

PTSLR0603

Low resistance SMD PTC fuses



Product features

- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Low resistance
- Compact 0603 (1608 metric) footprint
- Voltage rating 6 V to 8 V
- Current rating from 0.5 A to 3.0 A
- Fast time-to-trip

Applications

- Data ports
- Micromotors and fans
- Low voltage test and measurement
- Low voltage hand held equipment
- Mobile devices
- PC-based medical equipment
- USB protection
- Secondary Li-ion battery protection
- Game consoles, set top boxes
- Battery charging & charging connections

Agency information

- cURus Recognized file no. E343021
- TUV: File R 50506608



Environmental compliance



Part number system/ordering:

PTSLR06038V050

- PT= PTC resettable fuse
- S= Surface mount
- LR = Low resistance
- 0603= Dimension code
- 8V= Maximum voltage
- 050= Ihold current rating (050= 0.5 A)

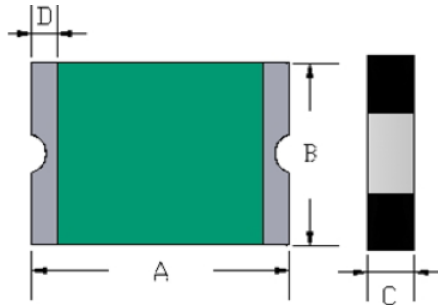
Product specifications

| Part number | Vmax ¹ | I _{max} ² | I _{hold} ³ | I _{trip} ⁴ | Pd ⁵ | Time-to-trip (maximum) | | Resistance ⁶ | | Safety approvals | |
|----------------|--------------------|-------------------------------|--------------------------------|--------------------------------|-----------------|------------------------|-----------|---------------------------------------|---|------------------|-----|
| | (V _{dc}) | (A) | (A) | (A) | typical (W) | (A) | (seconds) | Initial (R _i) minimum (Ω) | Post trip (R ₁) maximum (Ω) | cURIs | TUV |
| PTSLR06038V050 | 8 | 25 | 0.50 | 1.0 | 0.5 | 8 | 0.6 | 0.050 | 0.40 | √ | - |
| PTSLR06038V075 | 8 | 25 | 0.75 | 1.5 | 0.5 | 8 | 1 | 0.030 | 0.165 | √ | - |
| PTSLR06038V100 | 8 | 25 | 1.00 | 2.0 | 0.5 | 8 | 2 | 0.030 | 0.15 | √ | - |
| PTSLR06036V125 | 6 | 50 | 1.25 | 2.5 | 0.5 | 8 | 3 | 0.025 | 0.14 | √ | √ |
| PTSLR06036V150 | 6 | 50 | 1.50 | 3.0 | 0.5 | 8 | 4 | 0.020 | 0.12 | √ | √ |
| PTSLR06036V175 | 6 | 50 | 1.75 | 3.5 | 0.5 | 8 | 5 | 0.008 | 0.07 | √ | √ |
| PTSLR06036V200 | 6 | 50 | 2.00 | 4.0 | 0.5 | 8 | 5 | 0.008 | 0.065 | √ | √ |
| PTSLR06036V250 | 6 | 50 | 2.50 | 5.0 | 0.5 | 8 | 5 | 0.008 | 0.06 | √ | √ |
| PTSLR06036V300 | 6 | 50 | 3.00 | 6.0 | 0.5 | 8 | 5 | 0.008 | 0.05 | √ | √ |

- V_{max}: Maximum continuous voltage the device can withstand without damage at rated current
- I_{max}: Maximum fault current the device can withstand without damage at rated voltage
- I_{hold}: Maximum current the device will pass without interruption at +23 °C still air
- I_{trip}: Minimum current that will transition the device from low resistance to high resistance at +23 °C still air
- Pd: Power dissipated from the device when in tripped state at +23 °C still air

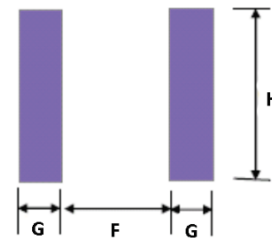
- R_i: Minimum resistance of the device at +23 °C
- R₁: Maximum resistance of the device one hour after tripping at +23 °C

Dimensions—mm



No part marking

Recommended pad layout

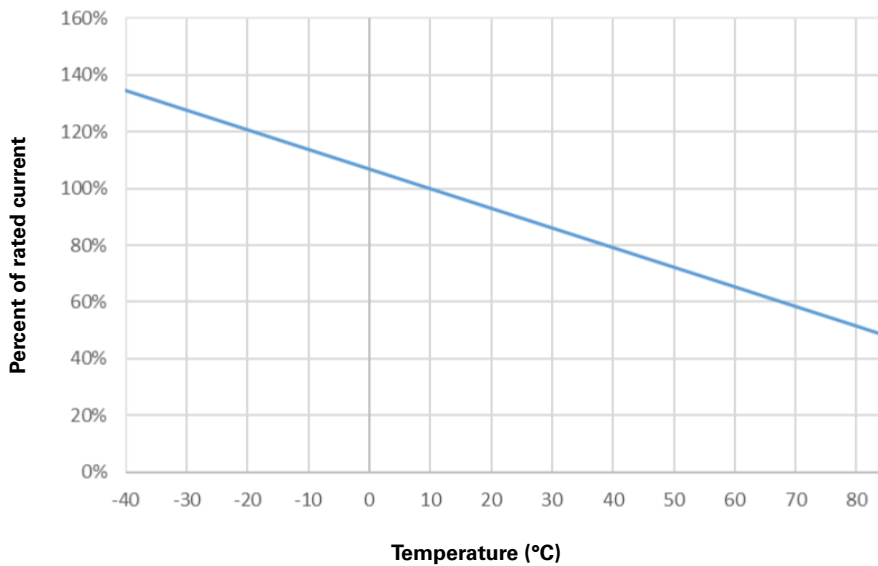


| Part number | A max | B max | C max | D min | F | G | H |
|----------------|-------|-------|-------|-------|-----|-----|-----|
| PTSLR06038V050 | 1.80 | 1.00 | 0.75 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06038V075 | 1.80 | 1.00 | 1.00 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06038V100 | 1.80 | 1.00 | 1.00 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06036V125 | 1.80 | 1.00 | 1.00 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06036V150 | 1.80 | 1.00 | 1.00 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06036V175 | 1.80 | 1.00 | 1.00 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06036V200 | 1.80 | 1.00 | 1.10 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06036V250 | 1.80 | 1.00 | 1.10 | 0.15 | 0.8 | 0.6 | 0.8 |
| PTSLR06036V300 | 1.80 | 1.00 | 1.10 | 0.15 | 0.8 | 0.6 | 0.8 |

General specifications

| |
|--|
| Operating temperature: -40 °C to + 85 °C (with derating) |
| Storage temperature: -10 °C to + 40 °C |
| Storage relative humidity: ≤70% |
| Storage condition: Keep away from corrosive atmosphere and sunlight |
| Passive aging: IEC60738-1, +60 °C/90% RH, 168 hours, ≤3*R1max |
| Humidity aging: +85 °C, 85% RH, 96 hours, ≤3*R1max |
| Thermal shock: IEC60738-1, +85 °C/ -40 °C, 20 cycles, ≤3*R1max |
| Trip cycle life: UL1434, Vmax, I _{max} , 100 cycles, no arcing or burning |
| Trip endurance: UL1434, Vmax, I _{trip} ≤ I ≤ I _{max} , 2 hours, no arcing or burning |
| Solvent resistance: Freon, Trichloroethane, Hydrocarbons: no change |
| MSL test: J-STD-020, MSL=2, pass and no visible damage |

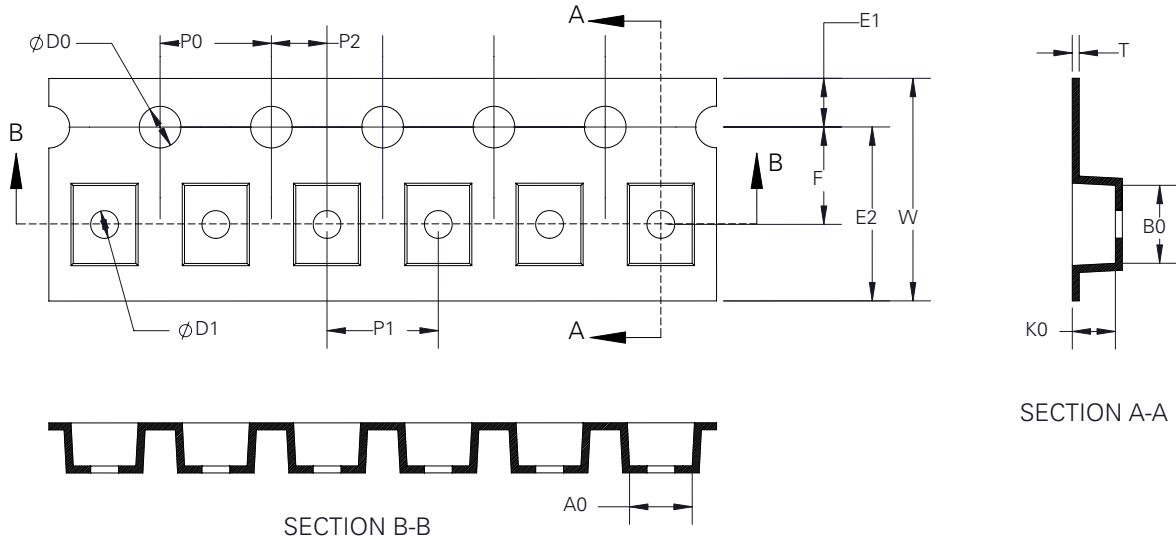
**Thermal derating curve
PTSLR0603**



Packaging information

PTSLR06038V050, PTSLR06038V075, PTSLR06038V100, PTSLR06036V125, PTSLR06036V150
Supplied in tape and reel packaging, 5000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)

PTSLR06036V175, PTSLR06036V200, PTSLR06036V250, PTSLR06036V300
Supplied in tape and reel packaging, 3000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)



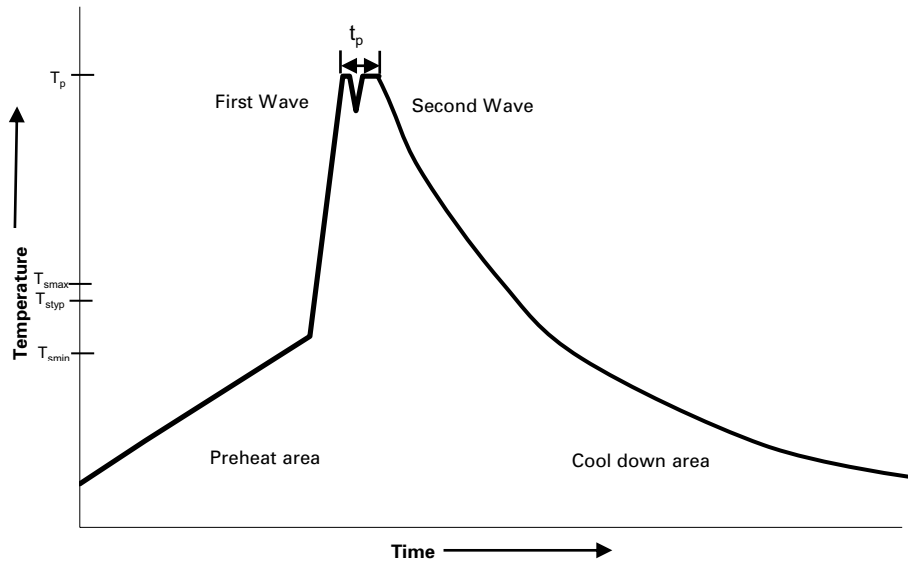
PTSLR06038V050, PTSLR06038V075, PTSLR06038V100, PTSLR06036V125,

| W | F | E1 | E2 | P0 | P1 | P2 | D0 | D1 | A0 | B0 | K0 | T |
|-------------|-------------|-------------|----|-------------|-------------|-------------|----------------|----|-------------|-------------|-------------|-------------|
| 8.00 ± 0.30 | 3.50 ± 0.10 | 1.75 ± 0.10 | - | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.05 | 1.50 + 0.10/-0 | - | 1.10 ± 0.10 | 1.85 ± 0.10 | 0.60 ± 0.10 | 0.20 ± 0.05 |

PTSLR06036V150, PTSLR06036V175, PTSLR06036V200, PTSLR06036V250, PTSLR06036V300

| W | F | E1 | E2 | P0 | P1 | P2 | D0 | D1 | A0 | B0 | K0 | T |
|-------------|-------------|-------------|----|-------------|-------------|-------------|----------------|----|-------------|-------------|-------------|-------------|
| 8.00 ± 0.30 | 3.50 ± 0.10 | 1.75 ± 0.10 | - | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.05 | 1.50 + 0.10/-0 | - | 1.10 ± 0.10 | 1.85 ± 0.10 | 0.85 ± 0.10 | 0.20 ± 0.05 |

Wave solder profile



Reference EN 61760-1:2006

| Profile feature | Standard SnPb solder | Lead (Pb) free solder |
|---|---|---|
| Preheat | | |
| • Temperature min. (T_{smin}) | 100 °C | 100 °C |
| • Temperature typ. (T_{styp}) | 120 °C | 120 °C |
| • Temperature max. (T_{smax}) | 130 °C | 130 °C |
| • Time (T_{smin} to T_{smax}) (t_s) | 70 seconds | 70 seconds |
| Δ preheat to max Temperature | 150 °C max. | 150 °C max. |
| Peak temperature (T_p)* | 235 °C – 260 °C | 250 °C – 260 °C |
| Time at peak temperature (t_p) | 10 seconds max 5 seconds max each wave | 10 seconds max 5 seconds max each wave |
| Ramp-down rate | ~ 2 K/s min ~3.5 K/s typ ~5 K/s max | ~ 2 K/s min ~3.5 K/s typ ~5 K/s max |
| Time 25°C to 25°C | 4 minutes | 4 minutes |

Manual solder

+350 °C (4-5 seconds by soldering iron), generally manual/hand soldering is not recommended