



PTC thermistors

Limit temperature sensors,
leadless disks, coated

Series/Type: **B59100**
Date: March 2006

Applications

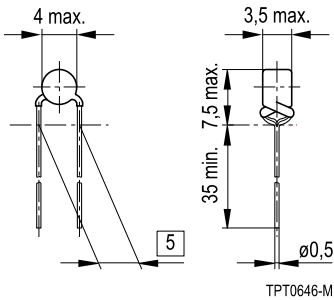
- Limit temperature monitoring

Features

- Tinned leads
- Manufacturer's logo and type designation stamped on in white
- Characteristics for nominal threshold temperatures of 90 to 160 °C conform with DIN 44081
- RoHS compatible

Delivery mode

- Cardboard strips (standard), cardboard tape reeled or in Ammo pack on request

Dimensional drawing


Dimensions in mm

General technical data

Max. operating voltage	($T_A = 0 \dots 40 \text{ }^\circ\text{C}$)	V_{\max}	30	VDC
Max. measuring voltage	($T_A = -25 \text{ K} \dots T_{\text{NTT}} + 23 \text{ K}$)	$V_{\text{meas,max}}$	7.5	VDC
Rated resistance	($V_{\text{PTC}} \leq 2.5 \text{ V}$)	R_R	$\leq 100^{1)}$	Ω
Thermal threshold time		t_a	<5	s
Operating temperature range	($V \leq V_{\text{meas,max}}$)	T_{op}	$-40/ T_{\text{NTT}} + 23$	$^\circ\text{C}$
Operating temperature range	($V = V_{\max}$)	T_{op}	0/+40	$^\circ\text{C}$

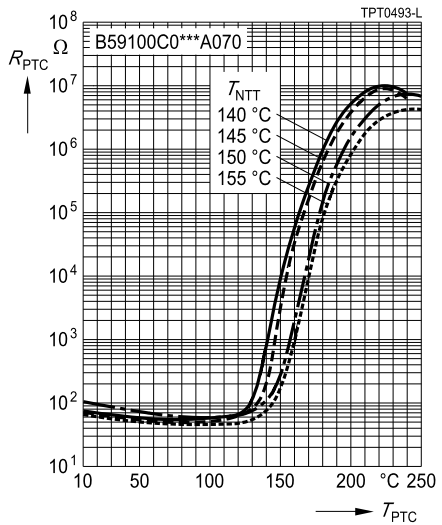
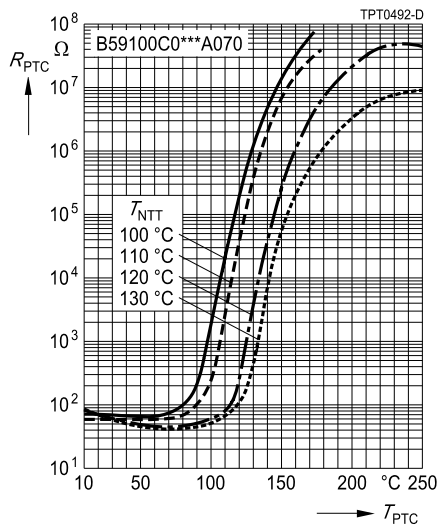
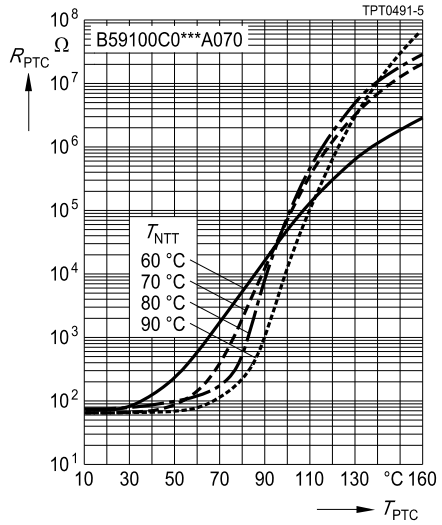
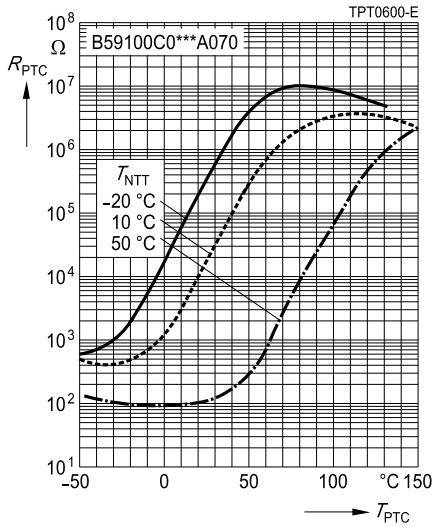
1) Exception: B59100C0920A070: $R_R > 100 \text{ k}\Omega$; B59100C0010A070: $R_R > 5 \text{ k}\Omega$; B59100C0050A070: $R_R < 150 \Omega$

Sensors
Limit temperature sensors, leaded disks, coated
C100
Electrical specifications and ordering codes

T_{NTT} °C	R ($T_{NTT} - \Delta T$) ($V_{PTC} \leq 2.5 \text{ V}$) Ω	R ($T_{NTT} + \Delta T$) ($V_{PTC} \leq 2.5 \text{ V}$) Ω	R ($T_{NTT} + 15 \text{ K}$) ($V_{PTC} \leq 7.5 \text{ V}$) Ω	R ($T_{NTT} + 23 \text{ K}$) ($V_{PTC} \leq 2.5 \text{ V}$) Ω	Ordering code
$\Delta T = 5 \text{ K}$					
- 20	≤ 2300	≥ 2300	-	$\geq 10 \text{ k}$	B59100C0920A070
10	≤ 2300	≥ 2300	-	$\geq 10 \text{ k}$	B59100C0010A070
100	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0100A070
110	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0110A070
120	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0120A070
130	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0130A070
140	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0140A070
145	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0145A070
150	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0150A070
155	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0155A070
160	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0160A070
50	≤ 400	≥ 400	-	$\geq 4 \text{ k}$	B59100C0050A070
60	≤ 570	≥ 570	-	$\geq 10 \text{ k}$	B59100C0060A070
70	≤ 570	≥ 570	-	$\geq 10 \text{ k}$	B59100C0070A070
80	≤ 570	≥ 570	-	$\geq 10 \text{ k}$	B59100C0080A070
90	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0090A070
$\Delta T = 6 \text{ K}$					
170	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0170A070
180	≤ 550	≥ 1330	$\geq 4 \text{ k}$	-	B59100C0180A070

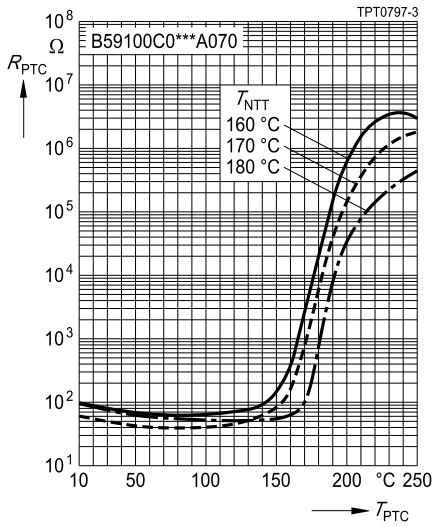
Characteristics (typical)

PTC resistance R_{PTC} versus PTC temperature T_{PTC}
(measured at low signal voltage)



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PTC resistance R_{PTC} versus PTC temperature T_{PTC}
(measured at low signal voltage)



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 $-25\text{ °C} \dots +45\text{ °C}$, 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

- 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.

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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