

## Axial Cemented Fusible Wirewound Safety Resistor



### FEATURES

- UL1412 recognized fusible wirewound resistor; UL file no. E362452
- Maximum surge voltage handling capability: 4 kV (for  $R > 75 \Omega$ ) as per IEC 61000-4-5
- Fusing time < 25 s for 45 W overload
- Sn coated Cu termination wires
- $P_{40} = 3 \text{ W}$
- Ohmic range:  $4.7 \Omega$  to  $100 \Omega$ , 5 %
- Non-flammable silicon cement coating for immediate interruption without flame and explosion when mains voltage (230 V<sub>AC</sub>) is applied
- Specially designed for applications in electric appliances, energy meters
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

AC03 safety resistor (AC03..CS) is designed to be used as fusible safety resistor (or, AC mains input resistors). It uses specially selected resistive winding wire and special non flammable silicon cement 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 has superior thermal and electrical insulating properties. This allows designers to more easily meet the requirements of safety approval, whilst eliminating the need to put additional fuses in series with the input resistor.

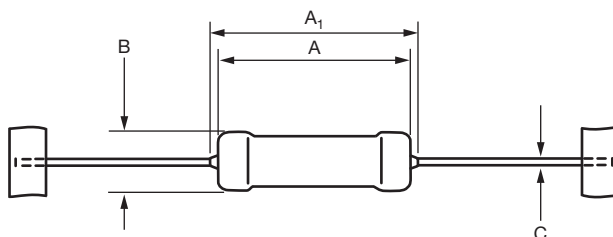
### STANDARD ELECTRICAL SPECIFICATIONS

| TYPE     | POWER RATING<br>$P_{40}$<br>W | POWER RATING<br>$P_{70}$<br>W | LIMITING VOLTAGE<br>$U_{max.}$<br>V | RESISTANCE RANGE <sup>(1)</sup><br>$\Omega$<br>TCR = $\pm 200 \text{ ppm/K}$ | TOLERANCE<br>% |
|----------|-------------------------------|-------------------------------|-------------------------------------|------------------------------------------------------------------------------|----------------|
| AC03..CS | 3                             | 2.5                           | $\sqrt{P \times R}$                 | 4.7 to 100                                                                   | $\pm 5$        |

#### Note

(1) Resistance value to be selected for  $\pm 5 \%$  from E24 series, special ohmic values are available on request

### DIMENSIONS



### DIMENSIONS - Resistor types, mass, and relevant physical dimensions

| TYPE     | $A_{max.}$ | $A_1 \text{ max.}$ | $B_{max.}$ | $C_{nom.}$ | MASS   |
|----------|------------|--------------------|------------|------------|--------|
| AC03..CS | 13.0 mm    | 19 mm              | 6.0 mm     | 0.8 mm     | 0.78 g |

### PACKAGING

| TYPE     | CODE | QUANTITY   | DESCRIPTION                                   | TAPE WIDTH | PITCH | DIMENSION              |
|----------|------|------------|-----------------------------------------------|------------|-------|------------------------|
| AC03..CS | AC   | 500 pieces | Taped acc. to IEC60286-1; fan folded in a box | 63 mm      | 5 mm  | 85 mm x 58 mm x 260 mm |



## PART NUMBER AND PRODUCT DESCRIPTION

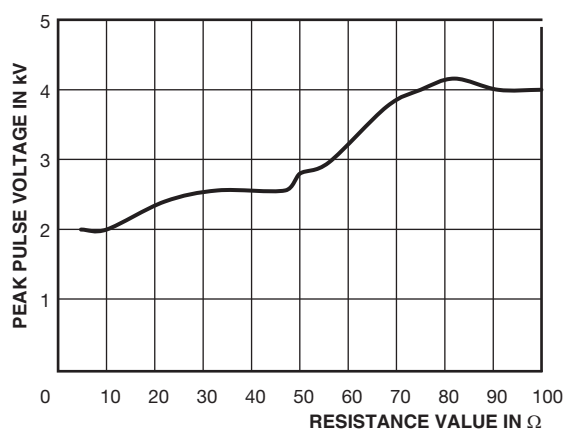
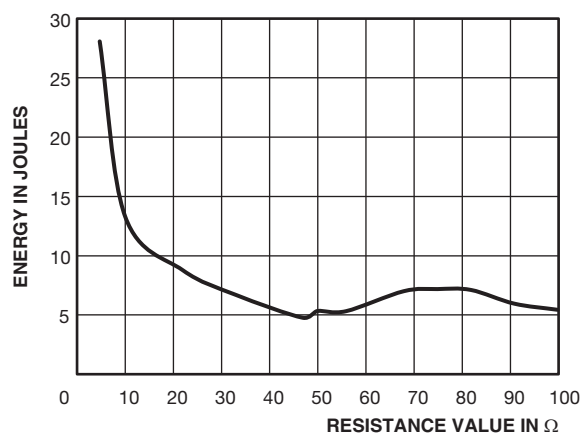
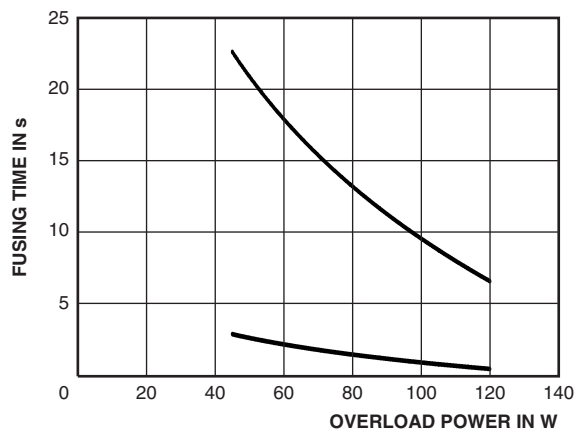
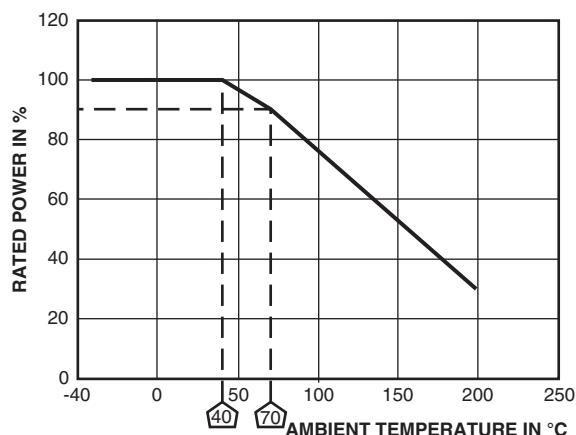
Part Number: AC03000002209JACCS

|                   |   |             |   |              |   |                                                                                                                                                     |   |           |   |                           |   |                      |   |   |   |   |   |
|-------------------|---|-------------|---|--------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------|---|---------------------------|---|----------------------|---|---|---|---|---|
| A                 | C | 0           | 3 | 0            | 0 | 0                                                                                                                                                   | 0 | 0         | 2 | 2                         | 0 | 9                    | J | A | C | C | S |
| TYPE              |   | VERSION     |   | TCR/MATERIAL |   | RESISTANCE                                                                                                                                          |   | TOLERANCE |   | PACKAGING                 |   | SPECIAL              |   |   |   |   |   |
| AC03000 = AC03-CS |   | 0 = neutral |   | 0 = standard |   | 3 digit value<br>1 digit multiplier<br>MULTIPLIER<br>8 = *10 <sup>-2</sup><br>9 = *10 <sup>-1</sup><br>0 = *10 <sup>0</sup><br>1 = *10 <sup>1</sup> |   | J = ± 5 % |   | AC = 500 pieces ammo pack |   | CS = safety resistor |   |   |   |   |   |

Product Description: AC03-CS 22R 5 % AC G63 CD1281

|         |            |           |           |            |         |
|---------|------------|-----------|-----------|------------|---------|
| AC03-CS | 22R        | 5 %       | AC        | G63        | CD1281  |
| TYPE    | RESISTANCE | TOLERANCE | PACKAGING | TAPE WIDTH | SPECIAL |

## FUNCTIONAL PERFORMANCE





| PERFORMANCE                                                                                                                                |                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| TEST                                                                                                                                       | PERMISSIBLE CHANGE ( $\Delta R$ )                                                     |
| Climatic Category (LCT/UCT/Days)                                                                                                           | 40/200/56                                                                             |
| Climatic Sequence, IEC 60115-1, 4.23                                                                                                       | $\pm (1 \% R + 0.05 \Omega)$                                                          |
| Damp Heat, Steady State, IEC 60115-1, 4.24, $(40 \pm 2) ^\circ\text{C}$ , 56 days, $(93 \pm 3) \% \text{RH}$                               | $\pm (5 \% R + 0.1 \Omega)$                                                           |
| Endurance at room temperature ( $116 \% P_{70}$ ), 1000 h, IEC 60115-1, 4.25.2                                                             | $\pm (5 \% R + 0.1 \Omega)$                                                           |
| Endurance at UCT, $200 ^\circ\text{C}$ ( $30 \% P_{70}$ ), 1000 h, IEC 60115-1, 4.25.3                                                     | $\pm (5 \% R + 0.1 \Omega)$                                                           |
| Resistance to Soldering Heat, IEC 60115-1, 4.18, $(260 \pm 5) ^\circ\text{C}$ , $(10 \pm 1) \text{s}$                                      | $\pm (0.5 \% R + 0.05 \Omega)$                                                        |
| Robustness of Termination, IEC 60115-1, 4.16                                                                                               | $\pm (0.5 \% R + 0.05 \Omega)$                                                        |
| Short Time Overload, IEC 60115-1, 4.13, 10 x Rated Power for 5 s                                                                           | $\pm (2 \% R + 0.1 \Omega)$                                                           |
| 1.2 $\mu\text{s}$ /50 $\mu\text{s}$ Surge Test (impedance of Surge Tester is $2 \Omega$ ) as per IEC 61000-4-5; 10 Pulses at 30 s interval | $\pm (5 \% R + 0.1 \Omega)$                                                           |
| Fail safe mains Fusing at 230 V <sub>AC</sub>                                                                                              | Resistance > 100 k $\Omega$ , fusing time < 2 s<br>(fusing without flames, explosion) |

**Notes**

- Please see document “Vishay Material Category Policy”: [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)
- Refer [www.vishay.com/doc?28730](http://www.vishay.com/doc?28730) for other details
- For further information, please contact: [ww1resistors@vishay.com](mailto:ww1resistors@vishay.com)



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