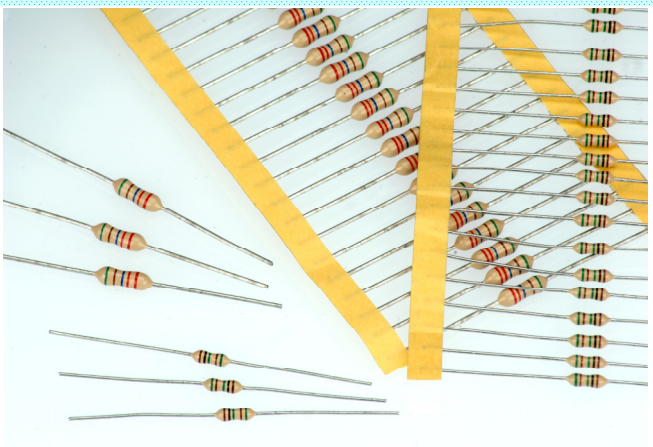
MFR Electronic Components Pvt. Ltd.

HIGH VOLTAGE METAL GLAZE RESISTORS

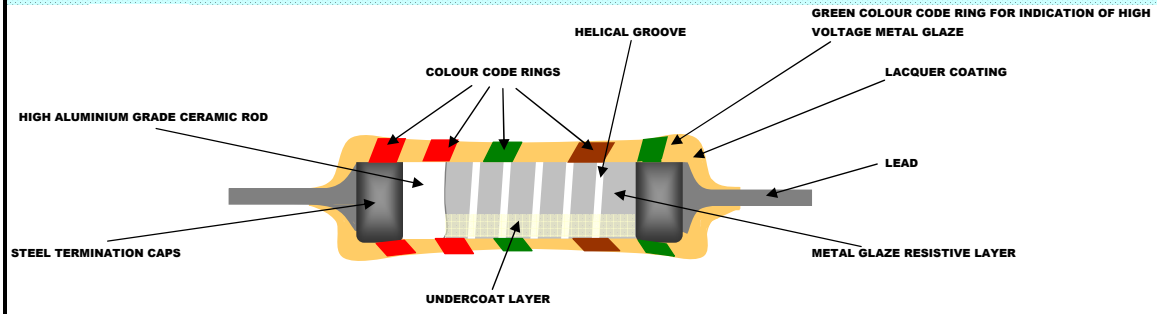
Series : MVR

Features:

- Metal Glaze technology
- High pulse loading capability
- Miniature size
- Complaint to **RoHS** Directive 2002/95/EC
- A metal glazed film is deposited on a high grade ceramic body. After a helical groove has been cut in the resistive layer, tinned electrolytic copper wires are welded & coated with lacquer which provides electrical, mechanical and climatic protection.



Construction :

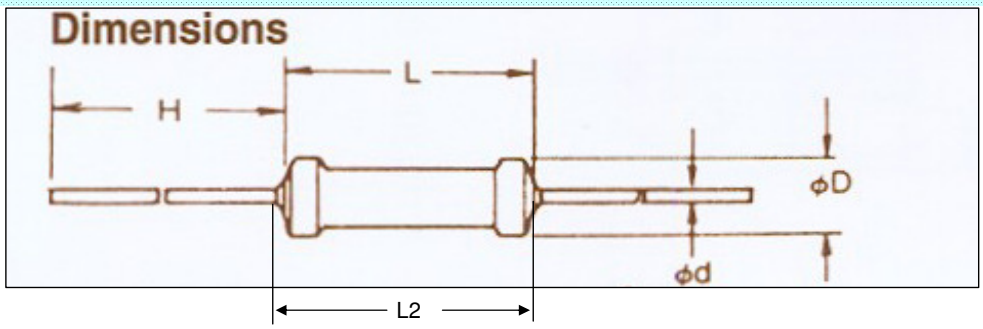


Technical specification:

DESCRIPTION	SERIES		
	MVR25	MVR37	MVR68
Resistance range*	100KΩ ~ 22MΩ	100KΩ ~ 33MΩ	100KΩ ~ 68MΩ
Resistance tolerance	±1%, E24/E96 series; ±5%, E24 series		
Temperature coefficient	≤ 200 ppm/℃		
Maximum dissipation @ 70℃	0.25W	0.5W	1W
Dielectric Withstanding voltage	500 V	750V	750V
Max. permissible voltage DC RMS	 1600 V 1150 V	 3500 V 2500 V	 10000 V 7000 V
Thermal resistance	140 K/W	120 K/W	70 K/W
Climatic category	55/155/56		
Stability, R max. Load Climatic test Soldering Short time overload	 △ R±(1.5% +0.10Ω) △ R±(1.5% +0.10Ω) △ R±(0.5% +0.05Ω) △ R±(2.0% +0.10Ω)		

***Note :** Higher ohmic value other than resistance range are available on request

Dimensions :



Physical Data:

1.0 GENERAL SERIES SPECIFICATION :

TYPE	WATT. @ 70°C	TOL.	TCR PPM/℃	DIMENSIONS (mm) L	L2	D	d ± 0.05	H	RESISTANCE RANGE	MAX. PERMISIBLE VOLTAGE DC	RMS
MVR25	0.25W	±1%, ±5%	≤ ±200	6.5 ±0.5	8.5 MAX.	2.5 ±0.5	0.6	28 min	100 kΩ ~ 22MΩ	1600V	1150 V
MVR37	0.5W	±1%, ±5%	≤ ±200	10 ±1	12.0 MAX.	3.9 ±0.5	0.8	25 min	100 kΩ ~ 33MΩ	3500V	2500 V
MVR68	1W	±1%, ±5%	≤ ±200	18 ±1	20.0 MAX.	6.0 ±0.5	0.8	24 min	100 kΩ ~ 68MΩ	10000V	7000 V

Note : Working voltage is $\sqrt{P \times R}$ where P is power & R is resistance in Ohms

Mass Per Unit :

TYPE	MASS (g)
MVR25	**22 g**
MVR37	**46 g**
MVR68	**169 g**

Marking:

*The MVR25, MVR37 & MVR68 type the nominal resistance & tolerance are marked on the resistor body using five coloured bands. Fifth band (**green color**) stands for high voltage resistor.*

Material Specifications:

Element : Metal glaze film

Core : Fire cleaned high purity ceramic

End caps : Steel caps

Coating : lacquer coating

Standard Terminals : Solderable - tinplated copper

Part Numbering Information:

Part Number : Type number, power rating, resistance value, tolerance, tcr.

MVR68	1W	22 MOhm	±5%	200 ppm/°C
Type	Power rating	Resistance value	Tolerance	TCR

Examples: PART NO. : MVR68, 1W, 22 MOhm, ±5%, 200ppm/°C

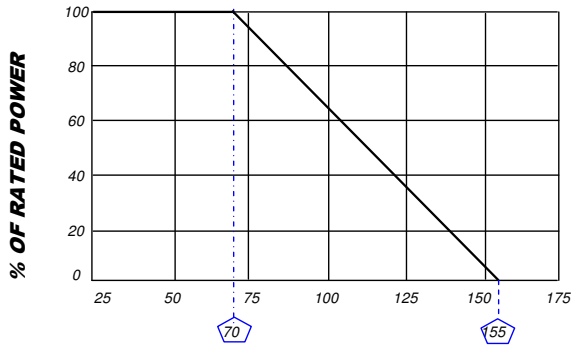
Packing Information:

TYPE	Pcs Per Poly Bag/ Blue box	Pcs Per Brown Box
MVR25	1,000	5,000
MVR50	---	1,000
MVR68	---	500

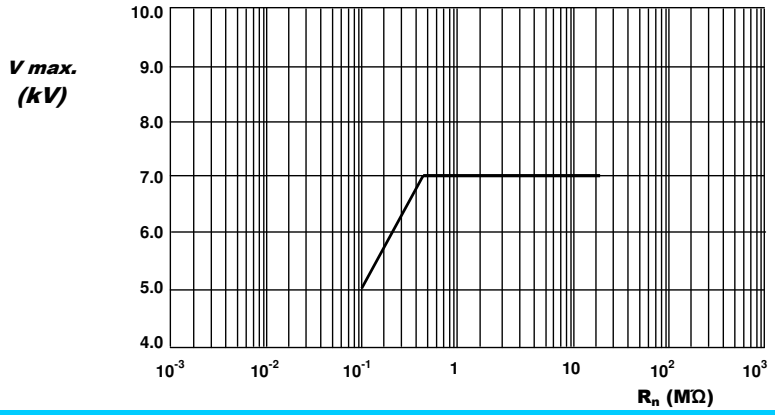
Performance Data (Procedure & Requirements):

TEST	PROCEDURE	REQUIREMENTS
Robustness Of Termination		
1. Tensile Test	Load 10 N for 10 sec.	No visual damage
2. Bend Test	Load 5 N 90°, 180°, 90°	No visual damage
3. Torsion Test	3 X 360° in opposite directions	No visual damage △R/R max.: ±(0.50% +0.05 Ω)
Solderability Test	16 hrs steam or 16 hrs. at 155℃ 2 sec. ±0.5 sec. in solder at 235°±5℃ Using flux	>95% coverage covered (good tinning) & no damage
Resistance To Soldering Heat	at 350℃ for 3 sec., 2.5mm from the body	△R/R max.: ±(0.5% +0.05 Ω)
Temperature Cycling	30 minutes at -55℃ & 30 minutes at 150℃ Total 5 number of cycles.	No visual damage △R/R max.: ±(0.5% +0.05 Ω)
Dry Heat Test	16 hrs at 150℃	△R/R max.: ±(1.5% +0.05 Ω)
Cold Test	2 hrs at -55℃	△R/R max.: ±(0.50% +0.05 Ω)
Short Time Overload	6.25 X Power nominal for 5 sec.ON & 45 sec. OFF; 10 Cycles @ 25℃. Voltage not more than 2 X limiting voltage.	△R/R max.: ±(2.0 +0.05 Ω)
Endurance @ 70°C	2000 hrs. load with Pn (power nominal) 1.5 hr. ON & 0.5 hr. OFF	No visual damage △R/R max.: ±(1.5% +0.1 Ω)
Endurance @ Upper Category Temperature	1000 hrs. at 150℃ with no load	No visual damage △R/R max.: ±(1.5% +0.1 Ω)
Temperature Rise Test	Horizontally mounted, loaded with Pn	Hot spot temperature less than maximum body temperature
Damp Heat Steady State	56 days, 40℃; 90 to 95% Rh; dissipation ≤ 0.01Pn	No visual damage △R/R max.: ±(1.5% +0.1 Ω)
Temperature Coefficient	At 25/-55/25 ℃ & 25/150/25 ℃	Within specified limits
Insulation Resistance	V- Block method for 1 minute duration At 500 V dc	> 10^3 MΩ
Voltage Proof Test	V- Block method for 1 minute duration At 500 V	No flash over or break down should observed
Pulse Load	---	See pulse load capabilities graphs

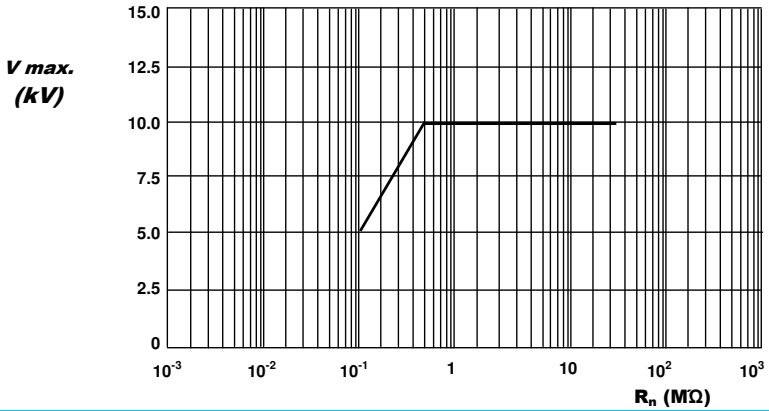
Derating Curve:



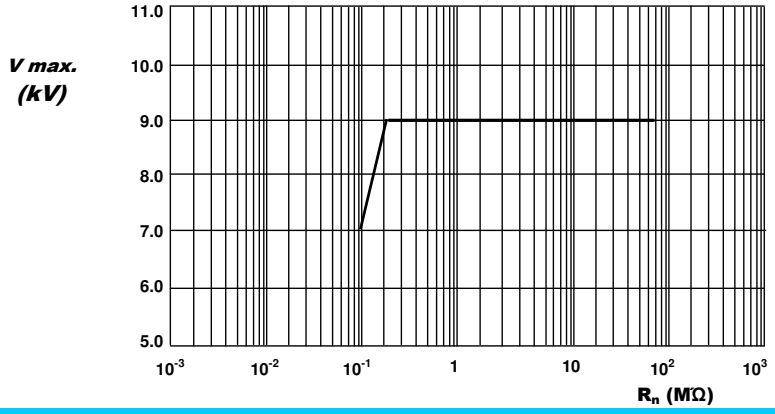
Pulse load capabilities:



MVR25 *Maximum peak pulse voltage (V max.) in accordance with "IEC 60065" '1.2 / 50 µs from a 1 nF capacitor charged. 12 pulse/min.*



MVR37 *Maximum peak pulse voltage (V max.) in accordance with "IEC 60065" '1.2 / 50 µs from a 1 nF capacitor charged. 12 pulse/min.*



MVR68 *Maximum peak pulse voltage (V max.) in accordance with "IEC 60065" '1.2 / 50 µs from a 1 nF capacitor charged. 12 pulse/min.*