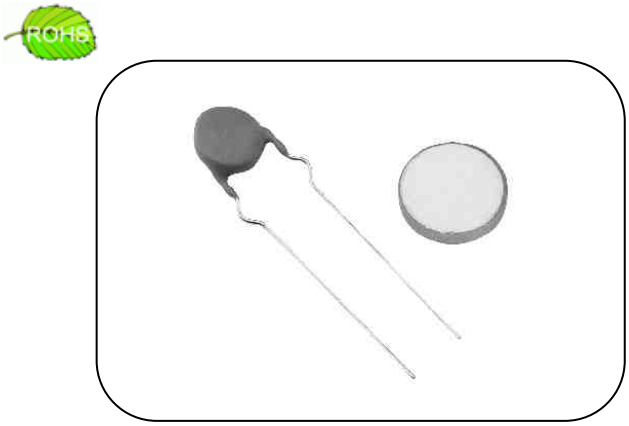
# CPTC Thermistor： PP Series

## Overload Protection

### ■ Features



1. RoHS compliant
2. PPD type are naked
3. PPL type are leaded
4. Low, medium and high voltage ratings
5. Low resistance; Small size
6. No need to reset supply after overload
7. No noise generated
8. Stable over a long time
9. Operating temperature range：0 ~ +60℃ (V=Vmax)
   -25 ~ +125℃ (V=0)
10. Agency Recognition: UL /cUL / CQC/TUV

### ■ Recommended Applications

1. Telecommunications (Program-controller)
2. Electrical equipment (Electrical machinery,Transformer)
3. Automotive electronics

### ■ Part Number Code

| P | P | L | 1 | 2 | 2 | 7 | 0 | M | A | 2 | B | 7 | Y | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

**Product Code**

| | |
|---|---|
| PP | PTC Thermistor for Overload Protection |

**Series**

| | |
|---|---|
| D | Disc Type |
| L | Lead Type |

**Dimensions**

| | |
|---|---|
| 07 | $\phi$ 7mm |
| 12 | $\phi$ 12mm |

**Resistance ($R_{25}$)**

| | |
|---|---|
| 2R0 | 2Ω |
| 270 | 27Ω |
| 102 | 1KΩ |

**Tolerance of $R_{25}$**

| | |
|---|---|
| M | ±20% |
| H | ±25% |
| N | ±30% |
| T | ±40% |
| P | ±50% |
| S | +35%~-15% |
| Q | +30%~-20% |
| Y | Special |

**Curie Temperature**

| | |
|---|---|
| P0 | 0℃ |
| P8 | 80℃ |
| A0 | 100℃ |
| A2 | 120℃ |
| A4 | 140℃ |

**Voltage**

| | |
|---|---|
| 06 | 6$V_{AC}$ |
| 99 | 99$V_{AC}$ |
| A4 | 140$V_{AC}$ |
| B7 | 270$V_{AC}$ |
| C8 | 380$V_{AC}$ |
| E9 | 590$V_{AC}$ |
| F0 | 600$V_{AC}$ |
| J0 | 1000$V_{AC}$ |

**Packaging**

| | |
|---|---|
| B(Y) | Bulk |
| A(X) | Ammo Box Pitch 12.7mm |
| E(V) | Ammo Box Pitch 15mm |
| R(W) | Taping & Reel Pitch 12.7mm |
| F(U) | Taping & Reel Pitch 15mm |

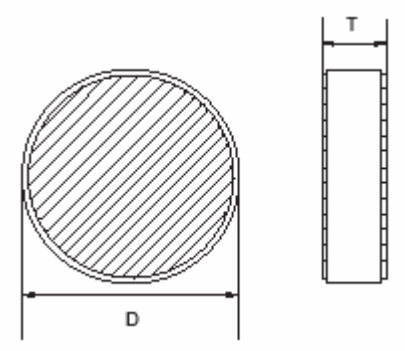
**Optional Suffix**

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

# CPTC Thermistor： PP Series
## Overload Protection

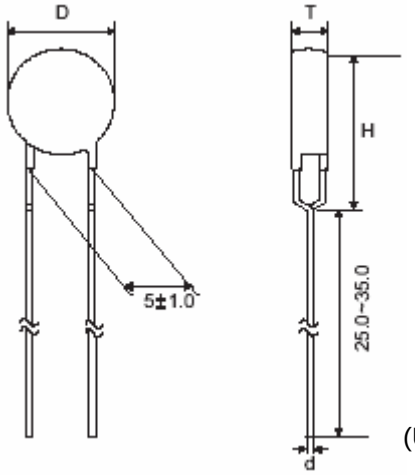
### ■ Dimensions

PPD Series




(Unit: mm)

PPL Series




(Unit: mm)

### ■ Characteristics

***PPD Series***

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 40℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | |
|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | D(mm) | T(mm) |
| PPD08120□P6B2 | 60±10 | 12 | 80 | 200 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD08150□P6B2 | | 15 | 80 | 190 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD08180□P6B2 | | 18 | 80 | 180 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD08100□P9B2 | 90±10 | 10 | 110 | 250 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD08120□P9B2 | | 12 | 110 | 250 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD08150□P9B2 | | 15 | 110 | 240 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD08180□P9B2 | | 18 | 110 | 240 | 220 | 2 | 8±0.5 | 1.5~2.2 |
| PPD06180□A0B2 | 100±10 | 18 | 110 | 200 | 220 | 2 | 6.5±0.5 | 1.5~2.2 |
| PPD05180□A1B2 | 110±10 | 18 | 110 | 200 | 220 | 2 | 5.5±0.5 | 1.5~2.2 |

Note: □=Tolerance of $R_{25}$

# CPTC Thermistor： PP Series

## Overload Protection

### *PPL Series*

#### 12$V_{AC}$ / 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{ma}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL04130□A212 | 120±10 | 13 | 120 | 240 | 12 | 0.7 | 6.5 | 3.5 | 0.6 | 10.5 | √ | √ | | |
| PPL054R6□A212 | | 4.6 | 250 | 500 | 12 | 1.0 | 7.0 | 3.5 | 0.6 | 10.5 | √ | √ | | |
| PPL081R8□A212 | | 1.8 | 450 | 900 | 12 | 3.0 | 10 | 3.5 | 0.6 | 13.5 | √ | √ | | |
| PPL091R0□A212 | | 1.0 | 410 | 1120 | 12 | 3.0 | 11 | 3.5 | 0.6 | 14.5 | √ | √ | | |
| PPL091R4□A212 | | 1.4 | 350 | 1060 | 12 | 3.0 | 11 | 3.5 | 0.6 | 14.5 | √ | √ | | |
| PPL101R2□A212 | | 1.2 | 600 | 1200 | 12 | 4.3 | 12 | 3.5 | 0.6 | 15.5 | √ | √ | | |
| PPL120R8□A212 | | 0.8 | 850 | 1700 | 12 | 5.5 | 14 | 3.5 | 0.6 | 17.5 | √ | √ | | |
| PPL140R4□A212 | | 0.4 | 950 | 2700 | 12 | 5.0 | 16 | 3.5 | 0.6 | 19.5 | √ | √ | | |
| PPL140R5□A212 | | 0.5 | 870 | 2450 | 12 | 5.0 | 16 | 3.5 | 0.6 | 19.5 | √ | √ | | |
| PPL140R9□A212 | | 0.9 | 430 | 1210 | 12 | 5.0 | 16 | 3.5 | 0.6 | 19.5 | √ | √ | | |
| PPL160R5□A212 | | 0.5 | 1300 | 2600 | 12 | 8.0 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL200R3□A212 | | 0.3 | 1800 | 3600 | 12 | 10.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |

#### 24$V_{AC}$/ 80℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL077R0□P824 | 80±10 | 7.0 | 90 | 360 | 24 | 2.0 | 9.0 | 3.5 | 0.6 | 12.5 | √ | √ | √ | √ |
| PPL07100□P824 | | 10 | 80 | 330 | 24 | 2.0 | 9.0 | 3.5 | 0.6 | 12.5 | √ | √ | √ | √ |
| PPL083R0□P824 | | 3.0 | 145 | 570 | 24 | 2.0 | 10 | 3.5 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL092R0□P824 | | 2.0 | 185 | 720 | 24 | 2.0 | 11 | 3.5 | 0.6 | 14.5 | √ | √ | √ | √ |

#### 24$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL084R7□A224 | 120±10 | 4.7 | 295 | 700 | 24 | 3.5 | 10 | 3.5 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL103R9□A224 | | 3.9 | 340 | 800 | 24 | 4.3 | 12 | 3.5 | 0.6 | 15.5 | √ | √ | √ | √ |
| PPL143R3□A224 | | 3.3 | 420 | 980 | 24 | 5.0 | 16 | 3.5 | 0.6 | 19.5 | √ | √ | √ | √ |

# CPTC Thermistor： PP Series

## Overload Protection

### 24V$_{AC}$/ 140℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL056R0□A424 | 140±10 | 6.0 | 270 | 540 | 24 | 2.5 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05130□A424 | | 13 | 180 | 360 | 24 | 1.7 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL073R0□A424 | | 3.0 | 410 | 820 | 24 | 4.5 | 9.0 | 5.0 | 0.6 | 12.5 | √ | √ | | |
| PPL075R0□A424 | | 5.0 | 320 | 640 | 24 | 3.5 | 9.0 | 5.0 | 0.6 | 12.5 | √ | √ | | |
| PPL081R9□A424 | | 1.9 | 540 | 1080 | 24 | 6.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL082R5□A424 | | 2.5 | 470 | 940 | 24 | 5.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL101R3□A424 | | 1.3 | 700 | 1400 | 24 | 8.0 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL101R7□A424 | | 1.7 | 610 | 1220 | 24 | 7.0 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL120R9□A424 | | 0.9 | 920 | 1840 | 24 | 11.0 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL121R1□A424 | | 1.1 | 830 | 1660 | 24 | 10.0 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL160R5□A424 | | 0.5 | 1390 | 2780 | 24 | 16.0 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL160R7□A424 | | 0.7 | 1170 | 2340 | 24 | 13.5 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL200R3□A424 | | 0.3 | 2050 | 4100 | 24 | 23.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |
| PPL200R4□A424 | | 0.4 | 1770 | 3540 | 24 | 20.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |

### 42V$_{AC}$/ 80℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL06150□P842 | 80±10 | 15 | 60 | 230 | 42 | 1.5 | 8.0 | 4.0 | 0.6 | 11.5 | √ | √ | √ | √ |
| PPL06220□P842 | | 22 | 45 | 220 | 42 | 1.1 | 8.0 | 4.0 | 0.6 | 11.5 | √ | √ | √ | √ |
| PPL06330□P842 | | 33 | 40 | 180 | 42 | 0.9 | 8.0 | 4.0 | 0.6 | 11.5 | √ | √ | √ | √ |
| PPL06470□P842 | | 47 | 35 | 150 | 42 | 0.7 | 8.0 | 4.0 | 0.6 | 11.5 | √ | √ | √ | √ |
| PPL06560□P842 | | 56 | 30 | 140 | 42 | 0.7 | 8.0 | 4.0 | 0.6 | 11.5 | √ | √ | √ | √ |

### 42V$_{AC}$/ 160℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL03510□A642 | 160±10 | 51 | 55 | 165 | 42 | 0.6 | 5.0 | 4.0 | 0.5 | 8.5 | | | | |
| PPL05240□A642 | | 24 | 95 | 285 | 42 | 1.0 | 7.0 | 4.0 | 0.6 | 10.5 | | | | |
| PPL089R1□A642 | | 9.1 | 175 | 525 | 42 | 3.0 | 10 | 4.0 | 0.6 | 13.5 | | | | |
| PPL095R1□A642 | | 5.1 | 290 | 870 | 42 | 4.5 | 11 | 4.0 | 0.6 | 14.5 | | | | |
| PPL113R6□A642 | | 3.6 | 360 | 1080 | 42 | 5.0 | 13.5 | 4.0 | 0.6 | 16.5 | | | | |

# CPTC Thermistor： PP Series

## Overload Protection

### 48$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL04420□A248 | 120±10 | 42 | 105 | 210 | 48 | 0.75 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL04600□A248 | | 60 | 90 | 180 | 48 | 0.6 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL04900□A248 | | 90 | 70 | 140 | 48 | 0.46 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL06220□A248 | | 22 | 155 | 310 | 48 | 1.3 | 8.0 | 5.0 | 0.6 | 11.5 | √ | √ | | |
| PPL06320□A248 | | 32 | 130 | 260 | 48 | 0.95 | 8.0 | 5.0 | 0.6 | 11.5 | √ | √ | | |
| PPL08180□A248 | | 18 | 195 | 390 | 48 | 1.6 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL10120□A248 | | 12 | 230 | 460 | 48 | 2.2 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL126R5□A248 | | 6.5 | 350 | 700 | 48 | 4.0 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL129R0□A248 | | 9.0 | 285 | 570 | 48 | 2.9 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL134R3□A248 | | 4.3 | 425 | 850 | 48 | 6.3 | 15 | 5.0 | 0.6 | 18.5 | √ | √ | | |
| PPL162R6□A248 | | 2.6 | 605 | 1210 | 48 | 12 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL163R8□A248 | | 3.8 | 505 | 1010 | 48 | 7.3 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL201R6□A248 | | 1.6 | 870 | 1750 | 48 | 18 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |
| PPL202R2□A248 | | 2.2 | 725 | 1450 | 48 | 14 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |

### 48$V_{AC}$/ 140℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05250□A448 | 140±10 | 25 | 130 | 260 | 48 | 1.2 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05500□A448 | | 50 | 94 | 188 | 48 | 0.8 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |

### 63$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL03510□A263 | 120±10 | 51 | 55 | 165 | 63 | 0.7 | 5.0 | 4.0 | 0.5 | 8.5 | √ | √ | √ | √ |
| PPL05240□A263 | | 24 | 90 | 270 | 63 | 1.0 | 7.0 | 4.0 | 0.6 | 10.5 | √ | √ | √ | √ |
| PPL089R1□A263 | | 9.1 | 160 | 480 | 63 | 3.0 | 10 | 4.0 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL095R1□A263 | | 5.1 | 280 | 850 | 63 | 4.5 | 11 | 4.0 | 0.6 | 14.5 | √ | √ | √ | √ |
| PPL113R6□A263 | | 3.6 | 320 | 960 | 63 | 5.0 | 13.5 | 4.0 | 0.6 | 16.5 | √ | √ | √ | √ |
| PPL152R4□A263 | | 2.4 | 460 | 1400 | 63 | 7.5 | 17.5 | 4.0 | 0.6 | 21.5 | √ | √ | √ | √ |
| PPL201R7□A263 | | 1.7 | 700 | 1400 | 63 | 10 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |

# CPTC Thermistor： PP Series

## Overload Protection

### 63$V_{AC}$/ 130℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL04620□A363 | 130±10 | 62 | 85 | 130 | 63 | 0.7 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05200□A363 | | 20 | 150 | 240 | 63 | 1.0 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL088R0□A363 | | 8.0 | 250 | 380 | 63 | 3.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL104R9□A363 | | 4.9 | 320 | 500 | 63 | 4.3 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL123R3□A363 | | 3.3 | 450 | 690 | 63 | 5.5 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL162R2□A363 | | 2.2 | 700 | 1100 | 63 | 8.0 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL201R2□A363 | | 1.2 | 1000 | 1500 | 63 | 10.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |

### 110$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL126R8□A2A1 | 120±10 | 6.8 | 290 | 660 | 110 | 1.0 | 14 | 4.5 | 0.6 | 17.5 | √ | √ | | |
| PPL12100□A2A1 | | 10 | 220 | 500 | 110 | 1.0 | 14 | 4.5 | 0.6 | 17.5 | √ | √ | | |
| PPL164R7□A2A1 | | 4.7 | 390 | 900 | 110 | 2.0 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |

### 110$V_{AC}$/ 140℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05280□A4A1 | 140±10 | 28 | 130 | 260 | 110 | 0.6 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05400□A4A1 | | 40 | 110 | 220 | 110 | 0.5 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05550□A4A1 | | 55 | 93 | 186 | 110 | 0.45 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05121□A4A1 | | 120 | 65 | 130 | 110 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05241□A4A1 | | 240 | 47 | 94 | 110 | 0.2 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL07120□A4A1 | | 12 | 210 | 420 | 110 | 1.4 | 9.0 | 5.0 | 0.6 | 12.5 | | | | |
| PPL07190□A4A1 | | 19 | 170 | 340 | 110 | 1.0 | 9.0 | 5.0 | 0.6 | 12.5 | | | | |
| PPL088R0□A4A1 | | 8.0 | 270 | 540 | 110 | 2.2 | 10 | 5.0 | 0.6 | 13.5 | | | | |
| PPL089R4□A4A1 | | 9.4 | 250 | 500 | 110 | 2.0 | 10 | 5.0 | 0.6 | 13.5 | | | | |
| PPL105R3□A4A1 | | 5.3 | 360 | 720 | 110 | 3.5 | 12 | 5.0 | 0.6 | 15.5 | | | | |
| PPL106R7□A4A1 | | 6.7 | 320 | 640 | 110 | 3.0 | 12 | 5.0 | 0.6 | 15.5 | | | | |
| PPL123R8□A4A1 | | 3.8 | 450 | 900 | 110 | 5.0 | 14 | 5.0 | 0.6 | 17.5 | | | | |
| PPL124R6□A4A1 | | 4.6 | 410 | 820 | 110 | 4.5 | 14 | 5.0 | 0.6 | 17.5 | | | | |
| PPL162R1□A4A1 | | 2.1 | 710 | 1420 | 110 | 8.5 | 17.5 | 5.0 | 0.6 | 21.5 | | | | |
| PPL162R9□A4A1 | | 2.9 | 600 | 1200 | 110 | 7.2 | 17.5 | 5.0 | 0.6 | 21.5 | | | | |
| PPL201R3□A4A1 | | 1.3 | 1000 | 2000 | 110 | 13 | 22 | 5.0 | 0.6 | 25.5 | | | | |
| PPL201R7□A4A1 | | 1.7 | 880 | 1760 | 110 | 11 | 22 | 5.0 | 0.6 | 25.5 | | | | |

# CPTC Thermistor： PP Series

## Overload Protection

**220$V_{AC}$/ 80℃**

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL03151□P8B2 | 80±10 | 150 | 15 | 60 | 220 | 0.3 | 5.0 | 5.0 | 0.5 | 8.5 | √ | √ | √ | √ |
| PPL05680□P8B2 | | 68 | 35 | 110 | 220 | 0.5 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | √ | √ |
| PPL07360□P8B2 | | 36 | 45 | 180 | 220 | 0.7 | 9.0 | 5.0 | 0.6 | 12.5 | √ | √ | √ | √ |
| PPL08220□P8B2 | | 22 | 65 | 195 | 220 | 1.2 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL09150□P8B2 | | 15 | 90 | 270 | 220 | 1.5 | 11 | 5.0 | 0.6 | 14.5 | √ | √ | √ | √ |
| PPL09180□P8B2 | | 18 | 75 | 225 | 220 | 1.3 | 11 | 5.0 | 0.6 | 14.5 | √ | √ | √ | √ |
| PPL11100□P8B2 | | 10 | 120 | 360 | 220 | 2.3 | 13.5 | 5.0 | 0.6 | 16.5 | √ | √ | √ | √ |
| PPL155R6□P8B2 | | 5.6 | 180 | 540 | 220 | 4.5 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | √ | √ |
| PPL203R9□P8B2 | | 3.9 | 240 | 720 | 220 | 7.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | √ | √ |
| PPL242R7□P8B2 | | 2.7 | 350 | 1050 | 220 | 9.5 | 26 | 5.0 | 0.8 | 29.5 | | | | |

# CPTC Thermistor： PP Series

## Overload Protection

**220$V_{AC}$/ 120℃**

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL03151□A2B2 | | 150 | 30 | 90 | 220 | 0.3 | 5.0 | 5.0 | 0.5 | 8.5 | √ | √ | √ | √ |
| PPL03302□A2B2 | | 3000 | 9 | 18 | 220 | 0.2 | 5.0 | 5.0 | 0.5 | 8.5 | √ | √ | | |
| PPL04381□A2B2 | | 380 | 35 | 70 | 220 | 0.25 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL04561□A2B2 | | 560 | 30 | 60 | 220 | 0.2 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL04851□A2B2 | | 850 | 25 | 50 | 220 | 0.16 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL04122□A2B2 | | 1200 | 20 | 40 | 220 | 0.13 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL04192□A2B2 | | 1900 | 15 | 30 | 220 | 0.11 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05750□A2B2 | | 75 | 50 | 150 | 220 | 0.5 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | √ | √ |
| PPL05181□A2B2 | | 180 | 29 | 70 | 220 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL06121□A2B2 | | 120 | 35 | 100 | 220 | 0.4 | 8.0 | 5.0 | 0.6 | 11.5 | √ | √ | √ | √ |
| PPL06201□A2B2 | | 200 | 50 | 100 | 220 | 0.35 | 8.0 | 5.0 | 0.6 | 11.5 | √ | √ | | |
| PPL06281□A2B2 | | 280 | 45 | 90 | 220 | 0.29 | 8.0 | 5.0 | 0.6 | 11.5 | √ | √ | | |
| PPL07560□A2B2 | | 56 | 60 | 200 | 220 | 0.8 | 9.0 | 5.0 | 0.6 | 12.5 | √ | √ | | |
| PPL07820□A2B2 | | 82 | 60 | 160 | 220 | 0.5 | 9.0 | 5.0 | 0.6 | 12.5 | √ | √ | | |
| PPL08240□A2B2 | | 24 | 100 | 300 | 220 | 1.1 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL08360□A2B2 | | 36 | 85 | 250 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL08390□A2B2 | | 39 | 75 | 240 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL08500□A2B2 | | 50 | 105 | 210 | 220 | 0.73 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL08510□A2B2 | 120±10 | 51 | 65 | 195 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL08620□A2B2 | | 62 | 55 | 165 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | √ | √ |
| PPL08720□A2B2 | | 72 | 90 | 180 | 220 | 0.6 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL09160□A2B2 | | 16 | 150 | 450 | 220 | 1.5 | 11 | 5.0 | 0.6 | 14.5 | √ | √ | √ | √ |
| PPL10150□A2B2 | | 15 | 140 | 280 | 220 | 1.5 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL10260□A2B2 | | 26 | 155 | 310 | 220 | 1.1 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL10390□A2B2 | | 39 | 100 | 250 | 220 | 1.2 | 12 | 5.0 | 0.6 | 15.5 | | | | |
| PPL11110□A2B2 | | 11 | 200 | 600 | 220 | 2.2 | 13.5 | 5.0 | 0.6 | 16.5 | √ | √ | √ | √ |
| PPL12100□A2B2 | | 10 | 230 | 650 | 220 | 2.3 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | √ | √ |
| PPL12140□A2B2 | | 14 | 230 | 460 | 220 | 1.7 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL12200□A2B2 | | 20 | 195 | 390 | 220 | 1.3 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL12270□A2B2 | | 27 | 120 | 350 | 220 | 1.5 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | √ | √ |
| PPL14180□A2B2 | | 18 | 180 | 450 | 220 | 1.8 | 16 | 5.0 | 0.6 | 19.5 | √ | √ | | |
| PPL156R2□A2B2 | | 6.2 | 320 | 960 | 220 | 4.0 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | √ | √ |
| PPL168R0□A2B2 | | 8.0 | 350 | 700 | 220 | 2.5 | 17.5 | 5.0 | 0.6 | 21.5 | √ | √ | | |
| PPL203R6□A2B2 | | 3.6 | 460 | 1380 | 220 | 7.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | √ | √ |
| PPL205R0□A2B2 | | 5.0 | 505 | 1010 | 220 | 3.6 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |
| PPL207R0□A2B2 | | 7.0 | 425 | 850 | 220 | 3.0 | 22 | 5.0 | 0.6 | 25.5 | √ | √ | | |
| PPL242R4□A2B2 | | 2.4 | 660 | 1980 | 220 | 10.5 | 26 | 5.0 | 0.8 | 29.5 | | | | |

# CPTC Thermistor： PP Series

## Overload Protection

### 220V$_{AC}$/ 130℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL04161□A3B2 | 130±10 | 160 | 55 | 90 | 220 | 0.2 | 6.5 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05500□A3B2 | | 50 | 100 | 150 | 220 | 0.4 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL08250□A3B2 | | 25 | 140 | 230 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | | | | |
| PPL10130□A3B2 | | 13 | 200 | 320 | 220 | 1.5 | 12 | 5.0 | 0.6 | 15.5 | | | | |
| PPL129R0□A3B2 | | 9.0 | 330 | 500 | 220 | 2.2 | 14 | 5.0 | 0.6 | 17.5 | | | | |
| PPL165R0□A3B2 | | 5.0 | 450 | 680 | 220 | 4.1 | 17.5 | 5.0 | 0.6 | 21.5 | | | | |
| PPL203R5□A3B2 | | 3.5 | 650 | 980 | 220 | 7.0 | 22 | 5.0 | 0.6 | 25.5 | | | | |

### 220V$_{AC}$/ 140℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL03181□A4B2 | 140±10 | 180 | 30 | 90 | 220 | 0.3 | 5.0 | 5.0 | 0.5 | 8.5 | √ | √ | | |
| PPL05560□A4B2 | | 56 | 95 | 190 | 220 | 0.6 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05750□A4B2 | | 75 | 60 | 180 | 220 | 0.4 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05850□A4B2 | | 85 | 76 | 152 | 220 | 0.55 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05121□A4B2 | | 120 | 63 | 126 | 220 | 0.45 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05261□A4B2 | | 260 | 39 | 78 | 220 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05501□A4B2 | | 500 | 28 | 56 | 220 | 0.2 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05122□A4B2 | | 1200 | 19 | 38 | 220 | 0.14 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05192□A4B2 | | 1900 | 15 | 30 | 220 | 0.11 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05302□A4B2 | | 3000 | 11 | 22 | 220 | 0.08 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL07290□A4B2 | | 29 | 140 | 280 | 220 | 0.8 | 9.0 | 5.0 | 0.6 | 12.5 | | | | |
| PPL07480□A4B2 | | 48 | 110 | 220 | 220 | 0.65 | 9.0 | 5.0 | 0.6 | 12.5 | | | | |
| PPL08180□A4B2 | | 18 | 190 | 380 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | | | | |
| PPL08220□A4B2 | | 22 | 170 | 340 | 220 | 0.9 | 10 | 5.0 | 0.6 | 13.5 | | | | |
| PPL08240□A4B2 | | 24 | 110 | 330 | 220 | 1.0 | 10 | 5.0 | 0.6 | 13.5 | | | | |
| PPL09160□A4B2 | | 16 | 150 | 450 | 220 | 1.5 | 11 | 5.0 | 0.6 | 14.5 | | | | |
| PPL10120□A4B2 | | 12 | 250 | 500 | 220 | 1.5 | 12 | 5.0 | 0.6 | 15.5 | | | | |
| PPL10170□A4B2 | | 17 | 210 | 420 | 220 | 1.3 | 12 | 5.0 | 0.6 | 15.5 | | | | |
| PPL119R1□A4B2 | | 9.1 | 220 | 660 | 220 | 2.5 | 13.5 | 5.0 | 0.6 | 16.5 | | | | |
| PPL128R4□A4B2 | | 8.4 | 320 | 640 | 220 | 2.2 | 14 | 5.0 | 0.6 | 17.5 | | | | |
| PPL12110□A4B2 | | 11 | 280 | 560 | 220 | 1.8 | 14 | 5.0 | 0.6 | 17.5 | | | | |
| PPL164R4□A4B2 | | 4.4 | 490 | 980 | 220 | 3.5 | 17.5 | 5.0 | 0.6 | 21.5 | | | | |
| PPL155R1□A4B2 | | 5.1 | 350 | 1050 | 220 | 4.5 | 17.5 | 5.0 | 0.6 | 21.5 | | | | |
| PPL166R6□A4B2 | | 6.6 | 400 | 800 | 220 | 3.0 | 17.5 | 5.0 | 0.6 | 21.5 | | | | |
| PPL202R8□A4B2 | | 2.8 | 700 | 1400 | 220 | 5.5 | 22 | 5.0 | 0.6 | 25.5 | | | | |
| PPL203R6□A4B2 | | 3.6 | 470 | 1400 | 220 | 5.0 | 22 | 5.0 | 0.6 | 25.5 | | | | |
| PPL204R0□A4B2 | | 4.0 | 590 | 1180 | 220 | 4.5 | 22 | 5.0 | 0.6 | 25.5 | | | | |

# CPTC Thermistor： PP Series

## Overload Protection

### 250$V_{AC}$/ 100℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL07220□A0B5 | 100±10 | 22 | 100 | 260 | 250 | 0.5 | 9.0 | 6.0 | 0.6 | 12.5 | √ | √ | | |

### 270$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL08390□A2B7 | 120±10 | 39 | 75 | 240 | 270 | 1.2 | 10 | 5.0 | 0.6 | 13.5 | √ | √ | | |
| PPL10390□A2B7 | | 39 | 100 | 250 | 270 | 1.2 | 12 | 5.0 | 0.6 | 15.5 | √ | √ | | |
| PPL12270□A2B7 | | 27 | 120 | 350 | 270 | 1.5 | 14 | 5.0 | 0.6 | 17.5 | √ | √ | | |
| PPL16500□A2B7 | | 50 | 320 | 160 | 270 | 4.0 | 18 | 7.0 | 0.6 | 21.5 | √ | √ | | |

### 300$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL10820□A2C0 | 120±10 | 82 | 80 | 250 | 300 | 0.5 | 12 | 5.5 | 0.6 | 15.5 | | | | |
| PPL10151□A2C0 | | 150 | 60 | 150 | 300 | 0.3 | 12 | 5.5 | 0.6 | 15.5 | | | | |
| PPL10351□A2C0 | | 350 | 35 | 100 | 300 | 0.3 | 12 | 5.5 | 0.6 | 15.5 | | | | |

### 380$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05601□A2C8 | 120±10 | 600 | 21 | 39 | 380 | 0.2 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |

### 400$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R$($V_{AC}$) | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05251□A2D0 | 120±10 | 250 | 32 | 65 | 400 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05381□A2D0 | | 380 | 30 | 56 | 400 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05561□A2D0 | | 560 | 22 | 44 | 400 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |

# CPTC Thermistor： PP Series

## Overload Protection

### 500$V_{AC}$/ 120℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05122□A2E0 | 120±10 | 1200 | 15 | 30 | 500 | 0.1 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05152□A2E0 | | 1500 | 12 | 24 | 500 | 0.1 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |

### 600$V_{AC}$/ 90℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05801□P9F0 | 90±10 | 800 | 18 | 36 | 600 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05102□P9F0 | | 1000 | 15 | 30 | 600 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |
| PPL05132□P9F0 | | 1300 | 13 | 26 | 600 | 0.3 | 7.0 | 5.0 | 0.6 | 10.5 | | | | |

### 600$V_{AC}$/ 100℃

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL05152□A0F0 | 100±10 | 1500 | 14 | 28 | 600 | 0.1 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |
| PPL05272□A0F0 | | 2700 | 10 | 20 | 600 | 0.2 | 7.0 | 5.0 | 0.6 | 10.5 | √ | √ | | |

### Non-coating Series

| Part No. | Curie Temperature | Nominal Zero-power Resistance | Non-operating Current at 25℃ | Trip Current at 25℃ | Voltage | Maximum Current | Dimensions | | | | Safety Approvals | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tc (℃) | $R_{25}$ (Ω) | $I_N$ (mA) | $I_t$ (mA) | $V_R(V_{AC})$ | $I_{max}$(A) | $D_{max}$ (mm) | $T_{max}$ (mm) | d±0.02 (mm) | $H_{max}$ (mm) | UL | cUL | CQC | TUV |
| PPL07131□A2C8 | 120±10 | 130 | 45 | 90 | 380 | 1 | 7.5 | 7 | 0.6 | 12.5 | √ | √ | | |
| PPL08700□A2C8 | | 70 | 64 | 127 | 380 | 1.4 | 8.5 | 7.0 | 0.6 | 13.5 | √ | √ | | |
| PPL08121□A2C8 | | 120 | 49 | 100 | 380 | 1.4 | 8.5 | 7.0 | 0.6 | 13.5 | √ | √ | | |
| PPL08151□A2C8 | | 150 | 43 | 86 | 380 | 1.4 | 8.5 | 7.0 | 0.6 | 13.5 | √ | √ | | |
| PPL11250□A2C8 | | 25 | 123 | 245 | 380 | 2.0 | 12.5 | 7.0 | 0.6 | 16.5 | √ | √ | | |
| PPL11500□A2C8 | | 50 | 87 | 173 | 380 | 2.0 | 12.5 | 7.0 | 0.6 | 16.5 | √ | √ | | |
| PPL11800□A2C8 | | 80 | 69 | 137 | 380 | 2.0 | 12.5 | 7.0 | 0.6 | 16.5 | √ | √ | | |
| PPL11121□A2C8 | | 120 | 56 | 112 | 380 | 2.0 | 12.5 | 7.0 | 0.6 | 16.5 | √ | √ | | |
| PPL11151□A2C8 | | 150 | 50 | 100 | 380 | 2.0 | 12.5 | 7.0 | 0.6 | 16.5 | √ | √ | | |
| PPL08501□A2E0 | | 500 | 24 | 48 | 500 | 1.0 | 8.5 | 7.0 | 0.6 | 13.5 | √ | √ | | |
| PPL08112□A2E0 | 120±10 | 1100 | 16 | 32 | 500 | 1.0 | 8.5 | 7.0 | 0.6 | 13.5 | √ | √ | | |
| PPL11501□A2E0 | | 500 | 28 | 55 | 500 | 1.4 | 12.5 | 7.0 | 0.6 | 16.5 | √ | √ | | |
| PPL11752□A1J0 | 110±10 | 7500 | 8 | 17 | 1000 | 0.5 | 12.5 | 7.0 | 0.6 | 16.5 | | | | |

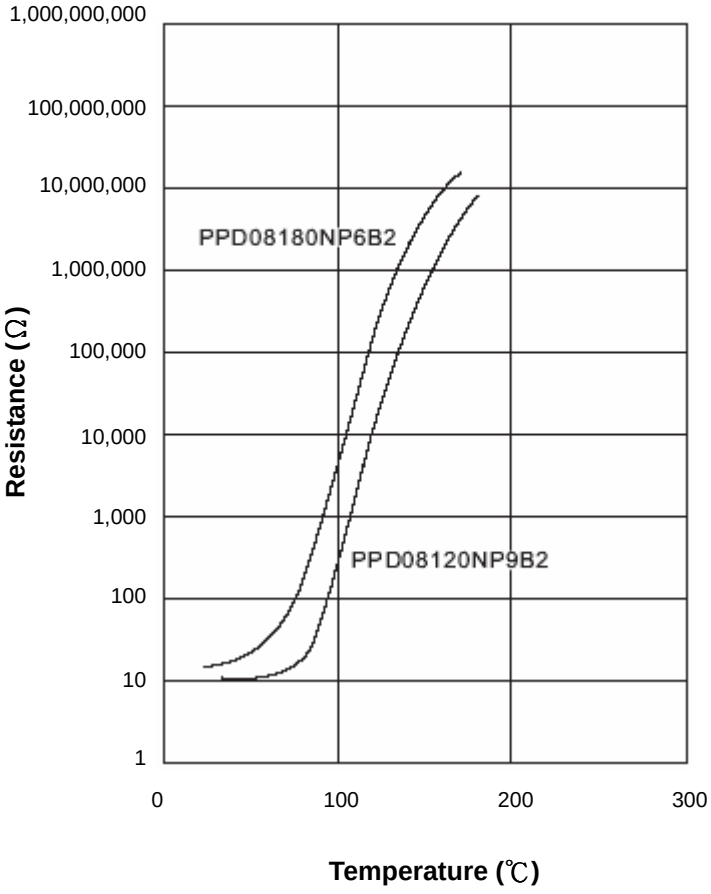
Note: □=Tolerance of $R_{25}$

Note: UL/cUL File No. E138827 CQC File No. CQC03001008123~124

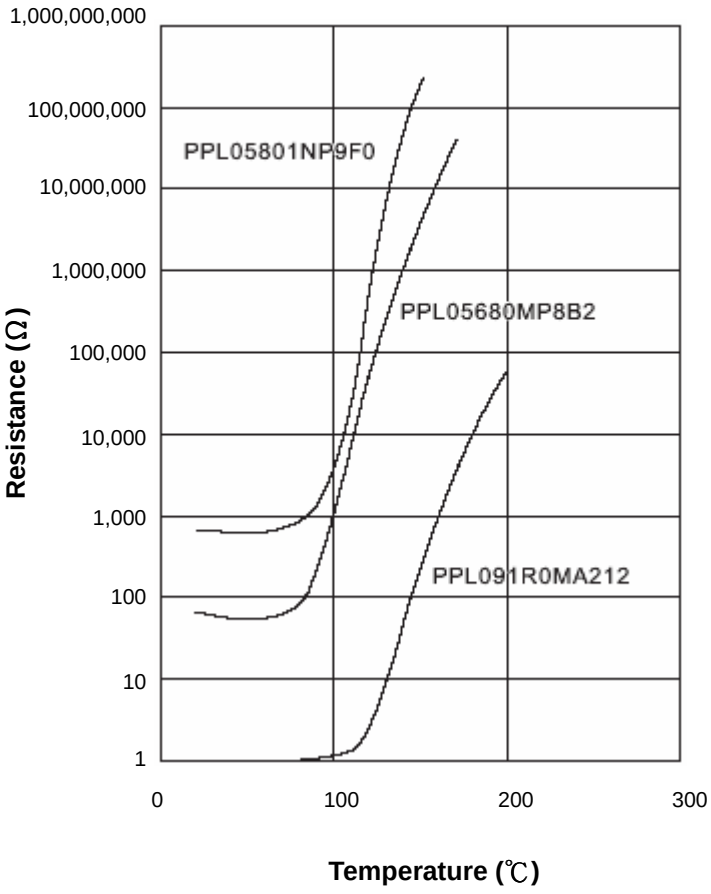
TUV File No. R50025585

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

PPD08120NP9B2~PPD08180NP6B2

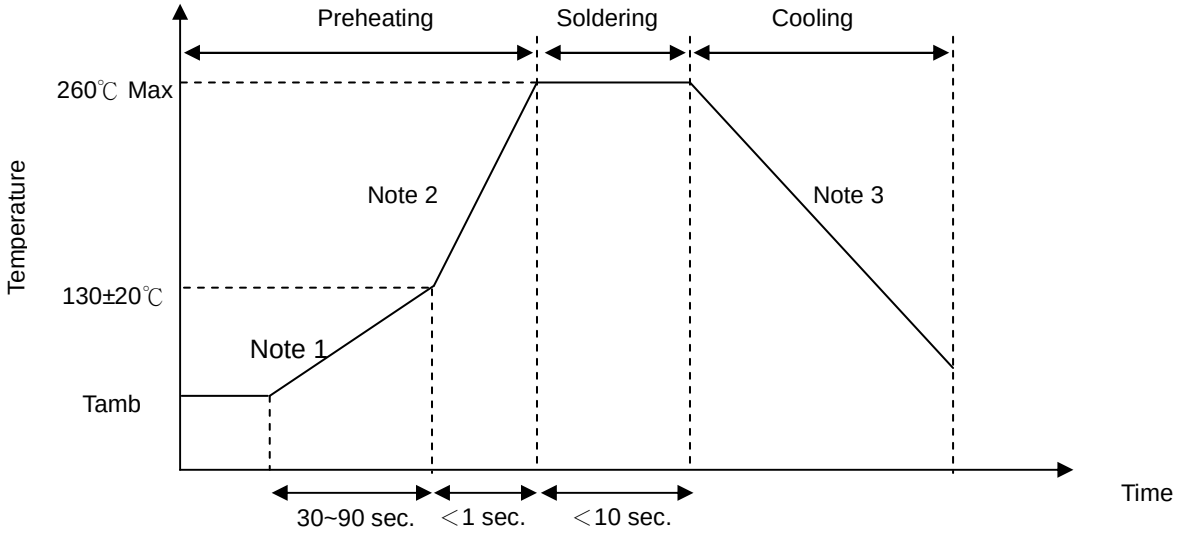



PPL091R0MA212~PPL05801NP9F0
~PPL05680MP8B2



### ■ Soldering Recommendation

#### ● Wave Flow Soldering Profile




Note 1: (1~3℃)/sec

Note 2: Approx. 200℃/sec

Note 3: 5℃/sec. (Max)

#### ● Recommended Reworking Conditions With Soldering Iron

| Item | Conditions |
|---|---|
| Temperature of Soldering Iron-tip | 360℃ (max.) |
| Soldering Time | 3 sec (max.) |
| Distance from Thermistor | 2 mm (min.) |

### ■ Reliability Test

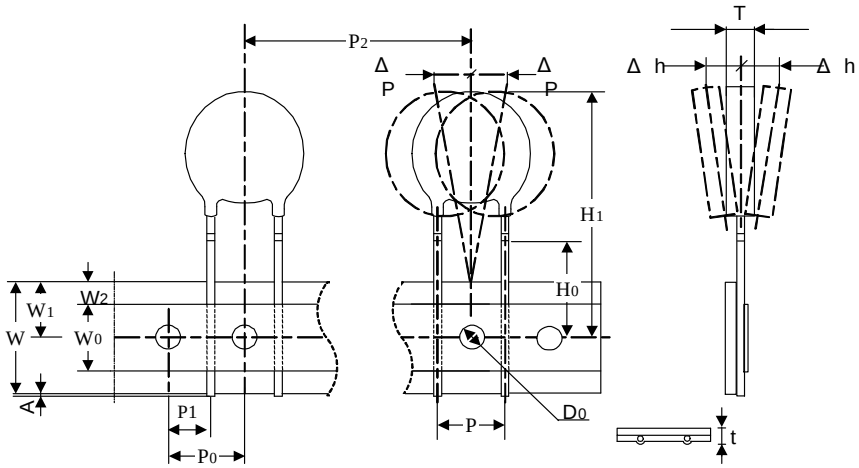
<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminals *</td><td>IEC60068-2-21</td><td>Fasten body and apply a force gradually to each lead for 10±1 sec.<br>Terminal diameter (mm) — Force T(N)<br>0.35<d≦0.5 — 5.0<br>0.5<d≦0.8 — 10.0<br>0.8<d≦1.25 — 20.0</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>Solderability*</td><td>IEC60068-2-20</td><td>255±5℃ ,3±0.5sec,<br>4±1mm from body .</td><td>At least 95% of terminal electrode is covered by new solder</td></tr>
<tr><td>Resistance to Soldering Heat *</td><td>IEC60068-2-20</td><td>350±10℃ ,3～4 sec,<br>4±1mm from body</td><td>｜△R/R25｜≦20%<br>No damage observed</td></tr>
<tr><td>Vibration *</td><td>IEC60068-2-6</td><td>Frequency range:10~55Hz<br>Amplitude:0.75mm or 98m/S2<br>Direction:3 mutually perpendicular directions<br>Duration :6HRS(3x2HRS)</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>Shock *</td><td>IEC60068-2-27</td><td>Wave: half-sine<br>⊿V:1.0m/s<br>Acceleration:50m/s2<br>Pulse time:30ms</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>Rapid Change of Temperature</td><td>IEC60068-2-14</td><td>T<br>The thermal shock conditions shown below shall be repeated 5 cycles
<table>
<tr><th>Step</th><th>Temperature (℃)</th><th>Period (minutes)</th></tr>
<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>100 ± 5</td><td>30 ± 3</td></tr>
<tr><td>4</td><td>Room temperature</td><td>5 ± 3</td></tr>
</table></td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>Climatic sequence</td><td>IEC60738-1</td><td>+40 ℃,20%R.H X 24hrs →100 ℃ X 16hrs→25℃ X 2hrs→ +40 ℃,95%R.HX 24hrs→ 0 ℃ X 2hrs→+40 ℃,95%R.HX 24hrs→ 25 ℃ X (1~2)hrs</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>High Temperature Storage</td><td>IEC60068-2-2</td><td>60 ℃, for 1000hrs</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>High Temperature Continuous Load</td><td>IEC60738-1</td><td>UCT=60℃, $V_R$, It≦I≦Imax<br>for 1000hrs</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>Damp Heat, Steady State</td><td>IEC60068-2-3</td><td>40±2℃,90~95%RH, for 1000±2hrs</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
<tr><td>Room Temperature Intermittent Load</td><td>IEC60738-1</td><td>25±5℃, $V_R$, It≦I≦Imax<br>1min. on and 5min. Off ×100、1,000、10,000 or 100,000cycles</td><td>｜△$R_{25}/R_{25}$｜≦20%<br>No visible damage</td></tr>
</table>

＊ : Only application for PPL series

## ■ Packaging

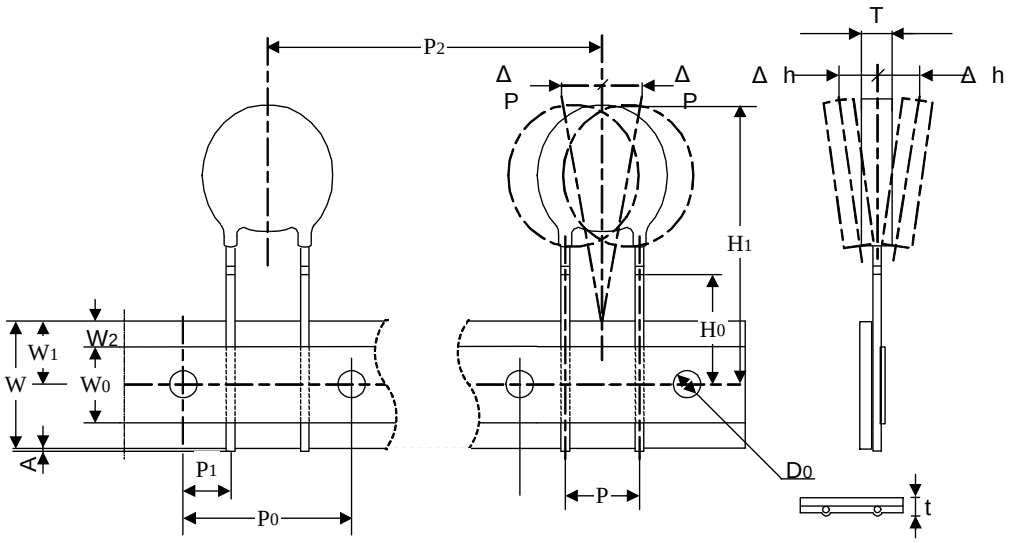
### ● Taping Specification

***Lead Space 7.5mm (P0=12.7mm)***




***Lead Space 2.5mm & 5.0mm & 7.5mm (P0=15mm)***

***Lead Space 2.5mm & 5.0mm (P0=12.7mm)***



(Unit: mm)

| Index | Parameter | Nominal dimensions | | | | Tolerance |
|---|---|---|---|---|---|---|
| P | Lead spacing | 5 | 7.5 | 5 | 7.5 | ±1 |
| P0 | Sprocket hole pitch | 12.7 | 12.7 | 15 | 15 | ±0.3 |
| P1 | Lead location | 3.85 | 8.95 | 5 | 3.75 | ±1 |
| P2 | Component pitch | 12.7 (D≦10) | | 15.0 (D≦10) | | ±1 |
| | | 25.4 (D>10) | | 30.0 (D>10) | | |
| H0 | Height between component and tape centre | 16 | 16 | 16 | 16 | ±0.5 |
| W | Carrier tape width | 18 | 18 | 18 | 18 | ±1 |
| W0 | Adhesive tape width | 12 | 12 | 12 | 12 | ±1 |
| W1 | Sprocket hole position | 9 | 9 | 9 | 9 | ±1 |
| W2 | Adhesive tape position | 3 | 3 | 3 | 3 | Max. 3 |
| △P | Component alignment | 1 | 1 | 1 | 1 | Max. 1 |
| △h | Component alignment | 2 | 2 | 2 | 2 | Max. 2 |
| A | Tip length | 0.5 | 0.5 | 0.5 | 0.5 | Max. 0.5 |
| $D_0$ | Sprocket hole diameter | 4 | 4 | 4 | 4 | ±0.2 |
| t | Total tape thickness | 0.6 | 0.6 | 0.6 | 0.6 | ±0.2 |

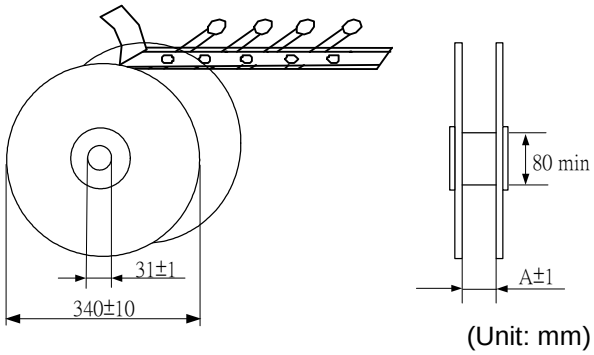
## ■ Quantity

### ● Bulk Packing

| Disc Size/mm | Quantity (pcs/bag) |
|---|---|
| Φ≦10 | 200 |
| 10<Φ<20 | 100 |
| Φ≧20 | 50 |

### ● Reel Packing

| Disc Size/mm | Voltage($V_R$) | Quantity/Reel |
|---|---|---|
| Φ≦07 | $V_R$≦270$V_{AC}$ | 1500 |
| | $V_R$＞270$V_{AC}$ | 1000 |
| 07＜Φ≦12 | $V_R$≦270$V_{AC}$ | 1000 |
| | $V_R$＞270$V_{AC}$ | 750 |
| 12＜Φ≦16 | $V_R$≦270$V_{AC}$ | 750 |
| | $V_R$＞270$V_{AC}$ | 500 |
| | $V_R$≦270$V_{AC}$ | 500 |
| | $V_R$＞270$V_{AC}$ | 250 |

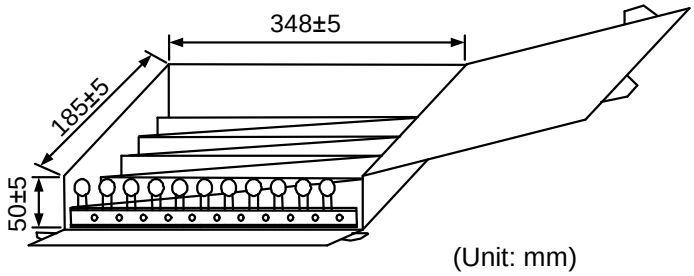



(Unit: mm)

| Disc Size | Φ＜16 | Φ≧16 |
|---|---|---|
| A | 46 | 55 |

### ● Ammo packing

| Disc Size/mm | Voltage($V_R$) | Quantity/box |
|---|---|---|
| Φ≦07 | $V_R$≦270$V_{AC}$ | 1000 |
| | $V_R$＞270$V_{AC}$ | 750 |
| 07＜Φ≦12 | $V_R$≦270$V_{AC}$ | 750 |
| | $V_R$＞270$V_{AC}$ | 500 |
| 12＜Φ≦16 | $V_R$≦270$V_{AC}$ | 500 |
| | $V_R$＞270$V_{AC}$ | 250 |
| Φ＞16 | --- | 250 |




(Unit: mm)

## ■ Storage Conditions of Products

- Storage Conditions：
  1. Storage Temperature ： -10℃~+40℃
  2. Relative Humidity： ≦75%RH
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage ：1 year