PTC thermistors for degaussing

Double mono PTC thermistors

Series/Type: **B59*****
Date: March 2006

Applications

- Degaussing of picture tubes

Features

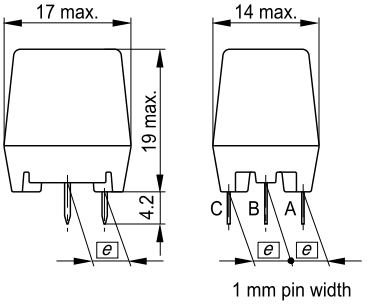
- Two PTC thermistors in a plastic case (3-pin)
- Marked with manufacturer's logo, type designation and date code
- Flame-retardant case material (UL 94 V-0)
- Solderability to IEC 60068-2-20 (test t_a, methode 1)
- Stable performance throughout a large number of switching cycles owing to clamp contacting
- UL approval to UL 1434 (file number E69802) (except T205)
- VDE approval for T890 (license number 128911)
- CECC 60738-1-3-001 approval for T890
- RoHS-compatible

Delivery mode

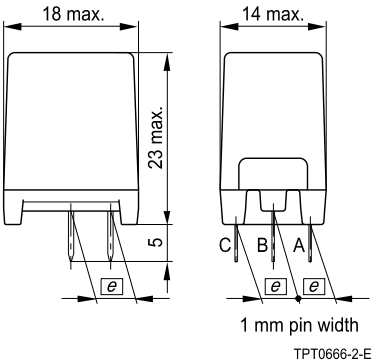
- Packed in blister trays

Dimensional drawings

Thermoplast housing for type: T205

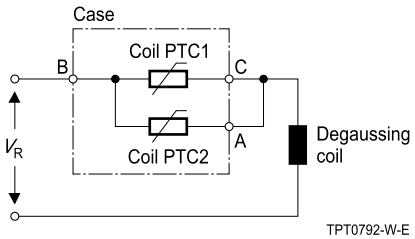


Phenolic resin (Duroplast) housing for type: T845 and T890

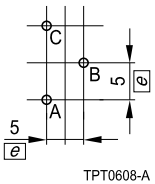


Circuit diagram and hole arrangement

Circuit diagram



Hole arrangement



General technical data

Max. operating voltage		V_{max}	270	VAC
Rated voltage		V_R	230	VAC
Operating temperature range	(V = 0)	T_{op}	−25/+125	°C
Operating temperature range	($V = V_R$)	T_{op}	0/+60	°C

Electrical specifications and ordering codes

Type	R_R	R_{coil}	$I_{in,coil}$ (0 s)	$I_{r,coil}$ (180 s) ($V = V_R$, 25 °C ≤ T_{op} ≤ 60 °C)	Housing[1]	Decay[2]	Ordering code
	Ω	Ω	A_{pp}	mA_{pp}			
T845	2.25 (2 x 4.5)	≥ 10.0	≥ 48	≤ 50	D	-	B59845T0060B110
T205	4.5 (2 x 9)	≥ 9.25	≥ 44	≤ 40	T	SD	B59205T0080B110
T890	4.5 (2 x 9)	≥ 10	≥ 40	≤ 50	D	LD	B59890T0060B110

Note for all types:
A single degaussing coil may be replaced by two coils in parallel.
E.g. a single coil of 10 Ω can be replaced by two 20 Ω coils in parallel, one conected to terminal A the other to terminal C.

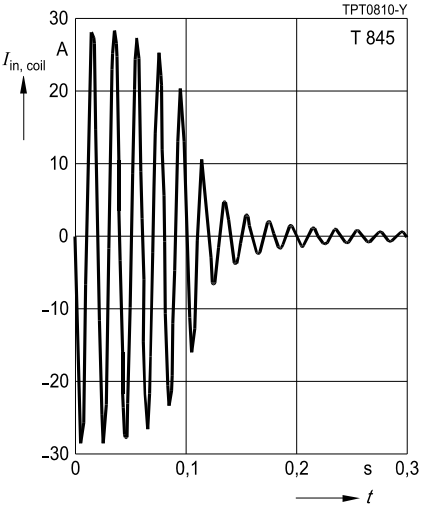
1) T: Thermoplast housing; D: Phenolic resin (Duroplast) housing
2) SD: Standard decay behavior; LD: Long decay behavior

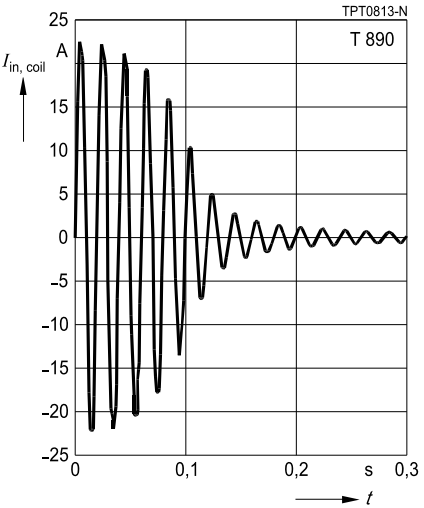
Reliability data

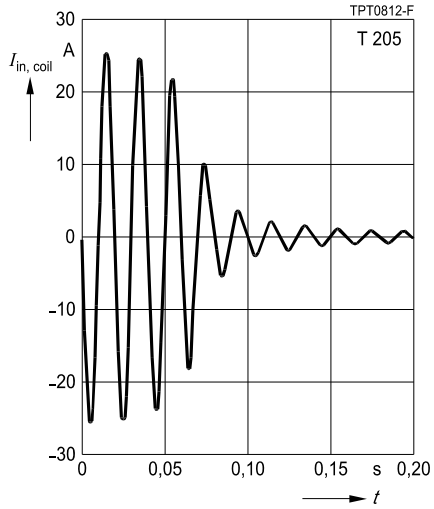
Test	Standard	Test conditions	$\lvert\Delta R_{25}/R_{25}\rvert$
Electrical endurance, cycling	IEC 60738-1	Room temperature, $V_{max;}$ R_S Number of cycles: 10 000	< 20%
Electrical endurance, constant	IEC 60738-1	Storage at V_{max} /T_{op} Test duration : 1000 h	< 20%
Damp heat	IEC 60738-1	Temperature of air: 40 °C Relative humidity of air: 93% Duration: 56 days Test according to IEC 60068-2-78	< 20%
Rapid change of temperature	IEC 60738-1	T = T_{LCT}, T = T_{UCT} Number of cycles: 5 Test duration: 30 min Test according to IEC 60068-2-14, Test Na	< 20%
Vibration	IEC 60738-1	Frequency: 10 - 55 - 10 Hz Displacement amplitude: 0.75 mm Test duration: 3 · 2 h Test according to IEC 60028-2-6, Test Fc	< 20%
Bump	IEC 60738-1	Pulse shape: half-sine Acceleration: 40 g Pulse duration: 6 ms; 6 · 4000 pulses Test according to IEC 60068-2-29	< 20%
Climatic sequence	IEC 60738-1	Dry heat: T = T_{UCT} Test duration: 16 h Damp heat first cycle Cold: T = T_{LCT} Test duration: 2 h Damp heat 5 cycles Tests performed according to IEC 60068-2-30	< 20%

Characteristics

Typical curve of demagnetization current $I_{in,coil}$ measured at V_R
Coil resistance: 10 Ω (T845 and T890), 9.25 Ω (T205)
Ambient temperature: 25 °C







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.

Degaussing

Double mono PTC thermistors

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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