

Ultra-High-Power Resistors

Series UPT-400

400 W resistor, US Patent-No. 5,355,281

For variable speed drives, power supplies, control devices, robotics, motor control and other power designs, the easy mounting fixture assures an auto-calibrated pressure to the cooling plate of about 120 to 160 N.

Features

- 400 W operating power
- Tolerance range $\pm 10\%$ to $\pm 5\%$ (tighter on special request)
- Ohmic range $0.5\ \Omega$ to $1\text{M}\Omega$
- Non-Inductive design
- ROHS compliant
- High insulation & partial discharge performance
- Materials in accordance with UL 94 V-0

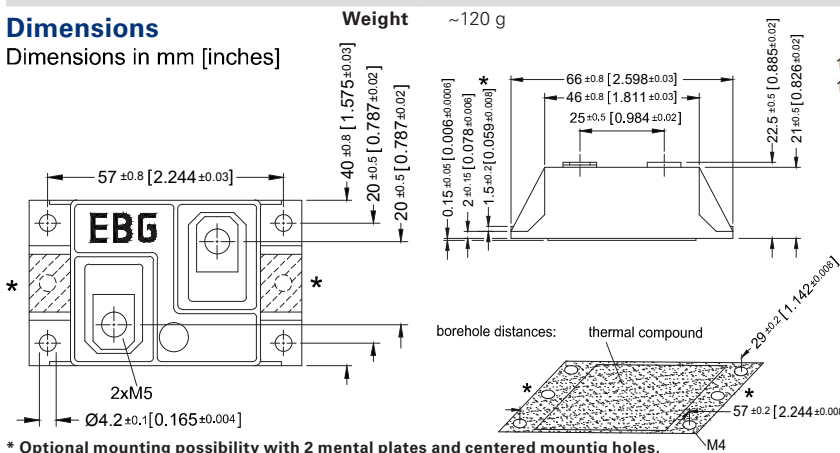


Technical Specifications

Resistance value	$0.5\ \Omega \leq 1\ \text{M}\Omega$
Resistance tolerance	$\pm 10\%$ to $\pm 5\%$ $\pm 2\%$ to $\pm 1\%$ on special request for limited ohmic value with the reduction of the max. power / pulse rating (ask for details)
Temperature coefficient	$\pm 150\ \text{ppm}/^\circ\text{C}$ lower TCR on special request
Power rating	up to 400 W at 85°C bottom case temperature
Short time overload	700 W at 70°C for 10sec., $\Delta R = 0.4\%$ max.
Maximum working voltage	5,000 V DC = 3,500 V AC RMS (50 Hz) higher voltage on request, not exceeding max. power
Electric strength voltage	7 kVrms / 50 Hz / 500 VA, test time 1 min. (up to 12 kVrms on request) voltages above 10 kVrms are tested at DC equivalent to avoid pre damage of component
Partial discharge	4 kVrms < 10 pC (up to 7 kVrms < 10 pC on request) acc. to IEC 60270
Insulation resistance	> 10 G Ω at 1,000 V
Single shot voltage	up to 12 kV norm wave (1.5/50 μsec)
Inductance	$\geq 80\ \text{nH}$ (typical), measuring frequency 10 kHz
Capacity/mass	$\geq 110\ \text{pF}$ (typical), measuring frequency 10 kHz
Capacity/parallel	$\geq 40\ \text{pF}$ (typical), measuring frequency 10 kHz
Operating temperature	-55°C to $+155^\circ\text{C}$
Mounting - max. torque for contacts	2 Nm
Mounting - max. torque	1.8 Nm M4 screws
Terminal tops for additional insulation requirements	on special request (ask for details)
General pulse load information	contact our local EBG representative or contact us directly

Dimensions

Dimensions in mm [inches]



* Optional mounting possibility with 2 metal plates and centered mounting holes.

The above spec. sheet features our standard products. For further options please contact our local EBG representative or contact us directly.

General Specifications

Encapsulation

Resin-filled epoxy casing with large creeping distance to mass, large air distance between the terminals and high insulation resistance

Resistance Element

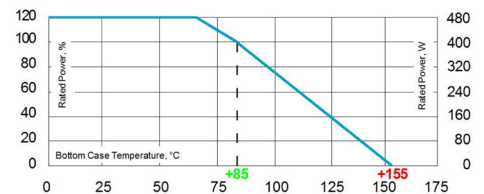
Special design for low inductance and capacitance values. The element employs our special METOXFILM, which demonstrates stability while covering high wattage and pulse loading

Contacts

Easy load connection with M5 screws (others on request)

For other configurations please contact our local representative or contact us directly

Power Rating



Derating (thermal resist.) UPT-400:

5.55 W/K (0.18 K/W)

Power rating: 400 W at 85°C bottom case temperature**

Please ask for detailed mounting procedure!

** This value is only applicable when using a thermal conduction to the heat sink $R_{th-cs} < 0.025\ \text{K/W}$. This value can be obtained by using a thermal transfer compound with a heat conductivity of at least $1\ \text{W/mK}$. The flatness of the cooling plate must be better than $0.05\ \text{mm}$ overall. Surface roughness should not exceed $6.4\ \mu\text{m}$.