

# DATASHEET

## PTC thermistor TPR

### Type series PTC thermistors



Thermik\* PTC thermistors are used for temperature monitoring. They are optimally designed for direct installation into the windings of electric motors and transformers. When employed with compatible circuitry (electronic assemblies, heat sinks, etc.), Thermik PTC thermistors prevent overheating of the devices in which they are installed. We offer a selection of insulation sleeves, encasements and fastener-mountings to fit your specific application.

Thermik is one of the few suppliers of PTC thermistors who have the depth and knowledge of materials from specific experience in the manufacture of PTC ceramics, having invested extensively in this technology. Thermik PTC thermistors are engineered to be superior.

#### Customised designs

Design K - customised – variations/additions possible upon request:

- Colour coding
- Cable insulation material or cable cross-section
- Cable-end assembly
- Connection technology
- Components used with UL-cable
- Dielectric strength of the insulation (e.g. suitable for installation in Class II applications)

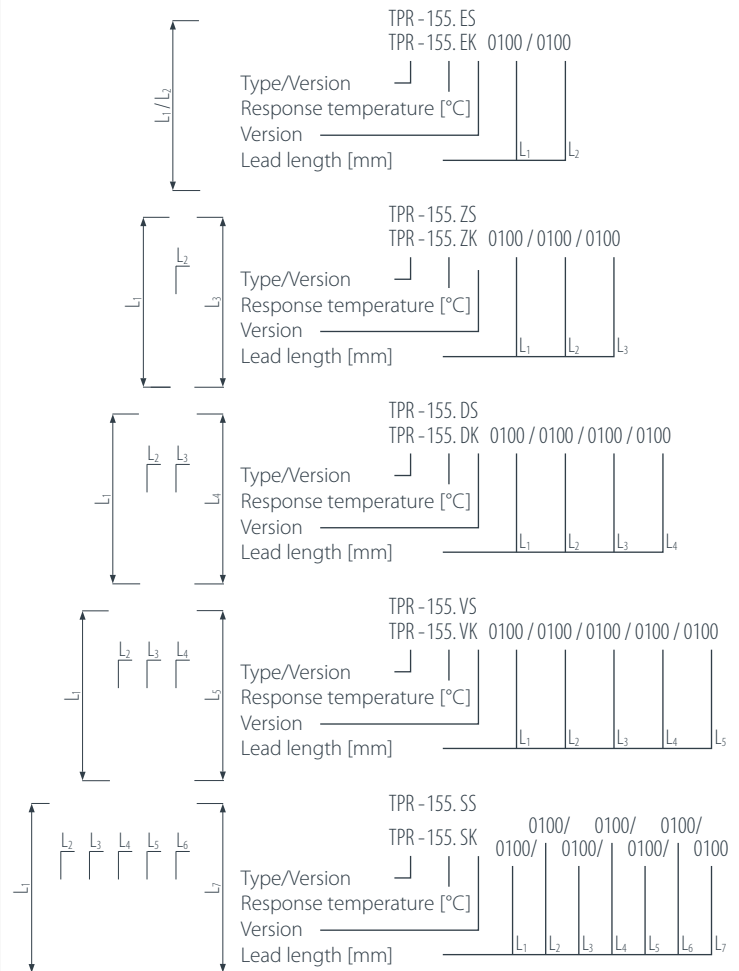
#### Advantages

- Small dimensions + mechanical stability
- Fast response
- Temperature-resistance characteristics tailored to the application in question

Colour-coding dependent on temperature according to DIN VDE V0898-1-401:2016 and IEC60034-11:2004.

60	70	80	90	100	105	110
white	white	white	green	red	blue	brown
grey	brown	white	green	red	grey	brown
115	120	125	130	135	140	145
blue	grey	red	blue	red	white	white
green	grey	green	blue	brown	blue	black
150	155	160	165	170	180	190
black	blue	blue	blue	white	white	black
black	black	red	brown	green	red	brown

#### Ordering instructions:



Version: ES: E-Single, S-Standard (520mm wire length)  
 EK: E-single, K-custom, Z-dual, D-triple, V-quad, S-sixfold



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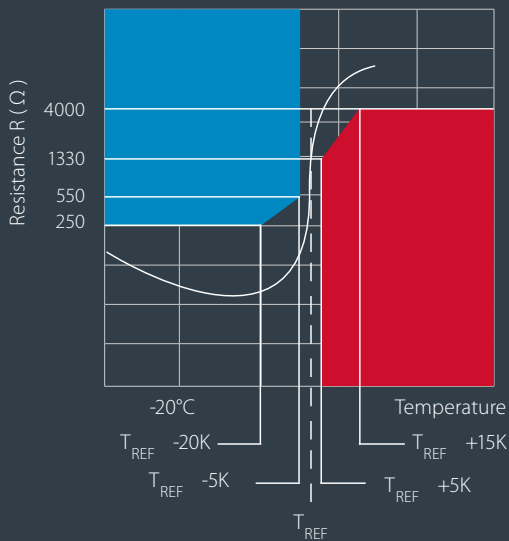


## Installation and functions

Where possible, the PTCs are to be inserted parallel to the coil. As a result, when shaping the coil ends, the mechanical stress of the PTCs is minimised. In so doing, the Mylar®-Nomex® shrink cap is highly suited to this purpose due to its mechanical stability (no cold flow in contrast to Teflon®). In connection with the miniature pill (Ø 1.9 mm) response times of 5 to 10 seconds (max.) are achieved depending on the version.

Thermik thermistors correspond to DIN VDE 0898-1-401:2016 and/or IEC60034-11:2004 and are characterised by high resistance to temperatures. Resistance increases greatly in the range of the rated response temperature. Via a trigger device, this change can be used to shut down the load current circuit. Electronic evaluations in are also possible in different applications.

## Temperature resistance diagram and main parameters in accordance with DIN VDE 0898-1-401:2016 and IEC60034-11:2004



### General characteristics

Temperature resistance diagram in accordance with IEC60034-11:2004, DIN VDE 0898-1-401:2016. Advantageous values: Rated response temperature  $T_{REF}$  60 °C to 190 °C\*, in each case in increments of 10 K.

Temperature range	Resistance	Measured voltage [V <sub>DC</sub> ]
-20 °C to $T_{REF} - 20$ K	20 Ω to 250 Ω	≤ 2,5 V
Temperature range 90 °C - 160 °C		
$T_{REF} - 5$ K	≤ 550 Ω	≤ 2,5 V
$T_{REF} + 5$ K	≥ 1.330 Ω	≤ 2,5 V
$T_{REF} + 15$ K	≥ 4.000 Ω	≤ 7,5 V pulsed

Dielectric strength of the insulation  $U_{eff} = 2.500$  V

\* These parameters relate to  $T_{REF}$  from 90 °C to 160 °C. Resistance values for  $T_{REF} < 90$  °C and  $> 160$  °C are available on request.

\* In accordance with the Thermik test - Specifications relating to part applications (on the part of the buyer) which deviate from our standards are not checked for their capacity to support an application and/or conformity with standards. The responsibility for testing the suitability of Thermik products for such applications falls upon the user. • Slight deviations are possible in terms of dimensions/ values, depending on the embodiment of the product. • We reserve the right to make technical changes in the course of further development. • Details concerning certain data, measurement methods, applications, approvals, etc. can be supplied upon request.

The listed products are an extract from our standard range. Other versions and customised manufacturing are available upon request.

## TPR

1:1



With connector cables; insulation Epoxy

Insulation material	Epoxy
Response temperature	60 °C - 190 °C
Operating voltage range	2,5 V DC - 24,0 V DC
max. permissible operating voltage	30,0 V DC
max. recommended sensor voltage	2,5 V DC - 7,5 V DC
High voltage resistance	2,5 kV
Length of the insulation cap	max. 20,0 mm
Diameter	≤ 8,0 mm
Available approvals (please state)	UL; CSA

### More varieties of the type series PTC thermistors:

- *STM* – With connector cables; insulation PTFE
- *LTM* – With connector cables; insulation in the screw on housing
- *SKM* – With connector cables; insulation PVDF (KYNAR®)

[www.thermik.de/data/STM](http://www.thermik.de/data/STM)  
[www.thermik.de/data/LTM](http://www.thermik.de/data/LTM)  
[www.thermik.de/data/SKM](http://www.thermik.de/data/SKM)