

Series PXP 200, SOT-227 (solder pin)

200 W Power Resistor at 85°C Bottom Case

A Miba Group Company

1/2

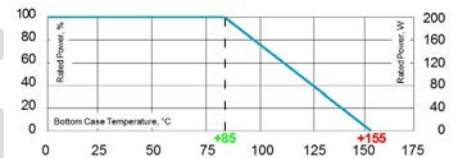
EBG general medium power resistor. Main applications are variable speed drives, power supplies, control devices, telecom, robotics, motor controls and other switching designs. Specials and custom designed components on request.

Features

- multiple resistors in 1 package
- Non-Inductive design
- ROHS compliant
- Materials in accordance with UL 94 V-0
- Resistor is also available with preapplied PCM (Phase Change Material) (ask for details)

Technical Specifications

Resistance value	0.1 Ω \leq 1 M Ω
Resistance tolerance	$\pm 1\%$ to $\pm 10\%$
Temperature coefficient	> 1R: ± 250 ppm/ $^{\circ}\text{C}$ (at +85°C ref. to +25°C) lower TCR on special request for limited ohmic values
Power rating	up to 200 W at 85°C bottom case temperature (see configurations)
Short time overload	1.25x rated power at 85°C bottom case temperature for 10 sec., $\Delta R = 0.4\%$ max. (for conf. 1, 2 and 3)
Maximum working voltage	500 V DC (up to 1,000 V on special request = "S"-version)
Partial discharge	up to 2,000 Vrms / 80pC (Tests only on special request)
Voltage proof	dielectric strength up to 4,000 V DC against ground
Insulation resistance	> 10 G Ω at 1,000 V DC
Isolation voltage between R1 & R2 & R3	500 V (1,000 V on special request)
Heat resistance to cooling plate	Rth < 0.35 K/W
Capacitance/mass	45 pF (typical), measuring frequency 10 kHz
Serial inductivity	PXP-1 typical 40 nH, measuring frequency 10 kHz
Working temperature range	-55°C to +155°C
Mounting - torque for base plate (static)	1.3 Nm to 1.5 Nm M4 screws
Weight	~20 g



Derating (thermal resist.) PXP-200:
2.86 W/K (0.35 K/W) (for conf. 1, 2 and 3)

Best results can be reached by using a thermal transfer compound with a heat conductivity of at least 1 W/mK. The flatness of the cooling plate must be better than 0.05 mm overall. Surface roughness should not exceed 6.4 μm .

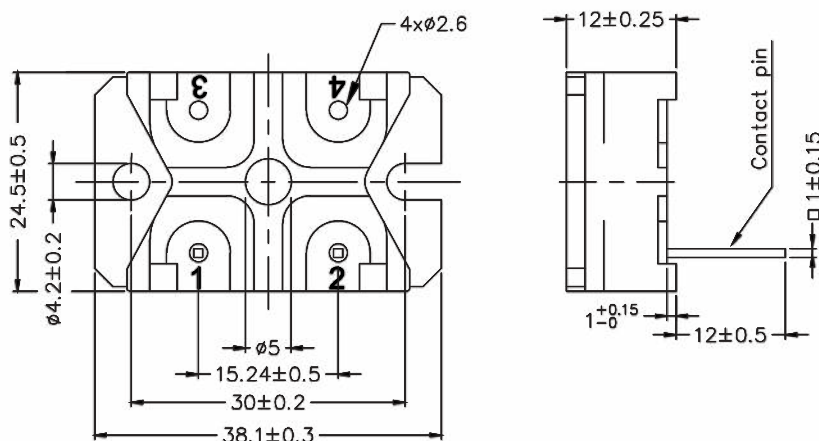
How to make an order

PXP-Configuration_Ohmic Value_Tolerance

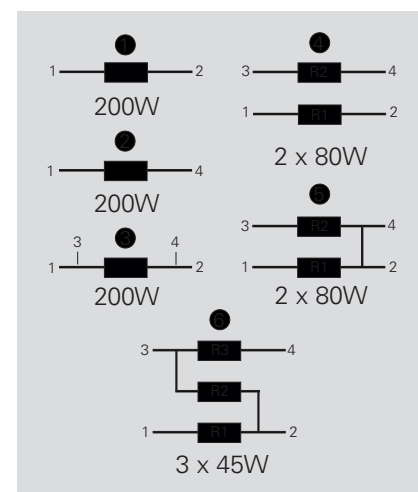
For example:
PXP-1 4R7 5%

Example for higher working voltage:
PXP-1-S 4R7 10%

Dimensions in mm



Configurations (P / package)

Version 5: ohmic value between contact 2 and 4 = 3m Ω

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

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2/2

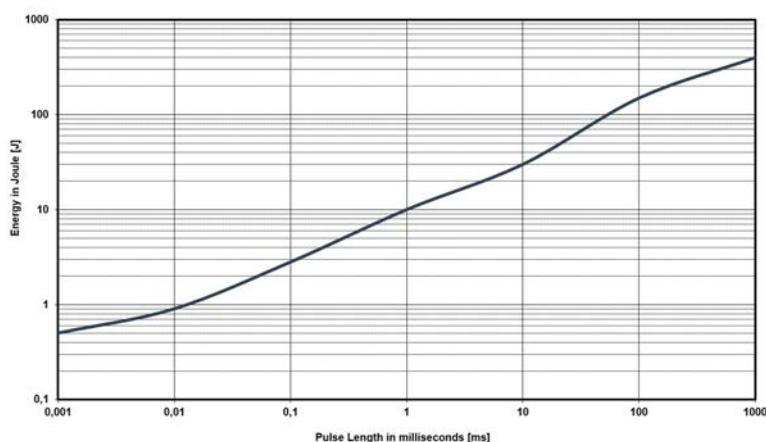
Pulse Energy Curve (typical rating for PXP 200)

Note: These energy values are reference values → depending on ohmic value e.g. 1 Ω to 10 Ω and used resistive paste, a variation in max. energy load capability is possible

Test procedure

Every test resistor was mounted with thermal compound (0.9 W/mK) on a water cooled heatsink

- Constant inlet water temperature: +50°C
- The test time of each tested resistor: 10min.
- Break time between two pulses: 1sec.
- To determine good / defect parts the ohmic value was measured before and after tests:
a change of tolerance of more than 0.1% means defect



Description of Pulse Energy Curve

- Shape of pulse = e-function
- Time between two pulses = 1 second
- Pulse length = time constant of 1 tau
(1 means ... tau = 1ms)

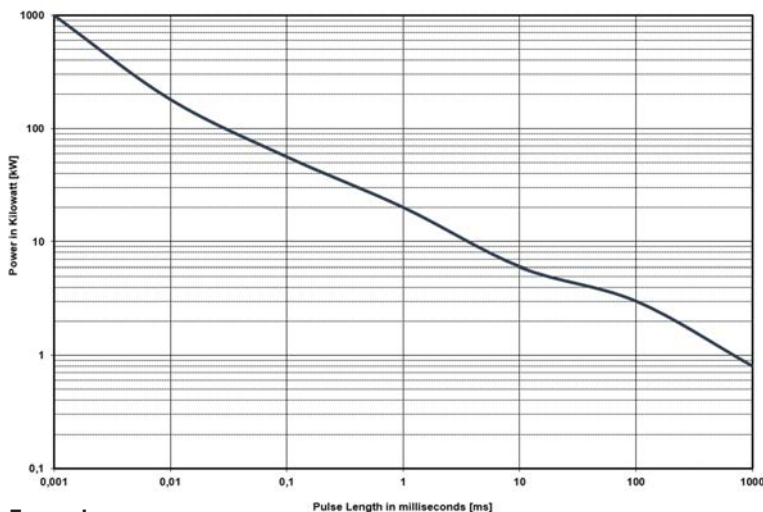
Example

At 1 ms tau the PXP 200 with e.g. 1 Ω to 10 Ω can withstand an energy level of about 10 J, when the pulse pause time is ≥ 1s

At a symmetrical frequency > 1 kHz at pulse length ≥ 10 μsec. the maximum applied pulse energy for PXP 200 is a result out of the nominal power 200 W divided by the operating frequency (at 85°C bottom case) ($E = 200 \text{ W} / F$)

Pulse Power Curve (typical rating for PXP 200)

The power curve shows the max. possible power which can be applied for a certain duration. Referring to the same test procedure as described above.



Description of Pulse Power Curve

- Shape of pulse = e-function
- Time between two pulses = 1 second
- Pulse length = time constant of 1 tau
(1 means ... tau = 1ms)

Example

For the time-constant of 1 ms you can apply about 20 kW max. ($P_p = 2 \cdot E / T$) →, if the time between two such peaks is ≥ 1s