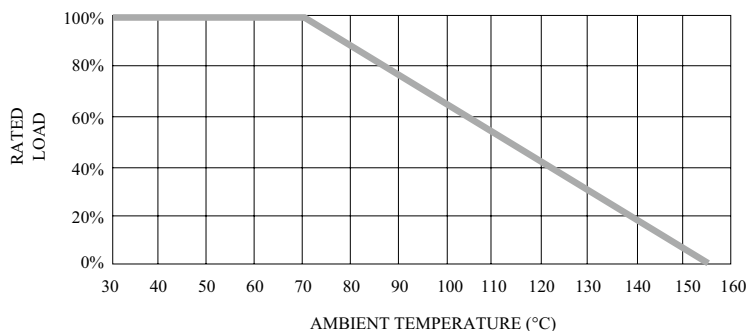
■ DIMENSIONS

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



■ 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

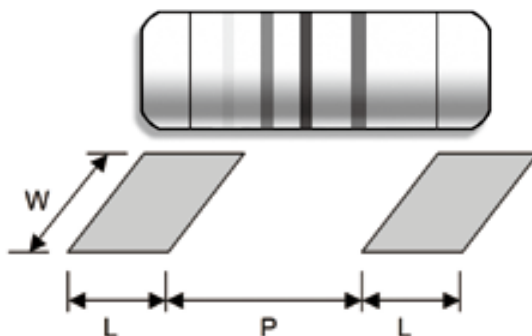
Characteristics	Limits
Dielectric Withstanding Voltage, VAC or DC	MVM204: 300 MVM101: 500
Temperature Coefficient, PPM / °C*	±200, ±400, ±800, ±1200
Operating Temperature Range, °C	-55 ~ +155
Insulation Resistance, MΩ	>10 ⁴
Failure Rate in Time, pcs / 10 ⁹ device hours	<5
Tin Whisker (JESD201 Temperature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

■ SUGGESTED PAD LAYOUT



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

