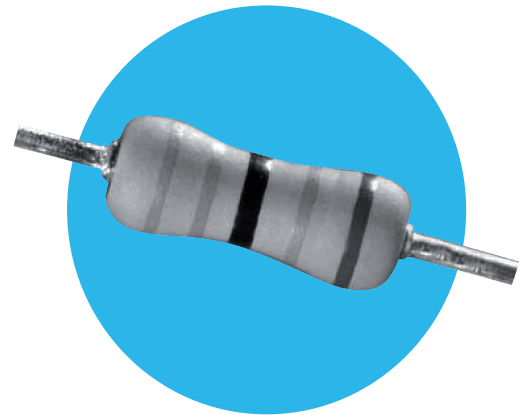


High Voltage Thick Film Resistors



VRW Series

- VRW37 meets requirements of BS / EN / IEC 60065
- High working voltage to 10kV in compact size
- High ohmic range to 68M
- High pulse load capability
- Robust flameproof coating material
- Surface mount ZI-form option

All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

| | | VRW25 | VRW37 | VRW68 |
|---------------------------|---------------------|-------------|----------------|-------------|
| Power rating at 70° C | watts | 0.25 | 0.5 | 1.0 |
| Resistance range | (Ohms) | 100K to 30M | 100K to 30M | 100K to 68M |
| Limiting element voltage | volts dc or ac peak | 1600 | 3500 | 10000 |
| Isolation voltage | volts | | 700 | |
| TCR | ppm/° C | | 200 | |
| Resistance Tolerance | % | | 1, 2, 5 | |
| Standard Values | | | E24 or E96 | |
| Thermal Impedance | ° C/watt | 140 | 112 | 70 |
| Ambient temperature range | ° C | | -55 to +155° C | |

Physical Data Dimensions (mm) & Weight (g)

| Type | L Max | D Max | f min | d | PCB mount centres | Min bend radius | Wt. nom | |
|-------|-------|-------|-------|----------|-------------------|-----------------|---------|--|
| VRW25 | 6.2 | 2.5 | 21 | 0.6±0.05 | 10.2 | 0.6 | 0.3 | |
| VRW37 | 9.0 | 3.7 | 19.6 | 0.8±0.05 | 12.7 | 1.2 | 0.5 | |
| VRW68 | 15.5 | 5.0 | 27 | 0.8±0.05 | 20.3 | 1.2 | 1.15 | |

Construction

Resistive thick film material is applied to high-grade ceramic rods. Tin-plated steel caps are force fitted and the termination wires are welded to the caps. The value is obtained by a helical cut in the film and finally the resistor body is protected by a cement coating.

Marking

1% tolerance resistors are colour coded with 5 bands. 2% and 5% tolerance have 4 bands. IEC62 colours are used.

Terminations

Material: Hot tin dipped copper wire
 Strength: The terminations meet the requirements of IEC 68.2.21
 Solderability: The terminations meet the requirements of IEC 115-1 Clause 4.17.3.2

Solvent Resistance

The body protection and marking are resistant to all normal industrial cleaning solvents suitable for printed circuits.

Flammability

The resistor coating will not burn under any condition of applied temperature or power overload.

General Note

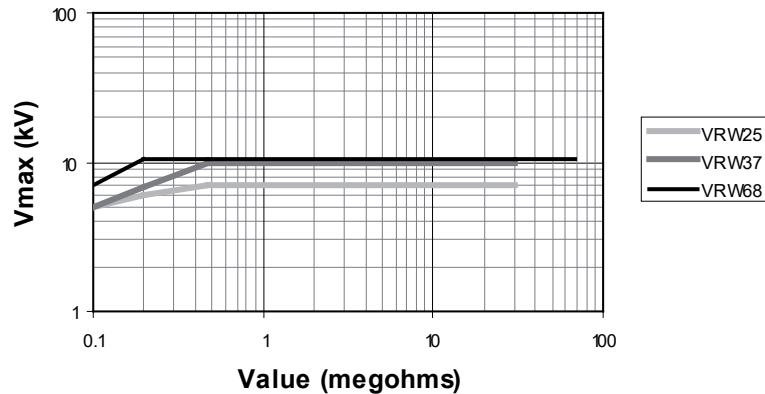
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Performance Data

| | | Maximum | Typical |
|--|-------|---------------|---------|
| Load at rated voltage (1000hrs at 70°C) | ΔR% | 1.5* | 0.4 |
| Derating from rated power at 70°C | | zero at 155°C | |
| Overload (10 x 5s at 6.25 x Pr not exceeding 2 x LEV or 10kV in air) | ΔR% | 2 | 0.15 |
| Damp heat steady state (56 days, 40°C, ≥90% RH) | ΔR% | 1.5 | 0.1 |
| Climatic sequence | ΔR% | 1.5 | 0.2 |
| Climatic category | | 55/155/56 | |
| Temperature rapid change | ΔR% | 0.5 | 0.05 |
| Resistance to solder heat | ΔR% | 0.5 | 0.05 |
| Vibration | ΔR% | 0.5 | 0.05 |
| Voltage Proof | volts | 700 min | |

* 2% for ohmic values above 24M

Pulse Performance



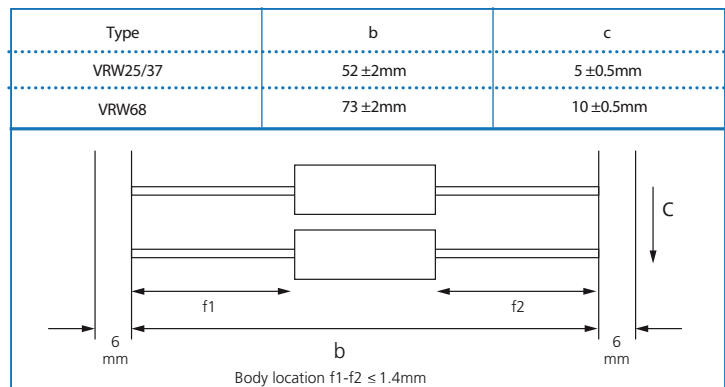
Maximum peak voltage in accordance with "IEC 60065 chapter 14.1"
50 discharges from a 1nF capacitor charged to V max. 12 discharges/minute.

Application Notes

- Due to operating temperature limits imposed by some PCB materials, derating may be necessary. An estimate of the temperature rise to be expected at the center of the body can be calculated using the thermal impedance figures given under Electrical Data.
- VRW resistors can be supplied with radial, goalpost or lancet pre-formed leads. The VRW37 is also available in ZI-form SMD format packed in blister tape - see <http://www.ttelectronics.com/themes/ttelectronics/datasheets/resistors/ZI-form.pdf>

Packaging

Our standard packaging for VRW is taped and boxed. The critical dimensions are shown in Figure 1. The component wires will not protrude beyond the outside edge of the tapes. Alternative packaging is available by request. Pre-formed resistors are supplied loose packed in plastic bags or boxes.



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VRW Series

Ordering Procedure

Example: VRW25 at 1.2 megohms and 5% tolerance in an ammo pack box of 5000 pieces -

VRW25 - 1M2J I

Type _____

Value (use IEC62 code) _____

Tolerance (use IEC62 code) _____

| | |
|---|----|
| F | 1% |
| G | 2% |
| J | 5% |

Packing _____

| | | | | |
|---|------|-------|----------|----------|
| I | Ammo | VRW25 | 5000/box | Standard |
| | | VRW37 | 2500/box | |
| | | VRW68 | 1000/box | |

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