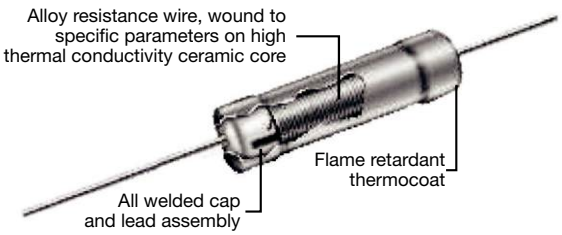
Z302 Axial Cemented Wirewound Safety Resistor



FEATURES

- All welded construction
- Ceramic core
- P_{40} = 3 W
- Ohmic range 10R to 100R, 5 %
- Special cement coating for immediate interruption without flame and explosion when mains voltage (220 V_{RMS}) is applied
- Lead (Pb)-free and RoHS compliant

Pb-free
RoHS COMPLIANT

Vishay has introduced special version of Z302 wirewound resistors to be used as safety resistor (or, AC mains input resistors). It uses specially selected resistive winding wire and special coating material to ensure safe and silent fusing operation in overload conditions. The resistor fuses “without a bang” when AC mains voltage is applied. At the same time, it acts as a in-rush current limiting resistor for the normal operation. The specially developed lacquer coating matches the thermal and electrical insulating properties of standard silicone cement. This allows designers to more easily meet the requirements of UL approval, whilst eliminating the need to put additional fuses in series with the input resistor.

In the conventional wirewound resistor, ceramic rod at the resistor's core acts as a heat sink for the wire element. This can delay fusing, resulting in high enough temperatures to fragment the coating and ionize the air near to where fusing occurs. If ionization occurs close to the cap edge and at a voltage peak in the mains cycle, it can initiate a momentary flashover outside the component body, releasing far more energy than is required to fuse the wire element. Although the opening of the circuit is safe for most applications, it can be with a “bang” with splattering of cement coating. This is un-safe operation and not desirable.

New coating material and process gives silent and safe fusing performance to Z302 safety resistors. The new multi-layer coating has a flammability rating conforming to UL 94 V-0 and shares the same high temperature and insulating properties as standard silicone cement. However, it can absorb thermal and mechanical stresses without fragmenting. The resistor coating does not burn or emit incandescent particles under any condition of applied temperature or power overload.

These resistors are available in standard values of 10R, 20R with 5 % tolerance. Other ohmic values are also available on customer request from 10 Ω to 100 Ω. The devices are designed to withstand inrush and surge conditions.

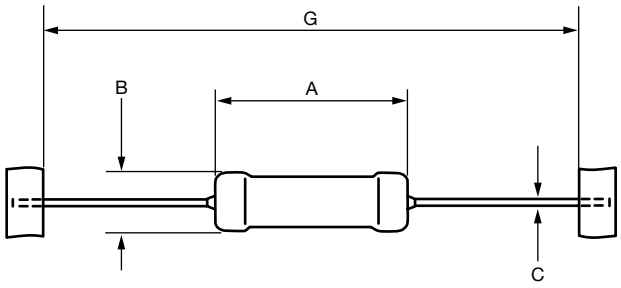
KEY SPECIFICATIONS

- Surge voltage capability: 1.8 kV (30 pulses/15 min) as per IEC 61000-4-5
- Fusing time < 30 s for 45 W overload
- Fusing time < 2 s when connected across the mains 90 V_{AC} to 264 V_{AC}/50 Hz to 60 Hz without flames, explosion or smoke. Resistance value after fusing > 100 kΩ

APPLICATION NOTE

Z302 Axial Cemented Wirewound Safety Resistor

PHYSICAL CONFIGURATION



SPECIFICATIONS							
MODEL	RATED DISSIPATION P_{40} °C	TOL. ± %	"A" MAX. (mm)	"B" MAX. (mm)	"C" (mm)	"G" (mm)	MARKING
Z320414	3 W	5	13.0	5.5	0.8	53 ± 1	SR

PACKAGING

500 pieces ammo pack.

ORDERING INFORMATION

Example: To order a 20 Ω, 3 W, safety resistor, the part number will be: **Z32041432009J2CCS0**.

The first 15 digits are as per ordering information given in the Z300 datasheet. Last 3 special digits "CSO" specifies safety resistor. (www.vishay.com/doc?21007)

For further information, please contact: ww1resistors@vishay.com

APPLICATION NOTE