

# THICK FILM POWER RESISTORS

## TYPE BDS100 SERIES

### INTRODUCTION

The BDS100 Series is a high-power thick film resistor designed for demanding power electronic applications requiring exceptional power density, low inductance, and long-term reliability. Delivering up to 100W continuous power dissipation, the BDS100 combines compact design, excellent thermal performance, and high-voltage capability to support today's advanced industrial and energy systems. With a wide resistance range, robust isolation characteristics, and multiple terminal configurations, the BDS100 provides engineers with a versatile solution for snubber circuits.

power supplies, braking circuits, energy storage systems, motor drives, and high-frequency applications. Built for reliability in harsh operating environments, the BDS100 helps improve system performance, efficiency, and operational life.



### FEATURES

- 100W Continuous Power
- Low Inductance
- High Pulse Capability
- Industrial Reliability

### APPLICATIONS

- Dynamic Braking Systems
- Snubber Networks
- Inverters
- Renewable Energy Systems
- Power Supplies
- Energy Storage Systems

### ELECTRICAL CHARACTERISTICS

| Type                     | Characteristics                                                                      |
|--------------------------|--------------------------------------------------------------------------------------|
| Resistance Range         | R47 - 1M $\Omega$                                                                    |
| Resistance Tolerance     | $\pm 10\%$ , 5% (Tighter by discussion)                                              |
| TCR                      | R<1 $\Omega$ $\pm 250$ ppm/ $^{\circ}$ C<br>R>1 $\Omega$ $\pm 150$ ppm/ $^{\circ}$ C |
| Power Rating             | 100W @60 $^{\circ}$ C                                                                |
| Capacitance              | Parallel 15pF; to Earth 40pF                                                         |
| Series Inductance        | 40nH (Maximum)                                                                       |
| Limiting Element Voltage | 500Vdc/ac rms (100W or Less)                                                         |
| Isolating Voltage        | 2.5kVac rms (Terminal to Heatsink)                                                   |
| Single Shot Voltage      | 4kV 1.5/50ms                                                                         |
| Insulation Resistance    | >100G $\Omega$ (at 500V dc)                                                          |
| Partial Discharge        | <10pC at 2kV                                                                         |
| Terminal Size            | M4                                                                                   |
| Terminal Torque          | (max.) 1.3Nm                                                                         |
| Creepage Distance        | 10mm                                                                                 |
| Clearance                | Terminal to Heatsink 10mm<br>Terminal to Terminal 3mm                                |
| Heatsink Surface Finish  | Ra < 6 $\mu$ m                                                                       |
| Heatsink Flatness        | 0.05mm                                                                               |
| Weight                   | 35g                                                                                  |

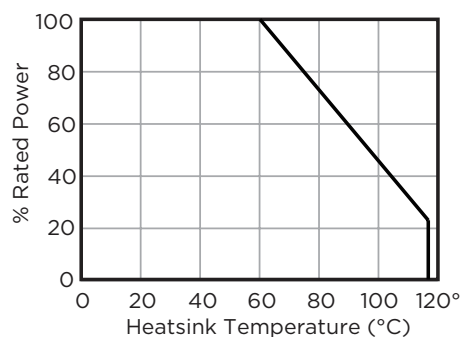
## CATEGORY INDEX

| CONTENTS                        | QUICK NAVIGATION                                                                                              | PAGE NO. |
|---------------------------------|---------------------------------------------------------------------------------------------------------------|----------|
| Electrical characteristics      | <a href="#">VIEW SPEC</a>    | 01       |
| Environmental characteristics   | <a href="#">VIEW SPEC</a>    | 03       |
| Derating Curve                  | <a href="#">VIEW SPEC</a>    | 03       |
| Voltage Rating                  | <a href="#">VIEW SPEC</a>    | 03       |
| Construction & Dimension        | <a href="#">VIEW SPEC</a>    | 04       |
| Recommended Land Pattern        | <a href="#">VIEW SPEC</a>    | 04       |
| Multiplier code                 | <a href="#">VIEW SPEC</a>   | 05       |
| Environmental Related Substance | <a href="#">VIEW SPEC</a>  | 06       |
| Storage Conditions              | <a href="#">VIEW SPEC</a>  | 06       |
| Ordering Information            | <a href="#">VIEW SPEC</a>  | 06       |
| Disclaimer                      | <a href="#">VIEW SPEC</a>  | 07       |

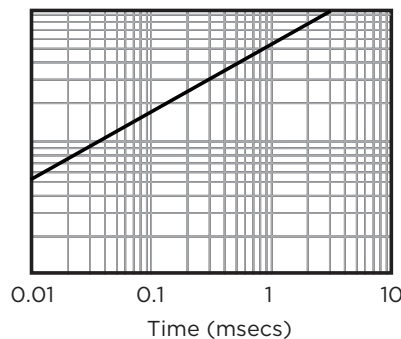
## ENVIRONMENTAL CHARACTERISTICS

| Type                    | Standards                                 | Test Methods              |
|-------------------------|-------------------------------------------|---------------------------|
| Endurance (Rated Power) | $\Delta R$ 0.25% Typ                      | 2000 cycles at P Rated    |
| Humidity Load Life      | $\Delta R$ 0.25% Typ (I.R.>10G $\Omega$ ) | 56 days, 40°C, 95% RH     |
| Temperature Cycling     | $\Delta R$ 0.25% Typ                      | -55°C to +125°C, 5 cycles |
| Operating Storage Temp  | -                                         | -55°C to +125°C           |
| Short Term Overload     | $\Delta R$ 0.25% Typ                      | 3 x P Rated (10s)         |
| Vibration               | $\Delta R$ 0.25% Typ                      | 10/500Hz                  |

## DERATING CURVE



## PULSE ENERGY



## VOLTAGE RATING

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial- line frequency and waveform corresponding to the power rating, as determined from the following formula:

$$RCWV = \sqrt{P \times R}$$

### Note:

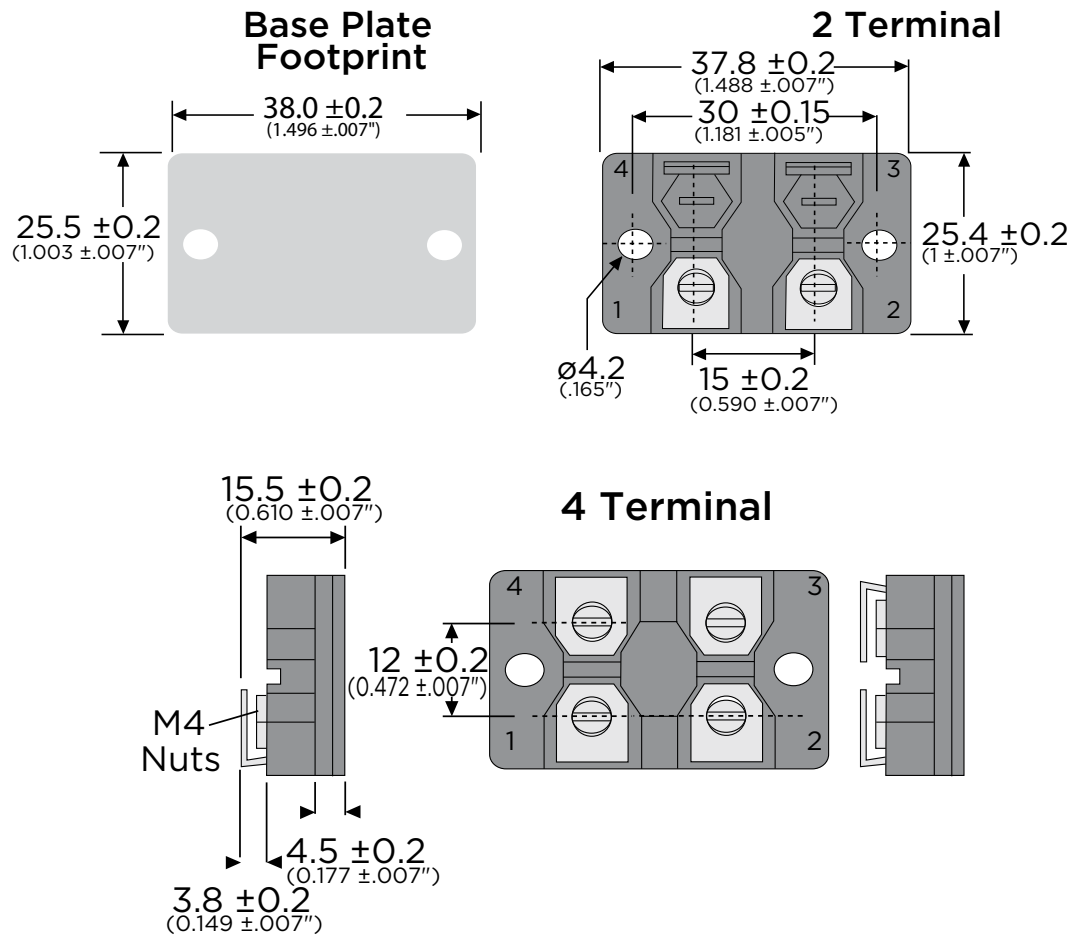
- Maximum working voltage or  $\sqrt{P \times R}$ , whichever is lower.
- Maximum overload voltage or  $2.5\sqrt{P \times R}$ , whichever is lower.

Where : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt) and

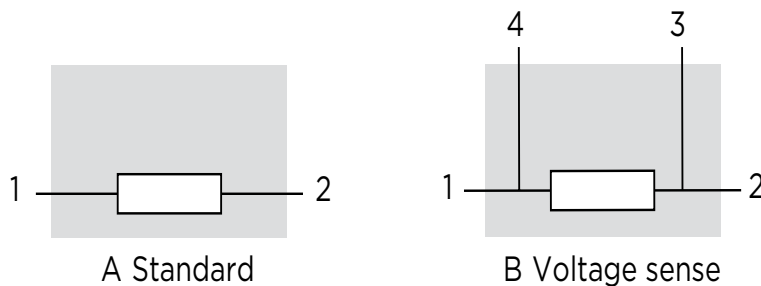
P = Power Rating (watt)

R = Nominal Resistance (ohm)

## CONSTRUCTION AND DIMENSIONS (Unit: mm)

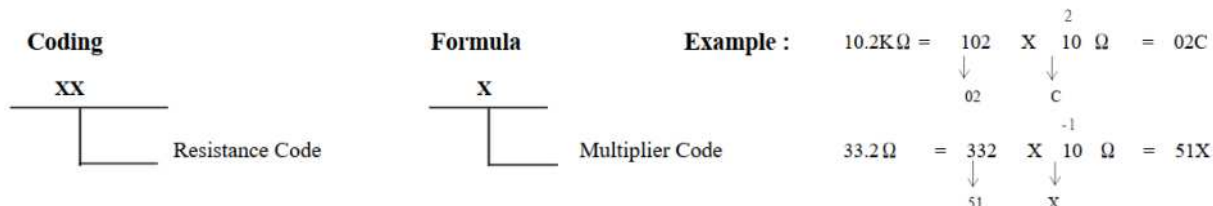


## RECOMMENDED LAND PATTERN (Unit: mm)



## MULTIPLIER CODE

| Code       | A      | B      | C      | D      | E      | F      | G      | H      | X         | Y         | Z         |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-----------|-----------|
| Multiplier | $10^0$ | $10^1$ | $10^2$ | $10^3$ | $10^4$ | $10^5$ | $10^6$ | $10^7$ | $10^{-1}$ | $10^{-2}$ | $10^{-3}$ |



| Value | Code | Value | Code | Value | Code | Value | Code | Value | Code |
|-------|------|-------|------|-------|------|-------|------|-------|------|
| 100   | 01   | 162   | 21   | 261   | 41   | 422   | 61   | 681   | 81   |
| 102   | 02   | 165   | 22   | 267   | 42   | 432   | 62   | 698   | 82   |
| 105   | 03   | 169   | 23   | 274   | 43   | 442   | 63   | 715   | 83   |
| 107   | 04   | 174   | 24   | 280   | 44   | 453   | 64   | 732   | 84   |
| 110   | 05   | 178   | 25   | 287   | 45   | 464   | 65   | 750   | 85   |
| 113   | 06   | 182   | 26   | 294   | 46   | 475   | 66   | 768   | 86   |
| 115   | 07   | 187   | 27   | 301   | 47   | 487   | 67   | 787   | 87   |
| 118   | 08   | 191   | 28   | 309   | 48   | 499   | 68   | 806   | 88   |
| 121   | 09   | 196   | 29   | 316   | 49   | 511   | 69   | 825   | 89   |
| 124   | 10   | 200   | 30   | 324   | 50   | 523   | 70   | 845   | 90   |
| 127   | 11   | 205   | 31   | 332   | 51   | 536   | 71   | 866   | 91   |
| 130   | 12   | 210   | 32   | 340   | 52   | 549   | 72   | 887   | 92   |
| 133   | 13   | 215   | 33   | 348   | 53   | 562   | 73   | 909   | 93   |
| 137   | 14   | 221   | 34   | 357   | 54   | 576   | 74   | 931   | 94   |
| 140   | 15   | 226   | 35   | 365   | 55   | 590   | 75   | 953   | 95   |
| 143   | 16   | 232   | 36   | 374   | 56   | 604   | 76   | 976   | 96   |
| 147   | 17   | 237   | 37   | 383   | 57   | 619   | 77   |       |      |
| 150   | 18   | 243   | 38   | 392   | 58   | 634   | 78   |       |      |
| 154   | 19   | 249   | 39   | 402   | 59   | 649   | 79   |       |      |
| 158   | 20   | 255   | 40   | 412   | 60   | 665   | 80   |       |      |

## ENVIRONMENT RELATED SUBSTANCE

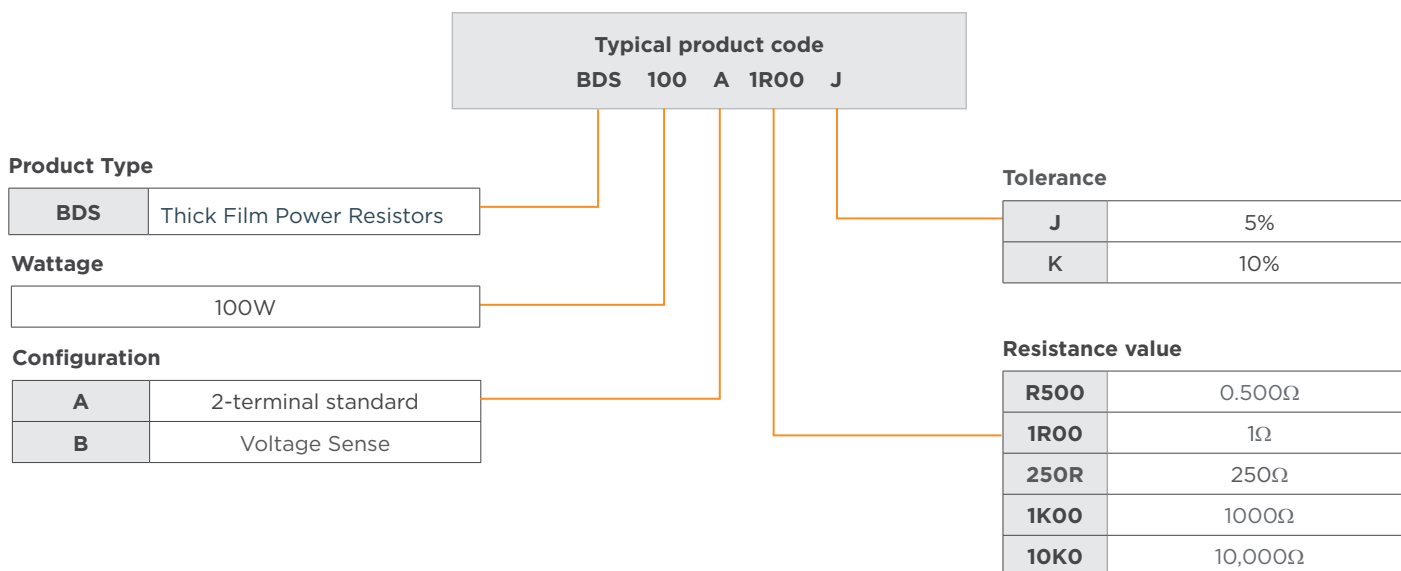
This product complies with the applicable requirements of the EU RoHS Directive, EU PAHs requirements, EU PFOS requirements, and halogen-free material expectations. Ozone-depleting substances are not used in the manufacturing process for this product. This product is not manufactured using chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), hydrobromofluorocarbons (HBFCs), or other ozone-depleting substances at any stage of manufacture.

## STORAGE CONDITION (MSL1)

The performance of these products, including solderability, provided the products remain in the original delivered packaging and are stored. Even within this period, the products should not be stored under conditions that may adversely affect electrical performance, solderability, or packaging integrity.

1. In salty air or in atmospheres containing corrosive gases such as Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, or NO<sub>2</sub>.
2. In direct sunlight

## ORDERING INFORMATION



## Legal Disclaimer Notice

---

© 2026 TE Connectivity. All Rights Reserved.

TE Connectivity, TE, TE connectivity (logo) and EVERY CONNECTION COUNTS are trademarks owned or licensed by the TE Connectivity plc family of companies. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

While TE Connectivity has made every reasonable effort to ensure the accuracy of the information contained herein, TE does not warrant or guarantee that such information is error-free, complete, reliable, or current. TE reserves the right to make changes to the information contained herein at any time without prior notice.

All dimensions, specifications and other information contained herein are provided for reference purposes only and are subject to change without notice. Product performance, reliability and service life may be affected by a variety of factors, including, but not limited to, processing conditions, soldering, cleaning, rework, mechanical stress, temperature, humidity, storage conditions, equipment configuration, handling, environmental exposure and specific end-use applications. Electrical, thermal and other performance characteristics are based on standardised test methods and stated conditions and may vary in actual applications. Where applicable, derating shall be applied and stated maximum limits must not be exceeded. Unless otherwise expressly specified, any statements regarding compliance with environmental, regulatory or other requirements apply only to the materials and manufacturing conditions in effect at the time of production.

Except as expressly set forth in TE Connectivity's applicable terms and conditions of sale, TE makes no representations or warranties, express or implied, including, without limitation, any implied warranties of merchantability, fitness for a particular purpose, or non-infringement. To the maximum extent permitted by applicable law, TE Connectivity shall not be liable for any indirect, incidental, special or consequential damages arising out of or in connection with the use or reliance on the information or products described herein.

Products are not designed for use in life-support, life-sustaining, or safety-critical applications unless specifically qualified and expressly approved in writing by TE Connectivity. It is the responsibility of the user to determine the suitability of TE Connectivity products for the intended application and to validate product selection, performance, qualification, compliance and processing under actual operating conditions.

For the latest dimensions, specifications and other information, please contact TE Connectivity.