# Type BDS100 Series

## Key Features

- 100W in a 9.5cm² footprint
  - Gives an impressive power density of 10.5W/cm²
- Virtually inductance-free
  - Inductance < 40nH
- Wide resistance range: 0.47Ω to 1MΩ
  - Coupled with 1% tolerance gives ultimate design flexibility
- Multiple terminal configurations and multi-resistor packages
  - The space saving solution
- Partial discharge <10pC at 2kV
  - Guaranteeing quality, reliability and long life

## Applications

- Snubbing (Low inductance)
- Balancing Resistor (Multi-resistor package)
- Filter (Low inductance)
- High Voltage
- High Frequency



With less than 40nH inductance and a 100Watt power rating in an easy-mounting 38mm x 25mm Isotop case, the BDS100 offers high power density over a wide range of ohmic values (R47 – 1M0) and benefits from 10 years experience in the field. Available in 6 resistor configurations with 2 or 4 easy to connect terminals, the resistors are made from quality materials for optimum reliability and stability with very low partial discharge.
TE Connectivity can test resistors to conform to relevant customer specifications, and will advise on the use of resistors for pulse energy and high voltage applications (HV designs available). Resistors with alternative terminations or flying leads are available, and custom designs are welcome. This product is available via distribution.

## Characteristics -Electrical

| | | |
|---|---|---|
| **Resistance Range:** | | R47 - 1MO |
| **Resistance Tolerance:** | | ± 10%, 5% (Tighter by discussion) |
| **TCR:** | R<1Ω | ± 250ppm/°C |
| | R>1Ω | ± 150ppm/°C |
| **Rated Power:** | Heatsink: 115°C / 100°C / 60°C | 25W / 50W / 100W |
| **Capacitance:** | Parallel | 15pF |
| | | To Earth 40pF |
| **Series Inductance:** | | 40nH (Maximum) |
| **Limiting Element Voltage:** | (100W or Less) | 500Vdc/ac rms |
| **Isolating Voltage:** | (Terminal to Heatsink) | 2.5kVac rms |
| **Single Shot Voltage:** | 1.5/50ms | 4kV |
| **Insulation Resistance:** | (at 500V dc) | >100GΩ |
| **Partial Discharge:** | at 2kV | <10pC |
| **Heat Dissipation:** | Although the use of proprietary heat sinks with lower thermal resistance is acceptable, up rating is not recommended. The use of proprietary heat sink compound to improve thermal conductivity is essential. | |

## Characteristics - Environmental

| | | |
|---|---|---|
| **Endurance (Rated Power):** | 2000cyc. at $P_{Rated}$ | ΔR 0.25% Typ |
| **Humidity Load Life:** | 56 Days, 40°C, 95% RH | ΔR 0.25% Typ (I.R.>10GΩ) |
| **Temperature Cycling:** | -55°C to +125°C, 5cycles | ΔR 0.25% Typ |
| **Operating Storage Temp:** | -55°C to +125°C | |
| **Short Term Overload:** | 3 x $P_{Rated}$ (10s) | ΔR 0.25% Typ |
| **Vibration:** | 10/500Hz | ΔR 0.25% Typ |
| **Bump:** | 40g 4000 bumps | ΔR 0.25% Typ |



Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are standard equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

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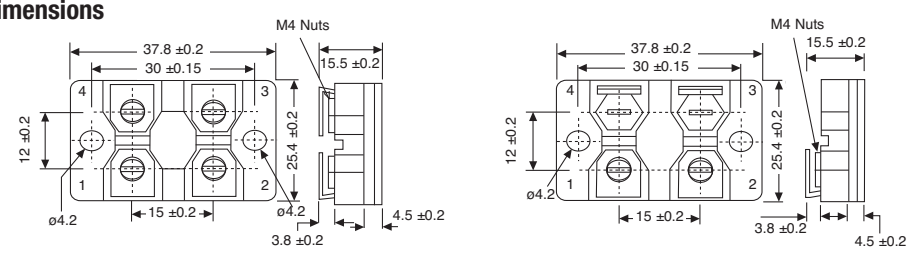
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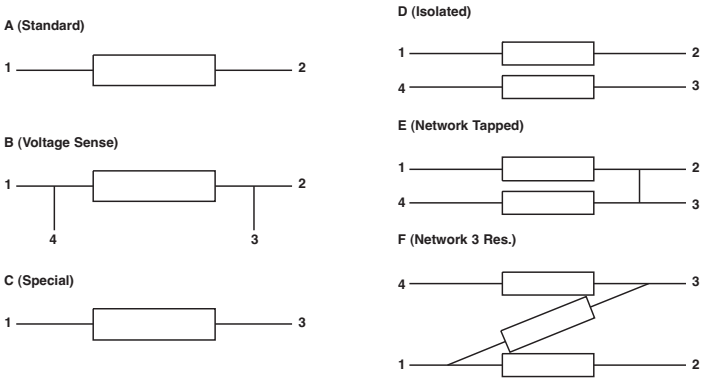
## Characteristics - Mechanical

| | | |
|---|---|---|
| **Terminal Size:** | | M4 |
| **Terminal Torque (max.):** | | 1.3Nm |
| **Creepage Distance:** | | 10mm |
| **Clearance:** | Terminal to Heatsink | 10mm |
| | Terminal to Terminal | 3mm |
| **Heatsink Surface Finish:** | $R^a$ | < 6µm |
| **Heatsink Flatness:** | | 0.05mm |
| **Weight:** | | 35g |

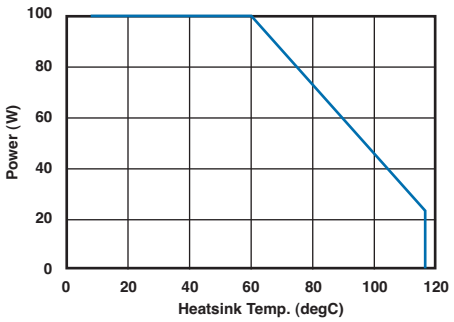
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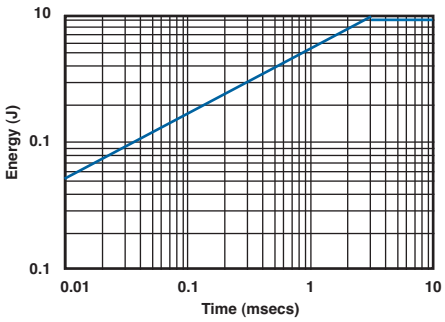

## Terminal Circuit Type




## Derating Curve




## Pulse Energy




## How to Order

| BDS 2 | A | 100 | 1K0 | J |
|---|---|---|---|---|
| **Common Part** | **Circuit Type** | **Power Dissipation** | **Resistance Value** | **Tolerance** |
| BDS 2 (2 Terminal)<br>BDS 4 (4 Terminal) | A: Standard<br>B-F: See above | 100 - 100 Watts at 70°C | 0.6Ω (600mΩ) R60<br>1Ω (1000mΩ) 1R0<br>1KΩ (1000Ω) 1KO<br>1MΩ (1000000Ω) 1MO | F - 1%<br>J - 5%<br>K - 10% |

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