Axial Cemented Wirewound Safety Resistor

FEATURES

- Surge voltage capability: 2 kV (30 pulses/ 15 min) as per IEC 61000-4-5. Higher surge capability on customer request.
- Fusing time < 30 s for 45 W overload
- Tinned Cu wire terminations
- P_{40} = 3 W
- Ohmic range: 10 Ω to 100 Ω, 5 %
- Special cement coating for immediate interruption without flame and explosion when mains voltage (220 V_{RMS}) is applied
- Specially designed for applications in electric appliances, energy meters
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

Vishay has introduced special version of AC03 wirewound resistors to be used as fusible 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 temperatures to fragment the coating and ionize the air near the fusing spot. 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.

AC03 Safety resistor has new coating material and process to give silent and safe fusing. It can absorb thermal stresses without fragmenting or burning of resistor coating.

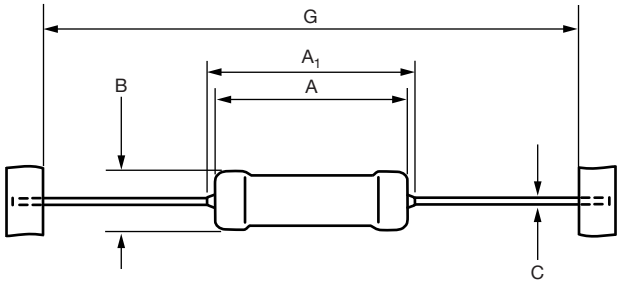
STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40\,°C}$ W	POWER RATING $P_{70\,°C}$ W	LIMITING VOLTAGE $U_{max.}$	RESISTANCE RANGE (1) Ω TCR = ± 200 ppm/K	TOLERANCE ± %
AC03	3	2.5	$\sqrt{P \times R}$	10 to 100	5

Note

(1) Resistance value to be selected for ± 10 % tolerance from E12 and for ± 5 % from E24 series

DIMENSIONS



DIMENSIONS in millimeters					
MODEL	**A MAX.**	**A_1 MAX.**	**B MAX.**	**C**	**G**
AC03..CS	13.0	19	5.5	0.8	63 ± 1

PACKAGING

500 pieces ammo pack.

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: AC03000002209JACCS

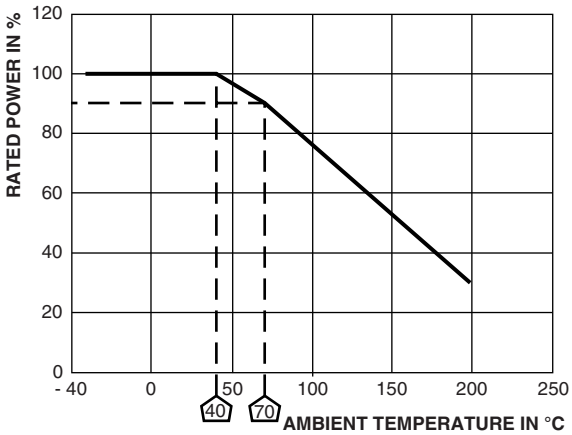
A	C	0	3	0	0	0	0	0	2	2	0	9	J	A	C	C	S

MODEL	VARIANT	TCR/MATERIAL	VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
AC03000 = AC03	**0** = Neutral	**0** = Standard	**3 digit value** **1 digit multiplier** MULTIPLIER **9** = $*10^{-1}$ **0** = $*10^{0}$ **1** = $*10^{1}$	**J** = ± 5.0 %	**AC** = 500 pieces ammo pack	**CS** = Safety Resistor

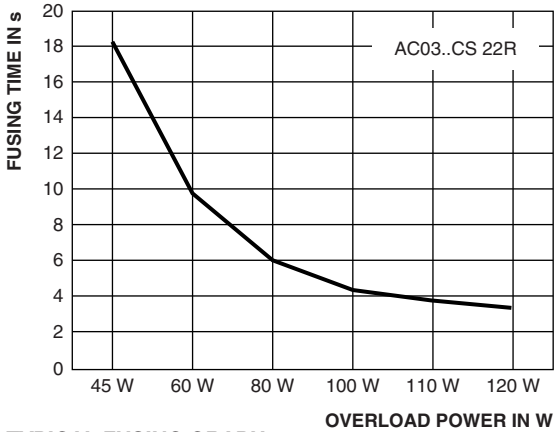
Product Description: AC03 22R 5 % AC G63 CD1281

AC03	22R	5 %	AC	G63	CD1281
MODEL	*R* VALUE	TOLERANCE	PACKAGING	TAPE WIDTH	SPECIFICATION FOR SAFETY RESISTOR

FUNCTIONAL PERFORMANCE



DERATING



TYPICAL FUSING GRAPH

PERFORMANCE	
TEST	**PERMISSIBLE CHANGE**
Climatic Category (LCT/UCT/Days)	40/200/56
Climatic Sequence, IEC 60115-1, 4.23	$\Delta R = \pm (1\ \%\ R + 0.05\ \Omega)$
Damp Heat, Steady State, IEC 60115-1, 4.24 (40 ± 2) °C, 56 days, (93 ± 3) % RH	$\Delta R = \pm (5\ \%\ R + 0.1\ \Omega)$
Endurance at room temperature (116 % P_{70}), 1000 h, IEC 60115-1, 4.25.2	$\Delta R = \pm (5\ \%\ R + 0.1\ \Omega)$
Endurance at UCT, 200 °C (30 % P_{70}), 1000 h, IEC 60115-1, 4.25.3	$\Delta R = \pm (5\ \%\ R + 0.1\ \Omega)$
Resistance to Soldering Heat, IEC 60115-1, 4.18 (260 ± 5) °C, (10 ± 1) s	$\Delta R = \pm (0.5\ \%\ R + 0.05\ \Omega)$
Robustness of Termination, IEC 60115-1, 4.16	$\Delta R = \pm (0.5\ \%\ R + 0.05\ \Omega)$
Short Time Overload, IEC 60115-1, 4.13 10 x Rated Power for 5 s	$\Delta R = \pm (2\ \%\ R + 0.1\ \Omega)$
Fail safe mains Fusing at 240V V_{RMS}	Resistance > 100 kΩ, fusing time < 2 s (fusing without flames, explosion or smoke)

Notes

- Please see document “Vishay Material Category Policy”: www.vishay.com/doc?99902
- Refer www.vishay.com/doc?28730 for other details
- For further information, please contact: ww1resistors@vishay.com

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