

PTR016V

16 Volt DC radial leaded, PolyTron™ PTC devices



Product features

- PolyTron™ radial leaded thru-hole PTC device
- Maximum 16 V
- Current ratings from 0.9 A to 15 A
- Fast time-to-trip
- Low resistance
- Halogen free, lead free, RoHS compliant

Applications

- Medical equipment
- Telecommunications
- White goods
- Computers and peripherals

Agency information

- cURus: Recognized Card: File E343021 (Ihold 3A-15 A)
- TUV File: J 50194729

Ordering information/ part number system



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

TR & TR1 On Reels

- 0.9-1.85 A - 3000 devices
- 2.5-4 A - 2500 devices
- 5-7 A - 1500 devices
- 8-15 A - 1000 devices

BK & BK1 In Poly Bags

- 0.9-1.60 A - 1000 devices
- 1.85-9.00 A - 500 devices
- 10.00-15.00 A - 250 devices

| Specifications | | | | | | | | | | | | |
|----------------|------------------------|----------------------|--------------------------------|--------------------------------|-------------|---------------------|-------|---------------------------|-------|----------------------------------|--------------------|-----|
| Catalog Number | V _{max} (Vdc) | I _{max} (A) | I _{hold} @ +23 °C (A) | I _{trip} @ +23 °C (A) | Pd Typ. (W) | Time to Trip (Max.) | | Resistance (Ω) | | | Agency Information | |
| | | | | | | (A) | (sec) | Initial (R _i) | | Post Trip (R _t) Max. | cURus | TUV |
| | | | | | | | | Min. | Max. | | | |
| PTR016V0090 | 16 | 40 | 0.90 | 1.80 | 0.60 | 8.00 | 1.20 | 0.070 | 0.120 | 0.180 | | X |
| PTR016V0110 | 16 | 40 | 1.10 | 2.20 | 0.70 | 8.00 | 2.30 | 0.050 | 0.095 | 0.140 | | X |
| PTR016V0135 | 16 | 40 | 1.35 | 2.70 | 0.80 | 8.00 | 4.50 | 0.040 | 0.074 | 0.120 | | X |
| PTR016V0160 | 16 | 40 | 1.60 | 3.20 | 0.90 | 8.00 | 9.00 | 0.030 | 0.061 | 0.110 | | X |
| PTR016V0185 | 16 | 40 | 1.85 | 3.70 | 1.00 | 8.00 | 10.00 | 0.030 | 0.051 | 0.090 | | X |
| PTR016V0250 | 16 | 40 | 2.50 | 5.00 | 1.20 | 8.00 | 40.00 | 0.020 | 0.036 | 0.070 | | X |
| PTR016V0300 | 16 | 100 | 3.00 | 5.10 | 2.30 | 15.00 | 1.00 | 0.038 | 0.065 | 0.098 | X | X |
| PTR016V0400 | 16 | 100 | 4.00 | 6.80 | 2.40 | 20.00 | 1.70 | 0.021 | 0.038 | 0.060 | X | X |
| PTR016V0500 | 16 | 100 | 5.00 | 8.50 | 2.60 | 25.00 | 2.00 | 0.010 | 0.023 | 0.034 | X | X |
| PTR016V0600 | 16 | 100 | 6.00 | 10.20 | 2.80 | 30.00 | 3.30 | 0.006 | 0.018 | 0.028 | X | X |
| PTR016V0700 | 16 | 100 | 7.00 | 11.90 | 3.00 | 35.00 | 3.50 | 0.006 | 0.013 | 0.020 | X | X |
| PTR016V0800 | 16 | 100 | 8.00 | 13.60 | 3.00 | 40.00 | 5.00 | 0.005 | 0.011 | 0.018 | X | X |
| PTR016V0900 | 16 | 100 | 9.00 | 15.30 | 3.30 | 45.00 | 5.50 | 0.005 | 0.009 | 0.014 | X | X |
| PTR016V1000 | 16 | 100 | 10.00 | 17.00 | 3.60 | 50.00 | 6.00 | 0.004 | 0.007 | 0.010 | X | X |
| PTR016V1100 | 16 | 100 | 11.00 | 18.70 | 3.70 | 55.00 | 7.00 | 0.003 | 0.006 | 0.009 | X | X |
| PTR016V1200 | 16 | 100 | 12.00 | 20.40 | 4.20 | 60.00 | 7.50 | 0.003 | 0.006 | 0.009 | X | X |
| PTR016V1300 | 16 | 100 | 13.00 | 22.10 | 4.60 | 65.00 | 8.50 | 0.002 | 0.006 | 0.008 | X | X |
| PTR016V1400 | 16 | 100 | 14.00 | 23.80 | 4.60 | 70.00 | 9.00 | 0.002 | 0.005 | 0.007 | X | X |
| PTR016V1500 | 16 | 100 | 15.00 | 25.50 | 4.60 | 75.00 | 10.00 | 0.002 | 0.005 | 0.007 | 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.
 Pd: 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.
 R_i (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 |
| PTR016V0090 | 7.4 | 12.2 | 12.2 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR016V0110 | 7.4 | 14.2 | 14.2 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR016V0135 | 8.9 | 13.5 | 13.5 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR016V0160 | 8.9 | 15.2 | 15.2 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR016V0185 | 10.2 | 15.7 | 15.7 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR016V0250 | 11.4 | 18.3 | 20.5 | 5.0±0.8 | 7.6 | 3.5 | 0.5±0.02 | 2 | 1 |
| PTR016V0300 | 7.1 | 11.0 | 14.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V0400 | 8.9 | 12.8 | 14.8 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V0500 | 10.4 | 14.3 | 16.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V0600 | 10.7 | 17.1 | 19.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V0700 | 11.2 | 19.7 | 22.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V0800 | 12.7 | 20.9 | 23.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V0900 | 14.0 | 21.9 | 24.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V1000 | 16.5 | 25.2 | 28.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V1100 | 17.5 | 26.0 | 29.0 | 5.0±0.8 | 7.6 | 3.5 | 0.8±0.02 | 2 | 1 |
| PTR016V1200 | 17.5 | 28.0 | 31.0 | 10.0±0.8 | 7.6 | 3.5 | 1.0±0.02 | 2 | 1 |
| PTR016V1300 | 21.6 | 29.2 | 32.0 | 10.0±0.8 | 7.6 | 3.5 | 1.0±0.02 | 2 | 1 |
| PTR016V1400 | 23.5 | 27.9 | 30.0 | 10.0±0.8 | 7.6 | 3.5 | 1.0±0.02 | 2 | 1 |
| PTR016V1500 | 25.1 | 29.0 | 32.0 | 10.0±0.8 | 7.6 | 3.5 | 1.0±0.02 | 2 | 1 |



Packaging/Taping Specifications

| Description | IEC Mark | Dimension (mm) | Tolerance (mm) |
|--------------------------------------|----------------|----------------|----------------|
| Sprocket hole pitch | P ₀ | 12.7 | ±0.3 |
| Ordinate to adjacent component lead: | | | |
| PTR016V0090~PTR016V0250 | P ₁ | 3.6 | ±1.0 |
| PTR016V0300~PTR016V1100 | P ₁ | 4.5 | ±1.0 |
| PTR016V1200~PTR016V1500 | P ₁ | 7.2 | ±1.0 |
| Device pitch: | | | |
| PTR016V0090~PTR016V0600 | P | 12.7 | ±1.0 |
| PTR016V0700~PTR016V1400 | P | 25.4 | ±1.0 |
| PTR016V1500 | 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: | | | |
| PTR016V0090~PTR016V0600 | H ₁ | 32.2 | Max. |
| PTR016V0700~PTR016V1500 | H ₁ | 47.5 | Max. |
| Abscissa to plane | | | |
| (straight lead) | H | 18.0 | +2/-0 |
| (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 | Δ _h | 0 | ±1.0 |
| Body tape plane deviation | Δ _p | 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.

Style 1 - PTR016V0090, PTR016V0110, PTR016V0135, PTR016V0160-PTR016V1000



Style 2 - PTR016V1200-PTR016V1500



Reel Specifications



Time-to-Trip Curves at +23 °C - 0.9-2.5 A



Time-to-Trip Curves at +23 °C - 3.0-15 A



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:
 - PTR016V0090-PTR016V0250 Tin-plated copper clad steel
 - PTR016V0300-PTR016V1500 Tin-plated copper
- Insulating material: Cured epoxy resin meeting UL 94V0 requirements

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