Managing DC Energy

Safe brake resistors in PTC technology

PTC8006x

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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

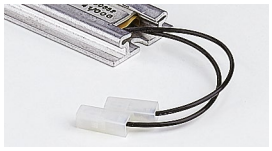
(ϑ_A = 20°C, unless otherwise stated)

Parameter	Symbol	Value	Unit	Conditions
Tolerance (resistance)		± 35	%	Caution: Typical for thermistors and not reducable
Max. perm. operating voltage	U_B	≤ 600 AC	V	according to cCSAus
		≤ 848 DC	V	
Threshold limit voltage	U_{BD}	1300 DC (1750 Ohm)	V	Caution: Abruptly low resistance
		1100 DC (350 Ohm)	V	(reaction like a short circuit)
		900 DC (175 Ohm)	V	
Isolation voltage*	U_{ISO}	≥ 4000 AC	V	f = 50 Hz; t = 1 s
Surface temperature at constant load with U_N	To	175 ± 10K	°C	The temperature will stay within the tolerance at a constant load of 500VAC
Transiston temperature	CP	140	°C	Depending form the material, describes the temperature at which the resistance reaches two times the rate of its lowest value
Cold resistance at 25°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	660	J (Ws)	bei 1.2s (1% ED)
Pulse rating	P_i	≤ 20	kW	Value in Approximation
Storage temperature	ϑ_S	-25 ... +85	°C	
Certifications	cCSAus			according to standard CSA-C22.2 and UL 508

*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.

Versions


PTC

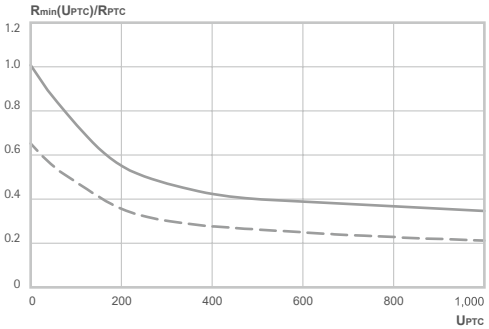

PTC with connector


PTC with customer specific connector


PTC with customer specific connector

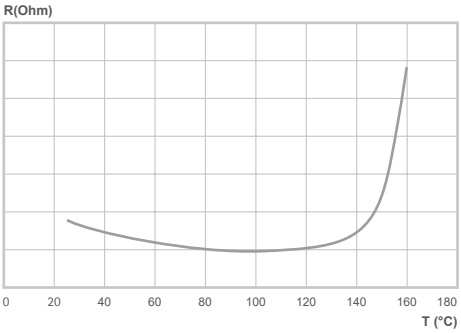
Resistance-Voltage-Characteristic

Brake resistor PTC8006xx
Type specific of request
—— at 25 °C — — at 90 °C

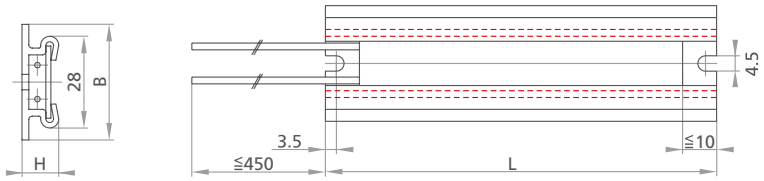


Case temperature

Brake resistor PTC8006xx
Resistance-temperature characteristic
Type specific of request



Dimensions and mounting holes (mm)

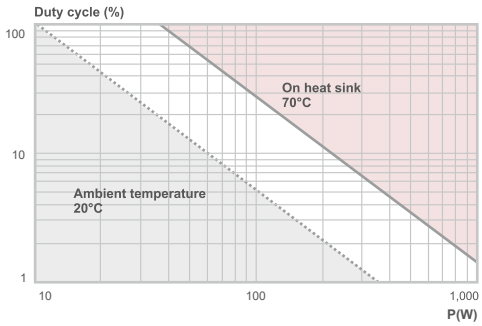


PTC – 35 W

(ϑ_A = 20°C, unless otherwise stated)

Parameter	Symbol	Value	Unit	Conditions
Resistances	R	175, 350, 1750	Ω	*
Rated power	P	10	W	unobstructed convection
		35	W	on heat sink (70 °C)
Dimensions	L	59.5	mm	no mounting holes **
		73.0	mm	
		89.0	mm	
	W	34.0	mm	
	H	10.7	mm	alternatively
		11.5	mm	

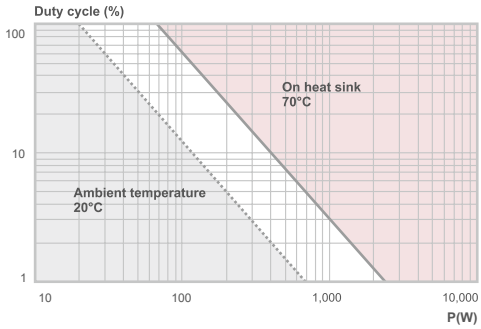
Impulse loading



PTC – 70 W

(ϑ_A = 20°C, unless otherwise stated)

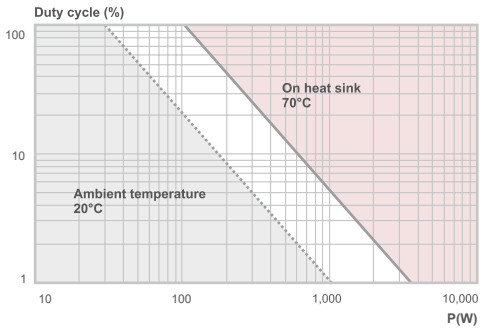
Parameter	Symbol	Value	Unit	Conditions
Resistances	R	90, 175, 875	Ω	*
Rated power	P	20	W	unobstructed convection
		70	W	on heat sink (70 °C)
Dimensions	L	100.0	mm	**
		115.0	mm	
	W	34.0	mm	
	H	10.7	mm	



PTC – 105 W

(ϑ_A = 20°C, unless otherwise stated)

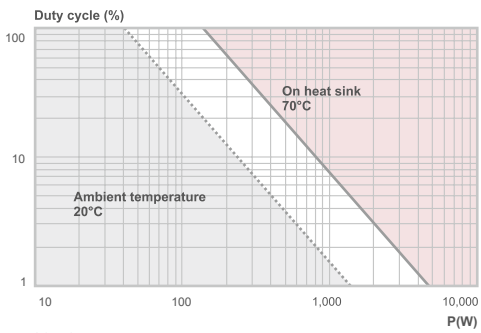
Parameter	Symbol	Value	Unit	Conditions
Resistances	R	60, 120	Ω	*
Rated power	P	30	W	unobstructed convection
		105	W	on heat sink (70 °C)
Dimensions	L	139.0	mm	**
	W	34.0	mm	
	H	10.7	mm	



PTC – 140 W

(ϑ_A = 20°C, unless otherwise stated)

Parameter	Symbol	Value	Unit	Conditions
Resistances	R	44, 88, 437,5	Ω	*
Rated power	P	40	W	unobstructed convection
		140	W	on heat sink (70 °C)
Dimensions	L	167.0	mm	**
	W	34.0	mm	
	H	10.7	mm	



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

Managing DC Energy

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We offer:

- **Tested product quality**
- **Certified processes**
  – we undergo regular inspections by third parties
- **Individual application support**
  – owing to our modular system we can offer more than 60.000 solutions
- **Machine-specific implementation**
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  – all components are available from stock
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We look forward to hearing from you!

Michael Koch GmbH, Zum Grenzgraben 28, D-76698 Ubstadt-Weiher
Phone (+49) 7251 / 96 26 200, Fax (+49) 7251 / 96 26 210
www.brakeenergy.com, mail@brakeenergy.com

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