



PTC thermistors as heating elements

Metallized rectangular disks, 42 V power net

Series/Type: **B59044**
Date: August 2006

Applications

- 42-V automotive applications
 - diesel fuel preheating
 - defrosting
 - additional cabin heating

Features

- Silver metallization
- For clamp contacting, not suitable for soldering
- Self-regulating
- RoHS-compatible

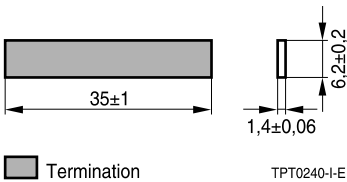
Options

- Other dimensions and ratings on request

Delivery mode

- Packed in styrofoam trays

Dimensional drawing



Dimensions in mm

General technical data

Max. operating voltage		V_{\max}	50	VDC
Max. operating voltage	($t \leq 400$ ms)	$V_{\max, \text{dyn}}^{1)}$	58	V
Rated voltage		V_R	42	VDC
Breakdown voltage		V_{BD}	> 100	V
Curvature			< 0.05	mm
Operating temperature range	($V = 0$)	T_{op}	-40/+200	°C
Operating temperature range	($V = V_R$)	T_{op}	-25/+125	°C
Tolerance of R_R		ΔR_R	±50	%

1) Peak value of maximum operating DC voltage, incl. ripple.

Electrical specifications and ordering codes

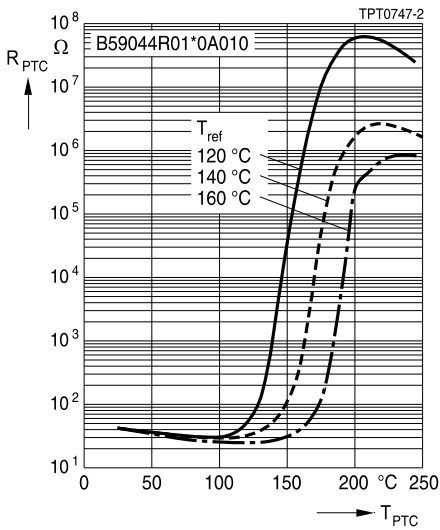
T_{ref} °C	R_{min} ($V = V_R$) Ω	$T_{surf}^{1)}$ ($V = V_R$) °C	R_R ($V_{meas} \leq 1.5 V$) Ω	Ordering code
120	12	135	40	B59044R0120A010
140	12	155	40	B59044R0140A010
160	10	175	40	B59044R0160A010

Characteristics (typical)

PTC resistance R_{PTC} versus

PTC temperature T_{PTC}

(measured at low signal voltage)



1) Measured between points

Cautions and warnings

General

- EPCOS thermistors are designed for specific applications and should not be used for purposes not identified in our specifications, application notes and data books unless otherwise agreed with EPCOS during the design-in-phase.
- Ensure suitability of thermistor through reliability testing during the design-in phase. The thermistors should be evaluated taking into consideration worst-case conditions.

Storage

- Store thermistors only in original packaging. Do not open the package before storage.
- Storage conditions in original packaging: storage temperature $-25\text{ }^{\circ}\text{C} \dots +45\text{ }^{\circ}\text{C}$, relative humidity $\leq 75\%$ annual mean, maximum 95%, dew precipitation is inadmissible.
- Avoid contamination of thermistors surface during storage, handling and processing.
- Avoid storage of thermistor in harmful environment with effect on function on long-term operation (examples given under operation precautions).
- Use thermistor within 6 months after delivery.

Handling

- PTCs must not be dropped. Chip-offs must not be caused during handling of PTCs.
- Components must not be touched with bare hands. Gloves are recommended.
- Avoid contamination of thermistor surface during handling.

Soldering (where applicable)

- Use rosin-type flux or non-activated flux.
- Insufficient preheating may cause ceramic cracks.
- Rapid cooling by dipping in solvent is not recommended.
- Complete removal of flux is recommended.
- Standard PTC heaters are not suitable for soldering.

Mounting

- Electrode must not be scratched before/during/after the mounting process.
- Contacts and housing used for assembly with thermistor have to be clean before mounting. Especially grease or oil must be removed.
- When PTC thermistors are encapsulated with sealing material, the precautions given in chapter "Mounting instructions", "Sealing and potting" must be observed.
- When the thermistor is mounted, there must not be any foreign body between the electrode of the thermistor and the clamping contact.
- The minimum force of the clamping contacts pressing against the PTC must be 10 N.
- During operation, the thermistor's surface temperature can be very high. Ensure that adjacent components are placed at a sufficient distance from the thermistor to allow for proper cooling at the thermistors.
- Ensure that adjacent materials are designed for operation at temperatures comparable to the surface temperature of thermistor. Be sure that surrounding parts and materials can withstand this temperature.
- Avoid contamination of thermistor surface during processing.

Operation

- Use thermistors only within the specified temperature operating range.
- Use thermistors only within the specified voltage and current ranges.
- Environmental conditions must not harm the thermistors. Use thermistors only in normal atmospheric conditions. Avoid use in deoxidizing gases (chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas etc), corrosive agents, humid or salty conditions. Contact with any liquids and solvents should be prevented.
- Be sure to provide an appropriate fail-safe function to prevent secondary product damage caused by abnormal function (e.g. use VDR for limitation of overvoltage condition).

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