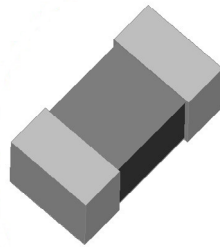


PTxx

Surface mount PTC thermistor



Product features

- Highly reliable monolithic structure, ideal for high density SMT installation
- Ideal for overheat sensing applications
- 0603 (1608 metric) and 0805 (2012 metric) surface mount package
- Superior heat resistance
- Excellent thermal response
- Moisture sensitivity level (MSL): 1

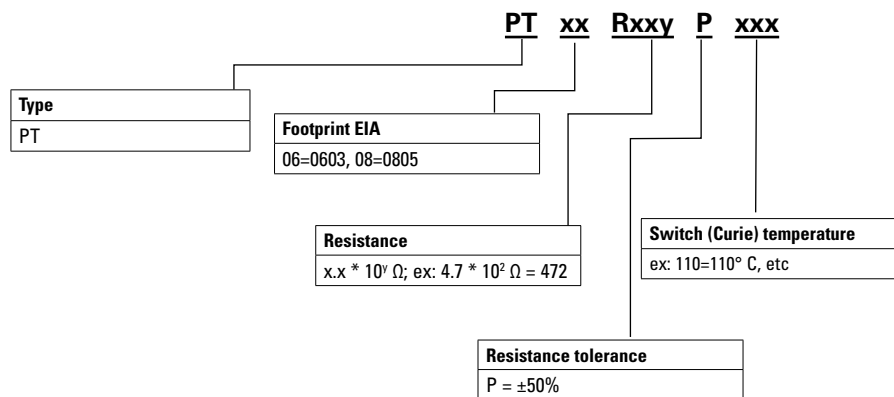
Applications

- Overheat sensing
- Industrial process control
- Commercial appliances
- Battery, supercapacitor and energy storage systems
- Uninterruptible power supplies
- Consumer appliances
- Medical devices
- Heating, ventilation and air conditioning, refrigeration (HVACR)
- Food service equipment
- IoT

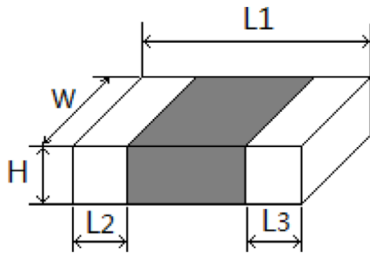
Environmental compliance and general specifications



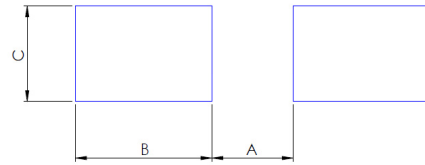
Table 1. Part numbering



Mechanical parameters- mm [inches]



Recommended PCB layout

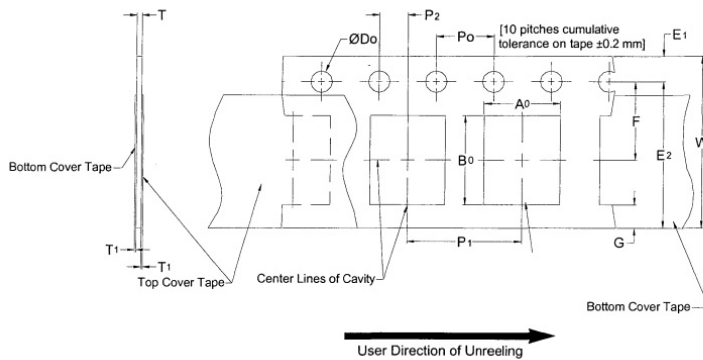


| Size | L1 | W | H | L2&L3 | A | B | C |
|----------------|-------------------------------|--------------------------------|-------------------------------|--------------------------------|-------------|-------------|-------------|
| 1608 [0603] | 1.6 ± 0.15 [0.063 ± 0.006] | 0.8 ± 0.15 [0.031 ± 0.006] | 0.8 ± 0.15 [0.031 ± 0.006] | 0.35 ± 0.15 [0.014 ± 0.006] | 0.60 ~ 0.80 | 0.60 ~ 0.80 | 0.60 ~ 0.80 |
| 2012 [0805] | 2.0 ± 0.20 [0.079 ± 0.008] | 1.25 ± 0.15 [0.049 ± 0.006] | 0.8 ± 0.15 [0.031 ± 0.006] | 0.45 ± 0.2 [0.018 ± 0.008] | 1.0 ~ 1.1 | 0.60 ~ 0.80 | 1.0 ~ 1.2 |

Packaging information- mm

Supplied in tape and reel on a 7.0" diameter reel (EIA-481 compliant)

| Size | Quantity |
|------|----------|
| 0603 | 4K |
| 0805 | 4K |



| Dimension | 0603 | 0805 |
|-----------|----------|----------|
| E1 | 1.75±0.1 | 1.75±0.1 |
| F | 3.5±0.05 | 3.5±0.05 |
| P2 | 2.0±0.05 | 2.0±0.05 |
| D0 | 1.5±0.1 | 1.5±0.1 |
| P0 | 4.0±0.1 | 4.0±0.1 |
| W | 8.0±0.3 | 8.0±0.3 |
| P1 | 4.0±0.1 | 4.0±0.1 |
| A0 | 1.0±0.2 | 1.4±0.2 |
| B0 | 1.8±0.2 | 2.2±0.2 |
| T | 1.1max | 1.1max |

Electrical specifications

| Part number | Resistance (Ω) | Curie temperature (°C) | Sensing temperature (4.7 kΩ) (°C) | Sensing temperature (47 kΩ) (°C) | Maximum voltage (Vdc) | Operating temperature (°C) |
|--------------------|-----------------------|-------------------------------|--|---|------------------------------|-----------------------------------|
| PT06R472P50 | 470±50% | 50 | 65±5 | 80±7 | 32 | -20 to +90 °C |
| PT06R472P60 | 470±50% | 60 | 75±5 | 90±7 | 32 | -20 to +100 °C |
| PT06R472P70 | 470±50% | 70 | 85±5 | 100±7 | 32 | -20 to +110 °C |
| PT06R472P80 | 470±50% | 80 | 95±5 | 110±7 | 32 | -20 to +120 °C |
| PT06R472P90 | 470±50% | 90 | 105±5 | 120±7 | 32 | -20 to +130 °C |
| PT06R472P100 | 470±50% | 100 | 115±5 | 130±7 | 32 | -20 to +140 °C |
| PT06R472P110 | 470±50% | 110 | 125±5 | 140±7 | 32 | -20 to +150 °C |
| PT06R472P120 | 470±50% | 120 | 135±5 | 150±7 | 32 | -20 to +160 °C |
| PT08R472P50 | 470±50% | 50 | 65±5 | 80±7 | 32 | -20 to +90 °C |
| PT08R472P60 | 470±50% | 60 | 75±5 | 90±7 | 32 | -20 to +100 °C |
| PT08R472P70 | 470±50% | 70 | 85±5 | 100±7 | 32 | -20 to +110 °C |
| PT08R472P80 | 470±50% | 80 | 95±5 | 110±7 | 32 | -20 to +120 °C |
| PT08R472P90 | 470±50% | 90 | 105±5 | 120±7 | 32 | -20 to +130 °C |
| PT08R472P100 | 470±50% | 100 | 115±5 | 130±7 | 32 | -20 to +140 °C |
| PT08R472P110 | 470±50% | 110 | 125±5 | 140±7 | 32 | -20 to +150 °C |
| PT08R472P120 | 470±50% | 120 | 135±5 | 150±7 | 32 | -20 to +160 °C |

Solder reflow profile

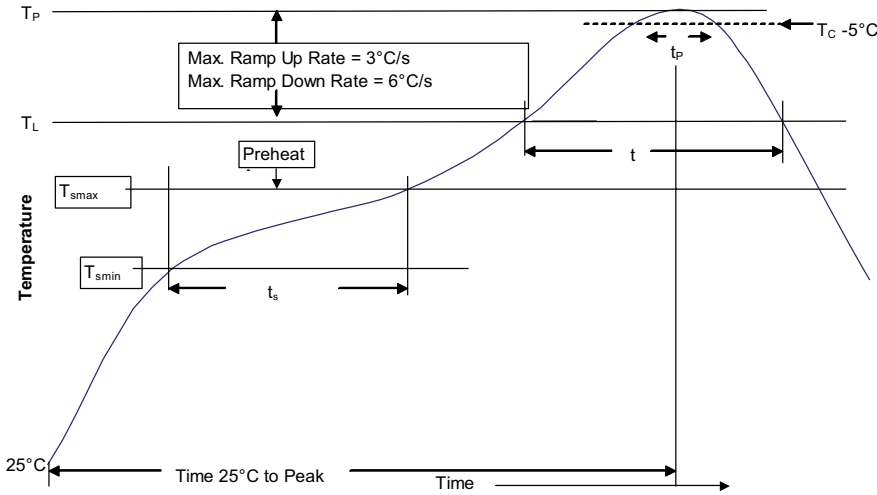


Table 1 - Standard SnPb solder (T_c)

| Package thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5 mm | 235 °C | 220 °C |
| ≥2.5 mm | 220 °C | 220 °C |

Table 2 - Lead (Pb) free solder (T_c)

| Package thickness | Volume mm ³ <350 | Volume mm ³ 350 - 2000 | Volume mm ³ >2000 |
|-------------------|-----------------------------|-----------------------------------|------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 – 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

Reference J-STD-020

| Profile feature | Standard SnPb solder | Lead (Pb) free solder |
|---|--|--|
| Preheat and soak | <ul style="list-style-type: none"> Temperature min. (T_{smin}) Temperature max. (T_{smax}) Time (T_{smin} to T_{smax}) (t_s) | <ul style="list-style-type: none"> 100 °C 150 °C 60-120 seconds |
| Ramp up rate T_L to T_p | 3 °C/ second max. | 3 °C/ second max. |
| Liquidous temperature (T_L) Time (t_L) maintained above T_L | <ul style="list-style-type: none"> 183 °C 60-150 seconds | <ul style="list-style-type: none"> 217 °C 60-150 seconds |
| Peak package body temperature (T_p)* | Table 1 | Table 2 |
| Time (t_p)* within 5 °C of the specified classification temperature (T_c) | 20 seconds* | 30 seconds* |
| Ramp-down rate (T_p to T_L) | 6 °C/ second max. | 6 °C/ second max. |
| Time 25 °C to peak temperature | 6 minutes max. | 8 minutes max. |

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Manual solder

Soldering iron power 30 W max., pre-heating: +150°C/60 sec, soldering tip temperature: +350 °C max for 3 sec max.1 time solder iron max. Generally manual soldering is not recommended.

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