

# 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

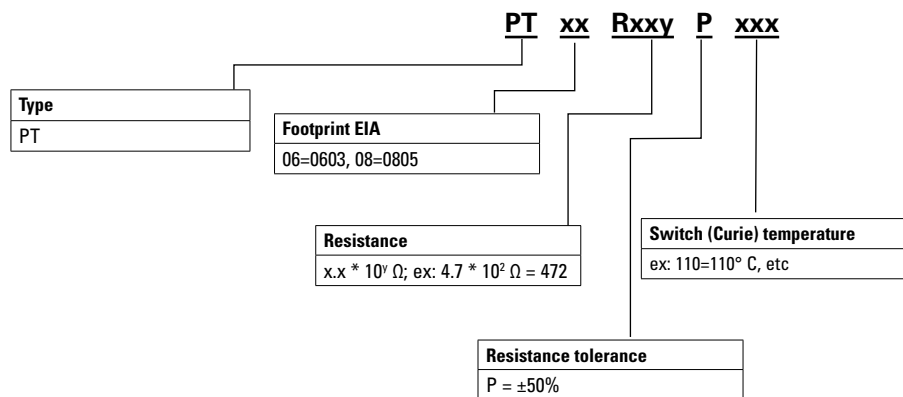
### Applications

- 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

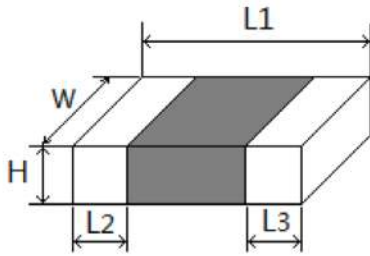
### Environmental compliance and general specifications



Table 1. Part numbering



**Mechanical parameters- mm [inches]**



**Recommended PCB layout**

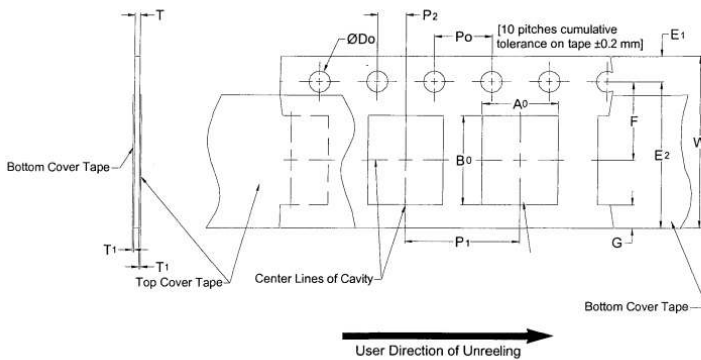


Size	L1	W	H	L2&L3	A	B	C
1608 [0603]	1.6 ± 0.15 [0.063 ± 0.006]	0.8 ± 0.15 [0.031 ± 0.006]	0.8 ± 0.15 [0.031 ± 0.006]	0.35 ± 0.15 [0.014 ± 0.006]	0.60 ~ 0.80	0.60 ~ 0.80	0.60 ~ 0.80
2012 [0805]	2.0 ± 0.20 [0.079 ± 0.008]	1.25 ± 0.15 [0.049 ± 0.006]	0.8 ± 0.15 [0.031 ± 0.006]	0.45 ± 0.2 [0.018 ± 0.008]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

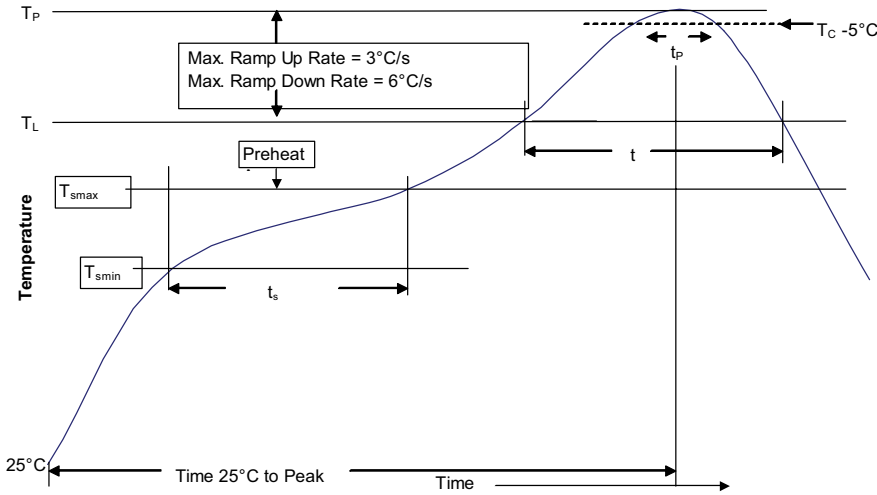


Dimension	0603	0805
E1	1.75±0.1	1.75±0.1
F	3.5±0.05	3.5±0.05
P2	2.0±0.05	2.0±0.05
D0	1.5±0.1	1.5±0.1
P0	4.0±0.1	4.0±0.1
W	8.0±0.3	8.0±0.3
P1	4.0±0.1	4.0±0.1
A0	1.0±0.2	1.4±0.2
B0	1.8±0.2	2.2±0.2
T	1.1max	1.1max

**Electrical specifications**

<b>Part number</b>	<b>Resistance (Ω)</b>	<b>Curie temperature (°C)</b>	<b>Sensing temperature (4.7 kΩ) (°C)</b>	<b>Sensing temperature (47 kΩ) (°C)</b>	<b>Maximum voltage (Vdc)</b>	<b>Operating temperature (°C)</b>
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 <sup>3</sup> <350	Volume mm <sup>3</sup> ≥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 <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul>	<ul style="list-style-type: none"> <li>150 °C</li> <li>200 °C</li> <li>60-120 seconds</li> </ul>
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 $T_L$	183 °C 60-150 seconds	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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