

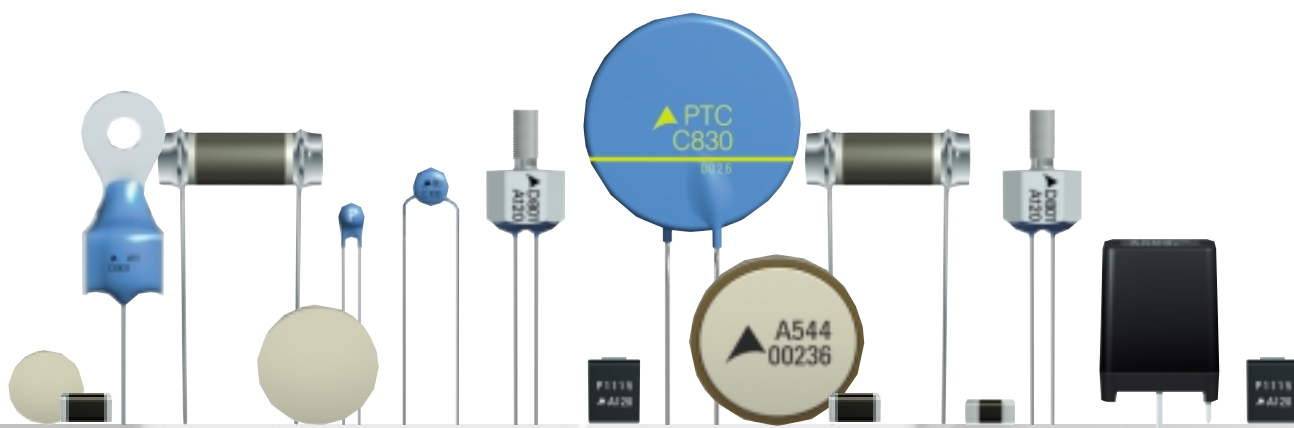


# Kaltleiter PTC Thermistors

Lieferprogramm 2001 / Short Form Catalog 2001



<http://www.epcos.com>



# Vorwort Preview

Dieses Lieferprogramm stellt Ihnen die breite Palette von Kaltleitern der EPCOS AG vor – einem Unternehmen mit jahrzehntelanger Erfahrung in Entwicklung, Fertigung und Vertrieb elektronischer Bauelemente, das bei Kaltleitern weltweit die Nummer 1 ist und zu den weltweit größten Herstellern elektronischer Komponenten gehört.

Kaltleiter sind keramische Bauelemente, deren elektrischer Widerstand sich beim Überschreiten eines bestimmten Temperaturwertes nahezu sprunghaft erhöht. Mit dieser Eigenschaft eignen sie sich hervorragend für den Einsatz in unzähligen Anwendungen der modernen Elektrotechnik und Elek-

tronik, z. B. als reversible Sicherungen zur Überstromsicherung oder als Kurzschlusschutz in Motoren. Kaltleiter werden u. a. auch in elektronischen Lampenvorschaltgeräten und Schatznetzteilen zur Schaltverzögerung eingesetzt sowie zur Entmagnetisierung von Lochmasken in Bildröhren. Spezielle Motorstart-Kaltleiter finden sich z. B. in den Kompressoren von Kühlschränken. Auch der thermische Maschinenschutz von Motoren oder Transformatoren ist ein Beispiel für die Vielseitigkeit von Kaltleitern. Weitere Anwendungen finden sich in der Mess- und Regelungstechnik, in der Unterhaltungs-, Haushalts- und Kfz-Elektronik sowie in der Daten- und Nachrichtentechnik. Darüber hi-

naus eignen sich Kaltleiter auch als selbstregelnde Heizelemente, z. B. in Warmhalteplatten, Heißklebepistolen oder zur Zusatzheizung sowie Vergaser- bzw. Einspritzanlagenvorwärmung im Kfz.

Ebenso vielfältig sind die verschiedenen Bauformen der Kaltleiter von EPCOS, so dass sich in dem breiten Produktspektrum für fast jede Applikation der passende Kaltleiter findet. Aber auch Kaltleiter nach Kundenspezifikation sind für die Spezialisten im Kompetenzzentrum Deutschlandsberg aufgrund ihrer langjährigen Erfahrung kein Problem.

Nutzen auch Sie unsere Kreativität und Kompetenz für Ihren Erfolg!

This short form catalog presents the wide selection of PTC thermistors from EPCOS – a corporation with decades of experience in the development, manufacture and selling of electronic components, the first name worldwide for PTC thermistors, and one of the world's biggest producers of electronic components.

PTC thermistors are ceramic components whose electrical resistance rapidly increases when a certain figure of temperature is exceeded. This feature makes them ideal for use in countless applications of modern electrical and electronic engineering, for example as reversible fuses against current overload

or as shortcircuit protection in motors. PTC thermistors are used in electronic lamp ballasts and switch-mode power supplies for delayed switching, and to degauss shadow masks in picture tubes. You find special motor starter PTC thermistors in the compressors of refrigerators for instance. Thermal protection of motors and transformers is another example of the versatility of PTC thermistors. The applications extend to measurement and control engineering, to entertainment, household and automotive electronics, plus data systems and telecommunications of course. PTC thermistors are also suitable as self-regulating heater elements, like in hot plates and hot-adhesive

guns, or for auxiliary heating and carburetor and fuel injection preheating in automobiles.

The different models of PTC thermistors from EPCOS are equally diverse, offering the matching solution for virtually every application. And, backed by a wealth of expertise, the specialists of the center of competence in Deutschlandsberg are also able to produce PTC thermistors precisely to custom specifications.

Turn our creativity and competence into your success.



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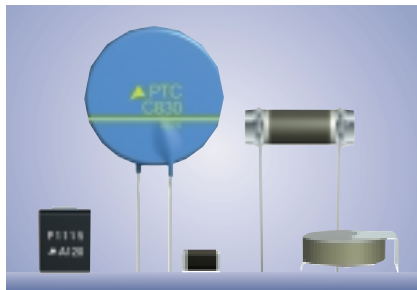
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# Überlastschutz Overload Protection

## Anwendung

Überstromsicherung und Kurzschlusschutz anstelle herkömmlicher Schmelzsicherungen, z. B. in Motoren, Transformatoren, Schaltnetzteilen, Akkuladegeräten und Telefon-Line-Cards.



## Application

Overload and short-circuit protection instead of conventional fuses, e.g. in motors, transformers, switch-mode power supplies, battery chargers and telephone line cards.

## Scheiben/Disks

| Maßbild             | Type | Nennstrom     | Nenn-widerstand      | Maße            |                 |                       | Bestell-Nr.   |
|---------------------|------|---------------|----------------------|-----------------|-----------------|-----------------------|---------------|
| Dimensional drawing | Type | Rated current | Rated resistance     | Dimensions      |                 |                       | Ordering code |
|                     |      | $I_N$<br>mA   | $R_{25}$<br>$\Omega$ | $b_{max}$<br>mm | $h_{max}$<br>mm | $\varnothing d$<br>mm |               |

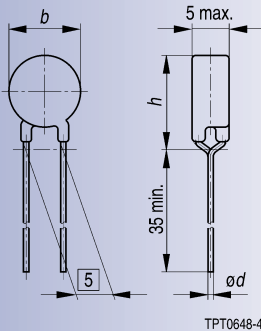
|                                                                  |      |      |      |      |     |                  |                |
|------------------------------------------------------------------|------|------|------|------|-----|------------------|----------------|
| $V_{max} = 20 \text{ V}, T_{Ref} = 160 \text{ }^{\circ}\text{C}$ |      |      |      |      |     |                  |                |
| C935                                                             | 2100 | 0,30 | 22,0 | 25,5 | 0,6 | B59935-C160-A70  |                |
| C945                                                             | 1500 | 0,45 | 17,5 | 21,0 | 0,6 | B59945-C160-A70  |                |
| C955                                                             | 950  | 0,80 | 13,5 | 17,0 | 0,6 | B59955-C160-A70  |                |
| C965                                                             | 700  | 1,20 | 11,0 | 14,5 | 0,6 | B59965-C160-A70* |                |
| C975                                                             | 550  | 1,80 | 9,0  | 12,5 | 0,6 | B59975-C160-A70* |                |
| C985                                                             | 300  | 4,60 | 6,5  | 10,0 | 0,6 | B59985-C160-A70* |                |
| C995                                                             | 150  | 13   | 4,0  | 7,5  | 0,5 | B59995-C160-A70* |                |
| $V_{max} = 30 \text{ V}, T_{Ref} = 120 \text{ }^{\circ}\text{C}$ |      |      |      |      |     |                  | bis/up to 15 V |
| C935                                                             | 1800 | 0,30 | 22,0 | 25,5 | 0,6 | B59935-C120-A70  |                |
| C945                                                             | 1300 | 0,45 | 17,5 | 21,0 | 0,6 | B59945-C120-A70  |                |
| C955                                                             | 850  | 0,80 | 13,5 | 17,0 | 0,6 | B59955-C120-A70  |                |
| C965                                                             | 600  | 1,20 | 11,0 | 14,5 | 0,6 | B59965-C120-A70* |                |
| C975                                                             | 450  | 1,80 | 9,0  | 12,5 | 0,6 | B59975-C120-A70* |                |
| C985                                                             | 250  | 4,60 | 6,5  | 10,5 | 0,6 | B59985-C120-A70* |                |
| C995                                                             | 120  | 13   | 4,0  | 7,5  | 0,5 | B59995-C120-A70* |                |
| $V_{max} = 54 \text{ V}, T_{Ref} = 160 \text{ }^{\circ}\text{C}$ |      |      |      |      |     |                  |                |
| C930                                                             | 770  | 1,65 | 22,0 | 25,5 | 0,6 | B59930-C160-A70  |                |
| C940                                                             | 550  | 2,30 | 17,5 | 21,0 | 0,6 | B59940-C160-A70  |                |
| C950                                                             | 360  | 3,70 | 13,5 | 17,0 | 0,6 | B59950-C160-A70  |                |
| C960                                                             | 280  | 5,60 | 11,0 | 14,5 | 0,6 | B59960-C160-A70* |                |
| C970                                                             | 170  | 9,40 | 9,0  | 12,5 | 0,6 | B59970-C160-A70* |                |
| C980                                                             | 95   | 25   | 6,5  | 10,0 | 0,6 | B59980-C160-A70* |                |
| C990                                                             | 55   | 55   | 4,0  | 7,5  | 0,5 | B59990-C160-A70* |                |
| $V_{max} = 80 \text{ V}, T_{Ref} = 80 \text{ }^{\circ}\text{C}$  |      |      |      |      |     |                  |                |
| C930                                                             | 340  | 1,65 | 22,0 | 25,5 | 0,6 | B59930-C80-A70   |                |
| C940                                                             | 245  | 2,3  | 17,5 | 21,0 | 0,6 | B59940-C80-A70   |                |
| C950                                                             | 170  | 3,7  | 13,5 | 17,0 | 0,6 | B59950-C80-A70   |                |
| C960                                                             | 130  | 5,6  | 11,0 | 14,5 | 0,6 | B59960-C80-A70*  |                |
| C970                                                             | 90   | 9,4  | 9,0  | 12,5 | 0,6 | B59970-C80-A70*  |                |
| C980                                                             | 50   | 25   | 6,5  | 10,0 | 0,6 | B59980-C80-A70*  |                |
| C990                                                             | 30   | 55   | 4,0  | 7,5  | 0,5 | B59990-C80-A70*  |                |
| $V_{max} = 80 \text{ V}, T_{Ref} = 120 \text{ }^{\circ}\text{C}$ |      |      |      |      |     |                  | bis/up to 65 V |
| C930                                                             | 700  | 1,65 | 22,0 | 25,5 | 0,6 | B59930-C120-A70  |                |
| C940                                                             | 450  | 2,3  | 17,5 | 21,0 | 0,6 | B59940-C120-A70  |                |
| C950                                                             | 320  | 3,7  | 13,5 | 17,0 | 0,6 | B59950-C120-A70  |                |
| C960                                                             | 250  | 5,6  | 11,0 | 14,5 | 0,6 | B59960-C120-A70* |                |
| C970                                                             | 150  | 9,4  | 9,0  | 12,5 | 0,6 | B59970-C120-A70* |                |
| C980                                                             | 85   | 25   | 6,5  | 10,0 | 0,6 | B59980-C120-A70* |                |
| C990                                                             | 50   | 55   | 4,0  | 7,5  | 0,5 | B59990-C120-A70* |                |
| $V_{max} = 80 \text{ V}, T_{Ref} = 130 \text{ }^{\circ}\text{C}$ |      |      |      |      |     |                  | bis/up to 65 V |
| C910                                                             | 1000 | 1,2  | 22,0 | 25,5 | 0,8 | B59910-C130-A70  |                |

\*Gurtung möglich/Also available on tape

# Überlastschutz Overload Protection

## Scheiben/Disks

| Maßbild             | Type | Nennstrom     | Nenn-<br>widerstand  | Maße            |                 |                       | Bestell-Nr.   |
|---------------------|------|---------------|----------------------|-----------------|-----------------|-----------------------|---------------|
| Dimensional drawing | Type | Rated current | Rated<br>resistance  | Dimensions      |                 |                       | Ordering code |
|                     |      | $I_N$<br>mA   | $R_{25}$<br>$\Omega$ | $b_{max}$<br>mm | $h_{max}$<br>mm | $\varnothing d$<br>mm |               |



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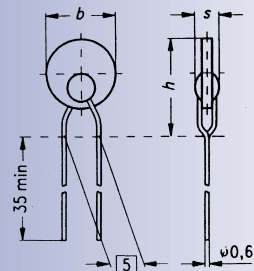
|                                                                   |     |     |      |      |     |                  |                                                                                                       |
|-------------------------------------------------------------------|-----|-----|------|------|-----|------------------|-------------------------------------------------------------------------------------------------------|
| $V_{max} = 160 \text{ V}, T_{Ref} = 160 \text{ }^{\circ}\text{C}$ |     |     |      |      |     |                  |  bis/up to 125 V   |
| C830                                                              | 525 | 3,7 | 22,0 | 25,5 | 0,6 | B59830-C160-A70  |                                                                                                       |
| C840                                                              | 400 | 6,0 | 17,5 | 21,0 | 0,6 | B59840-C160-A70  |                                                                                                       |
| C850                                                              | 250 | 10  | 13,5 | 17,0 | 0,6 | B59850-C160-A70  |                                                                                                       |
| C860                                                              | 180 | 15  | 11,0 | 14,5 | 0,6 | B59860-C160-A70* |                                                                                                       |
| C870                                                              | 125 | 25  | 9,0  | 12,5 | 0,6 | B59870-C160-A70* |                                                                                                       |
| C880                                                              | 70  | 70  | 6,5  | 10,0 | 0,6 | B59880-C160-A70* |                                                                                                       |
| C890                                                              | 35  | 150 | 4,0  | 7,5  | 0,5 | B59890-C160-A70* |                                                                                                       |
| $V_{max} = 265 \text{ V}, T_{Ref} = 80 \text{ }^{\circ}\text{C}$  |     |     |      |      |     |                  |                                                                                                       |
| C830                                                              | 250 | 3,7 | 22,0 | 25,5 | 0,6 | B59830-C80-A70   |                                                                                                       |
| C840                                                              | 170 | 6,0 | 17,5 | 21,0 | 0,6 | B59840-C80-A70   |                                                                                                       |
| C850                                                              | 110 | 10  | 13,5 | 17,0 | 0,6 | B59850-C80-A70   |                                                                                                       |
| C860                                                              | 90  | 15  | 11,0 | 14,5 | 0,6 | B59860-C80-A70   |                                                                                                       |
| C870                                                              | 60  | 25  | 9,0  | 12,5 | 0,6 | B59870-C80-A70   |                                                                                                       |
| C880                                                              | 30  | 70  | 6,5  | 10,0 | 0,6 | B59880-C80-A70   |                                                                                                       |
| C890                                                              | 15  | 150 | 4,0  | 7,5  | 0,5 | B59890-C80-A70*  |                                                                                                       |
| $V_{max} = 265 \text{ V}, T_{Ref} = 120 \text{ }^{\circ}\text{C}$ |     |     |      |      |     |                  |  bis/up to 230 V  |
| C830                                                              | 460 | 3,7 | 22,0 | 25,5 | 0,6 | B59830-C120-A70  |                                                                                                       |
| C840                                                              | 330 | 6,0 | 17,5 | 21,0 | 0,6 | B59840-C120-A70  |                                                                                                       |
| C850                                                              | 200 | 10  | 13,5 | 17,0 | 0,6 | B59850-C120-A70  |                                                                                                       |
| C860                                                              | 140 | 15  | 11,0 | 14,5 | 0,6 | B59860-C120-A70* |                                                                                                       |
| C870                                                              | 100 | 25  | 9,0  | 12,5 | 0,6 | B59870-C120-A70* |                                                                                                       |
| C872                                                              | 80  | 35  | 9,0  | 12,5 | 0,6 | B59872-C120-A70* |                                                                                                       |
| C873                                                              | 70  | 45  | 9,0  | 12,5 | 0,6 | B59873-C120-A70* |                                                                                                       |
| C874                                                              | 60  | 55  | 9,0  | 12,5 | 0,6 | B59874-C120-A70* |                                                                                                       |
| C875                                                              | 55  | 65  | 9,0  | 12,5 | 0,6 | B59875-C120-A70* |                                                                                                       |
| C880                                                              | 55  | 70  | 6,5  | 10,0 | 0,6 | B59880-C120-A70* |                                                                                                       |
| C883                                                              | 35  | 120 | 6,5  | 10,0 | 0,6 | B59883-C120-A70* |                                                                                                       |
| C890                                                              | 30  | 150 | 4,0  | 7,5  | 0,5 | B59890-C120-A70* |                                                                                                       |
| $V_{max} = 265 \text{ V}, T_{Ref} = 130 \text{ }^{\circ}\text{C}$ |     |     |      |      |     |                  |  bis/up to 220 V |
| C810                                                              | 650 | 3,5 | 22,0 | 25,5 | 0,8 | B59810-C130-A70  |                                                                                                       |

\*Gurtung möglich/Also available on tape

# Überlastschutz Overload Protection

## Scheiben/Disks

| Maßbild             | Typ  | Bezugs-temperatur      | Nennstrom     | Nenn-widerstand  | Bestell-Nr.   |
|---------------------|------|------------------------|---------------|------------------|---------------|
| Dimensional drawing | Type | Reference temperature  | Rated current | Rated resistance | Ordering code |
|                     |      | $T_{\text{Ref}}$<br>°C | $I_N$<br>mA   | $R_{25}$<br>Ω    |               |



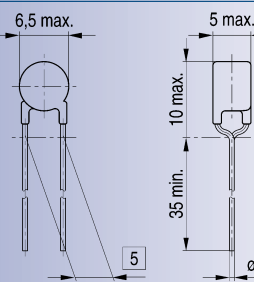
ohne Umhüllung  
without coating

TPT0503-X

**Maße/Dimensions (mm)**

| Typ<br>Type | $b_{\text{max}}$ | $h_{\text{max}}$ | $s_{\text{max}}$ |
|-------------|------------------|------------------|------------------|
| -B75*       | 12,5             | 16,5             | 7,0              |
| -B77*       | 8,5              | 12,1             | 7,0              |

|                                  |     |     |      |                  |                                                                                                     |
|----------------------------------|-----|-----|------|------------------|-----------------------------------------------------------------------------------------------------|
| $V_{\text{max}} = 420\text{ V}$  |     |     |      |                  |                  |
| B750                             | 120 | 123 | 25   | B59750-B120-A70  |                                                                                                     |
| B751                             | 120 | 87  | 50   | B59751-B120-A70  |                                                                                                     |
| B752                             | 120 | 69  | 80   | B59752-B120-A70  |                                                                                                     |
| B770                             | 120 | 64  | 70   | B59770-B120-A70  |                                                                                                     |
| B753                             | 120 | 56  | 120  | B59753-B120-A70  |                                                                                                     |
| B754                             | 120 | 50  | 150  | B59754-B120-A70  |                                                                                                     |
| B771                             | 120 | 49  | 120  | B59771-B-120-A70 |                                                                                                     |
| B772                             | 120 | 43  | 150  | B59772-B120-A70  |                                                                                                     |
| $V_{\text{max}} = 550\text{ V}$  |     |     |      |                  |  bis/up to 420 V |
| B755                             | 115 | 28  | 500  | B59755-B115-A70  |                                                                                                     |
| B773                             | 120 | 24  | 500  | B59773-B120-A70  |                                                                                                     |
| B774                             | 115 | 16  | 1100 | B59774-B115-A70  |                                                                                                     |
| $V_{\text{max}} = 1000\text{ V}$ |     |     |      |                  |                                                                                                     |
| B758                             | 110 | 8   | 7500 | B59758-B110-A70  |                                                                                                     |
|                                  |     |     |      |                  |                                                                                                     |

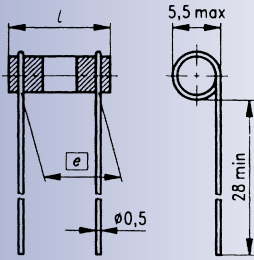


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|                                 |     |    |      |                  |                                                                                                       |
|---------------------------------|-----|----|------|------------------|-------------------------------------------------------------------------------------------------------|
| $V_{\text{max}} = 420\text{ V}$ |     |    |      |                  |  bis/up to 230 V |
| C884                            | 120 | 21 | 600  | B59884-C120-A70* |                                                                                                       |
| $V_{\text{max}} = 550\text{ V}$ |     |    |      |                  |  bis/up to 230 V |
| C885                            | 115 | 15 | 1200 | B59885-C115-A70* |                                                                                                       |
| C886                            | 115 | 12 | 1500 | B59886-C115-A70* |                                                                                                       |
|                                 |     |    |      |                  |                                                                                                       |

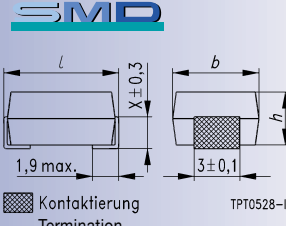
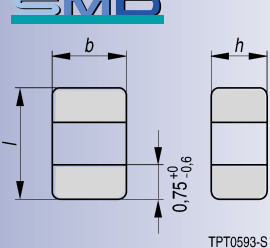
\*Gurtung möglich/Also available on tape

## Zylinder/Cylinders

| Maßbild<br>Dimensional drawing                                                                                                                 | Typ<br>Type              | Spannung<br>Voltage<br>$V_{max}$<br>V | Nennstrom<br>Rated current<br>$I_N$<br>mA | Nenn-<br>widerstand<br>Rated<br>resistance<br>$R_{25}$<br>Ω | Maße<br>Dimensions<br>$e$ mm   $l_{max}$ mm | Bestell-Nr.<br>Ordering code |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------------------|-------------------------------------------|-------------------------------------------------------------|---------------------------------------------|------------------------------|
|  <p>ohne Umhüllung<br/>without coating</p> <p>TPT0560-G</p> | $T_{Ref} = 60\text{ °C}$ |                                       |                                           |                                                             |                                             |                              |
| B404                                                                                                                                           | 550                      | 4                                     | 3500                                      | 12,5                                                        | 17,0                                        | B59404-B60-A40               |
| B406                                                                                                                                           | 550                      | 2,5                                   | 6250                                      | 12,5                                                        | 17,0                                        | B59406-B60-A40               |
|                                                                                                                                                |                          |                                       |                                           |                                                             |                                             |                              |

# Überlastschutz Overload Protection

## Bauformen für Oberflächenmontage/Types for surface mounting

| Maßbild<br>Dimensional drawing                                                                      | Typ<br>Type             | Nennstrom<br>Rated current<br>$I_N$<br>mA | Nenn-<br>widerstand<br>Rated<br>resistance<br>$R_{25}$<br>$\Omega$ | Bezugs-<br>temperatur<br>Reference<br>temperature<br>$T_{Ref}$<br>$^{\circ}\text{C}$ | Baugröße<br>Size EIA<br>standard | Bestell-Nr.<br>Ordering code |
|-----------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------|------------------------------|
|  <p>TPT0528-I</p>  | $V_{max} = 30\text{ V}$ |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     | P1101-A80               | 90                                        | 13                                                                 | 80                                                                                   | 3225                             | B59101-P1080-A62             |
|                                                                                                     | P1101-A120              | 170                                       | 13                                                                 | 120                                                                                  | 3225                             | B59101-P1120-A62             |
|                                                                                                     | P1201-A80               | 165                                       | 4,6                                                                | 80                                                                                   | 3225                             | B59201-P1080-A62             |
|                                                                                                     | P1201-A120              | 265                                       | 4,6                                                                | 120                                                                                  | 3225                             | B59201-P1120-A62             |
|                                                                                                     | P1301-A80               | 205                                       | 3,1                                                                | 80                                                                                   | 4032                             | B59301-P1080-A62             |
|                                                                                                     | P1301-A120              | 310                                       | 3,1                                                                | 120                                                                                  | 4032                             | B59301-P1120-A62             |
|                                                                                                     | $V_{max} = 80\text{ V}$ |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     | P1115-A80               | 40                                        | 55                                                                 | 80                                                                                   | 3225                             | B59115-P1080-A62             |
|                                                                                                     | P1115-A120              | 70                                        | 55                                                                 | 120                                                                                  | 3225                             | B59115-P1120-A62             |
|                                                                                                     | P1215-A80               | 65                                        | 25                                                                 | 80                                                                                   | 3225                             | B59215-P1080-A62             |
|                                                                                                     | P1215-A120              | 100                                       | 25                                                                 | 120                                                                                  | 3225                             | B59215-P1120-A62             |
|  <p>TPT0593-S</p> | $V_{max} = 30\text{ V}$ |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     | A607                    | 65                                        | 55                                                                 | 120                                                                                  | 1210                             | B59607-A120-A62              |
|                                                                                                     | $V_{max} = 80\text{ V}$ |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     | A707                    | 45                                        | 125                                                                | 120                                                                                  | 1210                             | B59707-A120-A62              |
|                                                                                                     |                         |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     |                         |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     |                         |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     |                         |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     |                         |                                           |                                                                    |                                                                                      |                                  |                              |
|                                                                                                     |                         |                                           |                                                                    |                                                                                      |                                  |                              |

### Maße/Dimensions (mm)

| Typ/Type                                 | h                              | b                              | l                               | x                              | Baugröße/Size |
|------------------------------------------|--------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------|
| P1101, P1115, P1201, P1215, P1301, P1315 | $3,2 \pm 0,5$<br>$3,2 \pm 0,5$ | $6,3 \pm 0,5$<br>$8,0 \pm 0,5$ | $8,0 \pm 0,5$<br>$10,0 \pm 0,5$ | $1,7 \pm 0,5$<br>$2,3 \pm 0,5$ | 3225<br>4032  |
| A607, A707                               | $1,6 \pm 0,2$                  | $2,5 \pm 0,2$                  | $3,2 \pm 0,2$                   | –                              | 1210          |

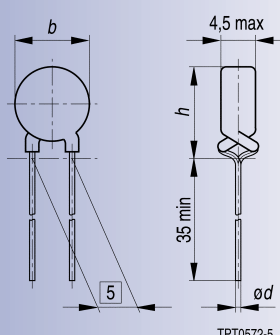
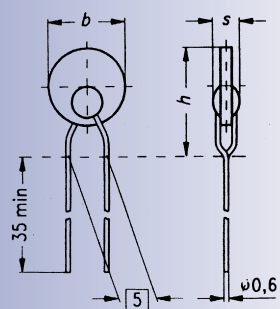
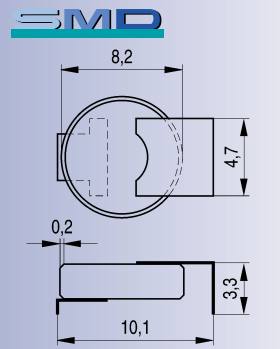
Für Reflow-Lötung geeignet.  
Suitable for reflow soldering.

Einbauhinweise für SMD-Bauteile finden Sie auf Seite 17.

For details on SMD mounting refer to page 17.

# Überlastschutz Overload Protection

## Ausgewählte Anwendungen/Selected applications

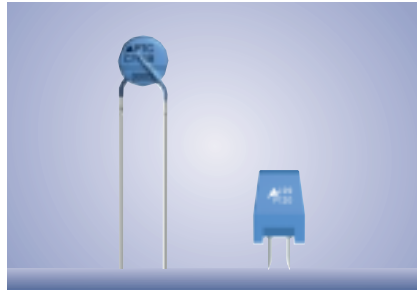
| Maßbild<br>Dimensional drawing                                                                                                                | Typ<br>Type                                                                                                                                                                                                 | Nennstrom<br>Rated current<br>$I_N$<br>mA | Nenn-<br>widerstand<br>Rated<br>resistance<br>$R_{25}$<br>$\Omega$ | Maße<br>Dimensions<br>$b_{max}$<br>mm<br>$h_{max}$<br>mm<br>$\varnothing d$<br>mm |      |           | Bestell-Nr.<br>Ordering code   |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------|--------------------------------|
|  <p>TPT0572-5</p>                                            | $V_{max} = 20\text{ V}$ , $T_{Ref} = 150\text{ °C}$ <b>Anwendung in Ladegeräten/Charger applications</b>  bis/up to 15 V |                                           |                                                                    |                                                                                   |      |           |                                |
|                                                                                                                                               | C1165                                                                                                                                                                                                       | 800                                       | 1                                                                  | 9,0                                                                               | 12,5 | 0,6       | B59165-C1150-A70               |
|                                                                                                                                               |                                                                                                                                                                                                             |                                           |                                                                    |                                                                                   |      |           |                                |
|  <p>ohne Umhüllung<br/>without coating</p> <p>TPT0503-X</p> | $V_{max} = 245\text{ V}$ , $T_{Ref} = 120\text{ °C}$ <b>Telekomanwendung/Telecom applications</b>                                                                                                           |                                           |                                                                    |                                                                                   |      |           |                                |
|                                                                                                                                               | S1022                                                                                                                                                                                                       | 200                                       | 10                                                                 | 10,2                                                                              | 14,1 | $s = 4,0$ | B59022-S1120-A70 <sup>1)</sup> |
|                                                                                                                                               | S1023                                                                                                                                                                                                       | 100                                       | 25                                                                 | 8,2                                                                               | 12,1 | 4,0       | B59023-S1120-A70 <sup>1)</sup> |
|                                                                                                                                               | S1024                                                                                                                                                                                                       | 80                                        | 35                                                                 | 8,2                                                                               | 12,1 | 4,0       | B59024-S1120-A70 <sup>1)</sup> |
|                                                                                                                                               | S1025                                                                                                                                                                                                       | 55                                        | 70                                                                 | 6,6                                                                               | 10,5 | 4,0       | B59025-S1120-A70 <sup>1)</sup> |
|                                                                                                                                               | B1076                                                                                                                                                                                                       | 150                                       | 10                                                                 | 6,6                                                                               | 7,5  | 4,0       | B59076-B1120-B151              |
|                                                                                                                                               | B1084                                                                                                                                                                                                       | 145                                       | 20                                                                 | 6,6                                                                               | 9,5  | 4,0       | B59084-B1120-A151              |
|                                                                                                                                               |                                                                                                                                                                                                             |                                           |                                                                    |                                                                                   |      |           |                                |
|  <p>TPT0690-M</p>                                          | $V_{max} = 245\text{ V}$ , $T_{Ref} = 120\text{ °C}$ <b>Telekomanwendung/Telecom applications</b>                                                                                                           |                                           |                                                                    |                                                                                   |      |           |                                |
|                                                                                                                                               | G1082                                                                                                                                                                                                       | 130                                       | 25                                                                 | –                                                                                 | –    | –         | B59082-G1120-A161              |
|                                                                                                                                               | G1083                                                                                                                                                                                                       | 150                                       | 16                                                                 | –                                                                                 | –    | –         | B59083-G1120-A161              |
|                                                                                                                                               | G1084                                                                                                                                                                                                       | 90                                        | 50                                                                 | –                                                                                 | –    | –         | B59084-G1120-A161              |
|                                                                                                                                               | G1085                                                                                                                                                                                                       | 180                                       | 10                                                                 | –                                                                                 | –    | –         | B59085-G1120-A161              |
|                                                                                                                                               |                                                                                                                                                                                                             |                                           |                                                                    |                                                                                   |      |           |                                |

<sup>1)</sup> Auf Anfrage abgeglichen/Matched on request

# Schaltkaltleiter Switching PTC Thermistors

## Anwendung

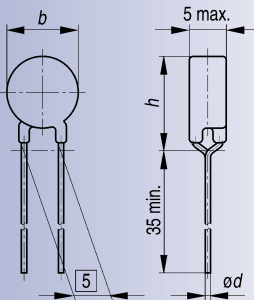
- Scheiben:  
Z. B. für Beleuchtungstechnik/  
Vorschaltgeräte
- Gehäusebauformen:  
Zur Schaltverzögerung,  
vor allem in Schatznetzteilen



## Application

- Disks:  
E.g. for lighting engineering/  
electronic lamp ballasts
- Encased types:  
For delayed switching, primarily  
in switch-mode power supplies

## Scheiben/Disks

| Maßbild                                                                                             | Type                                                                                      | Nennstrom     | Nenn-widerstand      | Maße            |                 |                       | Bestell-Nr.      |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------|----------------------|-----------------|-----------------|-----------------------|------------------|
| Dimensional drawing                                                                                 | Type                                                                                      | Rated current | Rated resistance     | Dimensions      |                 |                       | Ordering code    |
|  <p>TPT0648-4</p> |                                                                                           | $I_N$<br>mA   | $R_{25}$<br>$\Omega$ | $b_{max}$<br>mm | $h_{max}$<br>mm | $\varnothing d$<br>mm |                  |
|                                                                                                     | V <sub>max</sub> = 160 V, T <sub>Ref</sub> = 80 °C, 10.000 Schaltzyklen/Switching cycles  |               |                      |                 |                 |                       |                  |
|                                                                                                     | C1118                                                                                     | 30            | 70                   | 6,5             | 10,0            | 0,6                   | B59118-C1080-A70 |
|                                                                                                     | C1119                                                                                     | 15            | 150                  | 4,0             | 7,5             | 0,5                   | B59119-C1080-A70 |
|                                                                                                     |                                                                                           |               |                      |                 |                 |                       |                  |
|                                                                                                     | V <sub>max</sub> = 160 V, T <sub>Ref</sub> = 120 °C, 10.000 Schaltzyklen/Switching cycles |               |                      |                 |                 |                       |                  |
| C1118                                                                                               | 55                                                                                        | 70            | 6,5                  | 10,0            | 0,6             | B59118-C1120-A70      |                  |
| C1119                                                                                               | 30                                                                                        | 150           | 4,0                  | 7,5             | 0,5             | B59119-C1120-A70      |                  |
|                                                                                                     |                                                                                           |               |                      |                 |                 |                       |                  |

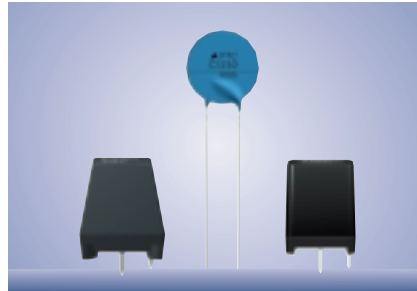
## Gehäusebauformen/Encased types

| Maßbild<br>Dimensional drawing | Type                                 | Spannung<br>Voltage<br>$V_{max}$<br>V | Nennstrom<br>Rated current<br>$I_N$<br>mA | Nenn-<br>widerstand<br>Rated<br>resistance<br>$R_{25}$<br>$\Omega$ | Bezugs-<br>temperatur<br>Reference<br>temperature<br>$T_{Ref}$<br>$^\circ\text{C}$ | Bestell-Nr.<br>Ordering code  |
|--------------------------------|--------------------------------------|---------------------------------------|-------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|
| <p>TP10500-8</p>               | 50.000 Schaltzyklen/Switching cycles |                                       |                                           |                                                                    |                                                                                    | Gehäusematerial/Case material |
|                                | J29                                  | 265                                   | 7                                         | 5000                                                               | 115                                                                                | B59339-A1502-P20              |
|                                | J29                                  | 265                                   | 10                                        | 5000                                                               | 150                                                                                | B59342-A1502-P20              |
|                                | J29                                  | 265                                   | 14                                        | 5000                                                               | 190                                                                                | B59346-A1502-P20              |
|                                | J281                                 | 80                                    | 60                                        | 50                                                                 | 120                                                                                | B59339-A1500-P20              |
|                                | J285                                 | 255                                   | 24                                        | 320                                                                | 120                                                                                | B59339-A1321-P20              |
|                                | J286                                 | 265                                   | 20                                        | 500                                                                | 120                                                                                | B59339-A1501-P20              |
|                                | J289                                 | 265                                   | 10                                        | 2000                                                               | 120                                                                                | B59339-A1202-P20              |
|                                | J290                                 | 265                                   | 8                                         | 3200                                                               | 115                                                                                | B59339-A1322-P20              |
|                                | J320                                 | 265                                   | 24                                        | 320                                                                | 120                                                                                | B59320-J120-A20               |
|                                |                                      |                                       |                                           |                                                                    |                                                                                    |                               |
|                                |                                      |                                       |                                           |                                                                    |                                                                                    |                               |

# Entmagnetisierung Degaussing

## Anwendung

Zur Entmagnetisierung von Lochmasken in Bildröhren (TV, Monitore).



## Application

For degaussing of the shadow mask in picture tubes (TV, monitors).

## Scheiben/Disks

| Maßbild             | Typ  | Nenn-<br>widerstand <sup>1)</sup>        | Empfohlener<br>Spulenwiderstand                          | Reststrom<br>nach 180 s                               | Bestell-Nr.   |
|---------------------|------|------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|---------------|
| Dimensional drawing | Type | Rated<br>resistance<br>$R_N$<br>$\Omega$ | Recommended<br>coil resistance<br>$R_{coil}$<br>$\Omega$ | Residual<br>current after 180 s<br>$I_r$<br>$mA_{pp}$ | Ordering code |

$V_{max} = 265 V$

|       |    |    |           |                  |
|-------|----|----|-----------|------------------|
| C1250 | 25 | 25 | $\leq 20$ | B59250-C1080-B70 |
| C1450 | 18 | 20 | $\leq 25$ | B59450-C1080-B70 |

Maße/Dimensions (mm)

| Typ<br>Type | $b_{max}$ | $s_{max}$ | $\varnothing d$ | $h_{max}$ |
|-------------|-----------|-----------|-----------------|-----------|
| C1250       | 13,5      | 5,0       | 0,6             | 17,0      |
| C1450       | 15,0      | 5,0       | 0,6             | 19,0      |

## Gehäusebauform/Encased types

| Maßbild<br>Dimensional drawing | Typ<br>Type                                                     | Nenn-<br>widerstand <sup>1)</sup><br>Rated<br>resistance<br>$R_N$<br>$\Omega$ | Empfohlener<br>Spulenwiderstand<br>Recommended<br>coil resistance<br>$R_{coil}$<br>$\Omega$ | Reststrom<br>nach 180 s<br>Residual<br>current after 180 s<br>$I_r$<br>$mA_{pp}$ | Bestell-Nr.<br>Ordering code |
|--------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------|
|                                | $V_{max} = 265 V$ <b>3-Pin Thermoplast/PBT housing</b>          |                                                                               |                                                                                             |                                                                                  |                              |
|                                | T209                                                            | 9                                                                             | 20                                                                                          | $\leq 7$                                                                         | B59209-T80-*110              |
|                                | T122                                                            | 12                                                                            | 20                                                                                          | $\leq 5$                                                                         | B59122-T80-*110              |
|                                | T108                                                            | 18                                                                            | 20                                                                                          | $\leq 3$                                                                         | B59108-T80-*10               |
|                                | T251                                                            | 30                                                                            | 20                                                                                          | $\leq 3$                                                                         | B59251-T80-*10               |
|                                | $V_{max} = 265 V$ <b>2-Pin Thermoplast/PBT housing</b>          |                                                                               |                                                                                             |                                                                                  |                              |
|                                | J209                                                            | 9                                                                             | 20                                                                                          | $\leq 20$                                                                        | B59209-J80-A110              |
|                                | J122                                                            | 12                                                                            | 20                                                                                          | $\leq 20$                                                                        | B59122-J80-A110              |
|                                | J108                                                            | 18                                                                            | 20                                                                                          | $\leq 20$                                                                        | B59108-J80-A110              |
|                                |                                                                 |                                                                               |                                                                                             |                                                                                  |                              |
|                                | $V_{max} = 290 V$ <b>3-Pin Duroplast/Phenolic resin housing</b> |                                                                               |                                                                                             |                                                                                  |                              |
|                                | T705                                                            | 4,5                                                                           | 20                                                                                          | $\leq 3$                                                                         | B59705-T60-*110              |
|                                | T707                                                            | 7                                                                             | 20                                                                                          | $\leq 3$                                                                         | B59707-T60-*110              |
|                                | T709                                                            | 9                                                                             | 20                                                                                          | $\leq 4$                                                                         | B59709-T60-*110              |
|                                | T702                                                            | 12                                                                            | 20                                                                                          | $\leq 4$                                                                         | B59702-T60-*110              |
|                                | $V_{max} = 290 V$ <b>2-Pin Duroplast/Phenolic resin housing</b> |                                                                               |                                                                                             |                                                                                  |                              |
|                                | J705                                                            | 4,5                                                                           | 20                                                                                          | $\leq 20$                                                                        | B59705-J60-A110              |
|                                | J707                                                            | 7                                                                             | 20                                                                                          | $\leq 20$                                                                        | B59707-J60-A110              |
|                                | J709                                                            | 9                                                                             | 20                                                                                          | $\leq 20$                                                                        | B59709-J60-A110              |
|                                |                                                                 |                                                                               |                                                                                             |                                                                                  |                              |

\*: A für 2,5 mm Rastermaß/A for 2,5 mm lead spacing; B für 5 mm Rastermaß/B for 5 mm lead spacing

<sup>1)</sup>  $\Delta R_N = \pm 20\%$

# Motorstart Motor Start

## Anwendung

- Motorstart in Kompressoren (Kühlschrank)
- Abschaltverzögerung der Hilfswicklung

## Ausführungen

- A10:  
Metallisierte Scheibe für Klemmkontaktierung
- A20:  
Metallisierte Scheibe mit Freirandelektrode



## Application

- Motor start in compressors (refrigerators)
- Time delay in turning off the auxiliary winding

## Designs

- A10:  
Metallized disk for clamp contacting
- A20:  
Metallized disk with free-edge electrode

| Maßbild<br>Dimensional drawing                                                                                                                                                                                                   | Typ<br>Type | Spannung<br>Voltage<br>$V_{\max}$<br>V | Betriebs-<br>strom<br>Operating<br>current<br>$I_{\max}$<br>A | Nenn-<br>widerstand<br>Rated<br>resistance<br>$R_{25}$<br>$\Omega$ | Bestell-Nr.<br>Ordering code |      |      |      |      |      |      |     |      |     |    |     |                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------------|------|------|------|------|------|------|-----|------|-----|----|-----|-------------------------------|
| <table><tr><th>Typ/Type</th><th>b (mm)</th><th>s (mm)</th></tr><tr><td>A196</td><td>20,0</td><td>3,2</td></tr><tr><td>A501</td><td>19,5</td><td>2,5</td></tr><tr><td>A502</td><td>19,5</td><td>2,5</td></tr></table>             | Typ/Type    | b (mm)                                 | s (mm)                                                        | A196                                                               | 20,0                         | 3,2  | A501 | 19,5 | 2,5  | A502 | 19,5 | 2,5 | A196 | 350 | 8  | 15  | B59196-A120-A10               |
|                                                                                                                                                                                                                                  | Typ/Type    | b (mm)                                 | s (mm)                                                        |                                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
|                                                                                                                                                                                                                                  | A196        | 20,0                                   | 3,2                                                           |                                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
|                                                                                                                                                                                                                                  | A501        | 19,5                                   | 2,5                                                           |                                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
| A502                                                                                                                                                                                                                             | 19,5        | 2,5                                    |                                                               |                                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
| A501                                                                                                                                                                                                                             | 355         | 6                                      | 33                                                            | B59501-A135-A10 <sup>1) 2)</sup>                                   |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
| A502                                                                                                                                                                                                                             | 400         | 4                                      | 47                                                            | B59502-A120-A10                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
|                                                                                                                                                                                                                                  |             |                                        |                                                               |                                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
| <table><tr><th>Typ/Type</th><th>b (mm)</th><th><math>r_{\min}</math> (mm)</th><th>s (mm)</th></tr><tr><td>A506</td><td>17,5</td><td>0,3</td><td>2,5</td></tr><tr><td>A544</td><td>17,5</td><td>0,2</td><td>2,5</td></tr></table> | Typ/Type    | b (mm)                                 | $r_{\min}$ (mm)                                               | s (mm)                                                             | A506                         | 17,5 | 0,3  | 2,5  | A544 | 17,5 | 0,2  | 2,5 | A506 | 180 | 12 | 4,7 | B59506-A120-A20 <sup>1)</sup> |
|                                                                                                                                                                                                                                  | Typ/Type    | b (mm)                                 | $r_{\min}$ (mm)                                               | s (mm)                                                             |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
|                                                                                                                                                                                                                                  | A506        | 17,5                                   | 0,3                                                           | 2,5                                                                |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
|                                                                                                                                                                                                                                  | A544        | 17,5                                   | 0,2                                                           | 2,5                                                                |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
| A544                                                                                                                                                                                                                             | 320         | 8                                      | 20                                                            | B59544-A120-A20 <sup>1)</sup>                                      |                              |      |      |      |      |      |      |     |      |     |    |     |                               |
|                                                                                                                                                                                                                                  |             |                                        |                                                               |                                                                    |                              |      |      |      |      |      |      |     |      |     |    |     |                               |

Hinweis: Bei der Verarbeitung von Motorstartpillen ist unbedingt auf Sauberkeit zu achten (gilt generell für Kaltleiter ohne Schutzhülle), da ansonsten die Funktion des Kaltleiters beeinträchtigt werden kann.

Note: PTC thermistors without encapsulation such as motor start disks must be kept absolutely clean during processing. Otherwise the operating functions of the device may be impaired.

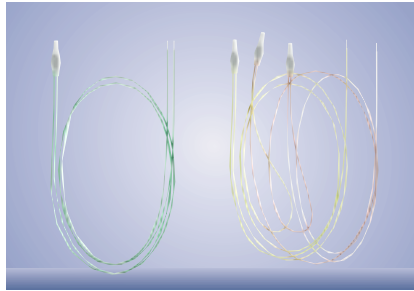
<sup>1)</sup> UL-Zulassung/UL approval

<sup>2)</sup> VDE-Zulassung/VDE approval

# Motor- und Maschinenschutz Motor and Machine Protection

## Anwendung

Thermischer Maschinenschutz,  
z. B. in Motoren, Transformatoren  
und Gleitlagern.



## Application

Thermal machine protection, e.g.  
in motors, transformers and  
sleeve bearings.

| Maßbild<br>Dimensional drawing                                                  | Typ<br>Type                                | Nennansprech-<br>temperatur<br>Nominal thresh-<br>old temperature<br>$T_{NAT}$<br>°C | Widerstand<br>Resistance<br>$R_{PTC}^{1)}$ bei/at<br>$T_{NAT}-5K$<br>Ω | $T_{NAT}+5K$<br>Ω | Bestell-Nr.<br>Ordering code |
|---------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------|------------------------------|
| <p>Einfachfühler<br/>Single sensor</p> <p>Drillingsfühler<br/>Triple sensor</p> | $V_{max} = 30 V, R_N \leq 250 \Omega^{1)}$ |                                                                                      |                                                                        |                   |                              |
|                                                                                 | M*35                                       | 60                                                                                   | $\leq 570$                                                             | $\geq 570$        | B59*35-M60-A70               |
|                                                                                 |                                            | 70                                                                                   | $\leq 570$                                                             | $\geq 570$        | B59*35-M70-A70               |
|                                                                                 |                                            | 80                                                                                   | $\leq 570$                                                             | $\geq 570$        | B59*35-M80-A70               |
|                                                                                 |                                            | 90                                                                                   | $\leq 550$                                                             | $\geq 1330$       | B59*35-M90-A70               |
|                                                                                 |                                            | 100                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M100-A70              |
|                                                                                 |                                            | 110                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M110-A70              |
|                                                                                 |                                            | 120                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M120-A70              |
|                                                                                 |                                            | 130                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M130-A70              |
|                                                                                 |                                            | 140                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M140-A70              |
|                                                                                 |                                            | 145                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M145-A70              |
|                                                                                 |                                            | 150                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M150-A70              |
|                                                                                 |                                            | 155                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M155-A70              |
|                                                                                 |                                            | 160                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*35-M160-A70              |
|                                                                                 |                                            | 170                                                                                  | $\leq 570^{2)}$                                                        | $\geq 570^{2)}$   | B59*35-M170-A70              |
|                                                                                 |                                            | 180                                                                                  | $\leq 570^{2)}$                                                        | $\geq 570^{2)}$   | B59*35-M180-A70              |
|                                                                                 | $V_{max} = 30 V, R_N \leq 100 \Omega^{1)}$ |                                                                                      |                                                                        |                   |                              |
|                                                                                 | M1*00                                      | 60                                                                                   | $\leq 570$                                                             | $\geq 570$        | B59*00-M1060-A70             |
|                                                                                 |                                            | 70                                                                                   | $\leq 570$                                                             | $\geq 570$        | B59*00-M1070-A70             |
|                                                                                 |                                            | 80                                                                                   | $\leq 570$                                                             | $\geq 570$        | B59*00-M1080-A70             |
|                                                                                 |                                            | 90                                                                                   | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1090-A70             |
|                                                                                 |                                            | 100                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1100-A70             |
|                                                                                 |                                            | 110                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1110-A70             |
|                                                                                 |                                            | 120                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1120-A70             |
|                                                                                 |                                            | 130                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1130-A70             |
|                                                                                 |                                            | 140                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1140-A70             |
|                                                                                 |                                            | 145                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1145-A70             |
|                                                                                 |                                            | 150                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1150-A70             |
|                                                                                 |                                            | 155                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1155-A70             |
|                                                                                 |                                            | 160                                                                                  | $\leq 550$                                                             | $\geq 1330$       | B59*00-M1160-A70             |
|                                                                                 |                                            | 170                                                                                  | $\leq 570$                                                             | $\geq 570$        | B59*00-M1170-A70             |
|                                                                                 |                                            | 180                                                                                  | $\leq 570^{2)}$                                                        | $\geq 570^{2)}$   | B59*00-M1180-A70             |
|                                                                                 |                                            | 190                                                                                  | $\leq 570^{2)}$                                                        | $\geq 570^{2)}$   | B59*00-M1190-A70             |

\*: 1 = Einfachfühler/Single sensor  
3 = Drillingsfühler/Triple sensor

Isolationsfestigkeit (Prüfspannung)/Insulation resistance (test voltage)  $V_{is} = 2,5 kV$   
Betriebstemperatur/Operating temperature  $T_{max} = 180 ^\circ C$  (200 °C max. 5 h)

<sup>1)</sup> In der Tabelle sind die Widerstandswerte für Einzelfühler (DIN 44081) angegeben; für Drillingsfühler (DIN 44082) sind die dreifachen Werte gültig.  
The tabulated resistance values refer to single sensors (DIN 44081); for triple sensors (DIN 44082) the threefold values apply.

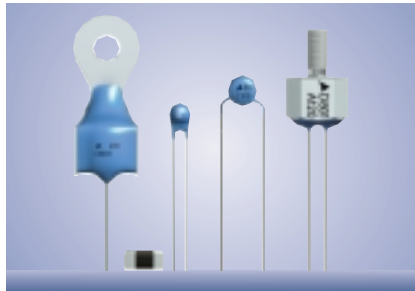
<sup>2)</sup>  $R_{PTC}$  bei/at  $T_{NAT} \pm 7 K$

# Mess- und Regelungstechnik Measurement and Control

## Anwendung

Sensoren zur Überwachung von Grenztemperaturen

- In der Unterhaltungselektronik (Verstärker, Video-, Fernsehgeräte etc.)
- In der Haushaltselektronik (Geschirrspüler, Waschmaschinen, Bügelautomaten, Elektroherde etc.)
- In der Kfz-Elektronik (Steuerungen für Zusatzheizungen)
- In der Daten- und Nachrichtentechnik (DC/DC-Wandler)



## Application

Sensors für limit temperature monitoring

- In entertainment electronics (amplifiers, video and TV sets etc.)
- In home appliances (dish washers, washing machines, ironing machines, electric cookers etc.)
- In automotive electronics (controlling units for auxiliary heating systems)
- In data and communications engineering (DC/DC converters)

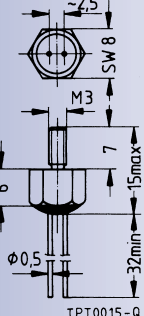
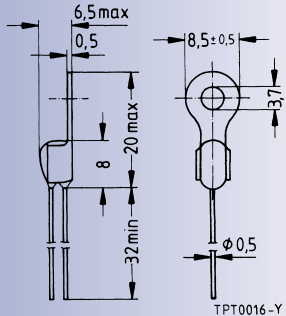
## Scheiben, umhüllt/Disks, coated

| Maßbild<br>Dimensional drawing | Type | Nennansprechtemperatur<br>Nominal threshold temperature<br>$T_{NAT} \pm \Delta T_{NAT}$<br>°C | Nennwiderstand<br>Rated resistance<br>( $V_{Mes} \leq 1,5 V$ )<br>$R_N$<br>Ω | Widerstand<br>Resistance<br>$R_{PTC}$ bei/at<br>$T_{NAT} - \Delta T_{NAT}$<br>Ω | $T_{NAT} + \Delta T_{NAT}$<br>Ω | Bestell-Nr.<br>Ordering code |
|--------------------------------|------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------|------------------------------|
|                                | C8   | $V_{max} = 30 V$                                                                              |                                                                              |                                                                                 |                                 |                              |
|                                |      | 60 ± 5                                                                                        | ≤250                                                                         | ≤570                                                                            | ≥ 570                           | B59008-C60-A40               |
|                                |      | 70 ± 5                                                                                        | ≤250                                                                         | ≤570                                                                            | ≥ 570                           | B59008-C70-A40               |
|                                |      | 80 ± 5                                                                                        | ≤250                                                                         | ≤570                                                                            | ≥ 570                           | B59008-C80-A40               |
|                                |      | 90 ± 5                                                                                        | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C90-A40               |
|                                |      | 100 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C100-A40              |
|                                |      | 110 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C110-A40              |
|                                |      | 120 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C120-A40              |
|                                |      | 130 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C130-A40              |
|                                |      | 140 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C140-A40              |
|                                |      | 145 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C145-A40              |
|                                |      | 150 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C150-A40              |
|                                |      | 155 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C155-A40              |
|                                |      | 160 ± 5                                                                                       | ≤250                                                                         | ≤550                                                                            | ≥1330                           | B59008-C160-A40              |
|                                |      | 170 ± 7                                                                                       | ≤250                                                                         | ≤570                                                                            | ≥ 570                           | B59008-C170-A40              |
|                                |      | 180 ± 7                                                                                       | ≤250                                                                         | ≤570                                                                            | ≥ 570                           | B59008-C180-A40              |
|                                | C100 | $V_{max} = 30 V$                                                                              |                                                                              |                                                                                 |                                 |                              |
|                                |      | 60 ± 5                                                                                        | ≤100                                                                         | ≤ 570                                                                           | ≥ 570                           | B59100-C60-A70*              |
|                                |      | 70 ± 5                                                                                        | ≤100                                                                         | ≤ 570                                                                           | ≥ 570                           | B59100-C70-A70*              |
|                                |      | 80 ± 5                                                                                        | ≤100                                                                         | ≤ 570                                                                           | ≥ 570                           | B59100-C80-A70*              |
|                                |      | 90 ± 5                                                                                        | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C90-A70*              |
|                                |      | 100 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C100-A70*             |
|                                |      | 110 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C110-A70*             |
|                                |      | 120 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C120-A70*             |
|                                |      | 130 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C130-A70*             |
|                                |      | 140 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C140-A70*             |
|                                |      | 145 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C145-A70*             |
|                                |      | 150 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C150-A70*             |
|                                |      | 155 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C155-A70*             |
|                                |      | 160 ± 5                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C160-A70*             |
|                                |      | 170 ± 6                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C170-A70*             |
|                                |      | 180 ± 6                                                                                       | ≤100                                                                         | ≤ 550                                                                           | ≥1330                           | B59100-C180-A70*             |

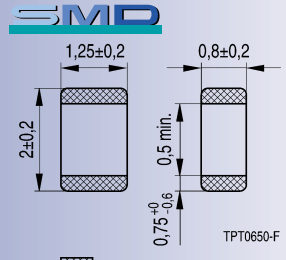
\* Gurtung möglich/Also available on tape

# Mess- und Regelungstechnik Measurement and Control

## Gehäusebauformen/Probes

| Maßbild<br>Dimensional drawing                                                                      | Typ<br>Type              | Nennansprech-<br>temperatur<br>Nominal thresh-<br>old temperature<br>$T_{NAT} \pm \Delta T_{NAT}$<br>°C | Nenn-<br>widerstand<br>Rated<br>resistance<br>( $V_{Mes} \leq 1,5 \text{ V}$ )<br>$R_N$<br>Ω | Widerstand<br>Resistance<br>$R_{PTC}$ bei/at<br>$T_{NAT} - \Delta T_{NAT}$<br>Ω | $T_{NAT} + \Delta T_{NAT}$<br>Ω | Bestell-Nr.<br>Ordering code |
|-----------------------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------|------------------------------|
|  <p>TPT0015-Q</p>  | $V_{max} = 30 \text{ V}$ |                                                                                                         |                                                                                              |                                                                                 |                                 |                              |
|                                                                                                     | D801                     | $60 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 570$                                                                      | $\geq 570$                      | B59801-D60-A40               |
|                                                                                                     |                          | $70 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 570$                                                                      | $\geq 570$                      | B59801-D70-A40               |
|                                                                                                     |                          | $80 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 570$                                                                      | $\geq 570$                      | B59801-D80-A40               |
|                                                                                                     |                          | $90 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D90-A40               |
|                                                                                                     |                          | $100 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D100-A40              |
|                                                                                                     |                          | $110 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D110-A40              |
|                                                                                                     |                          | $120 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D120-A40              |
|                                                                                                     |                          | $130 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D130-A40              |
|                                                                                                     |                          | $140 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D140-A40              |
|                                                                                                     |                          | $145 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D145-A40              |
|                                                                                                     |                          | $150 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D150-A40              |
|                                                                                                     |                          | $155 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D155-A40              |
|                                                                                                     |                          | $160 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59801-D160-A40              |
|  <p>TPT0016-Y</p> | $V_{max} = 30 \text{ V}$ |                                                                                                         |                                                                                              |                                                                                 |                                 |                              |
|                                                                                                     | D901                     | $60 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 570$                                                                      | $\geq 570$                      | B59901-D60-A40               |
|                                                                                                     |                          | $70 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 570$                                                                      | $\geq 570$                      | B59901-D70-A40               |
|                                                                                                     |                          | $80 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 570$                                                                      | $\geq 570$                      | B59901-D80-A40               |
|                                                                                                     |                          | $90 \pm 5$                                                                                              | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59901-D90-A40               |
|                                                                                                     |                          | $100 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59901-D100-A40              |
|                                                                                                     |                          | $110 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59901-D110-A40              |
|                                                                                                     |                          | $120 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59901-D120-A40              |
|                                                                                                     |                          | $130 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59901-D130-A40              |
|                                                                                                     |                          | $140 \pm 5$                                                                                             | $\leq 100$                                                                                   | $\leq 550$                                                                      | $\geq 1330$                     | B59901-D140-A40              |
|                                                                                                     |                          |                                                                                                         |                                                                                              |                                                                                 |                                 |                              |

## Bauformen für Oberflächenmontage/Types for surface mounting

| Maßbild<br>Dimensional drawing                                                                                                                                                                       | Typ<br>Type | Nenn-<br>widerstand<br>Rated<br>resistance<br>$R_{25}$<br>Ω | Nennansprech-<br>temperatur<br>Nominal thresh-<br>old temperature<br>$T_{NAT} \pm \Delta T_{NAT}$<br>°C | Baugröße<br>Size EIA standard | Bestell-Nr.<br>Ordering code |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------|
|  <p>TPT0650-F</p> <p>Kontaktierung<br/>Termination</p> <p>Kontaktflächen verzinnt<br/>Contact surfaces tinned</p> | A701        | $V_{max} = 25 \text{ V}$                                    |                                                                                                         |                               |                              |
|                                                                                                                                                                                                      |             | $\leq 1000$                                                 | $70 \pm 5$                                                                                              | 0805                          | B59701-A70-A62               |
|                                                                                                                                                                                                      |             | $\leq 1000$                                                 | $90 \pm 5$                                                                                              | 0805                          | B59701-A90-A62               |
|                                                                                                                                                                                                      |             | $\leq 1000$                                                 | $100 \pm 5$                                                                                             | 0805                          | B59701-A100-A62              |
|                                                                                                                                                                                                      |             | $\leq 1000$                                                 | $110 \pm 5$                                                                                             | 0805                          | B59701-A110-A62              |
|                                                                                                                                                                                                      |             | $\leq 1000$                                                 | $120 \pm 5$                                                                                             | 0805                          | B59701-A120-A62              |
|                                                                                                                                                                                                      |             | $\leq 1000$                                                 | $130 \pm 5$                                                                                             | 0805                          | B59701-A130-A62              |
|                                                                                                                                                                                                      |             |                                                             |                                                                                                         |                               |                              |

Für Reflow-Lötung geeignet/Suitable for reflow soldering  
Einbauhinweise für SMD-Bauteile finden Sie auf Seite 17.  
For details on SMD mounting refer to page 17.

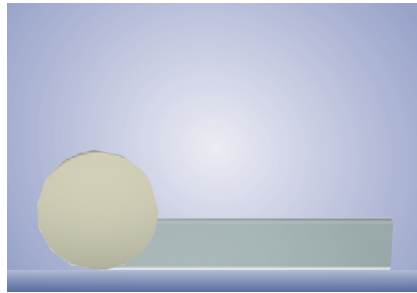
# Heizelemente und Thermostate

## Heating Elements and Thermostats

### Anwendung

Einsatz in verschiedensten Heizsystemen

- In der Haushaltselektronik (Warmhalteplatten, Heißwasserbereiter, Heißklebepistolen, Haarcurler etc.)
- In der Kfz-Elektronik (Vorwärmung Dieselfilter, Einspritzanlage, Zusatzheizung Fahrgastinnenraum)
- In der Medizintechnik (Verdampfer, Inhalatoren)



### Application

Application in all sorts of heating systems

- In household appliances (hot plates, water heaters, hot-adhesive pistols, hair curlers etc.)
- In automotive electronics (preheating of diesel filter and injection system, additional heating of passenger compartment)
- In medical appliances (vaporizers, inhalators)

| Maßbild<br>Dimensional drawing                                                                          | Type                                   | Bezugs-<br>temperatur<br>Reference<br>temperature<br>$T_{Ref}$<br>°C | Nennwiderstand<br>Rated resistance<br>( $V_{Mes} \leq 1,5 V$ )<br>$R_{25}$<br>Ω | Bestell-Nr.<br>Ordering code |
|---------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------|
| <br>Kontaktierung Termination<br>Kontaktflächen aus Silber<br>Contact surface: silver<br>TPT0457-0      | $V_{max} = 12 V, \Delta R = \pm 30\%$  |                                                                      |                                                                                 |                              |
|                                                                                                         | A60                                    | 0                                                                    | >320                                                                            | B59060-A-A10                 |
|                                                                                                         |                                        | 40                                                                   | 9,0                                                                             | B59060-A40-A10               |
|                                                                                                         |                                        | 60                                                                   | 9,0                                                                             | B59060-A60-A10               |
|                                                                                                         |                                        | 80                                                                   | 9,0                                                                             | B59060-A80-A10               |
|                                                                                                         |                                        | 120                                                                  | 9,0                                                                             | B59060-A120-A10              |
|                                                                                                         |                                        | 160                                                                  | 9,0                                                                             | B59060-A160-A10              |
|                                                                                                         |                                        | 180                                                                  | 9,0                                                                             | B59060-A180-A10              |
|                                                                                                         |                                        | 220                                                                  | 9,0                                                                             | B59060-A220-A10              |
|                                                                                                         |                                        | 280                                                                  | 18                                                                              | B59060-A280-A10              |
| <br>Kontaktierung Termination<br>Kontaktflächen aus Silber<br>Contact surface: silver<br>TPT0309-Z      | $V_{max} = 230 V, \Delta R = \pm 35\%$ |                                                                      |                                                                                 |                              |
|                                                                                                         | A53                                    | 50                                                                   | 4200                                                                            | B59053-A50-A10               |
|                                                                                                         |                                        | 70                                                                   | 4200                                                                            | B59053-A70-A10               |
|                                                                                                         |                                        | 90                                                                   | 4200                                                                            | B59053-A90-A10               |
|                                                                                                         |                                        | 110                                                                  | 4200                                                                            | B59053-A110-A10              |
|                                                                                                         |                                        | 130                                                                  | 4200                                                                            | B59053-A130-A10              |
|                                                                                                         |                                        | 150                                                                  | 4200                                                                            | B59053-A150-A10              |
|                                                                                                         |                                        | 180                                                                  | 4200                                                                            | B59053-A180-A10              |
|                                                                                                         |                                        | 220                                                                  | 6000                                                                            | B59053-A220-A10              |
|                                                                                                         |                                        | 270                                                                  | 6000                                                                            | B59053-A270-A10              |
| <br>Kontaktierung Termination<br>Kontaktflächen aus Aluminium<br>Contact surface: aluminum<br>TPT0458-Y | $V_{max} = 230 V, \Delta R = \pm 35\%$ |                                                                      |                                                                                 |                              |
|                                                                                                         | A66                                    | 50                                                                   | 1200                                                                            | B59066-A50-A10               |
|                                                                                                         |                                        | 70                                                                   | 1200                                                                            | B59066-A70-A10               |
|                                                                                                         |                                        | 90                                                                   | 1200                                                                            | B59066-A90-A10               |
|                                                                                                         |                                        | 110                                                                  | 1200                                                                            | B59066-A110-A10              |
|                                                                                                         |                                        | 130                                                                  | 1200                                                                            | B59066-A130-A10              |
|                                                                                                         |                                        | 150                                                                  | 1200                                                                            | B59066-A150-A10              |
|                                                                                                         |                                        | 180                                                                  | 1200                                                                            | B59066-A180-A10              |
|                                                                                                         |                                        | 220                                                                  | 1700                                                                            | B59066-A220-A10              |
|                                                                                                         |                                        | 270                                                                  | 1700                                                                            | B59066-A270-A10              |

Bauelemente sind kleb- und klemmbar (A66 nur klemmbar).

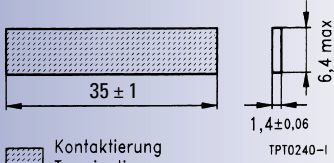
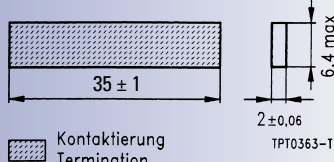
Components suitable for glue-bonding and clamping (A66 for clamping only).

Hinweis: Bei der Verarbeitung von Kaltleitern ohne Schutzhülle ist unbedingt auf Sauberkeit zu achten, da durch Kontamination die Funktion des Kaltleiters beeinträchtigt werden kann.

Note: PTC thermistors without encapsulation must be kept absolutely clean during processing since contamination may lead to malfunction.

# Heizelemente und Thermostate

## Heating Elements and Thermostats

| Maßbild<br>Dimensional drawing                                                                                                                                                                            | Typ<br>Type                                   | Bezugs-<br>temperatur<br>Reference<br>temperature<br>$T_{Ref}$<br>°C | Nennwiderstand<br>Rated resistance<br>$R_{25}$<br>Ω | Bestell-Nr.<br>Ordering code |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------|------------------------------|
|  <p>Kontaktierung<br/>Termination</p> <p>Kontaktflächen aus Aluminium<br/>Contact surface: aluminum</p> <p>TPT0240-I</p> | $V_{max} = 12\text{ V}, \Delta R = \pm 50\%$  |                                                                      |                                                     |                              |
|                                                                                                                                                                                                           | R42                                           | 40                                                                   | 3,2                                                 | B59042-R40-A10               |
|                                                                                                                                                                                                           |                                               | 60                                                                   | 3,2                                                 | B59042-R60-A10               |
|                                                                                                                                                                                                           |                                               | 80                                                                   | 3,2                                                 | B59042-R80-A10               |
|                                                                                                                                                                                                           |                                               | 120                                                                  | 3,2                                                 | B59042-R120-A10              |
|                                                                                                                                                                                                           |                                               | 160                                                                  | 3,2                                                 | B59042-R160-A10              |
|                                                                                                                                                                                                           |                                               | 180                                                                  | 3,2                                                 | B59042-R180-A10              |
|                                                                                                                                                                                                           |                                               | 220                                                                  | 6,4                                                 | B59042-R220-A10              |
|                                                                                                                                                                                                           |                                               | 280                                                                  | 12,8                                                | B59042-R280-A10              |
|  <p>Kontaktierung<br/>Termination</p> <p>Kontaktflächen aus Aluminium<br/>Contact surface: aluminum</p> <p>TPT0363-T</p> | $V_{max} = 230\text{ V}, \Delta R = \pm 50\%$ |                                                                      |                                                     |                              |
|                                                                                                                                                                                                           | R102                                          | 50                                                                   | 700                                                 | B59102-R50-A10               |
|                                                                                                                                                                                                           |                                               | 70                                                                   | 700                                                 | B59102-R70-A10               |
|                                                                                                                                                                                                           |                                               | 90                                                                   | 700                                                 | B59102-R90-A10               |
|                                                                                                                                                                                                           |                                               | 110                                                                  | 700                                                 | B59102-R110-A10              |
|                                                                                                                                                                                                           |                                               | 130                                                                  | 700                                                 | B59102-R130-A10              |
|                                                                                                                                                                                                           |                                               | 150                                                                  | 700                                                 | B59102-R150-A10              |
|                                                                                                                                                                                                           |                                               | 180                                                                  | 700                                                 | B59102-R180-A10              |
|                                                                                                                                                                                                           |                                               | 220                                                                  | 1000                                                | B59102-R220-A10              |
|                                                                                                                                                                                                           |                                               | 240                                                                  | 1000                                                | B59102-R240-A10              |
|                                                                                                                                                                                                           |                                               | 270                                                                  | 1300                                                | B59102-R270-A10              |
|                                                                                                                                                                                                           |                                               | 290                                                                  | 1300                                                | B59102-R290-A10              |

Bauelemente sind klemmbar und weisen eine geringe Wölbung von max. 0,05 mm auf.  
Components are suitable for clamping and have a slight curvature of max. 0,05 mm.

Hinweis: Bei der Verarbeitung von Kaltleitern ohne Schutzumhüllung ist unbedingt auf Sauberkeit zu achten, da durch Kontamination die Funktion des Kaltleiters beeinträchtigt werden kann.

Note: PTC thermistors without encapsulation must be kept absolutely clean during processing since contamination may lead to malfunction.

# Einbauhinweise für SMD-Kaltleiter

## Mounting Instructions for SMD PTC Thermistors

### Benetzbarkeitsprüfung (nach DIN IEC 60068-2-58)

Vorbehandlung: Tauchen in Flußmittel F-SW 32.

Beurteilungskriterium: Benetzung der Anschlussflächen  $\geq 95\%$

### Wettability test (in acc. with IEC 60068-2-58)

Pretreatment: fluxing with F-SW 32.

Test criterion: wetting of soldering areas  $\geq 95\%$ .

| Typ<br>Type    | Lot<br>Solder | Badtemperatur<br>Solder bath temperature<br>°C | Tauchzeit<br>Dwell time<br>s |
|----------------|---------------|------------------------------------------------|------------------------------|
| A****          | SnPb 60/40    | 215 $\pm$ 3                                    | 3 $\pm$ 0,3                  |
| G****<br>P**** | SnPb 60/40    | 235 $\pm$ 5                                    | 2 $\pm$ 0,2                  |

### Lötwärmebeständigkeitsprüfung (nach DIN IEC 60068-2-58)

Vorbehandlung: Tauchen in Flußmittel F-SW 32.

Beurteilungskriterium: Kein Ablegieren der Kontaktierung

### Resistance to soldering heat (in acc. with IEC 60068-2-58)

Pretreatment: fluxing with F-SW 32.

Test criterion: No leaching of metallization

| Typ<br>Type | Lot<br>Solder | Badtemperatur<br>Solder bath temperature<br>°C | Tauchzeit<br>Dwell time<br>s |
|-------------|---------------|------------------------------------------------|------------------------------|
| P****       | SnPb 60/40    | 260 $\pm$ 5                                    | 10 $\pm$ 1                   |

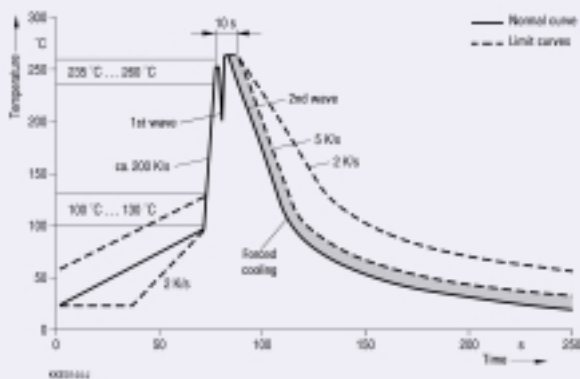
### Empfohlene Löttemperatur-Profile

Die empfohlenen Löttemperatur-Profile gelten für einen einmaligen Lötprozess.

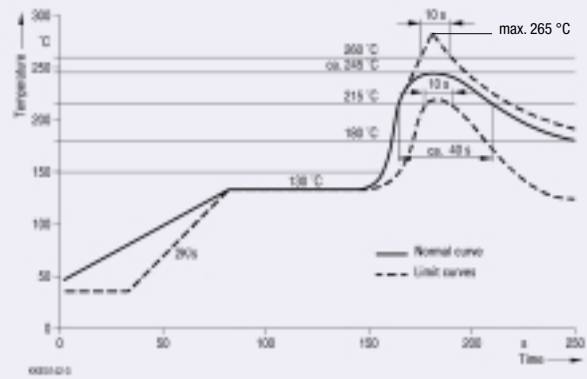
### Recommended soldering temperature profiles

The recommended soldering temperature profiles apply to a single soldering process.

#### Wellen-Löten (nur P\*\*\*\*-Typen) Wave soldering (only P\*\*\*\* types)



#### Infrarot-Reflow-Löten Infrared reflow soldering



### Reinigen

Handelsübliche Reiniger auf Basis organischer Lösemittel (z. B. Dowanol oder Alkohol) sind zur Reinigung von Keramik und Lötverbindungen unbedenklich. Reiniger auf wässriger Basis sind nicht zulässig. Kunststoffe von Umhüllungen können unter Umständen durch Lösemittel quellen oder abgelöst werden. Vor einem Einsatz sollte daher die Eignung des Lösemittels unbedingt überprüft werden. Ultraschallverfahren sind mit Vorsicht anzuwenden.

### Lagerung

Die Bauelemente sollen möglichst innerhalb von 6 Monaten verwendet werden. Sie sind in der Originalverpackung zu belassen, um Lötprobleme zu vermeiden.

Lagertemperatur: -25...+45 °C

Luftfeuchtigkeit: <75% im Jahresmittel, <95% an 30 Tagen

### Cleaning

You may use common cleaners based on organic solvents (eg dowanol or alcohol) to clean ceramic and solder joints. Solvents may cause plastic encapsulations to swell or detach. So be sure to check the suitability of a solvent before using it. Caution is required with ultrasonic processes.

### Storage

The components should be used within 6 months, if possible. They are to be left in the original packing in order to avoid soldering problems.

Storage temperature: -25...+45 °C

Relative humidity: <75% annual average, <95% on 30 days in a year

# Hinweise zur Verpackung

## Packing Information

Radial bedrahtete Thermistoren:  
Gurtung entsprechend DIN IEC 60286-2

SMD-Thermistoren:  
Gurtung entsprechend DIN IEC 60286-3

Radial-lead thermistors:  
Tape packaging in accordance with IEC 60286-2

SMD thermistors:  
Tape packaging in accordance with 60286-3

### Barcode-Kennzeichnung

Beispiel:

### Barcode identification

Example:

The diagram shows a barcode label for an EPCOS PTC Thermistor. The label contains the following information:

- EPCOS** (Manufacturer)
- PTC THERMISTOR NAT 110 GRAD C** (Product Type)
- A 701-A 110-A 62** (Part Number)
- (1P) PROD ID: B59701A 110A 62** (Production ID)
- (1T) LOT NO: 00000364334** (Lot Number)
- (10D) D/C: 00365** (Date of Manufacture)
- (30P) PRODUCT NO: 94644628** (Product Number)
- (Q) QTY: 4000** (Quantity)
- Made in Austria** (Origin)

Annotations on the left side of the label:

- Typ** (Type) points to the product type.
- Bestellnummer** (Part number) points to the part number.
- Losnummer** (Lot number) points to the lot number.

Annotations on the right side of the label:

- Herstelldatum** (Date of manufacture) points to the date of manufacture.
- Menge** (Quantity) points to the quantity.

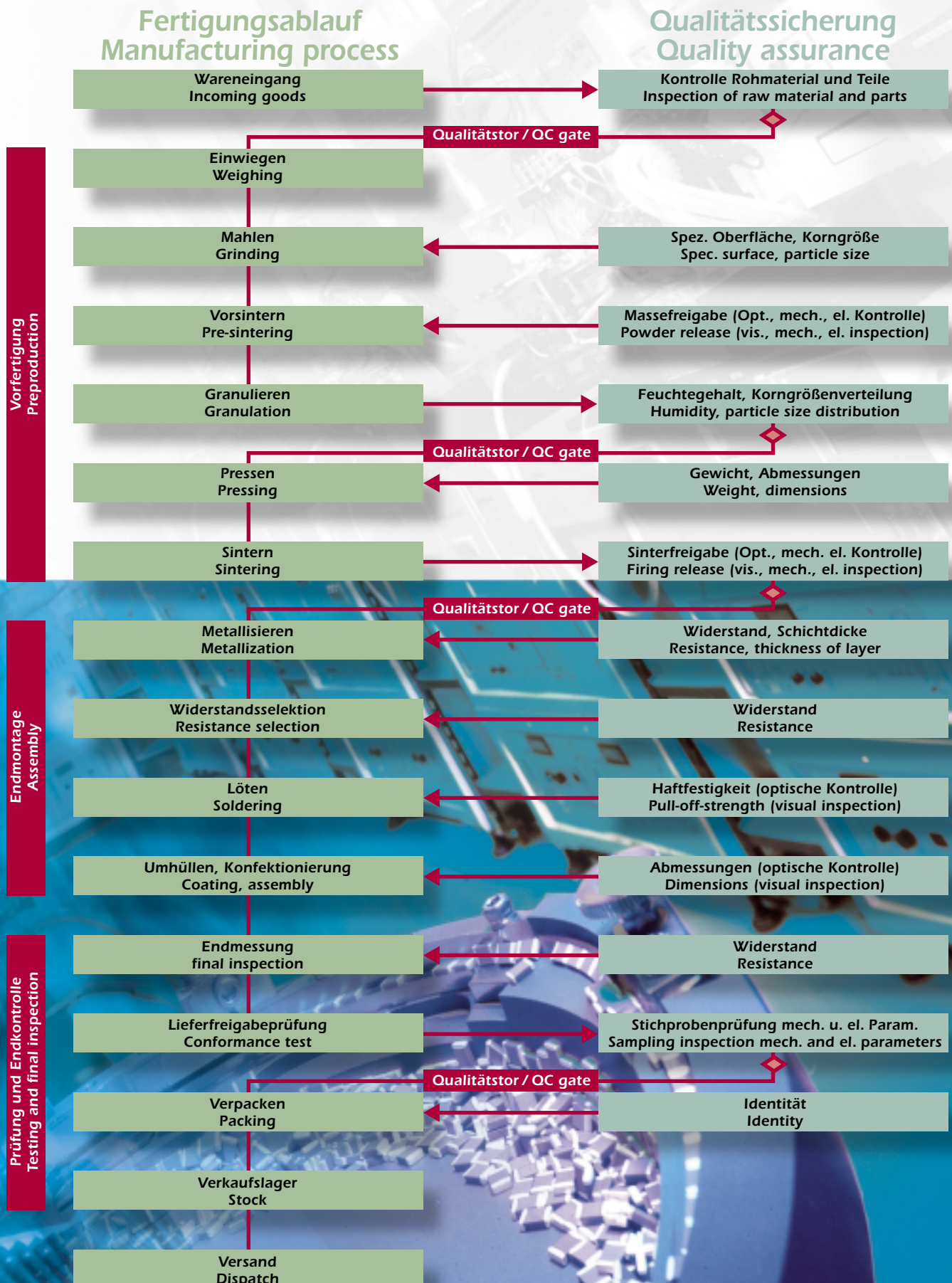
Beispiel: 00365

- 5. Tag der Woche = Freitag
- Kalenderwoche
- Jahr

Example: 00365

- 5th day of week = Friday
- Calendar week
- Year

# Fertigungsablauf, Qualitätssicherung Manufacturing Process, Quality Assurance



# Symbolverzeichnis

## Index of Symbols

|                         |                                                              |                      |                                                                   |
|-------------------------|--------------------------------------------------------------|----------------------|-------------------------------------------------------------------|
| $I_{\text{Ein/Spule}}$  | Einschaltstrom durch Spule zur Entmagnetisierung             | $I_{\text{in/coil}}$ | Inrush current through degaussing coil                            |
| $I_N$                   | Nennstrom ( $T = T_N$ )                                      | $I_N$                | Rated current ( $T = T_N$ )                                       |
| $I_{\text{PTC}}$        | Kaltleiterstrom                                              | $I_{\text{PTC}}$     | PTC current                                                       |
| $I_{\text{Rest/Spule}}$ | Reststrom durch Spule zur Entmagnetisierung                  | $I_r/\text{coil}$    | Residual current through degaussing coil                          |
| $R_N$                   | Nennwiderstand ( $T = T_N$ )                                 | $R_N$                | Rated resistance ( $T = T_N$ )                                    |
| $R_{25}$                | Nennwiderstand ( $T = 25\text{ °C}$ )                        | $R_{25}$             | Rated resistance ( $T = 25\text{ °C}$ )                           |
| $R_{\text{PTC}}$        | Widerstand des Kaltleiters (bei angegebener Temperatur)      | $R_{\text{PTC}}$     | PTC resistance (at specified temperature)                         |
| $T$                     | Betriebstemperatur                                           | $T$                  | Operating temperature                                             |
| $T_N$                   | Nenntemperatur (falls nicht definiert $T_N = 25\text{ °C}$ ) | $T_N$                | Rated temperature (if not otherwise stated $T_N = 25\text{ °C}$ ) |
| $T_{\text{NAT}}$        | Nennansprechtemperatur                                       | $T_{\text{NAT}}$     | Nominal threshold temperature                                     |
| $T_{\text{Ref}}$        | Bezugstemperatur                                             | $T_{\text{Ref}}$     | Reference temperature                                             |
| $V_{\text{max}}$        | Maximale Betriebsspannung                                    | $V_{\text{max}}$     | Maximum operating voltage                                         |
| $V_{\text{Mes}}$        | Messspannung                                                 | $V_{\text{Mes}}$     | Measuring voltage                                                 |
| $\Delta$                | Toleranz                                                     | $\Delta$             | Tolerance                                                         |

### Abkürzungen/Allgemeine Hinweise



Oberflächenmontierbare Bauelemente



UL-Zulassung

\*

Innerhalb der Bestellnummer ist der Stern Platzhalter für eine einzusetzende Ziffer.

Die einsetzbaren Varianten sind an den jeweiligen Stellen angegeben.

Abmessungen sind in mm angegeben.

### Abbreviations/General notes



Surface-mount devices



UL approval

\*

An asterisk in the ordering code is a fill-in for a number.

The numbers/letters to be filled in are given under the relevant ordering codes.

All dimensions are given in mm.

Commas used in numerical values denote decimal points.

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