

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



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.

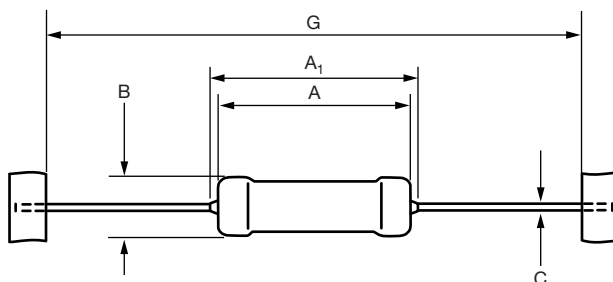
AC03 Safety resistor has new coating material and process to give silent and safe fusing. It can absorb thermal stresses without fragmenting or burning of resistor coating.

STANDARD ELECTRICAL SPECIFICATIONS					
MODEL	POWER RATING $P_{40\text{ }^{\circ}\text{C}}$ W	POWER RATING $P_{70\text{ }^{\circ}\text{C}}$ W	LIMITING VOLTAGE $U_{\text{max.}}$	RESISTANCE RANGE ⁽¹⁾ Ω TCR = ± 200 ppm/K	TOLERANCE $\pm$ %
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



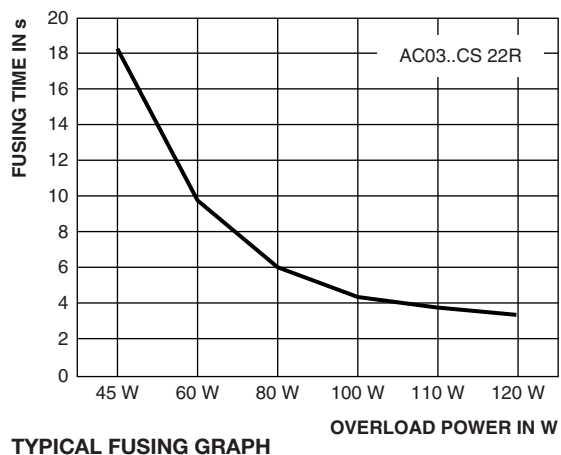
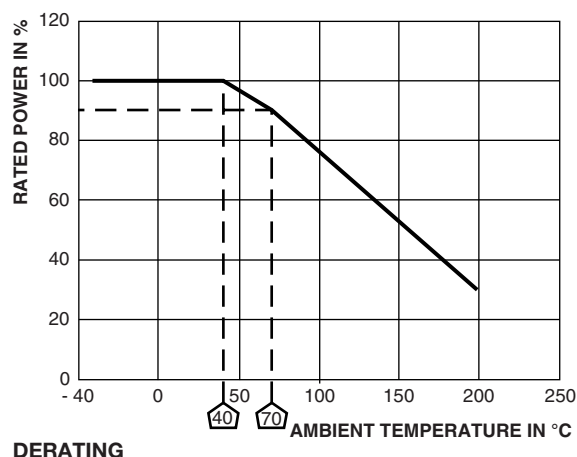
DIMENSIONS in millimeters					
MODEL	A MAX.	A ₁ MAX.	B MAX.	C	G
AC03..CS	13.0	19	5.5	0.8	63 ± 1

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





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 $\pm$ 2) °C, 56 days, (93 $\pm$ 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 $\pm$ 5) °C, (10 $\pm$ 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 k Ω , 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



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.