

# **PTC Thermistors**

## Taping and packing

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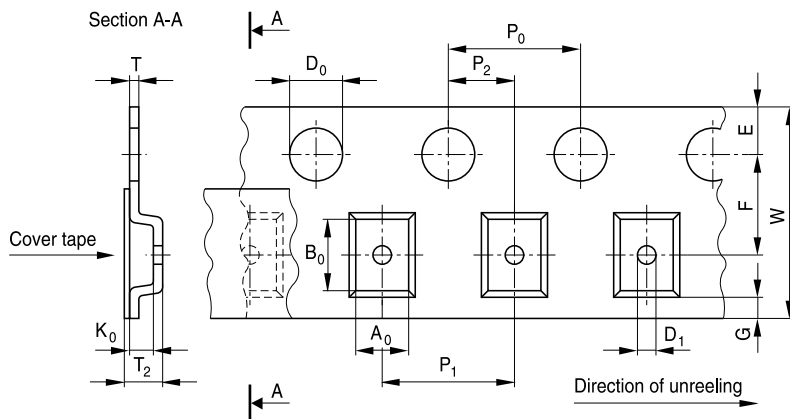
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## Taping and packing

Many of the components presented in this data book are suitable for processing on automatic insertion or placement machines. These thermistors can be supplied on tape for easy handling by automatic systems. The individual modes of taping and packing will be described in the following.

### 1 Taping of SMD thermistors

#### 1.1 Blister tape (to IEC 60286-3)



KKE0053-C-E

| Dimension (mm) | 8-mm tape | 16-mm tape | Tolerance (mm)       | 24-mm tape | Tolerance (mm) |
|----------------|-----------|------------|----------------------|------------|----------------|
| $D_0$          | 1.50      | 1.50       | + 0.10/−0            | 1.50       | + 0.10         |
| $D_1$          | 0.3       | 1.50       | min.                 | 1.50       | + 0.10         |
| $P_0$          | 4.00      | 4.00       | ± 0.10 <sup>1)</sup> | 4.00       | ± 0.10         |
| $P_2$          | 2.00      | 2.00       | ± 0.05               | 2.00       | ± 0.10         |
| $P_1$          | 4.00      | 12.00      | ± 0.10               | 16.00      | ± 0.10         |
| $W$            | 8.00      | 16.00      | ± 0.30               | 24.00      | + 0.30/−0.1    |
| $E$            | 1.75      | 1.75       | ± 0.10               | 1.75       | ± 0.10         |
| $F$            | 3.50      | 7.50       | ± 0.05               | 11.50      | ± 0.10         |
| $G$            | 0.75      | 0.75       | min.                 | 0.75       | min.           |
| $T$            | 0.60      | 0.60       | max.                 | 0.60       | max.           |

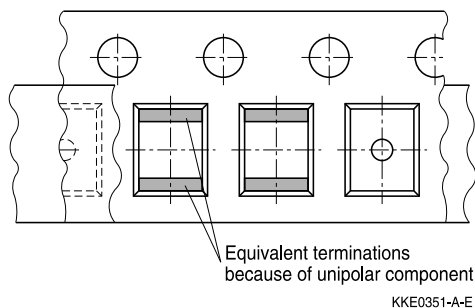
$A_0 \times B_0$ ,  $K_0$ ,  $T_2$ : The rated dimensions of the component compartment have been derived from the relevant component specification and are chosen such that the components cannot change their orientation within the tape.

1) ≤ 0.2 mm over 10 sprocket holes

## Taping and packing

### Part orientation in tape pocket for blister tape

For chip thermistors case sizes 0805 and 1210



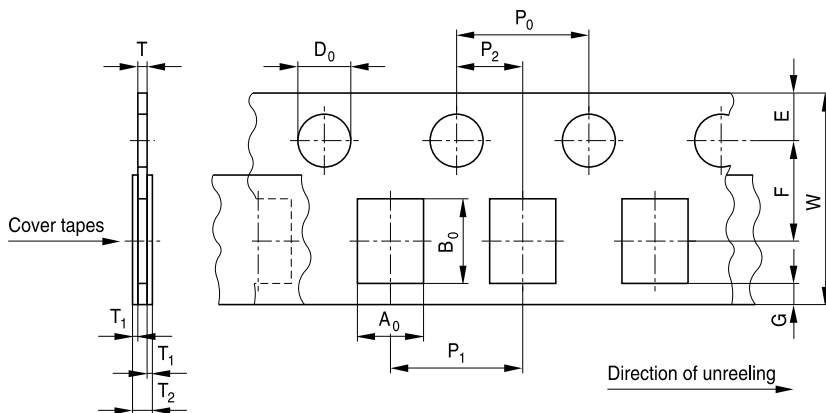
### Additional taping information

For chip thermistors case sizes 0805 and 1210

|                           |   |
|---------------------------|---|
| Reel material             | Polystyrol (PS)   |
| Tape material             | Polystyrol (PS) or Polycarbonat (PC) or PVC   |
| Tape break force          | min. 10 N   |
| Top cover tape strength   | min. 10 N   |
| Top cover tape peel force | 0.1 ... 1.0 N for 8-mm tape and 0.1 ... 1.3 N for 12-mm tape at a peel speed of 300 mm/min                  |
| Tape peel angle           | Angle between top cover tape and the direction of feed during peel off: 165° ... 180°                       |
| Cavity play               | Each part rests in the cavity so that the angle between the part and cavity center line is no more than 20° |

## Taping and packing

### 1.2 Cardboard tape (to IEC 60286-3)



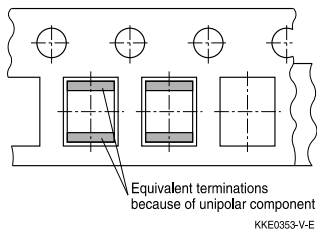
| Dimensions (mm) | 8-mm tape |      | Tolerance (mm) |
|-----------------|-----------|------|----------------|
|                 | Case size |      |                |
|                 | 0402      | 0603 |                |
| $A_0$           | 0.6       | 0.95 | $\pm 0.2$      |
| $B_0$           | 1.15      | 1.8  | $\pm 0.2$      |
| $T$             | 0.6       | 0.95 | $\pm 0.05$     |
| $T_2$           | 0.75      | 1.1  | max.           |
| $D_0$           | 1.5       |      | $+0.1/-0$      |
| $P_0$           | 4.0       | 4.0  | $\pm 0.1^{2)}$ |
| $P_2$           | 2.0       | 2.0  | $\pm 0.05$     |
| $P_1$           | 2.0       | 4.0  | $\pm 0.1$      |
| $W$             | 8.0       |      | $\pm 0.3$      |
| $E$             | 1.75      |      | $\pm 0.1$      |
| $F$             | 3.5       |      | $\pm 0.05$     |
| $G$             | 0.75      |      | min.           |

2)  $\leq 0.2$  mm over 10 sprocket holes.

## Taping and packing

### Part orientation in tape pocket for cardboard tape

For chip thermistors case sizes 0402 and 0603



### Additional taping information

|                           |   |
|---------------------------|---|
| Reel material             | Polystyrol (PS)   |
| Tape material             | Cardboard   |
| Tape break force          | min. 10 N   |
| Top cover tape strength   | min. 10 N   |
| Top cover tape peel force | 0.1 ... 1.0 N at a peel speed of 300 mm/min   |
| Tape peel angle           | Angle between top cover tape and the direction of feed during peel off: 165° ... 180°                       |
| Cavity play               | Each part rests in the cavity so that the angle between the part and cavity center line is no more than 20° |

## Taping and packing

### 1.3 Reel dimensions

#### 180-mm reel with 8-mm tape

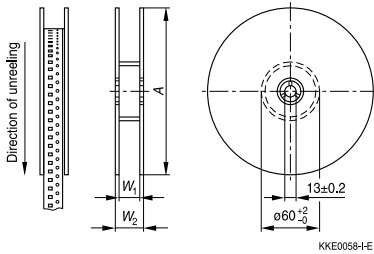


Figure 4

| Dimension      | 180-mm reel |
|----------------|-------------|
| A              | 180 -2/+0   |
| W <sub>1</sub> | 8.4 +1.5/-0 |
| W <sub>2</sub> | 14.4 max.   |

#### 330-mm reel with 16-mm tape

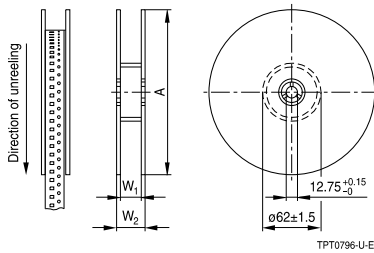


Figure 5

| Dimension      | 330-mm reel  |
|----------------|--------------|
| A              | 330 -2/+0    |
| W <sub>1</sub> | 16.4 +2.0/-0 |
| W <sub>2</sub> | 22.4 max.    |

#### 330-mm reel with 24-mm tape

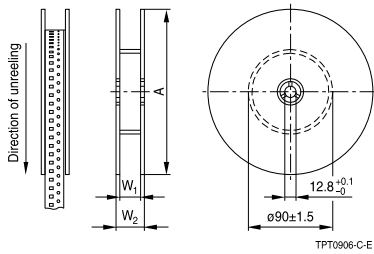


Figure 6

| Dimension      | 330-mm reel |
|----------------|-------------|
| A              | 330 -2/+0   |
| W <sub>1</sub> | 24.4 min.   |
| W <sub>2</sub> | 30.4 max.   |

#### 380-mm reel with 24-mm tape

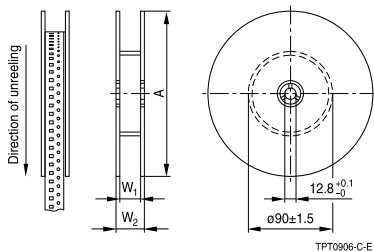


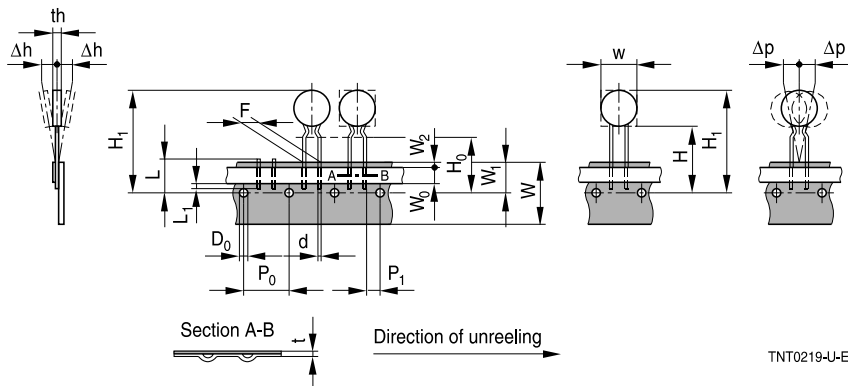
Figure 4

| Dimension      | 380-mm reel |
|----------------|-------------|
| A              | 380 -2/+0   |
| W <sub>1</sub> | 24.4 min.   |
| W <sub>2</sub> | 30.4 max.   |

## Taping and packing

### 2 Taping of radial-leaded PTC thermistors

Dimensions and tolerances (taping to IEC 60286-2, lead spacing 5.0 mm)



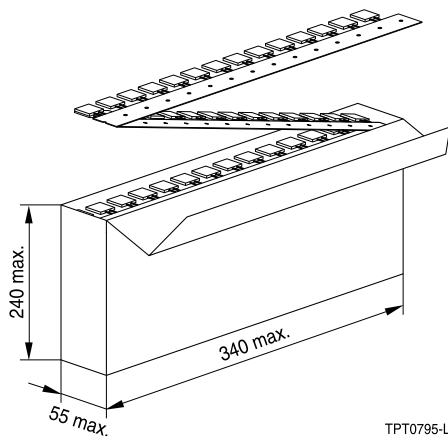
TNT0219-U-E

| Dimension (mm) | Tolerance   | Remarks      |                                   |
|----------------|---|--------------|-----------------------------------|
| w              | valid for $w \leq 11$ mm see dimensional drawings |              |                                   |
| th             | 6.0   | max.         |                                   |
| d              | 0.5/0.6   | $\pm 0.05$   |                                   |
| P <sub>0</sub> | 12.7  | $\pm 0.3$    | $\pm 1$ mm / 20 sprocket holes    |
| P <sub>1</sub> | 3.85  | $\pm 0.7$    |                                   |
| F              | 5.0   | $+0.6/-0.1$  |                                   |
| Δh             | 0   | $\pm 2.0$    | measured at top of component body |
| Δp             | 0   | $\pm 1.3$    |                                   |
| W              | 18.0  | $\pm 0.5$    |                                   |
| W <sub>0</sub> | 5.5   | min.         | peel-off force $\geq 5$ N         |
| W <sub>1</sub> | 9.0   | $+0.75/-0.5$ |                                   |
| W <sub>2</sub> | 3.0   | max.         |                                   |
| H              | 18.0  | $+2.0/-0$    |                                   |
| H <sub>0</sub> | 16.0  | $\pm 0.5$    |                                   |
| H <sub>1</sub> | 32.2  | max.         |                                   |
| D <sub>0</sub> | 4.0   | $\pm 0.2$    |                                   |
| t              | 0.9   | max.         | without wires                     |
| L              | 11.0  | max.         |                                   |
| L <sub>1</sub> | 4.0   | max.         |                                   |

## Taping and packing

### Modes of packing

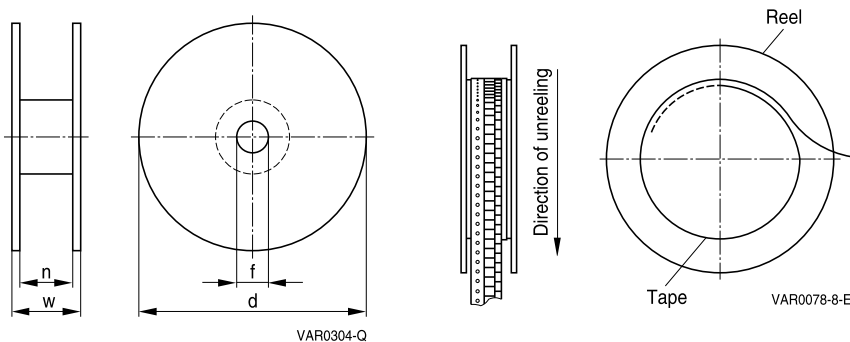
#### Ammo packing



TPT0795-L

**Packing unit:** 500 ... 2000 pcs./box

#### Reel packing



VAR0304-Q

VAR0078-8-E

**Packing unit:** 500 ... 2000 pcs./reel

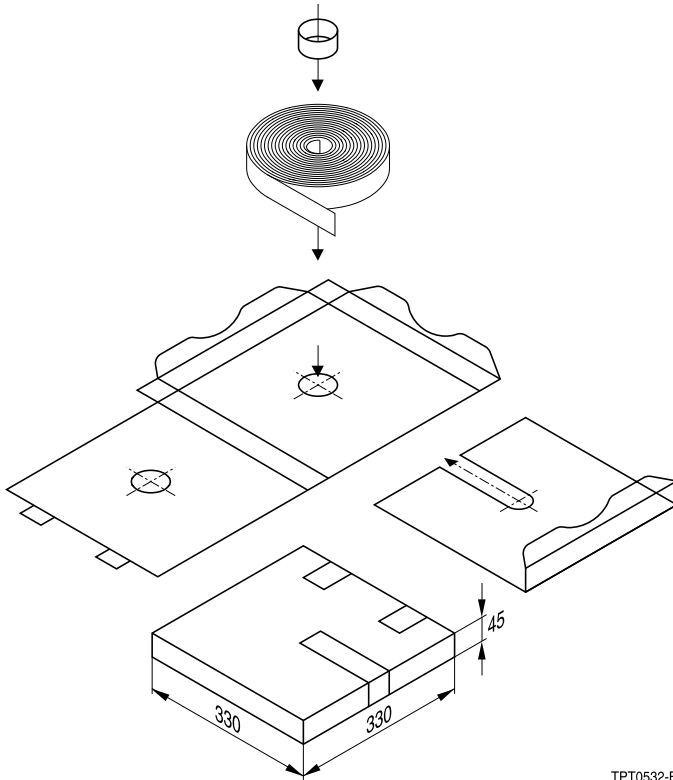
#### Reel dimensions (in mm)

| d        | f     | n          | w       |
|----------|-------|------------|---------|
| 360 max. | 31 ±1 | approx. 45 | 54 max. |



## Taping and packing

### Cassette packing



TPT0532-B

**Packing unit:** 1000 ... 2000 pcs./cassette

## Taping and packing

### 3 Packing codes

The last two digits of the complete ordering code state the packing mode.

| Last two digits |                                  |         |  |
|-----------------|----------------------------------|---------|--|
| 10, 20          | –                                | –       | Various (e.g. blister tray, cardboard tray, cardboard box or tube packing) |
| 40              | –                                | –       | Bulk   |
| 51              | Radial leads, kinked             | Taped   | Reel packing   |
| 53              | Radial leads, straight           | Taped   | Reel packing   |
| 54              | Radial leads, kinked             | Taped   | Ammo packing   |
| 55              | Radial leads, straight           | Taped   | Ammo packing   |
| 61              | SMDs                             | Taped   | Reel packing, blister tape   |
| 62              | SMDs                             | Taped   | Reel packing, cardboard or blister tape                                    |
| 70              | Radial leads, kinked or straight | Untaped | Cardboard strips   |

Example:

B59890C0120A070: Radial leads, untaped on cardboard strips

B59890C0120A051: Radial leads, kinked, taped on reel packing