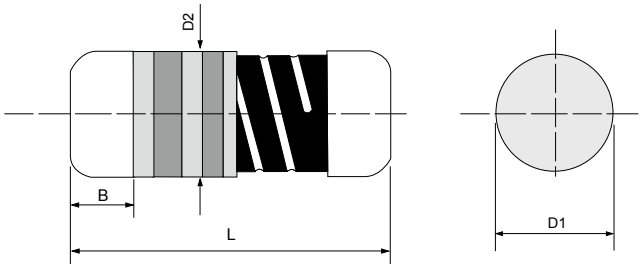
MVM
Medium Voltage MELF Resistor



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

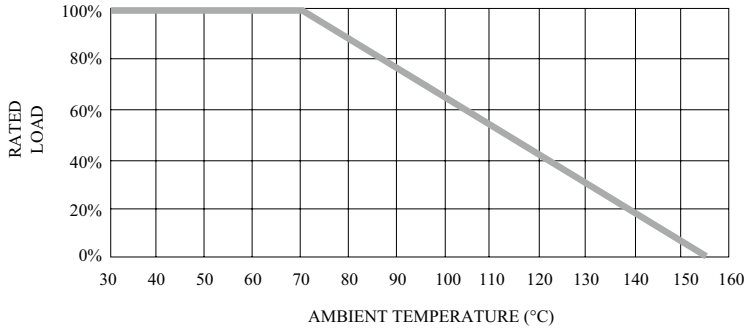
DIMENSIONS

Type	Body Length (L, mm)	Cap Diameter (D1, mm)	Body Diameter (D2, mm)	Soldering Spot (B, mm)	Net Weight Per 1000 pcs
MVM16	3.52 ± 0.15	1.35 ± 0.1	D+0.05/ -0.15	0.6 Min.	17 grams
MVM25	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
MVM16	1/6W	750V DC 600V RMS	1,000V DC 800V RMS	56KΩ	40MΩ	±5%	E-24
MVM25	1/4W	1,000V DC 700V RMS	2,000V DC 1,400V RMS	91KΩ	30MΩ	±5%	E-24

POWER DERATING CURVE



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PART NUMBER

Example: MVM16J40M0TKZTR3K0

MVM16	J	40M0	TKZ	TR3K0
Type	Tolerance*	Resistance	TCR	Packaging
	J (5%)	40KΩ **4-character code** containing - 3 significant digits 1 letter multiplier OHM MULTIPLIER 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) MVM16 3K0 = 3,000 6K0 = 6,000 10K = 10,000 MVM25 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	MVM16: 300 MVM25: 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).**

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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%
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 1,000 hours	**IEC 60115-1 4.25.1** Rated load (not over max. working voltage) 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.
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	±1%
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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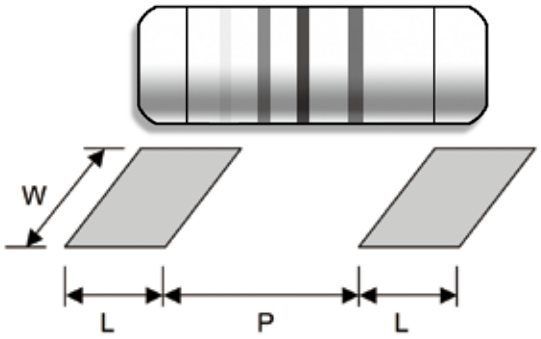
SUGGESTED PAD LAYOUT



Type	Soldering Mode	Pad Length (L, mm, Min.)	Pad Spacing (P, mm)	Pad Width (W, mm, Min.)
MVM16	Reflow	1.3	1.6 ± 0.1	1.6
	Wave	1.5	1.5 ± 0.1	1.8
MVM25	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:
MVM16, MVM25: 50±5gf