NON-INDUCTIVE POWER RESISTORS

HPSA-150

Electrical specifications and mounting

150 W / Configuration 2

150 W non-inductive power resistor for direct heat sink mounting. The raised housing provides longer creepage paths for motor drives, frequency converters, instrumentation and medical equipment.

The source specifies RoHS compliance and materials per UL 94 V-0 and VDE 0160. UL-certified versions and thermal interface options are available by inquiry.

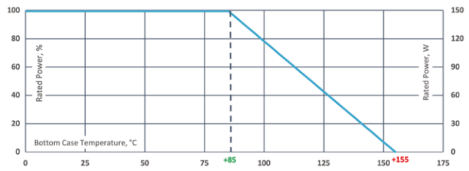


Package appearance reference

Technical specifications

PARAMETER	SPECIFICATION
Rated power	150 W at 85 °C bottom case (configuration 2)
Resistance range	1 Ω to 1 MΩ. Other values by request.
Resistance tolerance	±1% to ±10%
Temperature coefficient	±250 ppm/°C at +85 °C, ref. +25 °C. Lower TCR by request for selected values.
Capacitance to ground	45 pF typ. at 10 kHz
Working voltage	500 V standard. S up to 1,500 V. U up to 1,500 V with higher pulse capability.
Dielectric strength	5,000 V DC / 3,000 V AC
Insulation resistance	>10 GΩ at 1,000 V DC
Comparative tracking index	Standard >200 V. H version >600 V by request.
Thermal resistance to cooling plate	Rth <0.47 K/W
Operating temperature	−55 °C to +155 °C
Base mounting torque	1.3–1.5 N·m | M5 screws
Contact fastening torque	1.1–1.5 N·m | M4, depth ≤5 mm
Weight	Approx. 38 g

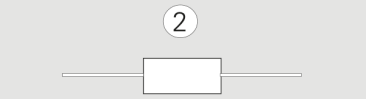
Power derating



Derating: 2.14 W/K (0.47 K/W). Use thermal compound ≥1 W/(m·K). Cooling plate flatness <0.05 mm overall. Surface roughness ≤6.4 µm.

Configuration 2 is the sole configuration shown in the circuit diagram and ordering examples.

Circuit configurations



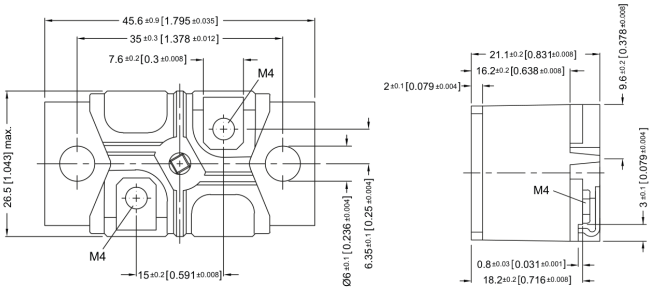
150W

only 1 configuration possible

Electrical clearance and creepage

MEASUREMENT	DISTANCE
Clearance: contact to contact	>9.2 mm
Clearance: contact to base plate	>13.2 mm with M5 screw and washer
Creepage: contact to base plate	17.0 mm
Creepage: contact to contact	>22.8 mm without PT screw. >20.2 mm with PT screw.

Outline dimensions · mm [inches]



Use the millimetre values as shown. The inch annotation next to 3 ±0.1 mm differs from its conversion in the source drawing.

Order by series, configuration, resistance and tolerance. Examples: HPSA-2 1R 10% and HPSA-2-S 40K 2%. S: special trimming. U: untrimmed. H: CTI >600 V.

HPSA-150

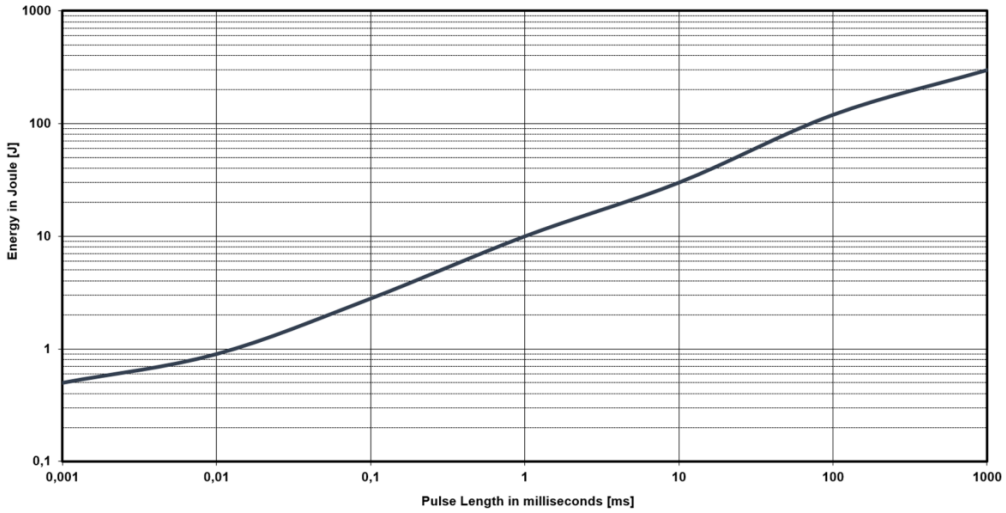
Typical pulse energy and peak power

Test setup

Resistors mounted on a water-cooled heat sink with thermal compound rated 0.9 W/(m·K). Inlet water +50 °C. Test duration 10 min per resistor, with a 1 s interval between pulses. A change greater than 0.1% in pre/post resistance was a failure.

Both curves use an exponential pulse. Pulse width is the time constant τ, in ms. Pulses are separated by 1 s. Typical capacity varies with resistance and resistive paste.

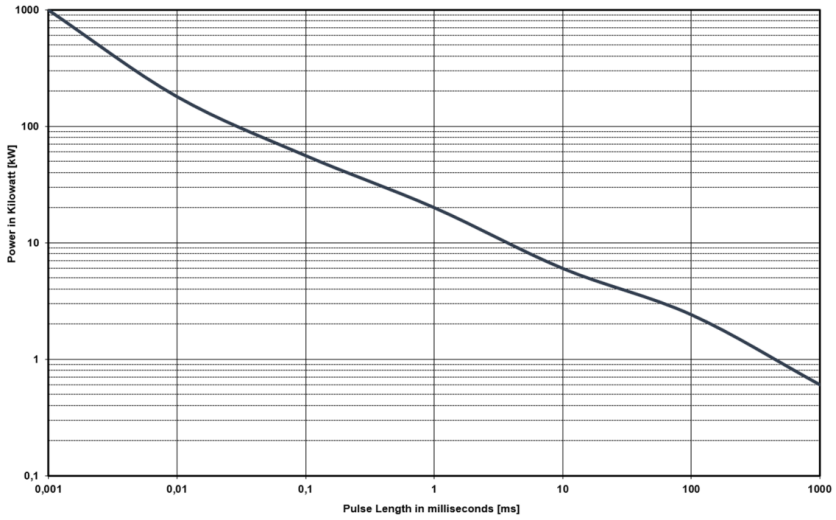
Typical pulse energy



Pulse width (ms) / energy (J)

Approx. 10 J at τ = 1 ms for 1–10 Ω and a pause ≥1 s. At symmetrical frequency F >1 kHz and pulse width ≥10 µs, use E = 150 W / F at 85 °C bottom case.

Typical peak pulse power



Pulse width (ms) / peak power (kW)

Approx. 20 kW peak at τ = 1 ms with a pause ≥1 s, based on Pp = 2E / τ and the same test setup.