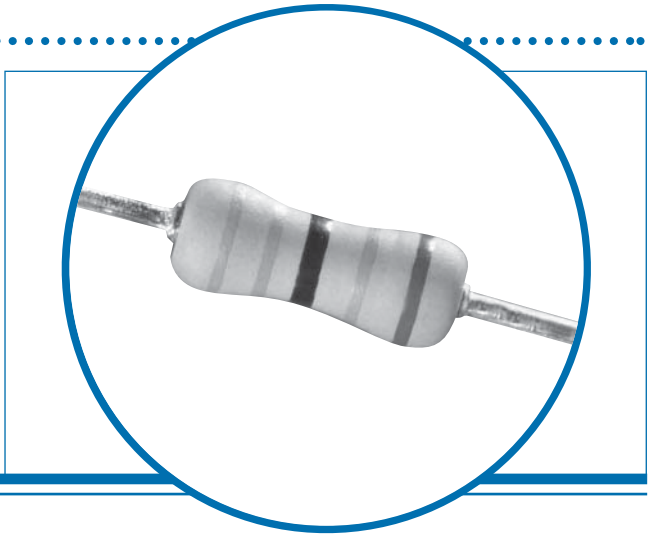
High Voltage Thick Film Resistors

TT electronics
Welwyn Components

VRW Series

- **VRW37 meets the requirements of BS / EN / IEC 60065**
- **High working voltage to 3.5kV in compact size**
- **High ohmic range to 30M**
- **High pulse load capability**
- **Robust flameproof coating material**
- **RoHS compliant**

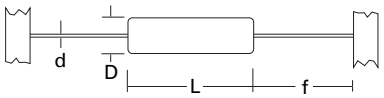


Electrical Data

		VRW25	VRW37
Power rating at 70˚C	watts	0.25	0.5
Resistance range	(Ohms)	100K to 30M	100K to 10M
Limiting element voltage	volts dc or ac peak	1600	3500
Isolation voltage	volts	700	
TCR	ppm/˚C	200	
Resistance Tolerance	%	1, 2, 5	
Standard Values		E24 preferred	
Thermal Impedance	˚C/watt	140	112
Ambient temperature range	˚C	-55 to +155˚C	

Physical Data Dimensions (mm) & Weight (g)

Type	L Max	D Max	f min	d Nom	PCB mount centres	Min bend radius	Wt. nom
VRW25	6.2	2.5	21	0.6	10.2	0.6	0.3
VRW37	9.0	3.7	19.6	0.8	12.7	1.2	0.5



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 applied so that the terminations remain completely clear.

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

Marking

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
Welwyn Components reserves the right to make changes in product specification without notice or liability.
All information is subject to Welwyn's own data and is considered accurate at time of going to print.

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Telephone: +44 (0) 1670 822181 · Facsimile: +44 (0) 1670 829465 · Email: info@welwyn-tt.com · Website: www.welwyn-tt.com

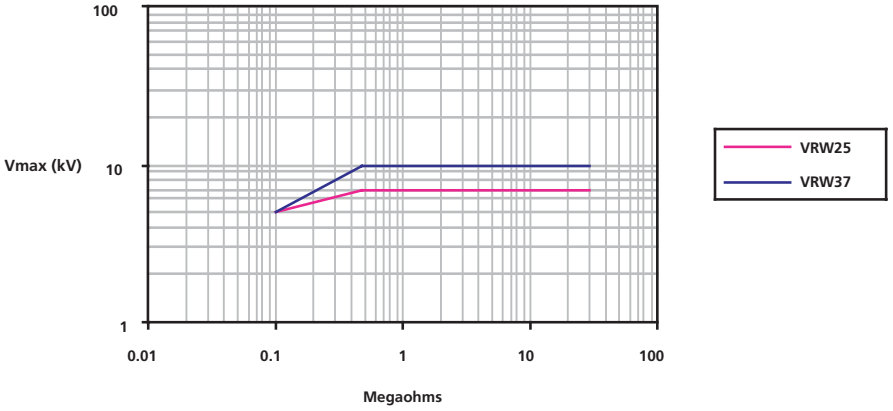
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Performance Data

		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 on, 45s off at 6.25 x Pr not exceeding 2 x LEV)	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	

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

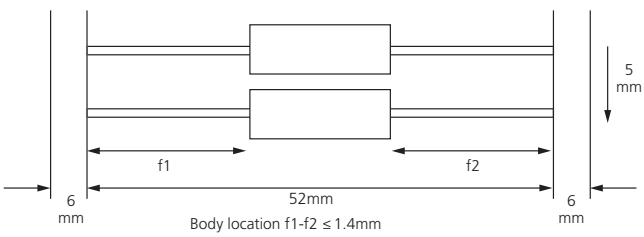
1. Due to operating temperature limits imposed by some PCB materials, derating may be necessary. An estimate of the temperature rise to be expected at the center of the body can be calculated using the thermal impedance figures given under Electrical Data.

2. VRW resistors can be supplied with radial, goalpost or lancet pre-formed leads. The VRW37 is also available in an SMD format with Z formed leads and packed in blister tape. Consult Factory for details.

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.

Figure 1



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Ordering Procedure

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

