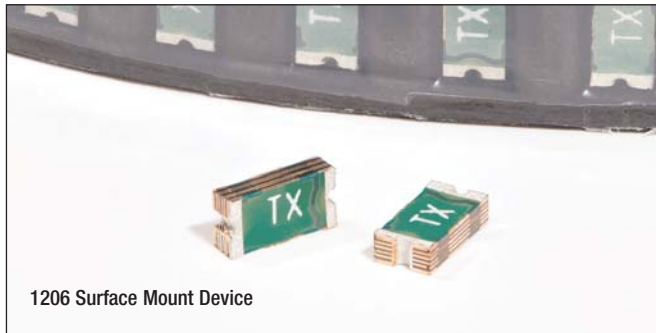


6-60 Volt DC Surface Mount, PolyTron™ PTC Devices

PolyTron™ PTS1206 Series



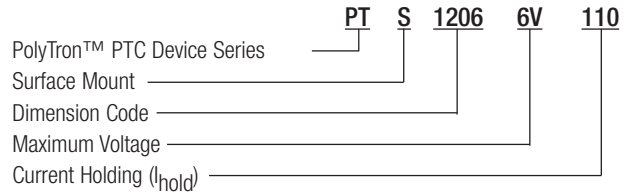
Description

- PolyTron™ surface mount PTC device
- 6 to 60 volts
- Current ratings from 0.05 to 2.0 amps
- Fast time-to-trip
- Low resistance
- Halogen free
- Lead free
- RoHS compliant

Agency Information

- cURus: Recognized Card: File E343021 (I_{hold} 0.05-2.0A)
- TUV File: R 50192872

Part Number System/Ordering



Tape and Reel Packaging/Quantities

- PTS120630V012, PTS120630V016, PTS120624V020, PTS120616V025, PTS120616V035, PTS12066V050, PTS12066V075 - 5000 PTC devices per reel
- All others - 2500 PTC devices per reel

Applications

- Medical equipment
- White goods
- Telecommunications
- Computers and peripherals
- Rechargeable battery packs

Specifications

| Catalog Number | Mark On Part | V _{max} (Vdc) | I _{max} (Amps) | I _{hold} @23°C (Amps) | I _{trip} @23°C (Amps) | Pd Typ. (W) | Time to Trip (Max.) | | Resistance (Ω) | | Agency Information | |
|----------------|--------------|------------------------|-------------------------|--------------------------------|--------------------------------|-------------|---------------------|-------|--------------------------------|----------------------------------|--------------------|---|
| | | | | | | | | | Initial (R _i) Min. | Post Trip (R ₁) Max. | | |
| | | | | | | | (Amps) | (Sec) | | | | |
| PTS120660V005 | TH | 60 | 100 | 0.05 | 0.15 | 0.4 | 0.25 | 1.5 | 3.6 | 50 | X | X |
| PTS120660V010 | TY | 60 | 100 | 0.10 | 0.25 | 0.4 | 0.50 | 1.0 | 1.6 | 15 | X | X |
| PTS120630V012 | TJ | 30 | 100 | 0.12 | 0.29 | 0.5 | 1.00 | 0.2 | 1.4 | 6 | X | X |
| PTS120630V016 | TK | 30 | 100 | 0.16 | 0.37 | 0.5 | 1.00 | 0.3 | 1.1 | 4.5 | X | X |
| PTS120624V020 | TL | 24 | 100 | 0.20 | 0.42 | 0.6 | 8.00 | 0.1 | 0.65 | 2.6 | X | X |
| PTS120616V025 | TN | 16 | 100 | 0.25 | 0.50 | 0.6 | 8.00 | 0.08 | 0.55 | 2.3 | X | X |
| PTS120616V035 | TP | 16 | 100 | 0.35 | 0.75 | 0.6 | 8.00 | 0.1 | 0.3 | 1.2 | X | X |
| PTS12066V050 | TQ | 6 | 100 | 0.50 | 1.00 | 0.6 | 8.00 | 0.1 | 0.15 | 0.7 | X | X |
| PTS120615V050 | TQ1 | 15 | 100 | 0.50 | 1.00 | 0.6 | 8.00 | 0.1 | 0.15 | 0.7 | X | X |
| PTS12066V075 | TR | 6 | 100 | 0.75 | 1.50 | 0.6 | 8.00 | 0.1 | 0.1 | 0.29 | X | X |
| PTS12066V100 | TS | 6 | 100 | 1.00 | 1.80 | 0.8 | 8.00 | 0.3 | 0.065 | 0.21 | X | X |
| PTS12066V110 | TU | 6 | 100 | 1.10 | 2.20 | 0.8 | 8.00 | 0.1 | 0.07 | 0.2 | X | X |
| PTS12066V150 | TV | 6 | 100 | 1.50 | 3.00 | 0.8 | 8.00 | 0.3 | 0.04 | 0.12 | X | X |
| PTS12066V200 | TX | 6 | 100 | 2.00 | 3.50 | 1.0 | 8.00 | 1.5 | 0.02 | 0.08 | X | X |

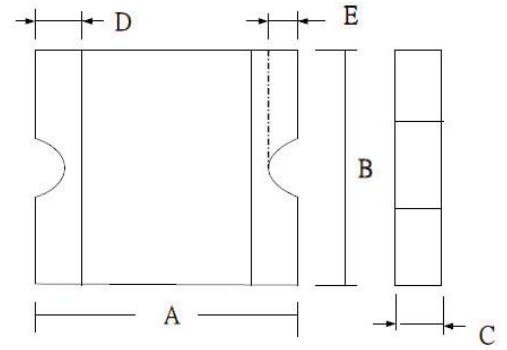
Notes:

- I_{hold} – Hold current: Maximum current device will pass without interruption in 23°C still air.
- I_{trip} – Trip current: Minimum current that will switch the device from low resistance to high resistance in 23°C still air.
- V_{max}: Maximum continuous voltage device can withstand without damage at rated current.
- I_{max}: Maximum fault current device can withstand without damage at rated voltage.
- P_d: Power dissipated from device when in the tripped state in 23°C still air.
- R_i (min.): Minimum resistance of device as supplied at 23°C unless otherwise specified.
- R₁ (max.): Maximum resistance of device when measured one hour post reflow (SMD) or one hour post trip (radial-leaded device) at 23°C unless otherwise specified.

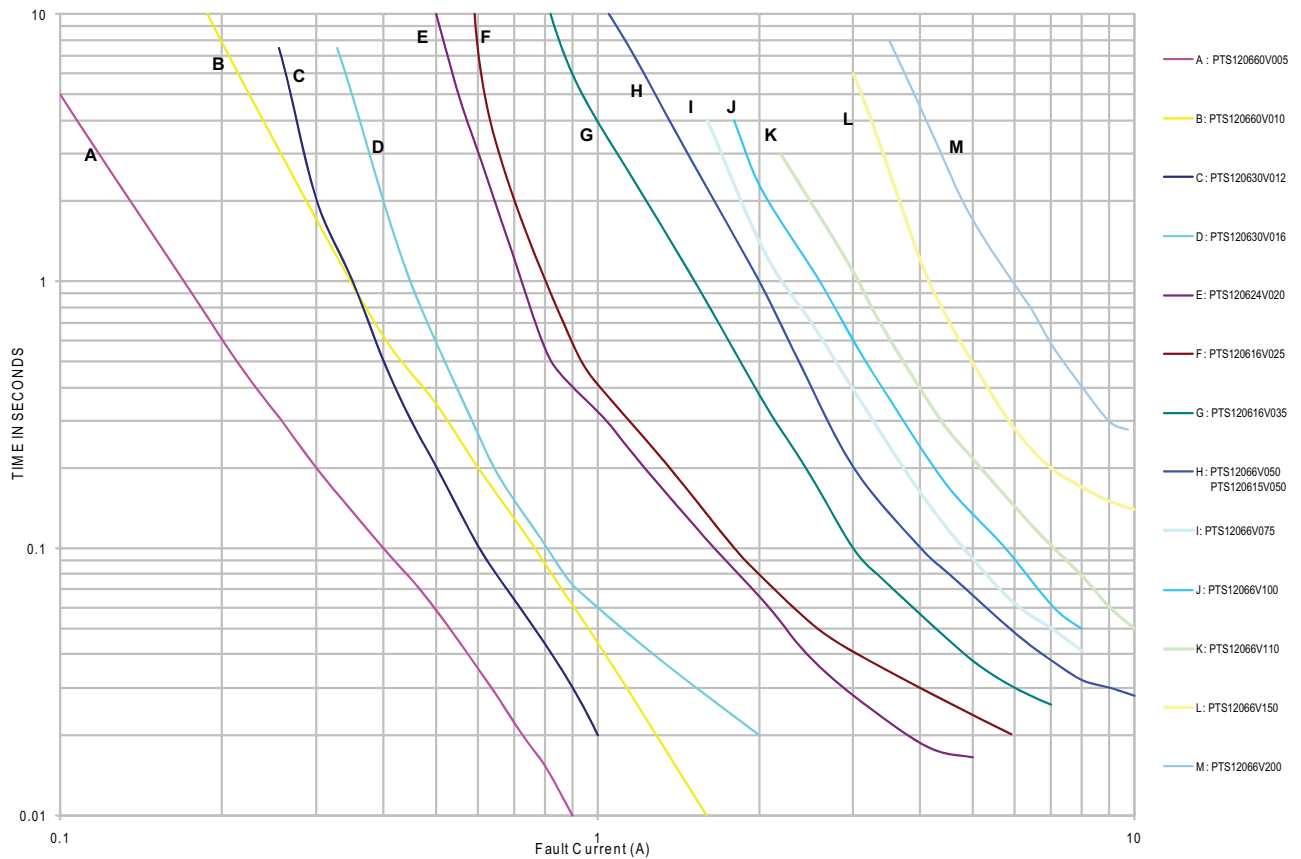
Dimensions - mm

| Part Number | A | | B | | C | | D | | E | |
|---------------|------|------|------|------|------|------|-------|------|------|--|
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Min. | Max. | |
| PTS120660V005 | 3.00 | 3.50 | 1.50 | 1.80 | 0.50 | 0.90 | 0.125 | 0.08 | 0.45 | |
| PTS120660V010 | 3.00 | 3.50 | 1.50 | 1.80 | 0.50 | 0.90 | 0.125 | 0.08 | 0.45 | |
| PTS120630V012 | 3.00 | 3.50 | 1.50 | 1.80 | 0.35 | 0.90 | 0.125 | 0.08 | 0.45 | |
| PTS120630V016 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 0.68 | 0.125 | 0.08 | 0.45 | |
| PTS120624V020 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 0.68 | 0.125 | 0.08 | 0.45 | |
| PTS120616V025 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 0.68 | 0.125 | 0.08 | 0.45 | |
| PTS120616V035 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 0.68 | 0.125 | 0.08 | 0.45 | |
| PTS12066V050 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 0.68 | 0.125 | 0.08 | 0.45 | |
| PTS120615V050 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 1.06 | 0.125 | 0.08 | 0.45 | |
| PTS12066V075 | 3.00 | 3.50 | 1.50 | 1.80 | 0.28 | 0.85 | 0.125 | 0.08 | 0.45 | |
| PTS12066V100 | 3.00 | 3.50 | 1.50 | 1.80 | 0.40 | 0.88 | 0.125 | 0.08 | 0.45 | |
| PTS12066V110 | 3.00 | 3.50 | 1.50 | 1.80 | 0.40 | 0.88 | 0.125 | 0.08 | 0.45 | |
| PTS12066V150 | 3.00 | 3.50 | 1.50 | 1.80 | 0.55 | 1.15 | 0.125 | 0.08 | 0.45 | |
| PTS12066V200 | 3.00 | 3.50 | 1.50 | 1.80 | 0.55 | 1.15 | 0.125 | 0.08 | 0.45 | |

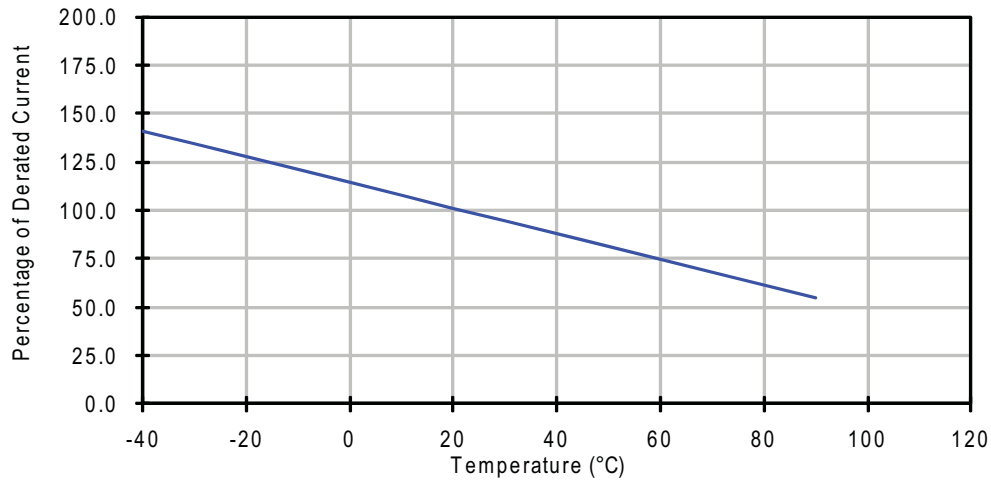
1206 Package



Time-to-Trip Curves at 23°C



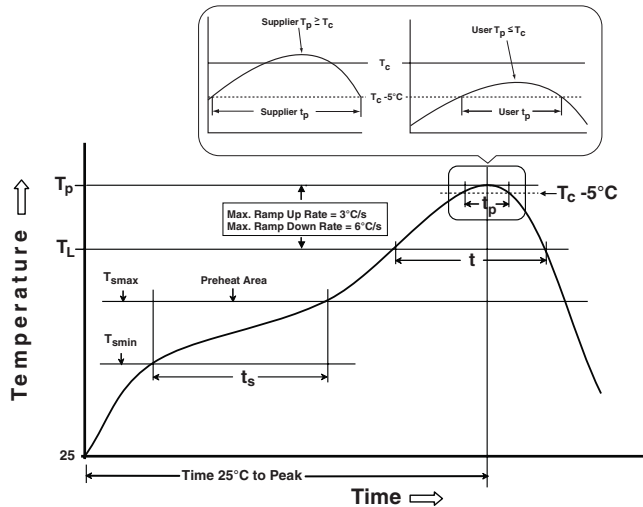
Thermal Derating Curve



Soldering Methods

- Wave Solder
 - Reservoir Temperature: 260°C (500°F)
 - Recommended time in reservoir: 10 seconds.
- Infrared Reflow
 - Temperature: 260°C
 - Time: 10 seconds maximum at peak temperature.

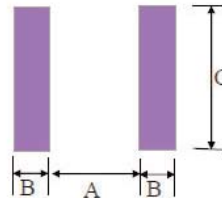
Recommended Wave Solder Profile



Environmental Specifications

| Characteristic | Value |
|--------------------------------|---------------------------------------------------------------------------------------------------|
| Operating Temperature Range | -40°C to +85°C |
| Surface Temperature Trip State | 125°C max. |
| Thermal Shock | +85°C to -40°C, 10 cycles, 5% typical resistance change |
| Solvent Resistance | MIL-STD-202 Method 215, no change |
| Humidity Age Test | +85°C, 85% RH, 1000 hours ±5% typical resistance change. Specified temperature (23°C ± 3°C) |
| Storage Temperature Range | -10°C to +40°C |
| Storage Duration | One year |
| Storage Relative Humidity | ≤75% |
| Storage Conditions | Keep away from corrosive atmosphere and sunlight |

Recommended Land Pattern - mm (in)



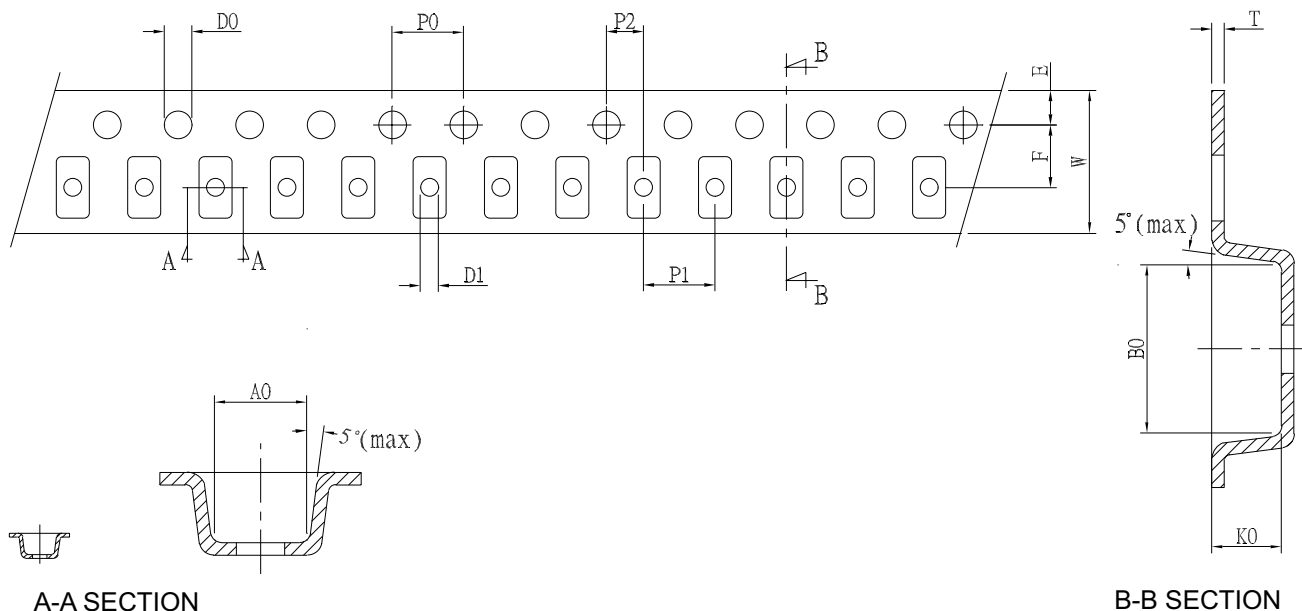
| A | B | C |
|-------------|-------------|-------------|
| 2.0 (0.079) | 1.0 (0.039) | 1.9 (0.075) |

Material Composition

- Terminal material: Nickel/tin-plated copper

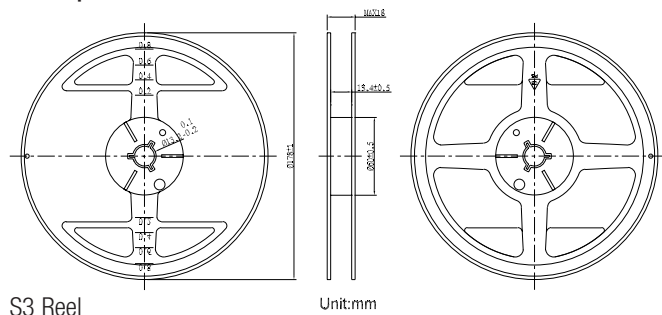
| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|
| Preheat & Soak | | |
| Temperature min (T_{smin}) | 100°C | 150°C |
| Temperature max (T_{smax}) | 150°C | 200°C |
| Time (T_{smin} to T_{smax}) (t_s) | 60-120 seconds | 60-120 seconds |
| Average ramp-up rate (T_{smax} to T_p) | 3°C/second max. | 3°C/second max. |
| Liquidous temperature (T_L) | 183°C | 217°C |
| Time at liquidous (t_l) | 60-150 seconds | 60-150 seconds |
| Peak package body temperature (T_p)* | See classification temp in Table 4.1 | See classification temp in Table 4.2 |
| Time (t_p)** within 5°C of the specified classification temperature (T_c) | 20** seconds | 30** seconds |
| Average ramp-down rate (T_p to T_{smax}) | 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. | | |
| ** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum. | | |

Packaging Specifications



| For PTS120660V005, PTS120660V010, PTS120615V050, PTS12066V100, PTS12066V110, PTS12066V150, PTS12066V200 | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------|------|------|------|------|------|-------|-------|------|-------|---------|------|------|------|
| Index | A0 | B0 | K0 | P0 | P1 | P2 | T | E | F | D0 | D1 | W | 10P0 |
| Type | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.05 | ±0.1 | ±0.05 | +0.1/-0 | Min. | ±0.1 | ±0.2 |
| 1206 | 1.95 | 3.55 | 1.35 | 4.0 | 4.0 | 2.0 | 0.25 | 1.75 | 3.5 | 1.5 | 1.0 | 8.1 | 40.0 |
| For PTS120630V012, PTS120630V016, PTS120624V020, PTS120616V025, PTS120616V035, PTS12066V050, PTS12066V075 | | | | | | | | | | | | | |
| Index | A0 | B0 | K0 | P0 | P1 | P2 | T | E | F | D0 | D1 | W | 10P0 |
| Type | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.05 | ±0.1 | ±0.1 | ±0.05 | ±0.05 | Min. | ±0.3 | ±0.2 |
| 1206 | 1.85 | 3.45 | 0.74 | 4.0 | 4.0 | 2.0 | 0.25 | 1.75 | 3.5 | 1.55 | 1.0 | 8.0 | 40.0 |

Reel Specifications



S3 Reel

Unit:mm

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