

## Thick Film Power Resistors

### Type BDS600 Series

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With a maximum inductance of 80nH and a rated power of 600W (60°C Heatsink) in a 57mm x 60mm casing, the BDS600 offers high power density over a wide range of ohmic values (0R5 – 100K).

This high power density resistor is made from quality materials for optimum reliability and stability with very low partial discharge.

Tyco can test resistors to conform to relevant international, MIL or customer specifications, and will advise on the use of resistors for pulse applications (special pulse duty options available) and high voltage usage (high voltage designs available). The BDS600 offers a limiting element voltage of 5kVac rms, and 10kV isolation voltage (terminal to heatsink).

Resistors with 1% tolerance, alternative terminations or flying leads are available, and custom designs are welcome.

This product is available via distribution.

#### Key Features

- **600W in a 34.2cm<sup>2</sup> footprint**
  - Gives an impressive power density of 17.5W/cm<sup>2</sup>
- **Inductance < 80nH**
  - Virtually inductance-free
- **Wide resistance range: 0.5Ω to 100kΩ**
  - Coupled with 1% tolerance gives ultimate design flexibility
- **Multiple terminal configurations**
  - For demanding creep and clearance requirements
- **Partial discharge <5pC at 5kV**
  - Guaranteeing quality, reliability and long life

#### Characteristics - Electrical

<b>Resistance Range:</b>	0R5 – 100K	
<b>Resistance Tolerance:</b>	± 10%, 5% (Tighter by discussion)	
<b>TCR:</b>	± 150ppm/°C	
<b>Rated Power:</b>	Heatsink: 60°C	600W
<b>Capacitance:</b>	Parallel	40pF
	To Earth	110pF
<b>Series Inductance:</b>	<80nH (Maximum)	
<b>Limiting Element Voltage:</b>	5kV dc/ac rms	
<b>Isolating Voltage:</b>	(Terminal to Heatsink)	10kV ac rms
<b>Single Shot Voltage:</b>	1.5/50ms	12kV
<b>Insulation Resistance:</b>	(at 500V dc)	>1000MΩ
<b>Partial Discharge:</b>	at 7kV	<500pC
	at 5kV	<5pC
<b>Heat Dissipation:</b>	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.	

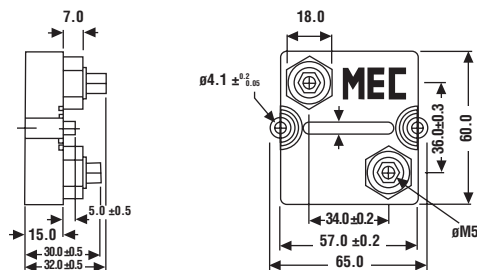
#### Characteristics - Environmental

<b>Endurance (Rated Power):</b>	Full Load, 1000h, 25°C	ΔR 0.4% Typ
<b>Humidity Load Life:</b>	56 Days, 40°C, 95% RH	ΔR 0.25% Typ
<b>Temperature Cycling:</b>	-55°C to +125°C, 5cycles	ΔR 0.2% Typ
<b>Storage Temp:</b>	-55°C to +155°C	
<b>Operating Temp:</b>	-55°C to +140°C (200°C on req.)	
<b>Short Term Overload:</b>	1000W, 10s	ΔR 0.4% Typ
<b>Vibration:</b>	2-5000Hz/10g	ΔR 0.25% Typ
<b>Bump:</b>	40g 4000 bumps	ΔR 0.25% Typ

#### Characteristics - Mechanical

<b>Terminal Size:</b>	M5	
<b>Terminal Torque (max.):</b>	2Nm	
<b>Creepage Distance:</b>	48mm	
<b>Air Gap:</b>	To Heatsink	14mm
<b>Heatsink Surface Finish:</b>	R <sub>a</sub>	< 6μm
<b>Heatsink Flatness:</b>	0.05mm	
<b>Thermal Grease:</b>	(0.05°C/Wmm)	Required
<b>Weight:</b>	160g	
<b>Max. Mounting Torque:</b>	1.8Nm	

#### Dimensions



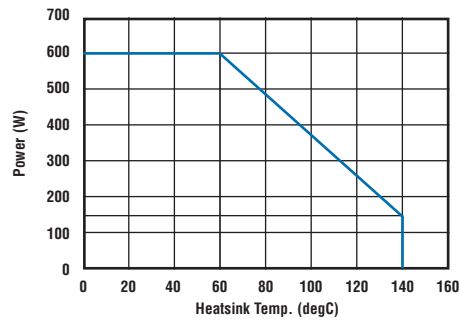
#### Applications

- Snubbing (Low inductance)
- Filter (Low inductance)
- High Voltage
- High Frequency
- Balancing

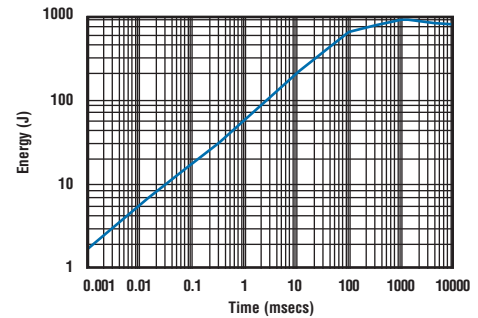
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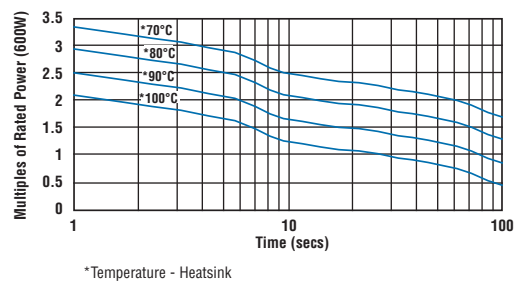
#### Derating Curve



#### Pulse Energy



#### Power Overload



#### How to Order

BDS 2	A	600	1K0	J
<b>Common Part</b>	<b>Circuit Type</b>	<b>Power Dissipation</b>	<b>Resistance Value</b>	<b>Tolerance</b>
BDS 2 (2 Terminal)	A: Standard	600 - 600 Watts	0.5Ω (500mΩ) R50 1Ω (1000mΩ) 1R0 1K (1000Ω) 1K0	F - 1% J - 5% K - 10%