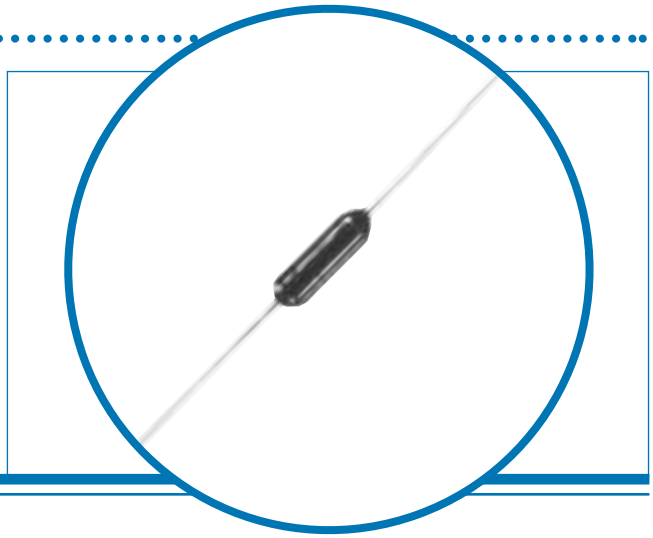
Metal Film Resistors

TT electronics
Welwyn Components

WRN Series

- **Conforms to MIL-R-10509**
- **Resistance range: 1 ohm to 1M ohms**
- **High reliability**

OBSOLETE



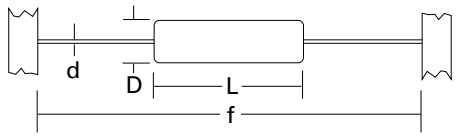
Electrical Data

		WRN55	
		C	**D**
Power rating	watts	0.1 @ 125°C	0.125 @ 70°C
Resistance range	ohms	1R0 - 1M	
Limiting element voltage	volts	350	
TCR	ppm/°C	50	100
Resistance tolerance	%	1	
Ambient temperature range	°C	-55 to 155	

Physical Data

Dimensions (mm)

Type	L Max	D Max	f min	d nom	PCB mounting centres	Min. bend radius
WRN55	6.2	2.5	52.00 ±1 63.50 ±1	0.6	10.2	0.6



Construction

The resistance element is a precisely controlled thin film of metal alloy sputtered on to a high purity ceramic core, protected by a moisture-resistant, high dielectric strength coating applied so that terminations remain completely clear. This permits a well defined body length, (clean lead to clean lead dimension L).

Terminations

Material Solder-coated copper wire.

Strength The terminations meet the requirements of IEC 68.2.21 and MIL-R-10509.

Solderability The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2 and MIL-R-10509.

Marking

Components are legend marked with style, charcatestc, resistance value and resistance tolerance.

RN55D 1003F			
RN55	D	1003	F
Style	Characteristic	Resistance value	Resistance value

Solvent Resistance

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

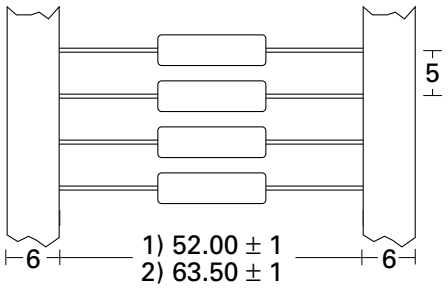
Welwyn
A subsidiary of
TT electronics plc

Performance Data

Tested in accordance with Mil-R-10509		Requirements		Typical
		C	D	
Thermal Shock	ΔR%	0.25	0.5	0.2
Low temperature operation	ΔR%	0.25	0.5	0.1
Terminal strength	ΔR%	0.2	0.5	0.15
Short term overload	ΔR%	0.25	0.5	0.2
Dielectric withstanding voltage	ΔR%	0.25	0.5	0.2
Effect of solder heat	ΔR%	0.25	0.5	0.1
Load life	ΔR%	0.5	1	0.25
Shock	ΔR%	0.25	0.5	0.1
Moisture resistance	ΔR%	0.5	1.5	0.5
Vibration	ΔR%	0.25	0.5	0.1

Tested to CECC 40101-019		Maximum
Shelf life: 12 months at room temperature	ΔR%	0.1
Long term damp heat	ΔR%	0.5
Temperature rapid change	ΔR%	0.25
Insulation resistance	ohms	>1G

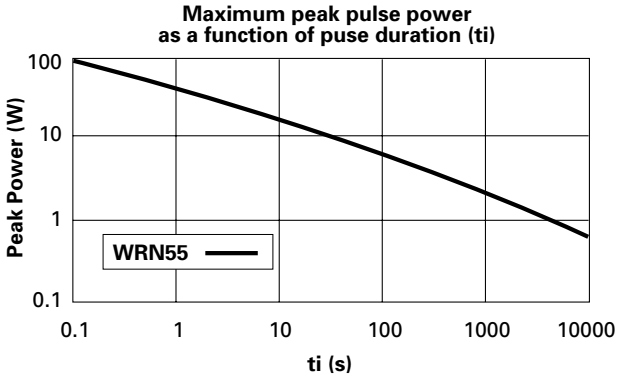
Figure 2



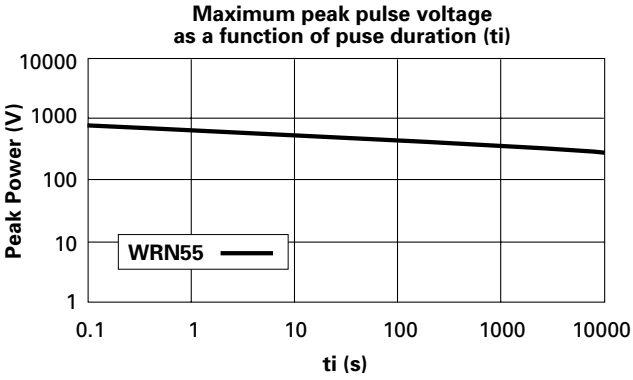
Standard Quantities Per Package

Type	WRN55
Large ammo pack	5000

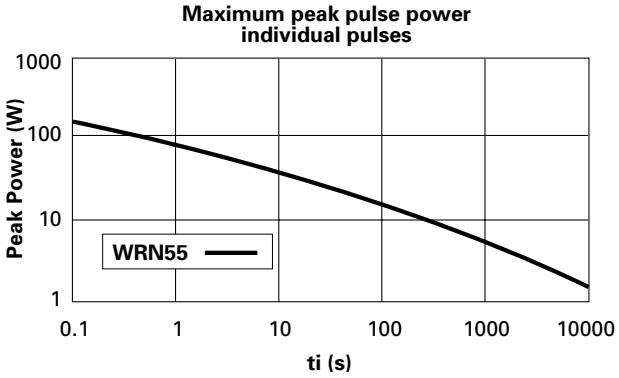
Graph 1



Graph 2



Graph 3



Test Method for Graphs 1 and 2

The resistor is subject ot 10,000 pulses as shown in figure 1. Maximum resistance change due to test will not exceed 1%. Maximum pulse voltages are detailed in graph 2 above. For any combination of power and pulse length (ti) tp is determined by the need to ensure that the average power does not exceed the rated power.

$$tp = \frac{\text{Applied Pulse Power}}{\text{Rated Power}} \times ti$$

Test Method for Graph 3

The resistor is subject to 1000 impulses of rectangular shape applied at one minute intervals. The limit of acceptance was a shift in resistance of less than 1% from the initial value. The power applied was subject to the restrictions of the maximum permissible impulse voltage graph.

Figure 1