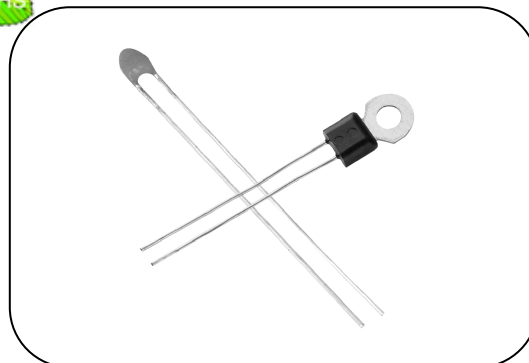


# CPTC Thermistor: PT Series Temperature Sensor



## ■ Features

1. RoHS compliant
2. Small size
3. Very fast reaction time
4. Wide range of protection temperatures
5. No need reset supply after protection
6. Stable over along life
7. Operating temperature range :  
 $0 \sim +40^{\circ}\text{C}$  ( $V=V_{\text{max}}$ )  
 $0 \sim T_s+25^{\circ}\text{C}$  ( $V=0$ )
8. Agency Recognition: UL /cUL / CQC



## ■ Recommended Applications

1. Electrical equipment (Electrical machinery, Transformer)

## ■ Part No. Code

P	T	L	S	2	1	0	1	Y	P	8	1	6	B	0	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Product Code	
PT	PTC Thermistor for Temperature Sensor

Dimensions	
S2	2mm Square

Resistance ( $R_{25}$ )	
800	80 $\Omega$
101	100 $\Omega$
331	330 $\Omega$

Tolerance of $R_{25}$	
R	0% ~ 100%
Y	Special

Maximum Voltage (Vdc)	
16	16V
30	30V

Internal Control Code	
-----------------------	--

Series	
L	Lead Type
M	Metal Terminal Type

Curie Temperature	
P0	0 $^{\circ}\text{C}$
P8	80 $^{\circ}\text{C}$
A0	100 $^{\circ}\text{C}$
A2	120 $^{\circ}\text{C}$
A4	140 $^{\circ}\text{C}$

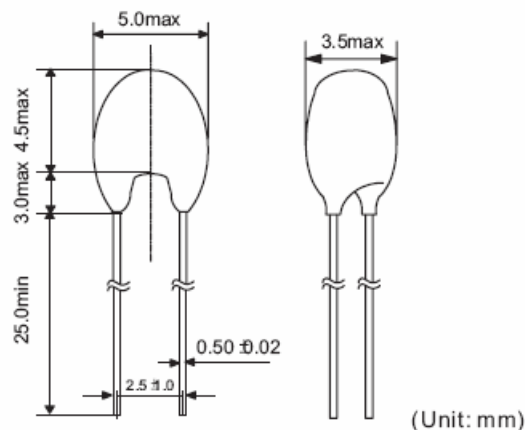
  

Packaging	
B(Y)	Bulk
A(X)	Ammo Box Pitch 12.7
R(W)	Taping & Reel Pitch 12.7

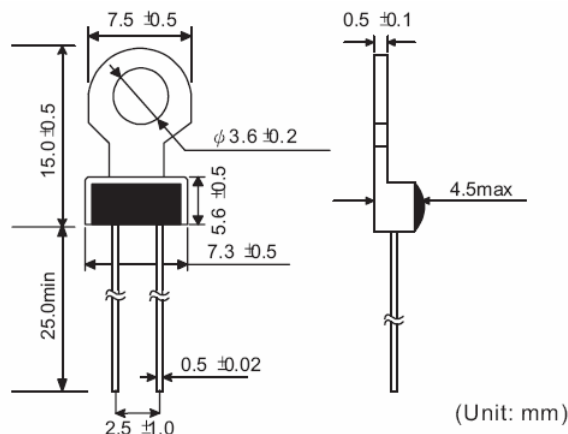
Note:  
The code in ( ) is for RoHS control.

## ■ Dimensions

PTL Series



PTM Series



# CPTC Thermistor: PT Series

## Temperature Sensor



### ■ Characteristics

#### PTL Series

Part No.	Curie Temperature	Sensing Temperature	Resistance Value			Max. Voltage	Max. Current	Safety Approvals		
	T <sub>c</sub> (°C)	T <sub>s</sub> (°C)	25°C (Ω)	T <sub>s</sub> -5°C (Ω)	T <sub>s</sub> +5°C (Ω)	V <sub>max</sub> (V <sub>DC</sub> )	I <sub>max</sub> (mA)	UL	cUL	CQC
PTLS2101□P4**	40±10	55	100 max.	330 max.	470 min.	30	100	√	√	√
PTLS2101□P5**	50±10	65						√	√	√
PTLS2101□P6**	60±10	75						√	√	√
PTLS2101□P7**	70±10	85						√	√	√
PTLS2101□P8**	80±10	95						√	√	√
PTLS2101□P9**	90±10	105						√	√	√
PTLS2101□A0**	100±10	115						√	√	√
PTLS2331□P4**	40±10	55	330 max.	1500 max.	2200 min.			√	√	√
PTLS2331□P5**	50±10	65						√	√	√
PTLS2331□P6**	60±10	75						√	√	√
PTLS2331□P7**	70±10	85						√	√	√
PTLS2331□P8**	80±10	95						√	√	√
PTLS2331□P9**	90±10	105						√	√	√
PTLS2331□A0**	100±10	115						√	√	√

Note1: □=Tolerance of R<sub>25</sub>

Note2: \*\*= Maximum Voltage: 16V<sub>DC</sub> or 30V<sub>DC</sub>.

Note3: UL&cUL File No. E138827 , CQC File No. CQC03001008129

#### PTL -Y02/03 Series

Part No.	Curie Temperature	Sensing Temperature	Resistance Value					Max. Voltage	Max. Current	Safety Approvals		
	T <sub>c</sub> (°C)	T <sub>s</sub> (°C)	25°C (Ω)	T <sub>s</sub> -5°C (Ω)	T <sub>s</sub> +5°C (Ω)	T <sub>s</sub> +15°C (Ω)	T <sub>s</sub> +23°C (Ω)	V <sub>max</sub> (V <sub>DC</sub> )	I <sub>max</sub> (mA)	UL	cUL	CQC
PTLS2101□P4**Y02	40±10	60	100 max.	570 max.	570 min.	—	10K min.	30	100	√	√	√
PTLS2101□P5**Y02	50±10	70								√	√	√
PTLS2101□P6**Y02	60±10	80								√	√	√
PTLS2101□P7**Y03	70±10	90		550 max.	1330 min.	4000 min.	—			√	√	√
PTLS2101□P8**Y03	80±10	100								√	√	√
PTLS2101□P9**Y03	90±10	110								√	√	√
PTLS2101□A0**Y03	100±10	120								√	√	√
PTLS2101□A1**Y03	110±10	130										
PTLS2101□A2**Y03	120±10	140										
PTLS2101□A3**Y03	130±10	150										
PTLS2101□A4**Y03	140±10	160										
PTLS2101□A5**Y03	150±10	170										
PTLS2101□A6**Y03	160±10	180										

Note1: □=Tolerance of R<sub>25</sub>

Note2: \*\*= Maximum Voltage: 16V<sub>DC</sub> or 30V<sub>DC</sub>.

Note3: UL&cUL File No. E138827 , CQC File No. CQC03001008129

# CPTC Thermistor: PT Series

## Temperature Sensor



### PTM Series

Part No.	Curie Temperature	Sensing Temperature	Resistance Value			Max. Voltage	Max. Current	Safety Approvals		
	T <sub>c</sub> (°C)	T <sub>s</sub> (°C)	25°C (Ω)	T <sub>s</sub> -5°C (Ω)	T <sub>s</sub> +5°C (Ω)	V <sub>max</sub> (V <sub>DC</sub> )	I <sub>max</sub> (mA)	UL	cUL	CQC
PTMS2101□P4**	40±10	55	100 max.	330 max.	470 min.	30	100	√	√	√
PTMS2101□P5**	50±10	65						√	√	√
PTMS2101□P6**	60±10	75						√	√	√
PTMS2101□P7**	70±10	85						√	√	√
PTMS2101□P8**	80±10	95						√	√	√
PTMS2101□P9**	90±10	105						√	√	√
PTMS2101□A0**	100±10	115	√	√	√					
PTMS2331□P4**	40±10	55	330 max.	1500 max.	2200 min.			√	√	√
PTMS2331□P5**	50±10	65						√	√	√
PTMS2331□P6**	60±10	75						√	√	√
PTMS2331□P7**	70±10	85						√	√	√
PTMS2331□P8**	80±10	95						√	√	√
PTMS2331□P9**	90±10	105				√	√	√		
PTMS2331□A0**	100±10	115				√	√	√		

Note1: □=Tolerance of R<sub>25</sub>

Note2: \*\*= Maximum Voltage: 16V<sub>DC</sub> or 30V<sub>DC</sub>.

Note3: UL&cUL File No. E138827 , CQC File No. CQC03001008129

### PTM -Y02/03 Series

Part No.	Curie Temperature	Sensing Temperature	Resistance Value					Max. Voltage	Max. Current	Safety Approvals		
	T <sub>c</sub> (°C)	T <sub>s</sub> (°C)	25°C (Ω)	T <sub>s</sub> -5°C (Ω)	T <sub>s</sub> +5°C (Ω)	T <sub>s</sub> +15°C (Ω)	T <sub>s</sub> +23°C (Ω)	25°C (Ω)	V <sub>max</sub> (V <sub>DC</sub> )	UL	cUL	CQC
PTMS2101□P4**Y02	40±10	60	100 max.	570 max.	570 min.	—	10K min.	30	100	√	√	√
PTMS2101□P5**Y02	50±10	70								√	√	√
PTMS2101□P6**Y02	60±10	80								√	√	√
PTMS2101□P7**Y03	70±10	90	550 max.	1330 min.	4000 min.	—	√			√	√	
PTMS2101□P8**Y03	80±10	100					√			√	√	
PTMS2101□P9**Y03	90±10	110					√			√	√	
PTMS2101□A0**Y03	100±10	120					√			√	√	
PTMS2101□A1**Y03	110±10	130										
PTMS2101□A2**Y03	120±10	140										

Note1: □=Tolerance of R<sub>25</sub>

Note2: \*\*= Maximum Voltage: 16V<sub>DC</sub> or 30V<sub>DC</sub>.

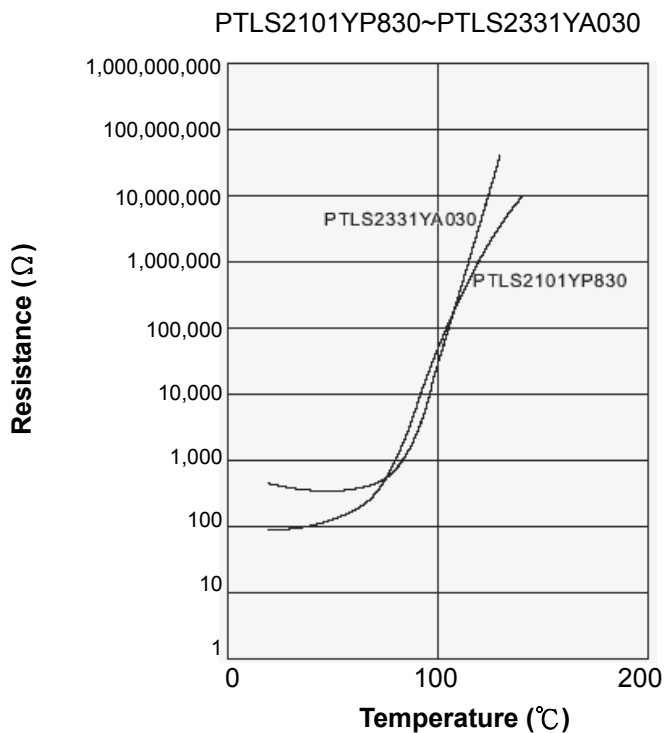
Note3: UL&cUL File No. E138827 , CQC File No. CQC03001008129

# CPTC Thermistor: PT Series

## Temperature Sensor

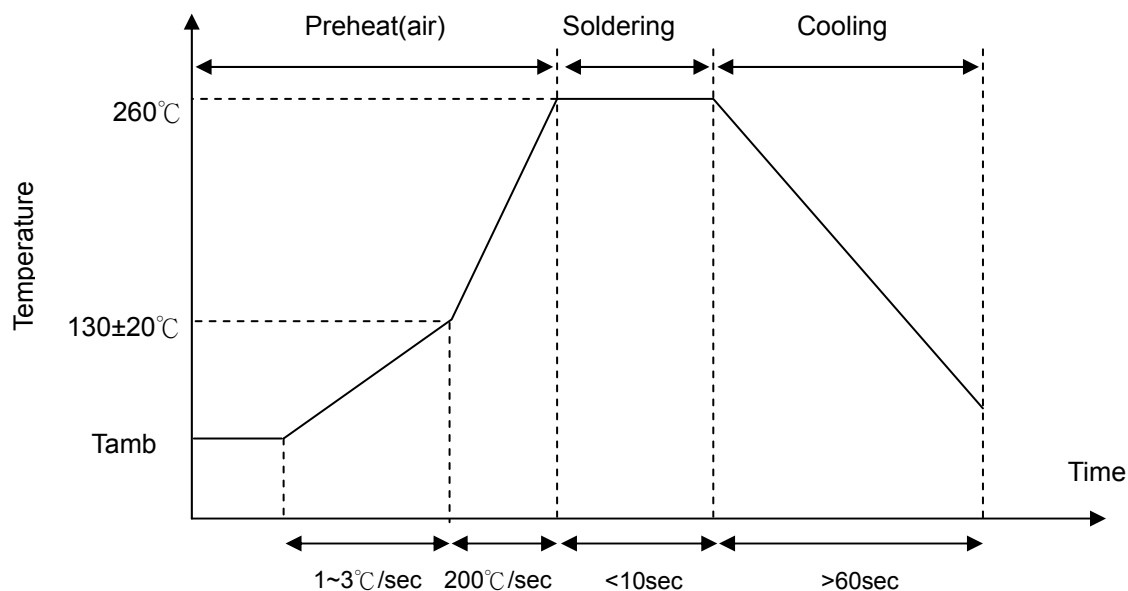


### ■ R-T Characteristic Curve (Representative)



### ■ Soldering Recommendation

#### ● Wave Flow Soldering Profile



#### ● Recommended Reworking Conditions With Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	2 sec (max.)
Distance from coating	6 mm (min.)

# CPTC Thermistor: PT Series

## Temperature Sensor



### ■ Reliability Test

Item	Standard	Test conditions / Methods	Specifications
Tensile Strength of Terminals	IEC60068-2-21	Fasten body and apply a force gradually to each lead for 10±1 sec. Terminal diameter (mm)      Force T(N) 0.35<d≤0.5      5.0 0.5<d≤0.8      10.0 0.8<d≤1.25      20.0	ΔR/R25   ≤20% No damage observed
Solderability	IEC60068-2-20	Then dip each lead into 255±5°C solder for 3±0.5sec.to the 4±1mm above from body .	At least 95% of terminal electrode is covered by new solder
Resistance to Soldering Heat	IEC60068-2-20	Dip each lead into 350±10°C solder for 3~4sec. to the 4±1mm above body.	ΔR/R25   ≤20% No damage observed
Vibration	IEC60068-2-6	Fasten body to baseboard with solder perfectly and supply sine wave oscillation at frequency from 10 HZ to 55HZ all oscillation with 0.75 mm of Vibrato for 24 cycles in each of 3 naturally perpendicular plane for a total of 6 hours	ΔR/R25   ≤20% No damage observed
Shock	IEC60068-2-27	Putting the PTC product in the shock equipment shock wave: half-sine ΔV=1.0m/s;Acceleration:50m/s <sup>2</sup> ;Pulse time:30ms	ΔR/R25   ≤20% No damage observed
Climatic sequence	IEC60738-1	+40°C,20%R.H X 24hrs →100°C X 16hrs→25°C X 2hrs→ +40°C,95%R.HX 24hrs→ 0°C X 2hrs→+40°C,95%R.HX 24hrs→ 25°C X (1~2)hrs	ΔR/R25   ≤20% No damage observed
Insulation *	CECC42000	100±15V <sub>DC</sub> , 60±5S	≥ 100MΩ
Voltage Proof *	CECC42000	1000±10V <sub>rms</sub> , 60±5S	No damage observed
Humidity	IEC60068-2-3	40±2°C ,90~95%RH,12±2V <sub>DC</sub> * for 1000±2 hrs	ΔR/R25   ≤20% No damage observed
Temp. cycle	IEC60068-2-14	-40±3°C×30min.→+85±2°C×30min    ×5Cycles excessive time:2min<T<3min	ΔR/R25   ≤20% No damage observed
Endurance at upper category temperature	IEC60068-2-2	Ts+25°C, for 1000±2hrs	ΔR/R25   ≤20% No damage observed
Endurance at maximum operating temperature and maximum voltage	IEC60738-1	Ts+25°C, Vmax, Imax for 1000±2 hrs	ΔR/R25   ≤20% No damage observed
Climatic sequence	IEC60738-1	+40 °C,20%R.H X 24hrs →100 °C X 16hrs→25°C X 2hrs→ +40 °C,95%R.HX 24hrs→ 0 °C X 2hrs→+40 °C,95%R.H X 24hrs→25 °C X (1~2)hrs	ΔR/R25   ≤20% No damage observed

\* : Only application for PTM series

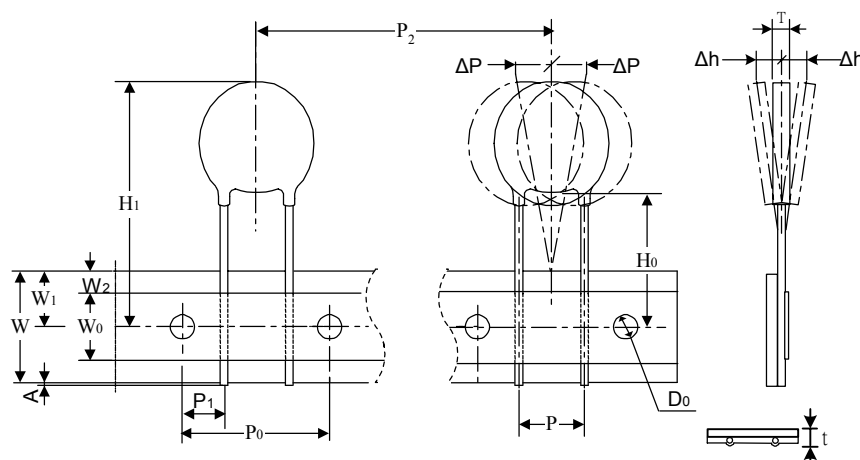
# CPTC Thermistor: PT Series

## Temperature Sensor



### ■ Packaging

#### ● Taping Specification

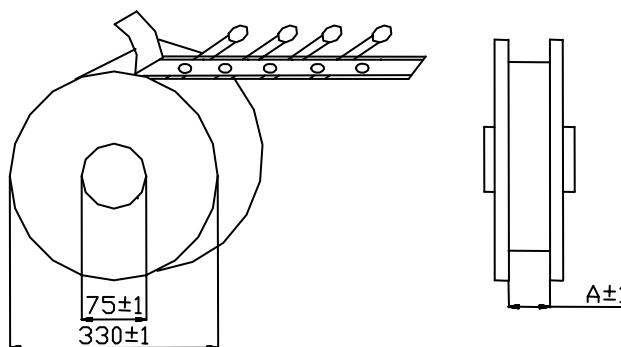


Taping Code	P <sub>0</sub> ±0.3	P ±0.3	P <sub>1</sub> ±1.0	H <sub>0</sub> ±1.0	W <sub>0</sub> ±1.0	W <sub>1</sub> ±1.0	W <sub>2</sub> ±1.0	W ±1.0	T Max	ΔP Max	Δh Max	A Max	D <sub>0</sub> ±0.2	t ±0.2	H <sub>1</sub> MAX
A(X)/R(W)	12.7	2.5	5.10	18.0	12.0	9.0	3.0	18.0	6.0	1.0	2.0	0.5	4.0	0.6	32.5

### ■ Quantity

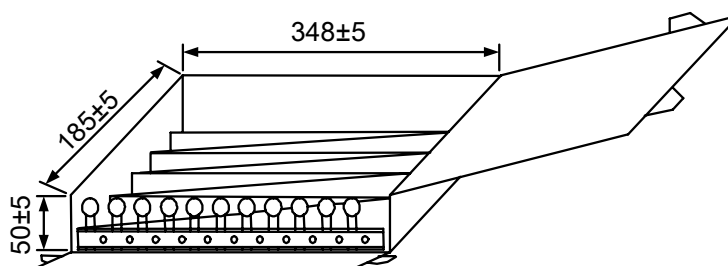
#### ● Reel Packing

2000pcs/reel



#### ● Ammo packing

1500pcs/box



#### ● Bulk Packing

Type	Quantity pcs/bag
PTL	500
PTM	200

# CPTC Thermistor: PT Series

## Temperature Sensor

---



### ■ Storage condition of products

- Storage Conditions :
  1. Storage Temperature :  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
  2. Relative humidity :  $\leq 75\% \text{RH}$
  3. Thermistor must be kept away from sunlight and stored in a non-corrosive atmosphere.
- Period of Storage : 1 year