

Cement Coated Wirewound Resistors

W30 Series

- Values down to 10m ohms
- Tolerance to 1%
- Flameproof protection
- Custom built to meet pulse requirements
- Surface mount ZI-form option



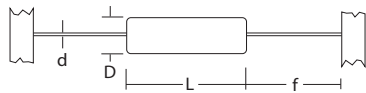
 All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

| | | W31 | Notes |
|---------------------------|---------|--|-------------------------------|
| Power rating at 25° C | watts | 3.0 | |
| Power rating at 70° C | watts | 2.5 | |
| Resistance range | ohms | 0R01 to 10K | |
| TCR (-55 to 155° C) | ppm/° C | See below | |
| Resistance tolerance | % | <R10: 5 >=R10: 1, 2, 5 | |
| Standard values | | E24 series preferred | Other values to special order |
| Thermal impedance | °C/watt | 83 | |
| Ambient temperature range | °C | -55 to 200 | |
| Limiting element voltage | volts | 100 | |
| TCR | ppm/° C | R01: ±1000 >R01- ≤R033: ±500 >R033- ≤R091: ±200 >R091- ≤10R: ±150 >10R: ±100 | |

Physical Data

| Maximum Dimensions (mm) and Weight (g) | | | | | |
|--|--------|--------------|--------|--------|---------|
| Type | L max. | D max. | f min. | d nom. | Wt.nom. |
| W31 | 13 | 5.6 (note 1) | 22.75 | 0.8 | 1.0 |



Note 1: 5.8 for values ≤0R1

Construction

A high quality ceramic substrate is assembled with interference fit end caps to which are welded the element winding and termination wires. The protection is then applied to the body, providing an effective seal which is impervious to moisture, shock, vibration, fungus and salt spray.

Terminations

- Material** Solder coated copper.
- 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

W31 resistors are legend marked with type reference, resistance value and tolerance. Values are marked in accordance with IEC 62.

Solvent Resistance

The body 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 component overload.

General Note

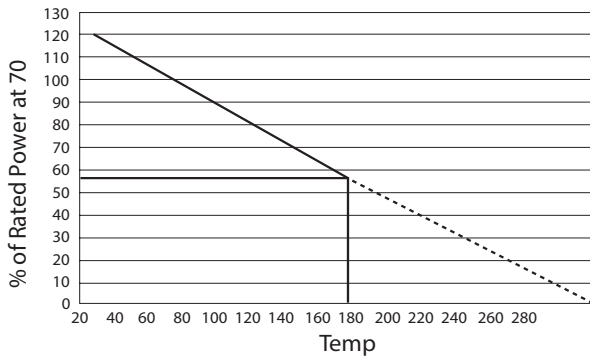
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Performance Data

| | | Maximum | Typical |
|--|-------|---------------------------|---------|
| Load: 1000 hrs 3 watts @ 25°C | ΔR% | 5.0 + .001Ω | 3.5 |
| 1000 hrs 2.5 watts @ 70°C | ΔR% | 5.0 + .001Ω | 3.5 |
| Dry heat: 1000 hrs at 200°C | ΔR% | 5.0 + .001Ω | 3.5 |
| Derating from room temperature | | see derating curve | |
| Short term overload 10 x rated power for 5 seconds | ΔR% | 5.0 + .001Ω | 1.0 |
| Climatic | ΔR% | 5.0 + .001Ω | 3.5 |
| Climatic category | | 55/200/56 | |
| Long term damp heat: 56 days | ΔR% | 3.0 + .001Ω | 1.0 |
| Temperature rapid change | ΔR% | 2.0 + .001Ω | 1.5 |
| Resistance to solder heat | ΔR% | 5.0 + .001Ω | 2.0 |
| Vibration and bump | ΔR% | 5.0 + .001Ω | 2.0 |
| Voltage proof | volts | 500 min | |
| Pulse handling | | Data available by request | |

W31 Series Derating Curve



Application Notes

The terminations should not be bent closer than 1.6mm from the body, and the recommended minimum bend radius is 1.2mm.

Care must be taken when determining clearance between the resistor body and the P.C.B. or other components. Resistance is measured 6mm from body.

Packaging

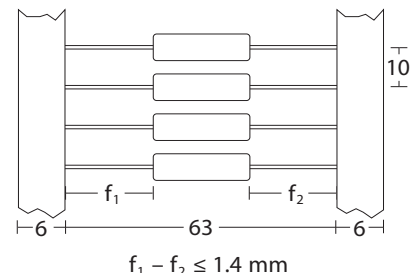
The standard method of packaging is taped in ammo packs. Can be provided on reels by request.

W31 can be supplied with hairpin, goalpost or lancet pre-formed leads- see

<https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/ApplicationNotes/TN008-resistors-Leadform-Capability.pdf>

W31 is also available in ZI-form SMD format packed in blister tape- see

<https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/ZI-form.pdf>



Ordering Procedure

Example: W31-1K0FA1 (W31, 1 kilohm ±1%, Pb-free)



| 1 | 2 | 3 | 4 | | | |
|------|----------------------|-----------|---------|------|-----------|----------|
| Type | Value | Tolerance | Packing | | | |
| W31 | E24 = 3/4 characters | F = ±1% | A1 | Ammo | 1000/box | Standard |
| | R = ohms | G = ±2% | T1 | Tape | 1000/reel | |
| | K = kilohms | J = ±5% | | | | |

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