

Safe brake resistors in PTC technology



Safe brake
resistors

PTC8006x

Safe brake resistor in PTC technology PTC8006x

Self-protecting PTC element (aluminum housing) with very high operating voltage limit; protection class IP20.



Rated power (W)

See tables

Resistance values (Ohm)

See tables

Dimensions (mm)

Enclosure: See tables
Wiring: up to 450 mm
Ø AWG 20 or 0.51 mm²
FEP isolated,
UL Style 1901

With four mechanical and electrical ranges of 35, 70, 105 and 140 watts continuous power on a heat sink, the PTC brake resistors cover the power requirements of small frequency inverters and servo controllers. Similar to the level of wire-based brake resistors, the impulse power ratings are of major importance for the applications and have a factor of 35 with a 1 percent duty cycle. The elements which may be installed in the inverter's enclosure are also known as ballast resistors and have an IP20 protection class. Several mechanical designs are available in the series. Customer requirements are implemented as necessary when the order involves sufficient quantities. The resistance values for each type are dynamic with respect to the temperature at the PTC (see R(T) curve) and the applied voltage.

Technical specifications

($\vartheta_A = 20^\circ\text{C}$, unless otherwise stated)

| Parameter | Symbol | Value | Unit | Conditions |
|---|---------------|----------------------|------------------|--|
| Tolerance (resistance) | | ± 35 | % | Caution: Typical for thermistors and not reducible |
| Max. perm. operating voltage | U_B | ≤ 600 AC | V | according to CSA |
| | | ≤ 848 DC | V | |
| Threshold limit voltage DC | U_{BD} | 1300 (1750 Ohm) | V | Caution: Abruptly low resistance (reaction like a short circuit) |
| | | 1100 (350 Ohm) | V | |
| | | 900 (175 Ohm) | V | |
| Isolation voltage ¹ | U_{ISO} | ≥ 4000 AC | V | f = 50 Hz; t = 1 s |
| Surface temperature at constant load with U_N | T_o | $175 \pm 10\text{K}$ | $^\circ\text{C}$ | The temperature will stay within the tolerance at a constant load of 500VAC |
| Transistor temperature | CP | 140 | $^\circ\text{C}$ | Depending from the material, describes the temperature at which the resistance reaches two times the rate of its lowest value |
| Cold resistance at 25 $^\circ\text{C}$ | R_{25} | s. Page 3 | Ω | Caution: Dynamic value, depending on the temperature of the PTC! (cf. the characteristic curve of R(T)) and the applied voltage! |
| Energy consumption | E | s. Page 3 | J (Ws) | at 1.2s (1% ED) |
| Pulse rating | P_1 | ≤ 20 | kW | Value in Approximation |
| Storage temperature | ϑ_s | -25 ... +85 | $^\circ\text{C}$ | |
| Certifications | cCSAus | | | acc. to standard CSA-C22.2 and UL 508 |



Versions



PTC



PTC with connector



PTC with customer specific connector

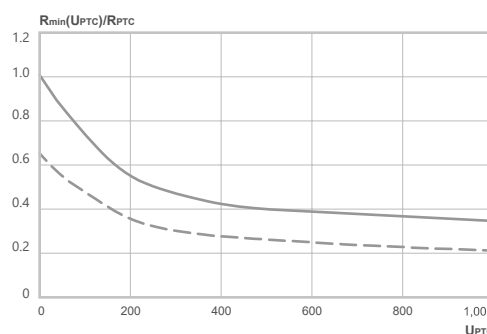


PTC with customer specific connector

¹ Period spikes against the grounded resistor housing (PE) must not exceed 700 VDC, otherwise the housing must be isolated from PE and finger safe installed.

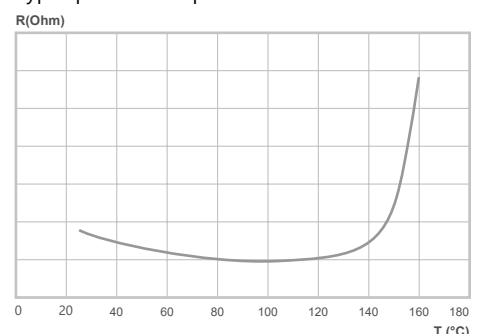
Resistance-Voltage-Characteristic

Brake resistor PTC8006xx
Type specific of request
— at 25 $^\circ\text{C}$ - - - at 90 $^\circ\text{C}$

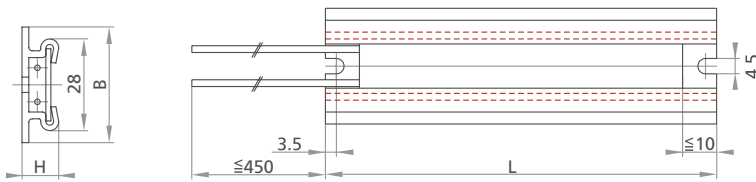


Case temperature

Brake resistor PTC8006xx
Resistance-temperature characteristic
Type specific of request



Dimensions and mounting holes (mm)

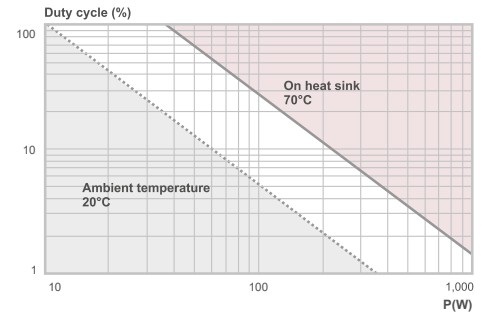


PTC - 35 W

($\vartheta_A = 20^\circ\text{C}$, unless otherwise stated)

| Parameter | Symbol | Value | Unit | Conditions |
|--------------------|--------|----------------|----------|---|
| Resistances | R | 175, 350, 1750 | Ω | ² |
| Rated power | P | 10 | W | unobstructed convection on heat sink (70 °C) |
| | | 35 | W | |
| Dimensions | L | 59.5 | mm | no mounting holes ³ |
| | | 73.0 | mm | |
| | W | 89.0 | mm | alternatively |
| | | 34.0 | mm | |
| | | H | 10.7 | |
| Energy consumption | E | 11.5 | mm | at 1,2s (1% ED) |
| | | 660 | J (Ws) | |

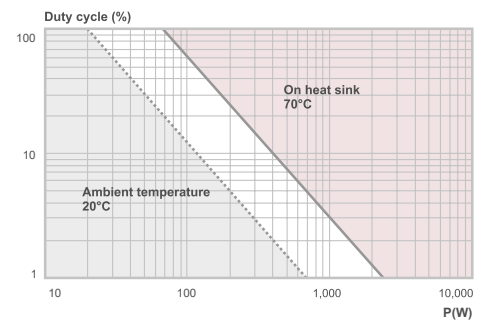
Impulse loading



PTC - 70 W

($\vartheta_A = 20^\circ\text{C}$, unless otherwise stated)

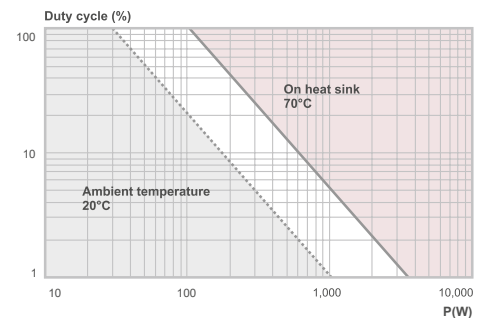
| Parameter | Symbol | Value | Unit | Conditions | |
|-------------|--------|--------------------|----------|---|-----|
| Resistances | R | 90, 175, 875 | Ω | ² | |
| Rated power | P | 20 | W | unobstructed convection on heat sink (70 °C) | |
| | | 70 | W | | |
| Dimensions | L | 100.0 | mm | ³ | |
| | | 115.0 | mm | | |
| | W | 34.0 | mm | alternatively | |
| | | H | 10.7 | | mm |
| | | Energy consumption | E | | 960 |



PTC - 105 W

($\vartheta_A = 20^\circ\text{C}$, unless otherwise stated)

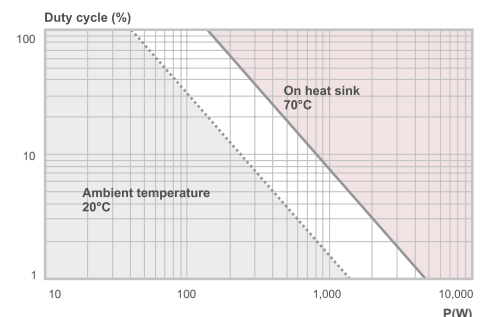
| Parameter | Symbol | Value | Unit | Conditions | |
|-------------|--------|--------------------|----------|---|------|
| Resistances | R | 60, 120 | Ω | ² | |
| Rated power | P | 30 | W | unobstructed convection on heat sink (70 °C) | |
| | | 105 | W | | |
| Dimensions | L | 139.0 | mm | ³ | |
| | | W | 34.0 | | mm |
| | H | 10.7 | mm | alternatively | |
| | | Energy consumption | E | | 1320 |



PTC - 140 W

($\vartheta_A = 20^\circ\text{C}$, unless otherwise stated)

| Parameter | Symbol | Value | Unit | Conditions | |
|-------------|--------|--------------------|----------|---|------|
| Resistances | R | 44, 88, 437,5 | Ω | ² | |
| Rated power | P | 40 | W | unobstructed convection on heat sink (70 °C) | |
| | | 140 | W | | |
| Dimensions | L | 167.0 | mm | ³ | |
| | | W | 34.0 | | mm |
| | H | 10.7 | mm | alternatively | |
| | | Energy consumption | E | | 2160 |



² The resistance values for each type are dynamic with respect to the temperature at the PTC (see R(T) curve) and the applied voltage. ³ Dimensions with tolerances

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We look forward to hearing from you!



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