

Thick Film Power Resistors

Type BDS250/400 Series

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With less than 40nH inductance and a 250W or 400W power rating (100°C/70°C Heatsink) in a 67mm x 60mm casing, the BDS250/400 offers high power density over a wide range of ohmic values (0R47 – 1M Ω) and benefits from 10 years experience in the field. Available in 5 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.

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

This product is available via distribution.

Key Features

- **400W in a 40.2cm² footprint**
 - Gives an impressive power density of 10W/cm²
- **Virtually inductance-free**
 - Inductance < 40nH
- **Wide resistance range: 0.47 Ω to 1M Ω**
 - Coupled with 1% tolerance gives ultimate design flexibility
- **Multiple terminal configurations and multi-resistor packages**
 - The space saving solution for demanding creep and clearance requirements
- **Partial discharge <10pC at 7.5kV**
 - Guaranteeing quality, reliability and long life

Characteristics - Electrical

Resistance Range:		0R47 - 1M
Resistance Tolerance:		$\pm 10\%$, 5% (Tighter by discussion)
TCR:	R<1 Ω	$\pm 250\text{ppm}/^\circ\text{C}$
	R>1 Ω	$\pm 150\text{ppm}/^\circ\text{C}$
Rated Power:	Heatsink: 100°C / 70°C	250W / 400W
Capacitance:	Parallel	40pF
	To Earth	160pF
Series Inductance:		40nH (Maximum)
Limiting Element Voltage:		5kV dc/ac rms
Isolating Voltage:	(Terminal to Heatsink)	7kV ac rms
Single Shot Voltage:	1.5/50ms	12kV
Insulation Resistance:	(at 500V dc)	>100G Ω
Partial Discharge:	at 7.5kV	<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.		

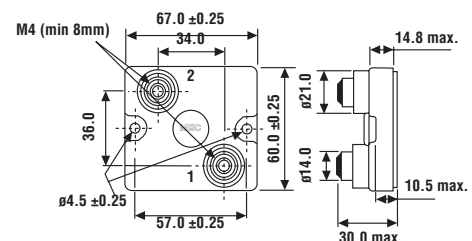
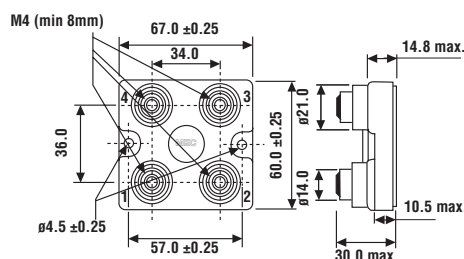
Characteristics - Environmental

Endurance (Rated Power):	Full Load, 1000h, 25°C	ΔR 0.25% Typ
Humidity Load Life:	56 Days, 40°C, 95% RH	ΔR 0.2% Typ (I.R.>10G Ω)
Temperature Cycling:	-55°C to +125°C, 5cycles	ΔR 0.2% Typ
Operating Storage Temp:	-55°C to +125°C	
Short Term Overload:	750W, 10s	ΔR 0.2% Typ
Vibration:	10/500Hz	ΔR 0.25% Typ
Bump:	40g 4000 bumps	ΔR 0.25% Typ

Characteristics - Mechanical

Terminal Size:		M4
Terminal Torque (max.):		1.3Nm
Creepage Distance:		40mm
Clearance:	Terminal to Heatsink	28mm
	Terminal to Terminal	40mm
Heatsink Surface Finish:	R _a	< 6μm
Heatsink Flatness:		0.05mm
Thermal Grease:		Required
Weight:		190g

Dimensions



Applications

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

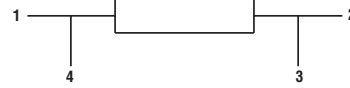
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Terminal Circuit Type

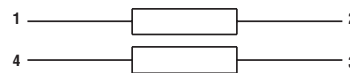
A (Standard)



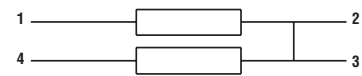
B (Voltage Sense)



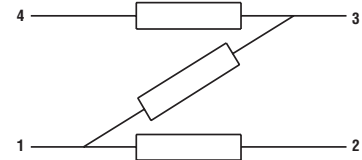
C (Isolated 2 Res.)



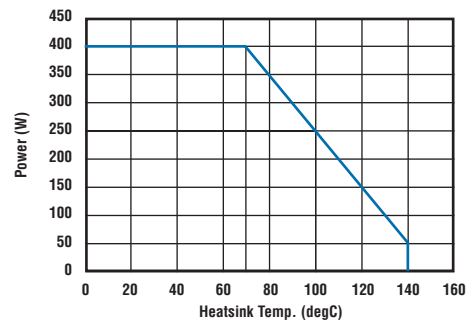
D (Network Tapped)



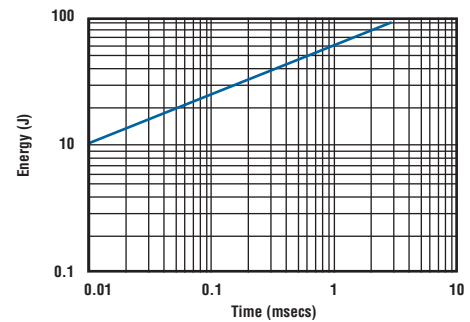
E (Network 3 Res.)



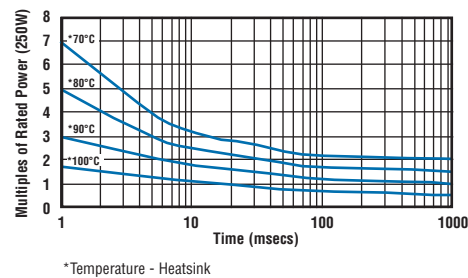
Derating Curve



Pulse Energy



Power Overload



*Temperature - Heatsink

How to Order

BDS 2	A	250/400	1K0	J
Common Part	Circuit Type	Power Dissipation	Resistance Value	Tolerance
BDS 2 (2 Terminal) BDS 4 (4 Terminal)	A: Standard B-E: See above	250 - 250 Watts 400 - 400 Watts	0.47Ω (470mΩ) R47 1Ω (1000mΩ) 1R0 1K (1000Ω) 1K0 1M (1000000Ω) 1M0	F - 1% J - 5% K - 10%