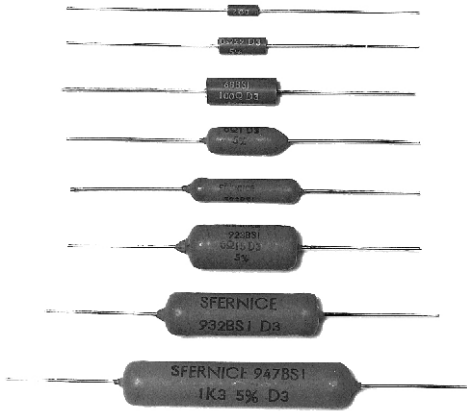


# Molded and Insulated Wirewound Power Resistors Axial Leads



## FEATURES

- 1 W to 10 W
- Excellent stability = Typical drift  $\pm 1\%$  after 2000 h
- High power = Up to 10 W (25 °C)
- Low ohmic values = 0.01  $\Omega$  available
- Electrical insulation
- Climatic protection
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

| DIMENSIONS in millimeters |                         |                   |            |                  |                   |
|---------------------------|-------------------------|-------------------|------------|------------------|-------------------|
|                           | <b>MOLDED</b>           | <b>PROTECTION</b> |            |                  |                   |
|                           | <b>SERIES AND STYLE</b> | <b>A</b>          | <b>Ø B</b> | <b>Ø C ± 0.1</b> | <b>WEIGHT (g)</b> |
|                           | 58BSI                   | 6.5 ± 0.2         | 2.4 ± 0.1  | 0.6              | 0.3               |
|                           | 63BSI                   | 10 ± 0.2          | 3.7 ± 0.1  |                  | 0.45              |
|                           | 68BSI                   | 15 ± 0.5          | 5.6 ± 0.2  | 0.8              | 1.3               |
|                           | <b>INSULATED</b>        | <b>PROTECTION</b> |            |                  |                   |
|                           | 516BSI                  | 17 ± 2            | 5.5 ± 1    | 0.8              | 1.6               |
|                           | 523BSI                  | 24 ± 2            | 5.5 ± 1    |                  | 2.5               |
|                           | 923BSI                  | 26 ± 2            | 10 ± 1.5   |                  | 6                 |
|                           | 932BSI                  | 34 ± 3            | 10 ± 1.5   |                  | 7.5               |
|                           | 947BSI                  | 51 ± 3            | 10 ± 1.5   |                  | 10                |

| STANDARD ELECTRICAL SPECIFICATIONS |      |                           |                                      |                            |                    |   |
|------------------------------------|------|---------------------------|--------------------------------------|----------------------------|--------------------|---|
| MODEL                              | SIZE | RESISTANCE RANGE $\Omega$ | RATED POWER $P_{25^\circ\text{C}}$ W | LIMITING ELEMENT VOLTAGE V | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT $\pm \text{ppm}/^\circ\text{C}$ |
| 58BSI                              | 058  | 0.1 to 2K                 | 1                                    | 50                         | 0.5, 1, 2, 5       | 100, 300  |
| 63BSI                              | 063  | 0.025 to 4K               | 2                                    | 120                        | 0.5, 1, 2, 5       | 100, 300  |
| 68BSI                              | 068  | 0.01 to 15K               | 3                                    | 200                        | 0.5, 1, 2, 5       | 100, 300  |
| 516BSI                             | 516  | 0.01 to 20K               | 4                                    | 200                        | 0.5, 1, 2, 5       | 100, 300  |
| 523BSI                             | 523  | 0.015 to 40K              | 5                                    | 250                        | 0.5, 1, 2, 5       | 100, 300  |
| 923BSI                             | 923  | 0.02 to 60K               | 6                                    | 300                        | 0.5, 1, 2, 5       | 100, 300  |
| 932BSI                             | 932  | 0.035 to 100K             | 8                                    | 500                        | 0.5, 1, 2, 5       | 100, 300  |
| 947BSI                             | 947  | 0.06 to 150K              | 10                                   | 750                        | 0.5, 1, 2, 5       | 100, 300  |

| TECHNICAL SPECIFICATIONS   |                                      |                        |              |                                  |                                 |                                 |                                  |                                 |                                  |                                 |
|----------------------------|--------------------------------------|------------------------|--------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------|
| VISHAY SFERNICE SERIES     |                                      |                        | 58BSI        | 63BSI                            | 68BSI                           | 516BSI                          | 523BSI                           | 923BSI                          | 932BSI                           | 947BSI                          |
| Ohmic Range in Relation to | $\pm 100 \text{ ppm}/^\circ\text{C}$ | $\pm 0.5\%$            | 0.1 $\Omega$ | 0.1 $\Omega$                     | 0.1 $\Omega$                    | 0.1 $\Omega$                    | 0.1 $\Omega$                     | 0.1 $\Omega$                    | 0.1 $\Omega$                     | 0.1 $\Omega$                    |
|                            |                                      | $\pm 5\%$              | 2 k $\Omega$ | 4 k $\Omega$                     | 15 k $\Omega$                   | 20 k $\Omega$                   | 40 k $\Omega$                    | 60 k $\Omega$                   | 100 k $\Omega$                   | 150 k $\Omega$                  |
| Temperature Coefficient    | $\pm 300 \text{ ppm}/^\circ\text{C}$ | $\pm 1\%$<br>$\pm 5\%$ | -            | 0.025 $\Omega$<br>< 0.1 $\Omega$ | 0.01 $\Omega$<br>< 0.1 $\Omega$ | 0.01 $\Omega$<br>< 0.1 $\Omega$ | 0.015 $\Omega$<br>< 0.1 $\Omega$ | 0.02 $\Omega$<br>< 0.1 $\Omega$ | 0.035 $\Omega$<br>< 0.1 $\Omega$ | 0.06 $\Omega$<br>< 0.1 $\Omega$ |

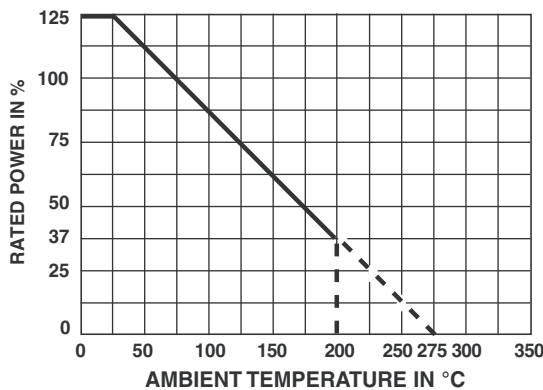


| MECHANICAL SPECIFICATIONS |                               |
|---------------------------|-------------------------------|
| Mechanical Protection     | Molded or painted (insulated) |
| Resistive Element         | CuNi or CrNi                  |
| Substrate                 | Alumina                       |
| Connections               | Sn/Ag/Cu 99/0.3/0.7           |

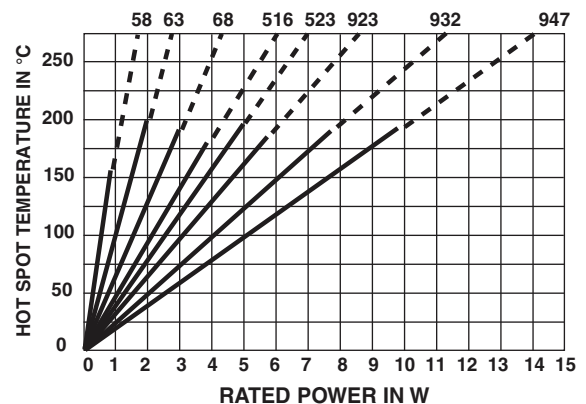
| ENVIRONMENTAL SPECIFICATIONS |                     |
|------------------------------|---------------------|
| Temperature Range            | - 55 °C to + 275 °C |
| Climatic Category            | 55/200/56           |

| PERFORMANCE                   |  |  |   |
|-------------------------------|--|--|---|
| TESTS                         | CONDITIONS   | REQUIREMENTS   | TYPICAL VALUES AND DRIFTS                           |
| Dielectric Strength           | IEC 60115-1<br>1000 V <sub>RMS</sub> for 923 to 947<br>500 V <sub>RMS</sub> for 58 to 523                        | ± (0.1 % + 0.05 Ω)                                   | ± (0.1 % + 0.05 Ω)                                  |
| Short Time Overload           | IEC 60115-1<br>5 P <sub>r</sub> /5 s for P <sub>r</sub> < 5 W<br>10 P <sub>r</sub> /5 s for P <sub>r</sub> ≥ 5 W | ± (0.2 % + 0.05 Ω)                                   | ± (0.1 % + 0.05 Ω)                                  |
| Endurance                     | IEC 60115-1<br>90'/30' P <sub>r</sub> at 25 °C, 2000 h   | ± (1 % + 0.05 Ω)                                     | ± (0.1 % + 0.05 Ω)                                  |
| Endurance at High Temperature | 250 h at 275 °C  | ± (0.5 % + 0.05 Ω)                                   | ± (0.3 % + 0.05 Ω)                                  |
| Thermal Shock                 | Load at 100 % P <sub>r</sub> followed<br>by cold temp. exposure<br>at - 55 °C                                    | ± (0.2 % + 0.05 Ω)                                   | ± (0.1 % + 0.05 Ω)                                  |
| Climatic Sequence             | IEC 60115-1<br>- 55 °C/+ 200 °C<br>5 cycles  | ± (0.5 % + 0.05 Ω)<br>Insulation resistance ≥ 100 MΩ | ± (0.3 % + 0.05 Ω)<br>Insulation resistance > 10 GΩ |
| Damp Heat, Steady State       | IEC 60115-1/IEC 60068-2-78<br>56 days, 40 °C, 93 % RH  | ± (0.5 % + 0.05 Ω)<br>Insulation resistance ≥ 100 MΩ | ± (0.3 % + 0.05 Ω)<br>Insulation resistance > 10 GΩ |
| Moisture Resistance           | MIL-STD-202<br>method 106  | ± (0.2 % + 0.05 Ω)<br>Insulation resistance ≥ 100 MΩ | ± (13 % + 0.05 Ω)<br>Insulation resistance > 10 GΩ  |
| Shock                         | MIL-STD-202<br>100 g method 205 - test C   | ± (0.1 % + 0.05 Ω)                                   | ± (0.05 % + 0.05 Ω)                                 |
| Vibration                     | MIL-STD-202<br>method 204 - Test D: 20 g<br>10Hz/2000 Hz   | ± (0.1 % + 0.05 Ω)                                   | ± (0.05 % + 0.05 Ω)                                 |

**POWER RATING**



**TEMPERATURE RISE**

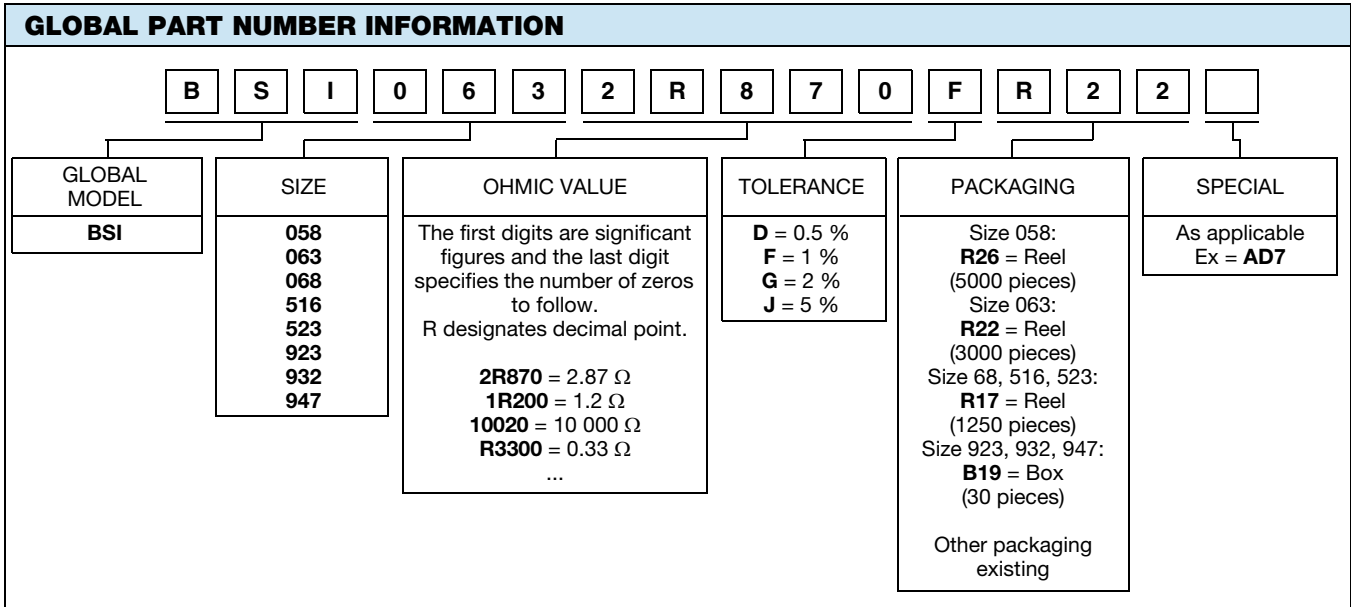


**MARKING**

GEKA trademark, model, style, nominal resistance (in Ω), tolerance (in %), manufacturing date. Because of lack of space, small styles are marked with ohmic value (in Ω), and tolerance (in %) only.



| ORDERING INFORMATION |           |             |            |                         |              |                |
|----------------------|-----------|-------------|------------|-------------------------|--------------|----------------|
| <b>BSI</b>           | <b>63</b> | <b>U22</b>  | <b>2 %</b> | <b>± 100 ppm/°C</b>     | <b>TR300</b> | <b>e1</b>      |
| MODEL                | STYLE     | OHMIC VALUE | TOLERANCE  | TEMPERATURE COEFFICIENT | PACKAGING    | LEAD (Pb)-FREE |





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