tyco Electronics

Thick Film Power Resistors

CGS

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 34.2cm² footprint**
  - **Gives an impressive power density of 17.5W/cm²**
- **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

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

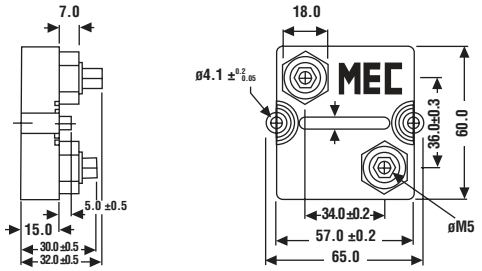
Characteristics - Environmental

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

Characteristics - Mechanical

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

Dimensions



Applications

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

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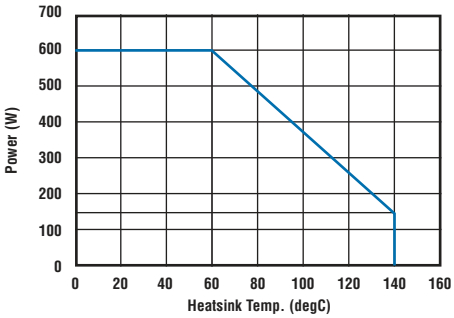
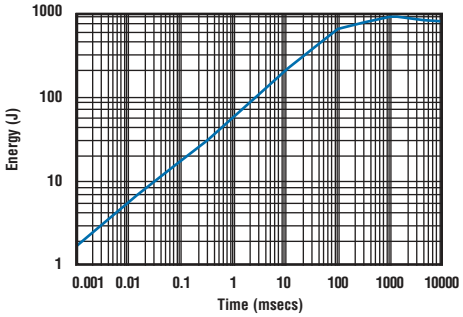
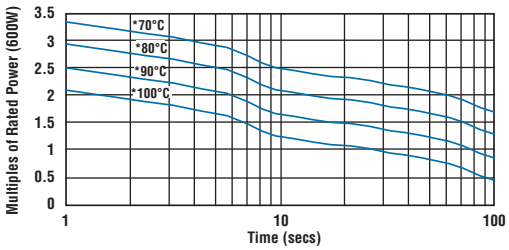
Derating Curve



Pulse Energy



Power Overload



*Temperature - Heatsink

How to Order

BDS 2	A	600	1K0	J
Common Part	**Circuit Type**	**Power Dissipation**	**Resistance Value**	**Tolerance**
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%