

CPTC Thermistor : TPM-P Type

SMD CPTC Thermistor for Over-Current Protection

■ Typical Application Circuit

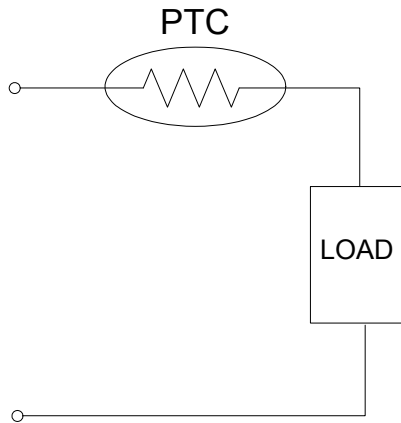


Fig 1. Over-current Protection

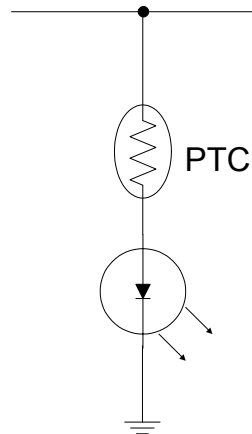
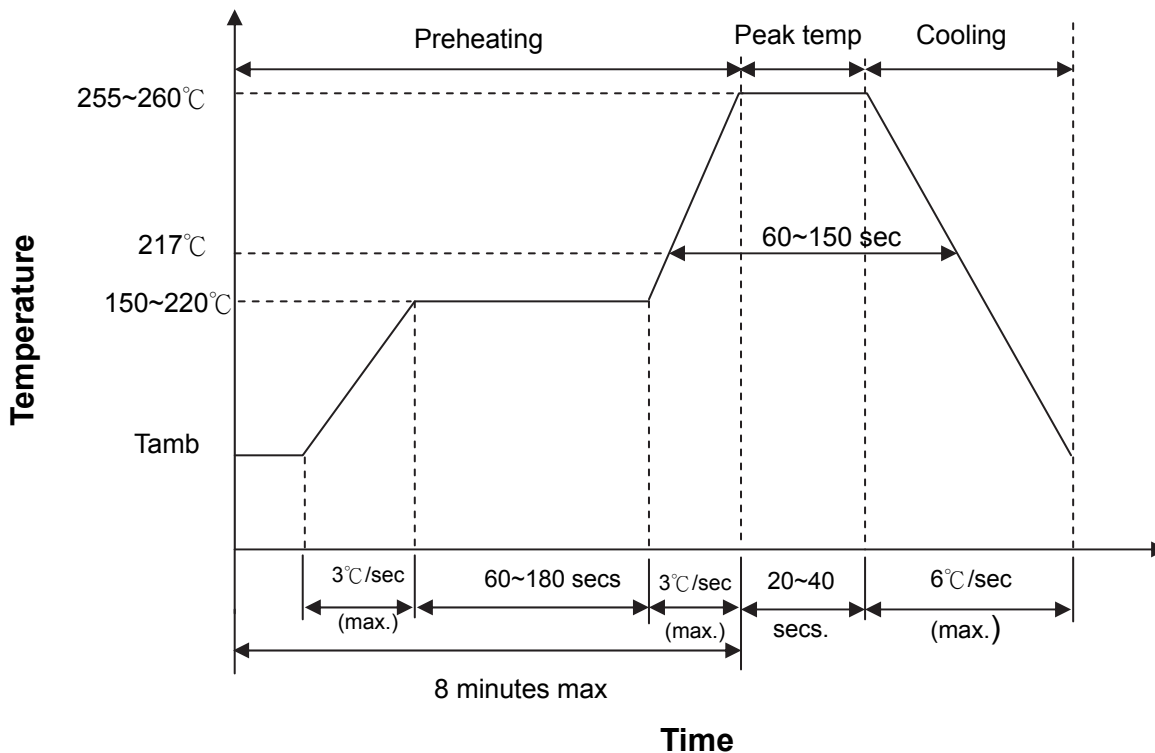


Fig 2. LED Protection

■ Soldering Recommendation

● IR-Reflow Soldering Profile



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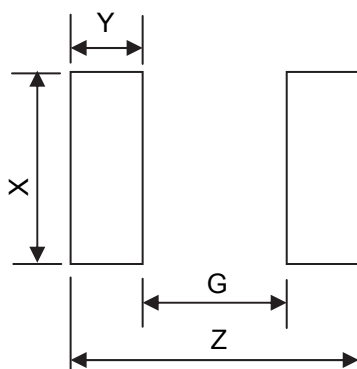
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- Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 sec (max.)
Diameter of Soldering Iron-tip	Φ3mm (max.)

Caution: Please do not touch the component surface with soldering iron directly to avoid its damage.

- Recommended Soldering Pad Dimensions

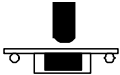


Size(EIA)	Z (mm)	G (mm)	X (mm)	Y (mm)
0603	3.0	1.0	1.0	1.0
0805	3.4	1.0	1.4	1.2
1210	4.5	2.1	2.8	1.2

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■ Reliability

Item	Standard	Test Conditions / Methods	Specifications															
Rapid Change of Temperature	IEC 60068-2-14	The conditions shown below shall be repeated 5 cycles on PCB <table border="1" data-bbox="628 412 1166 645"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40 ± 5</td> <td>30 ± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> <tr> <td>3</td> <td>125 ± 5</td> <td>30 ± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>5 ± 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Period (minutes)	1	-40 ± 5	30 ± 3	2	Room temperature	5 ± 3	3	125 ± 5	30 ± 3	4	Room temperature	5 ± 3	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %
Step	Temperature (°C)	Period (minutes)																
1	-40 ± 5	30 ± 3																
2	Room temperature	5 ± 3																
3	125 ± 5	30 ± 3																
4	Room temperature	5 ± 3																
Damp Heat, Steady State	IEC 60068-2-78	60 ± 2 °C , 90 ~ 95% RH , 1000± 24 hrs	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %															
Bending Strength	IEC-60068-2-21	Warp 2mm Speed < 0.5mm/sec. Duration: 10 sec on PCB. 	No visible damage $\Delta R_{25}/R_{25}$ ≤ 10 %															
High Temp. Storage	IEC 60068-2-2	125 ± 3 °C , 1000 ± 24 hrs	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %															
Low Temp. Storage	IEC 60068-2-1	-40 ± 3 °C , 1000 ± 24 hrs	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %															
High Temp. Endurance Load	Specification Standard	60 ± 3 °C Vmax., for 1.5hrs on / 0.5hrs off, 1000 ± 24 hrs (85 ± 3 °C Vmax., for 1.5hrs on / 0.5hrs off, 1000 ± 24 hrs)* ¹	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %															
Climatic Sequence	IEC 60738-1	a. 125°C x 16 hrs b. 1st cycle : 40 °C 95 %RH x 24 hrs c. -40 °C x 2 hrs d. 5 cycles : 40°C 95% RH x 24 hrs / Cycle	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %															
Solderability	IEC 60068-2-58	245 ± 5 °C , 3 ± 0.3 sec	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC 60068-2-58	8.1.2.2 Solder reflow method Preheating:150~180°C,60~120 secs Peak temp:245~255°C, ≤20 secs (reflow)	No visible damage $\Delta R_{25}/R_{25}$ ≤ 20 %															

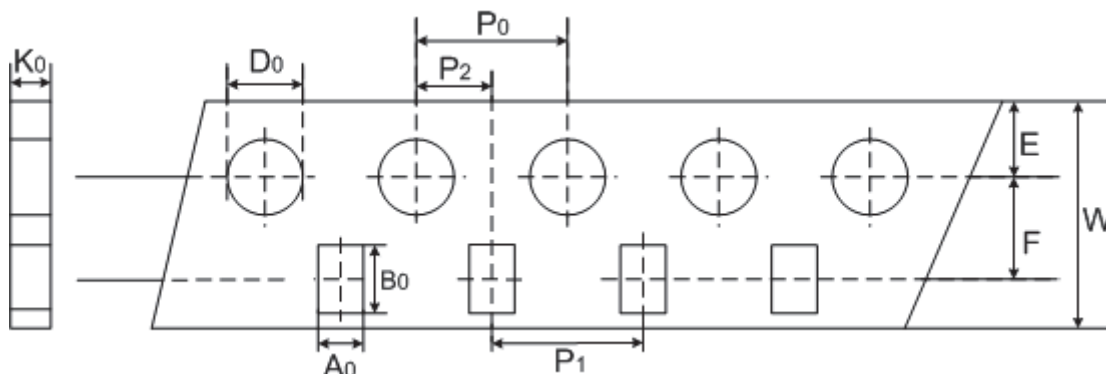
Note1: *1: Apply for TPM4P Series

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Package

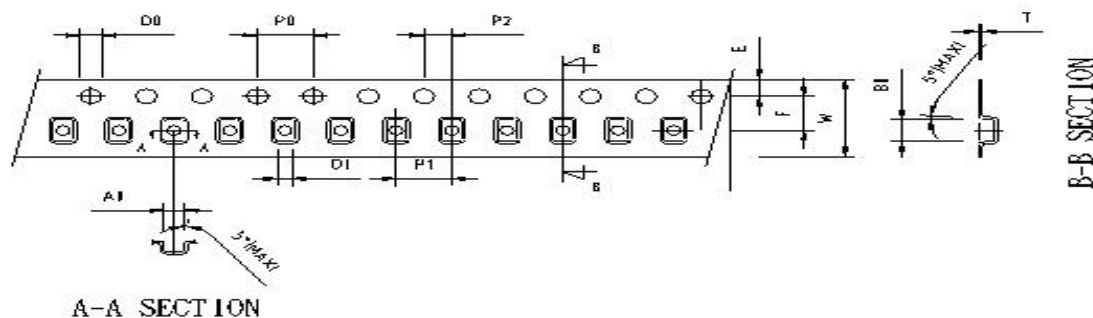
Taping Specification (0603 & 0805 type)



(Unit: mm)

Index Type	A_0	B_0	W	E	F	P_1	P_2	P_0	D_0	K_0
	± 0.2	± 0.2	± 0.2	± 0.1	± 0.05	± 0.1	± 0.05	± 0.1	± 0.1	± 0.1
0603	1.1	1.9	8	1.75	3.5	4	2	4	1.55	0.95
0805	1.5	2.3	8	1.75	3.5	4	2	4	1.55	1.0

Taping Specification (0805 type, For TPM2P150M100R, TPM2P220M100R)



(Unit: mm)

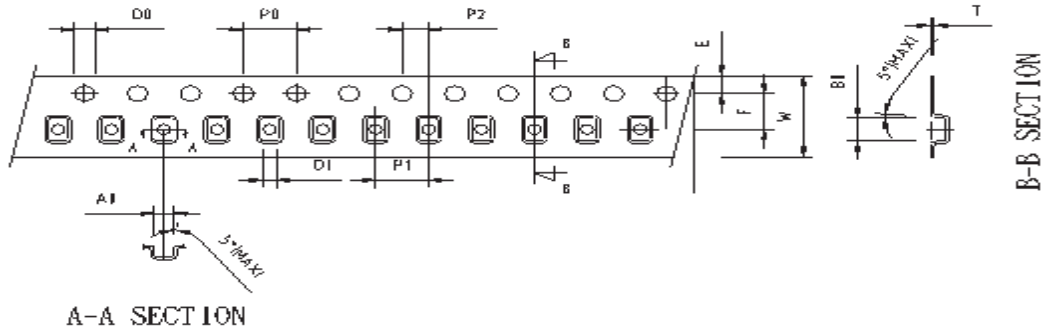
Index Type	A_0	B_0	W	E	F	P_1	P_2	P_0	D_0	D_1	T
	± 0.2	± 0.2	± 0.2	± 0.1	± 0.05	± 0.1	± 0.05	± 0.1	± 0.1	± 0.1	± 0.1
0805	1.5	2.3	8	1.75	3.5	4	2	4	1.55	1	0.22

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Taping Specification (1210 type)

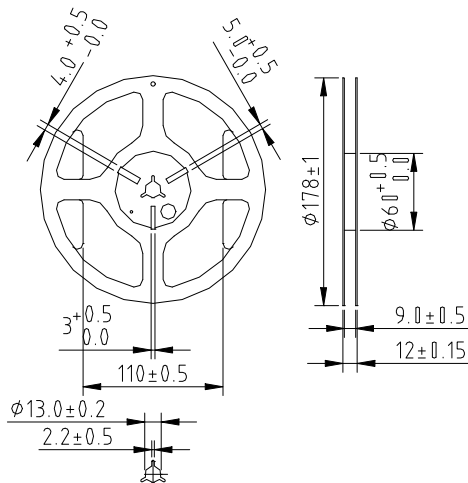


(Unit: mm)

Index Type	A ₀	B ₀	W	E	F	P ₁	P ₂	P ₀	D ₀	D ₁	T
1210	±0.2	±0.2	±0.2	±0.1	±0.05	±0.1	±0.05	±0.1	±0.1	±0.1	±0.1

Quantity

(Unit: mm)



Type	Quantity(pcs/reel)
0603	4,000
0805	3,500
1210	2,500

Warehouse Storage Condition of Products

- Storage Conditions :
 - Storage Temperature: -10°C~+40°C
 - Relative Humidity: ≤ 75%RH
 - Keep away from corrosive atmosphere and sunlight.
- Period of Storage : 1 year