

PTR060V

60 Volt DC radial leaded, PolyTron™ PTC devices



Product features

- PolyTron™ radial leaded thru-hole PTC device
- Maximum 60 V
- Current ratings from 0.10 A to 3.75 A
- Fast time-to-trip
- Low resistance
- Halogen free, Lead free, RoHS compliant

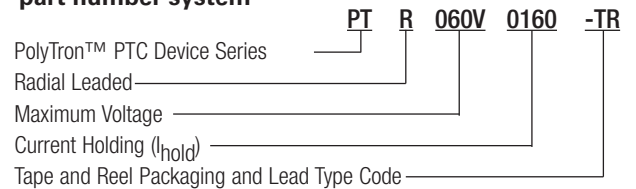
Applications

- Medical equipment
- White goods
- Industrial power transmission
- Telecommunications
- Computers and peripherals
- Consumer and automotive electronics
- Rechargeable battery packs

Agency information

- cURus: Recognized Card: File E343021 (Ihold 0.1-3.75 A)
- TUV File: J 50194729

Ordering information/ part number system



Lead Codes: TR & BK - Straight Leads, TR1 & BK1 - Kinked Leads

- | | |
|------------------------------------|----------------------------------|
| TR & TR1 On Reels | BK & BK1 In Poly Bags |
| • 0.10, 0.20-0.40 A - 3000 devices | • 0.10-0.25 A - 1000 devices |
| • 0.17 - 2,500 A devices | • 0.30-1.85 A - 500 devices |
| • 0.50-0.090 A - 2000 devices | • 2.50-3.75 A - 250 devices |
| • 1.10-1.85 A - 1200 devices | |
| • 2.50-3.75 A - 1000 devices | |

| Specifications | | | | | | | | | | | | |
|----------------|------------------------|----------------------|-------------------------------|-------------------------------|-------------------------|---------------------|-------|----------------|-------|----------------------------------|--------------------|-----|
| Catalog Number | V _{max} (Vdc) | I _{max} (A) | I _{hold} @+23 °C (A) | I _{trip} @+23 °C (A) | P _d Typ. (W) | Time to Trip (Max.) | | Resistance (Ω) | | | Agency Information | |
| | | | | | | (A) | (sec) | Initial (R) | | Post Trip (R _f) Max. | cURus | TUV |
| | | | | | | | | Min. | Max. | | | |
| PTR060V0010 | 60 | 40 | 0.10 | 0.20 | 0.38 | 0.50 | 4.0 | 2.500 | 4.500 | 7.50 | X | X |
| PTR060V0017 | 60 | 40 | 0.17 | 0.34 | 0.48 | 0.85 | 3.0 | 3.300 | 5.210 | 8.00 | X | X |
| PTR060V0020 | 60 | 40 | 0.20 | 0.40 | 0.41 | 1.00 | 2.2 | 1.830 | 2.750 | 4.40 | X | X |
| PTR060V0025 | 60 | 40 | 0.25 | 0.50 | 0.45 | 1.25 | 2.5 | 1.250 | 1.950 | 3.00 | X | X |
| PTR060V0030 | 60 | 40 | 0.30 | 0.60 | 0.49 | 1.50 | 3.0 | 0.880 | 1.330 | 2.10 | X | X |
| PTR060V0040 | 60 | 40 | 0.40 | 0.80 | 0.56 | 2.00 | 3.8 | 0.550 | 0.860 | 1.29 | X | X |
| PTR060V0050 | 60 | 40 | 0.50 | 1.00 | 0.77 | 2.50 | 4.0 | 0.500 | 0.770 | 1.17 | X | X |
| PTR060V0065 | 60 | 40 | 0.65 | 1.30 | 0.88 | 3.25 | 5.3 | 0.310 | 0.480 | 0.72 | X | X |
| PTR060V0075 | 60 | 40 | 0.75 | 1.50 | 0.92 | 3.75 | 6.3 | 0.250 | 0.400 | 0.60 | X | X |
| PTR060V0090 | 60 | 40 | 0.90 | 1.80 | 0.99 | 4.50 | 7.2 | 0.200 | 0.310 | 0.47 | X | X |
| PTR060V0110 | 60 | 40 | 1.10 | 2.20 | 1.50 | 5.50 | 8.2 | 0.150 | 0.250 | 0.38 | X | X |
| PTR060V0135 | 60 | 40 | 1.35 | 2.70 | 1.70 | 6.75 | 9.6 | 0.120 | 0.190 | 0.30 | X | X |
| PTR060V0160 | 60 | 40 | 1.60 | 3.20 | 1.90 | 8.00 | 11.4 | 0.090 | 0.140 | 0.22 | X | X |
| PTR060V0185 | 60 | 40 | 1.85 | 3.70 | 2.10 | 9.25 | 12.6 | 0.080 | 0.120 | 0.19 | X | X |
| PTR060V0250 | 60 | 40 | 2.50 | 5.00 | 2.50 | 12.50 | 15.6 | 0.050 | 0.080 | 0.13 | X | X |
| PTR060V0300 | 60 | 40 | 3.00 | 6.00 | 2.80 | 15.00 | 19.8 | 0.040 | 0.060 | 0.10 | X | X |
| PTR060V0375 | 60 | 40 | 3.75 | 7.50 | 3.20 | 18.75 | 24.0 | 0.030 | 0.050 | 0.08 | X | X |

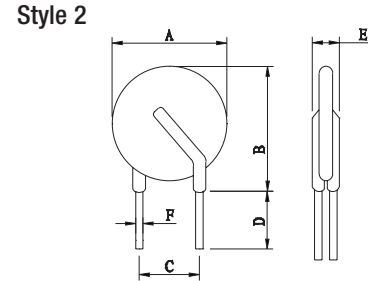
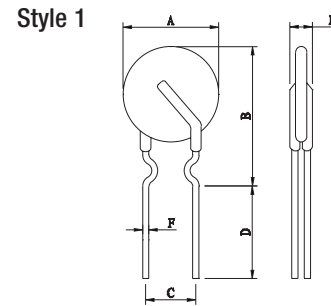
Notes: I_{hold} – Hold current: Maximum current device will pass without interruption in +23 °C still air.
I_{trip} – Trip current: Minimum current that will switch the device from low resistance to high resistance in +23 °C still air.
V_{max}: Maximum continuous voltage device can withstand without 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_f (min.): Minimum resistance of device as supplied at +23 °C unless otherwise specified.
R_f (max.): Maximum resistance of device as supplied at +23 °C unless otherwise specified.
R_f (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.



Powering Business Worldwide

Dimensions - mm

| Part Number | A Max. | B Max Lead Type | | C | D Min. | E Max. | F | Figure/Lead Style | |
|-------------|--------|-----------------|-------------|----------|--------|--------|----------|-------------------|----------|
| | | Straight (-TR) | Kink (-TR1) | | | | | Straight TR | Kink TR1 |
| PTR060V0010 | 7.4 | 12.7 | 12.7 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0017 | 7.4 | 12.7 | 12.7 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0020 | 7.4 | 12.2 | 12.2 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0025 | 7.4 | 12.7 | 12.7 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0030 | 7.4 | 13.0 | 13.0 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0040 | 7.6 | 13.5 | 13.5 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0050 | 7.6 | 13.7 | 13.7 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0065 | 9.7 | 14.5 | 14.5 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0075 | 10.4 | 15.2 | 15.2 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0090 | 11.7 | 15.7 | 15.7 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR060V0110 | 13.0 | 18.0 | 18.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR060V0135 | 14.5 | 19.6 | 19.6 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR060V0160 | 16.3 | 21.3 | 21.3 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR060V0185 | 17.8 | 22.9 | 22.9 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR060V0250 | 21.3 | 26.4 | 26.4 | 10.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR060V0300 | 24.9 | 30.0 | 30.0 | 10.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR060V0375 | 28.4 | 33.5 | 33.5 | 10.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |



Packaging/Taping Specifications

| Description | IEC Mark | Dimension (mm) | Tolerance (mm) |
|--|----------------|----------------|----------------|
| Sprocket hole pitch P0 12.7 0.3 | | | |
| Ordinate to adjacent component lead PTR060V0010~PTR060V0090 | P ₁ | 3.6 | ±1.0 |
| Ordinate to adjacent component lead PTR060V0110~PTR060V0185 | P ₁ | 3.45 | ±1.0 |
| Ordinate to adjacent component lead PTR060V0250~PTR060V0300 | P ₁ | 7.3 | ±1.0 |
| Device pitch PTR060V0010~PTR060V0090 | P | 12.7 | ±1.0 |
| Device pitch PTR060V0110~PTR060V0300 | P | 25.4 | ±1.0 |
| Device pitch PTR060V0375 | P | 38.1 | ±1.0 |
| Lead spacing | C | * | -- |
| Carrier tape width | W | 18 | ±1.0 |
| Top distance between tape edges | W ₀ | 3.0 | Max. |
| Hold-down tape width | W ₁ | 12 | ±1.0 |
| Sprocket hole position | W ₂ | 9.0 | +0.75/-0.5 |
| Abscissa to top PTR060V0010~PTR060V0090 | H ₁ | 32.2 | Max. |
| Abscissa to top PTR060V0110~PTR060V0300 | H ₁ | 47.5 | Max. |
| Abscissa to plane (straight lead) | H | 18.0 | +2/-0 |
| Abscissa to plane (kinked lead) | H ₀ | 16.0 | ±0.5 |
| Sprocket hole diameter | D ₀ | 4 | ±0.2 |
| Lead protrusion | L ₁ | 1 | Max. |
| Tape thickness | t | 0.9 | Max. |
| Body lateral deviation | Δh | 0 | ±1.0 |
| Body tape plane deviation | Δp | 0 | ±1.3 |
| Reel width | W ₃ | 56 | Max. |
| Reel diameter | | 340 | ±10 |
| Arbor hole diameter | n ₀ | 31 | ±1 |
| Core diameter | n | 80 | Min. |

* See Dimensions table.

Figure 1 - PTR060V0010-PTR060V0185

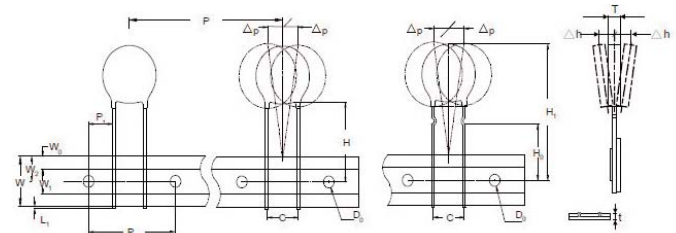
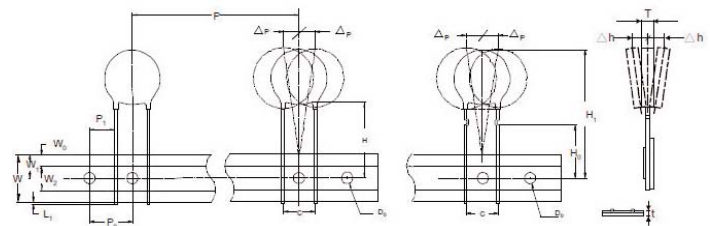
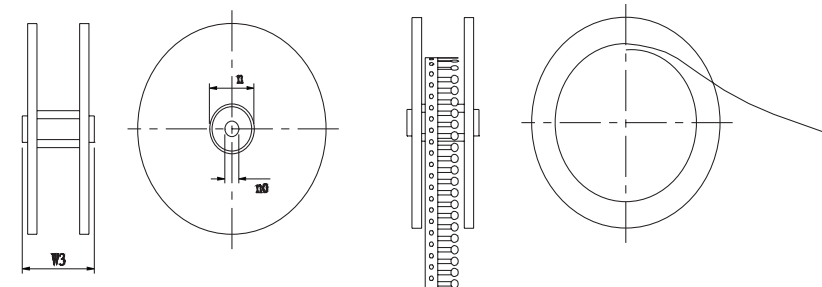


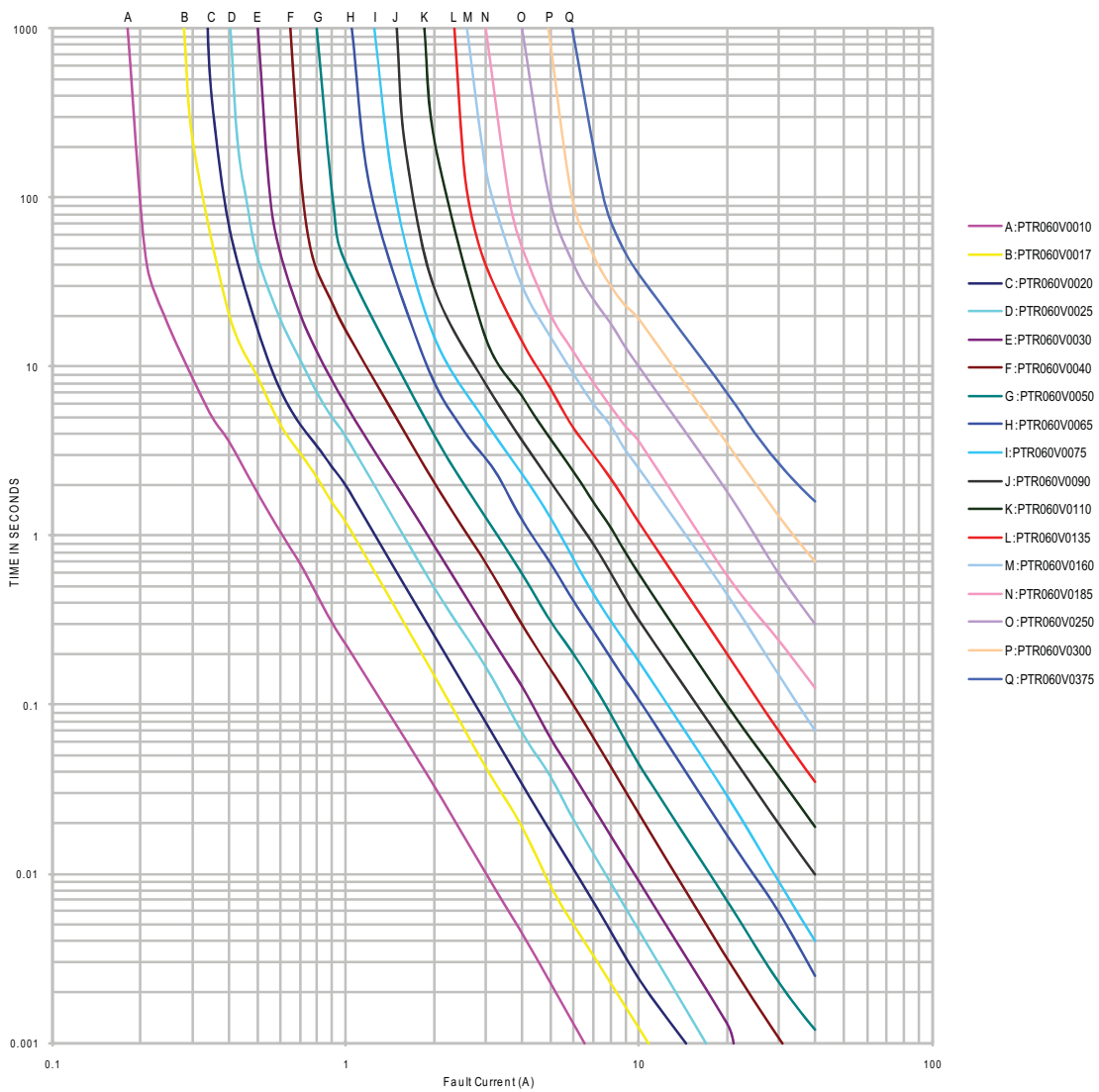
Figure 2 - PTR060V0250-PTR060V0375



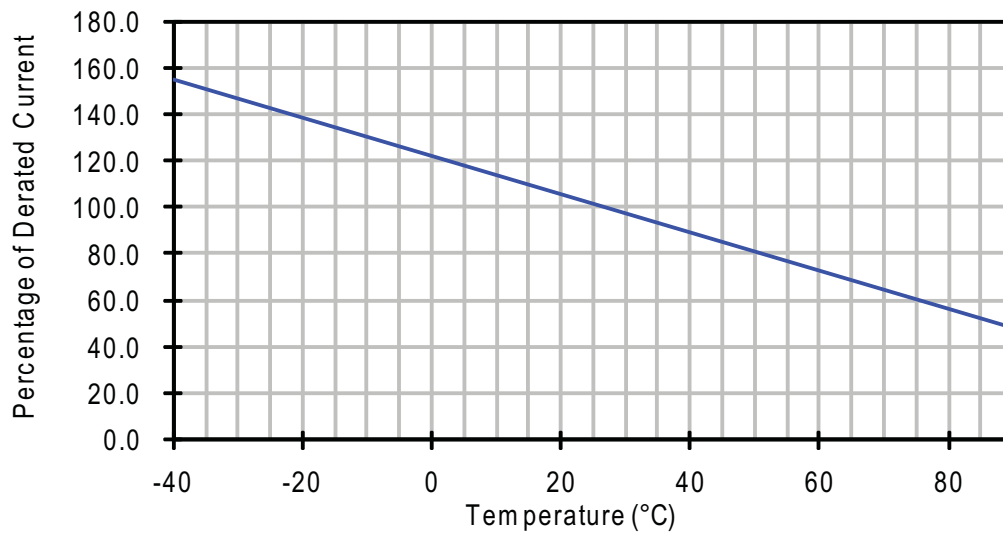
Reel specification



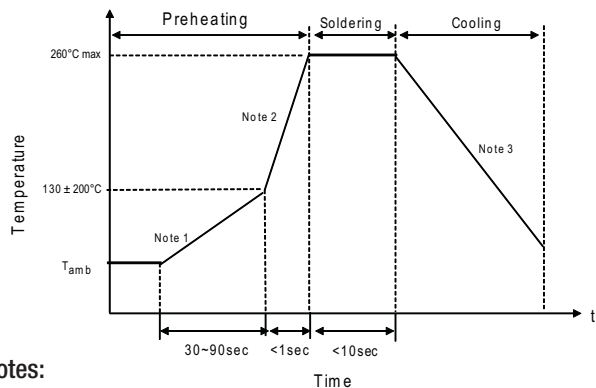
Time-to-Trip Curves at +23 °C



Thermal Derating Curve



Recommended Wave Solder Profile.



Notes:

1. (1-3) °C/sec
2. Approximately 200 °C/sec
3. 5 °C/sec Maximum

Recommended Reworking Conditions with Soldering Iron

- Soldering Iron Tip Temperature: +360 °C max.
- Solder Time: 3 seconds max.
- Distance from Thermistor: 2 mm min.

| 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% R.H., 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 |

Material Composition

- Lead material:
 - PTR060V0010-PTR060V0040 Tin-plated copper clad steel
 - PTR060V0050-PTR060V0375 Tin-plated copper
- Insulating material: Cured epoxy resin meeting UL 94V0 requirements

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