PTC thermistors for switching applications

Plastic case, 63 V to 220 V

Series/Type: **B59339**
Date: March 2006

Applications

- Delayed switching of loads
- For frequent switching

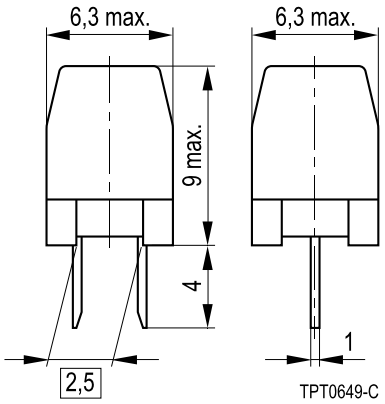
Features

- Encased thermistor disk with clamp contacts
- Flame-retardant plastic case
- Case material UL-listed
- Silver-plated lead-free solder pins
- Manufacturer's logo and type designation stamped on in white
- Stable performance throughout 100000 switching cycles
- RoHS-compatible

Delivery mode

- Packed in blister trays

Dimensional drawing



Dimensions in mm

General technical data

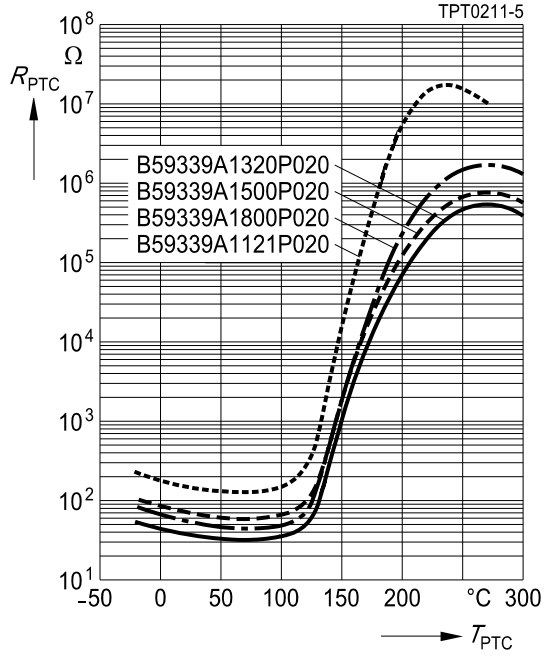
Switching cycles		N	100000	
Switching time		t_S	≤ 0.5	s
Tolerance of R_R		ΔR_R	±25	%
Operating temperature range	(V = 0)	T_{op}	−25/+125	°C
Operating temperature range	($V = V_{max}$)	T_{op}	0/+60	°C

Electrical specifications and ordering codes

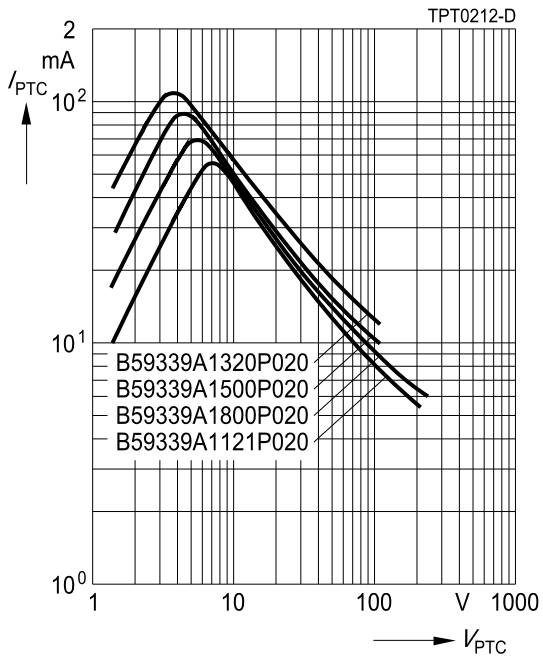
Type	T_{ref} °C	I_R mA	I_S mA	I_{Smax} ($V = V_{max}$) A	I_r ($V = V_{max}$) mA	R_R Ω	R_{min} Ω	Ordering code
V_{max} = 80 V , V_R = 63 V								
J280	120	77	150	1.10	14	32	20	B59339A1320P020
J281	120	60	120	0.90	10	50	31	B59339A1500P020
V_{max} = 160 V , V_R = 110 V								
J282	120	48	100	0.70	6.0	80	50	B59339A1800P020
J283	120	39	80	0.58	5.0	120	75	B59339A1121P020
V_{max} = 265 V , V_R = 220 V								
J284	120	30	60	0.42	4.0	200	110	B59339A1201P020
J285	120	24	50	0.33	4.0	320	200	B59339A1321P020
J286	120	20	40	0.27	3.5	500	260	B59339A1501P020
J287	120	15	30	0.22	3.0	800	480	B59339A1801P020
J288	120	13	26	0.18	2.5	1200	630	B59339A1122P020
J289	120	10	20	0.15	2.0	2000	900	B59339A1202P020
J290	115	8	16	0.12	1.5	3200	1500	B59339A1322P020

Characteristics (typical)

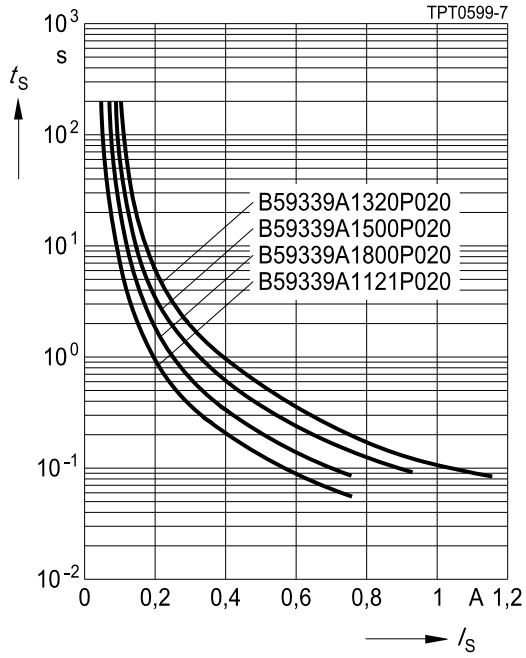
PTC resistance R_{PTC} versus
PTC temperature T_{PTC}
(measured at low signal voltage)



PTC current I_{PTC} versus PTC voltage V_{PTC}
(measured at 25 °C in still air)



Switching time t_S versus switching current I_S
(measured at 25 °C in still air)



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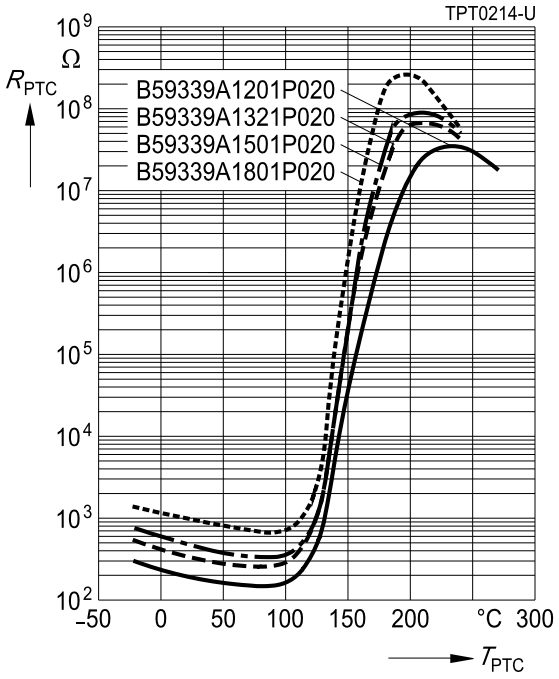

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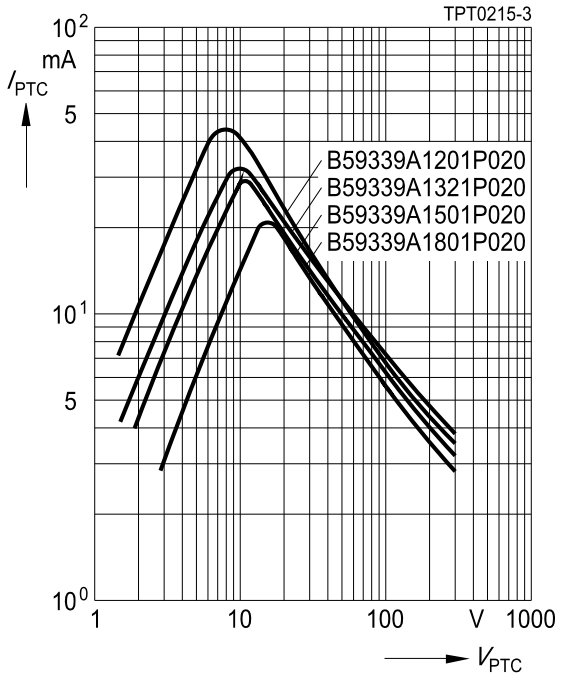

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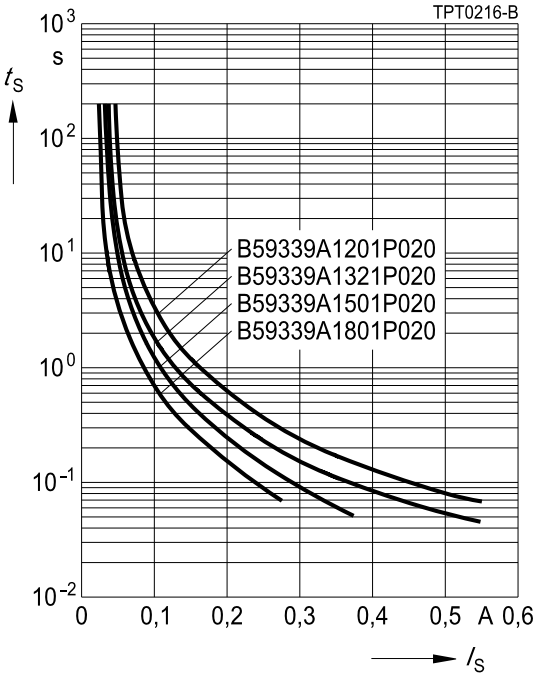

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PTC resistance R_{PTC} versus
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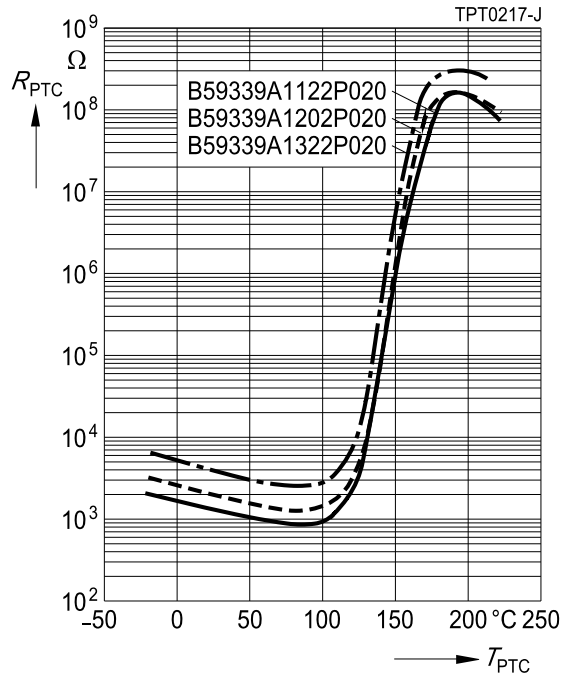

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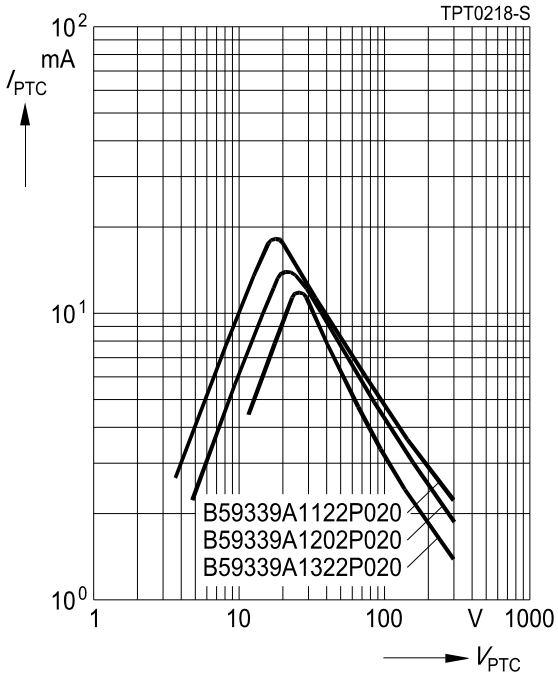

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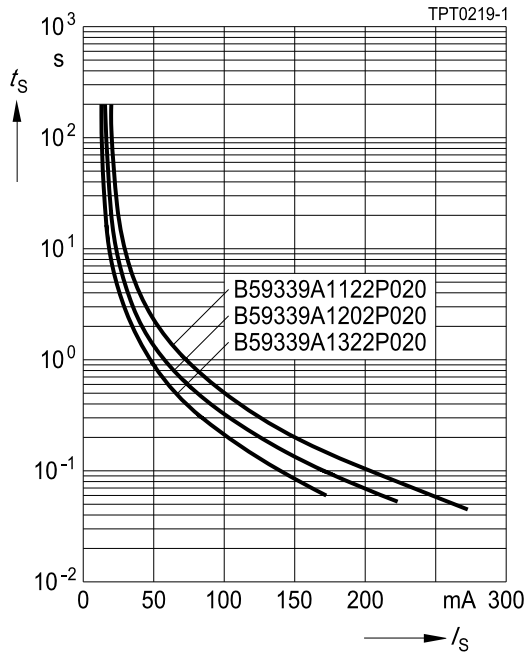

Cautions and warnings

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 °C ... +45 °C, relative humidity ≤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).

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
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3. **The warnings, cautions and product-specific notes must be observed**.
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