



PTC thermistors for overcurrent protection

Leaded disks, uncoated,
380 to 1000 V

Series/Type: B597**
Date: March 2006

Overcurrent protection

Leaded disks, uncoated, 380 V to 1000 V

B750 ... B774

Applications

- Overcurrent and short-circuit protection

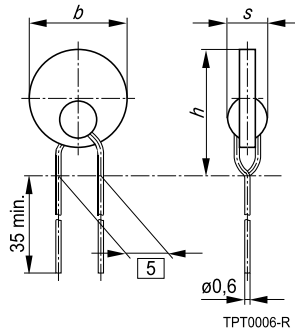
Features

- Lead-free terminals
- Manufacturer's logo, date code and type designation stamped on in black
- UL approval to UL 1434 with $V_{\max} = 420$ V and $V_R = 380$ V (file number E69802), except B758
- RoHS-compatible

Delivery mode

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

Dimensional drawing



Dimensions (mm)

Type	b_{\max}	h_{\max}	s_{\max}
B750	12.5	16.5	7.0
B751	12.5	16.5	7.0
B752	12.5	16.5	7.0
B753	12.5	16.5	7.0
B754	12.5	16.5	7.0
B755	12.5	16.5	7.0
B758	12.5	16.5	7.0
B770	8.5	12.0	7.0
B771	8.5	12.0	7.0
B772	8.5	12.0	7.0
B773	8.5	12.0	7.0
B774	8.5	12.0	7.0

General technical data

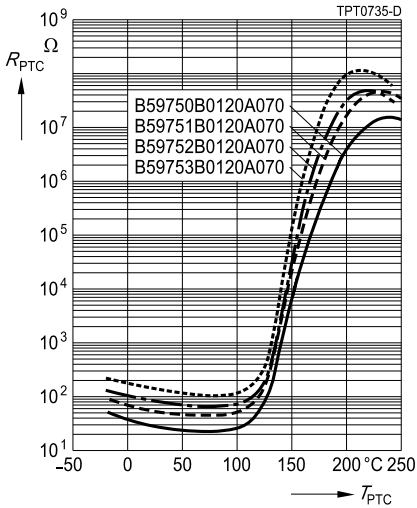
Switching cycles		N	100	
Operating temperature range	($V = 0$)	T_{op}	-40/+125	°C
Operating temperature range	($V = V_{\max}$)	T_{op}	0/+60	°C

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Electrical specifications and ordering codes

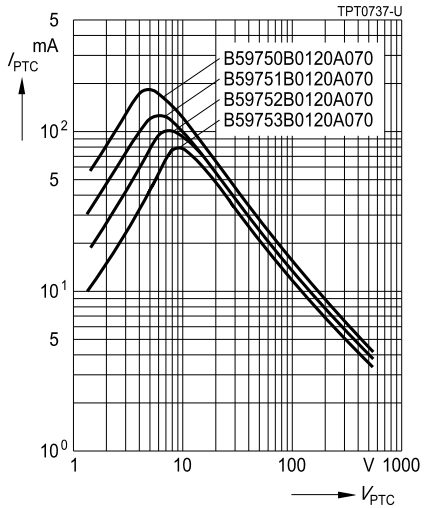
Type	I_R mA	I_S mA	I_{Smax} ($V = V_{max}$) A	t_s (V_{max} , I_{Smax}) s	I_r ($V = V_{max}$) typ. mA	R_R Ω	R_{min} Ω	Ordering code
$V_{max} = 420 \text{ V}$, $V_R = 380 \text{ V}$, $T_{ref} = 120 \text{ }^\circ\text{C}$, $\Delta R_R = \pm 25 \%$								
B750	123	245	2.0	< 6	4.0	25	13	B59750B0120A070
B751	87	173	2.0	< 4	3.5	50	26	B59751B0120A070
B752	69	137	2.0	< 4	3.5	80	42	B59752B0120A070
B753	56	112	2.0	< 3	3.0	120	63	B59753B0120A070
B754	50	100	2.0	< 3	3.0	150	68	B59754B0120A070
B770	64	127	1.4	< 4	3.5	70	45	B59770B0120A070
B771	49	97	1.4	< 3	2.5	120	76	B59771B0120A070
B772	43	86	1.4	< 3	2.5	150	96	B59772B0120A070
$V_{max} = 550 \text{ V}$, $V_R = 500 \text{ V}$, $T_{ref} = 115 \text{ }^\circ\text{C}$, $\Delta R_R = \pm 25 \%$								
B755	28	55	1.4	< 3	2.0	500	230	B59755B0115A070
B774	16	32	1.0	< 2	1.5	1100	700	B59774B0115A070
$V_{max} = 550 \text{ V}$, $V_R = 500 \text{ V}$, $T_{ref} = 120 \text{ }^\circ\text{C}$, $\Delta R_R = \pm 25 \%$								
B773	24	48	1.0	< 3	2.0	500	320	B59773B0120A070
$V_{max} = 1000 \text{ V}$, $V_R = 1000 \text{ V}$, $T_{ref} = 110 \text{ }^\circ\text{C}$, $\Delta R_R = \pm 33 \%$								
B758	8	17	0.5	< 3	3.0	7500	3380	B59758B0110A070

Characteristics (typical)

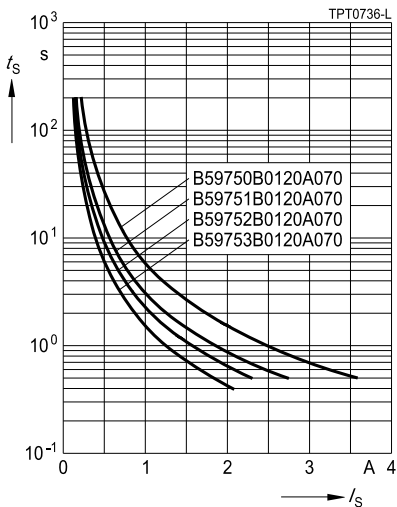
PTC resistance R_{PTC} versus
PTC temperature T_{PTC}
(measured at low signal voltage)



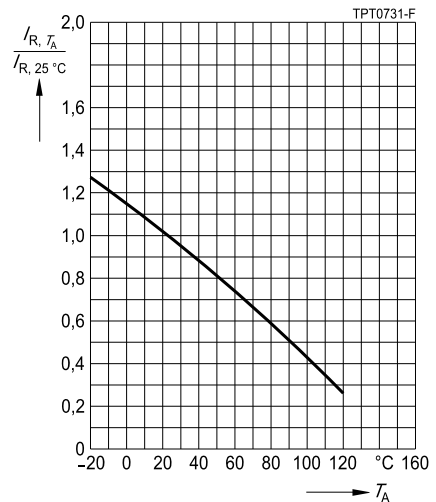
PTC current I_{PTC} versus PTC voltage V_{PTC}
(measured at 25 °C in still air)



Switching time t_s versus switching current I_s
(measured at 25 °C in still air)



Rated current I_R versus ambient temperature T_A
(measured in still air)



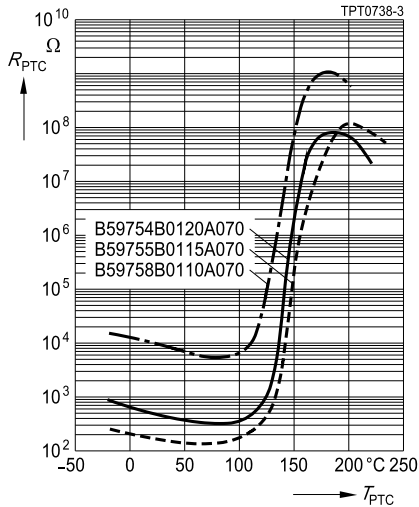
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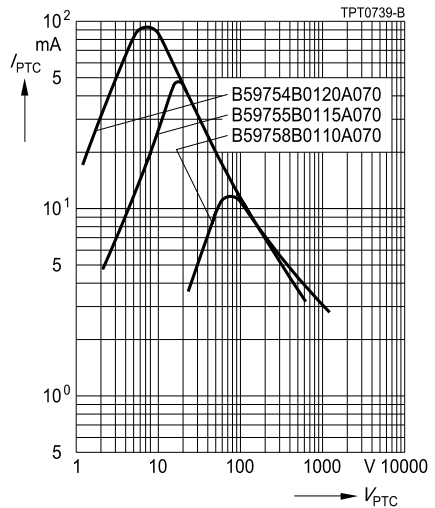
B750 ... B774

Characteristics (typical)

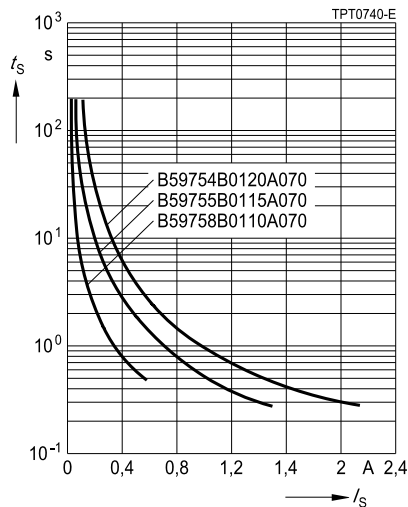
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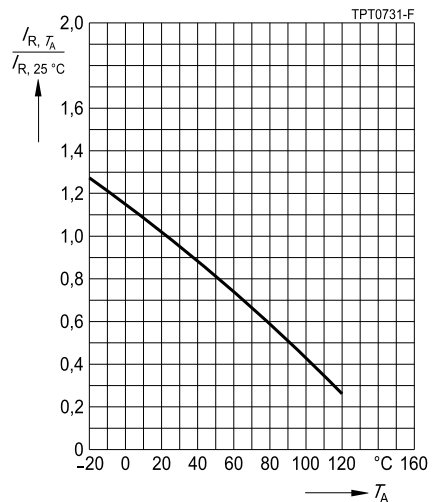
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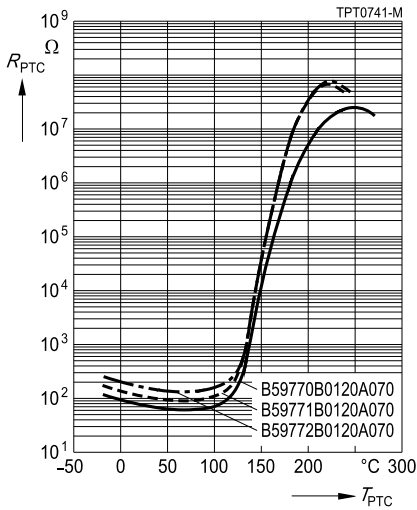
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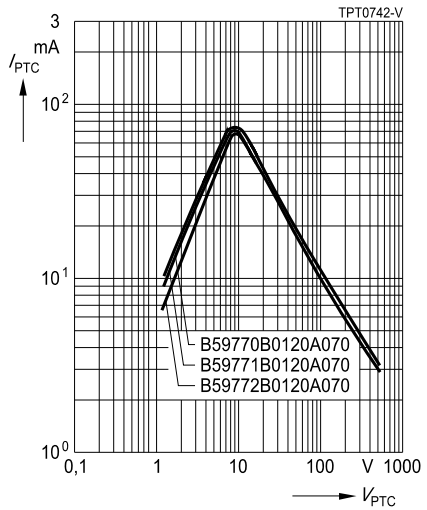
B750 ... B774

Characteristics (typical)

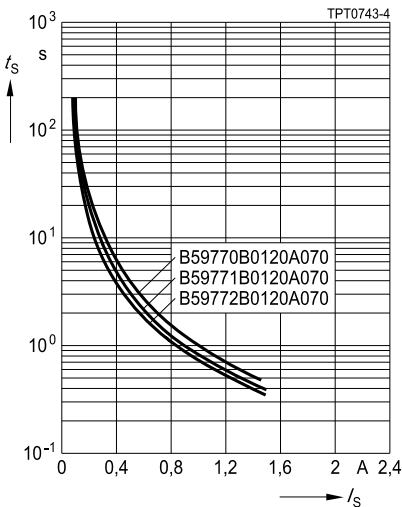
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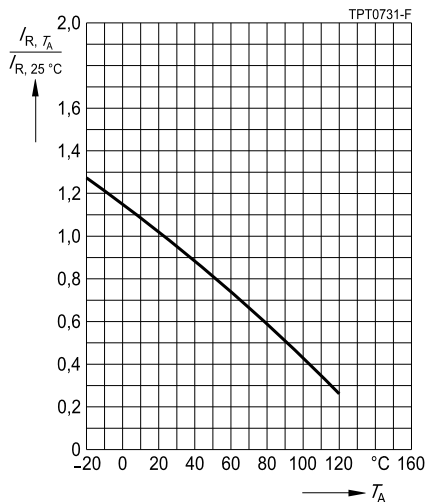
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Switching time t_s versus switching current I_s
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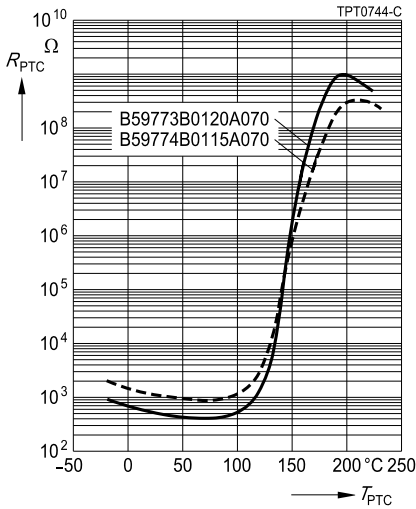


Rated current I_R versus ambient temperature T_A
(measured in still air)

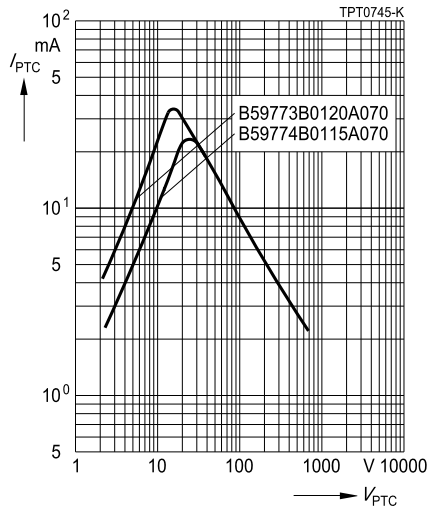


Characteristics (typical)

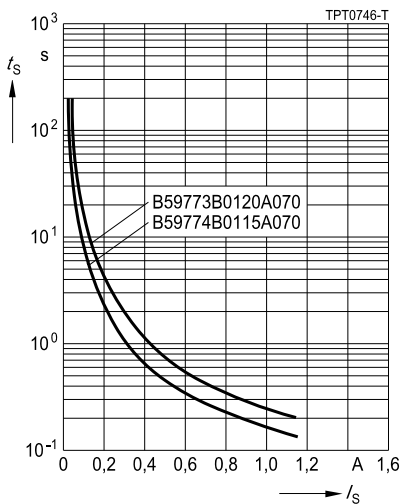
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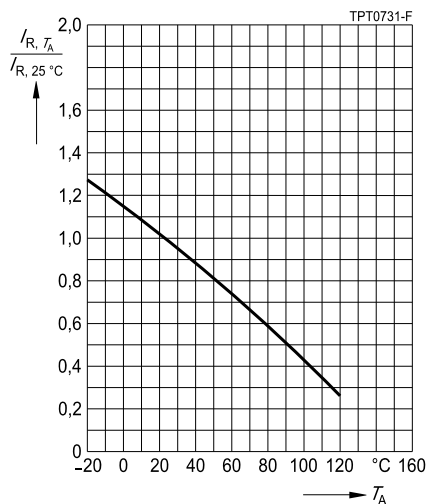
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Rated current I_R versus ambient temperature T_A
(measured in still air)



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).

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.
2. We also point out that **in individual cases, a malfunction of passive electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of a passive electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of a passive electronic component.
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