

PTSLR0805

Low resistance SMD PTC fuses



Product features

- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Low resistance
- Compact 0805 (2012 metric) footprint
- Voltage rating 6 V to 8 V
- Current rating from 0.75 A to 4.5 A
- Fast time-to-trip

Applications

- Data ports
- Micromotors and fans
- Low voltage test and measurement
- Low voltage hand held equipment
- 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 50455924, R 50506608



Environmental compliance



Part number system/ordering:

PTSLR08058V200

- PT= PTC resettable fuse
- S= Surface mount
- LR = Low resistance
- 0805= Dimension code
- 8V= Maximum voltage
- 200= Ihold current rating (200= 2.0 A)

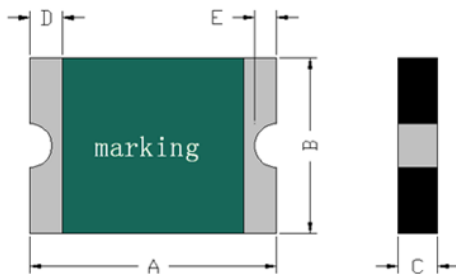
Product specifications

| Part number | Vmax ¹ | I _{max} ² | I _{hold} ³ | I _{trip} ⁴ | Pd ⁵ | Time-to-trip (maximum) | | Resistance ⁶ | | Part marking | Safety approvals | |
|----------------|--------------------|-------------------------------|--------------------------------|--------------------------------|-----------------|------------------------|-----------|---------------------------------------|---|--------------|------------------|-----|
| | (V _{dc}) | (A) | (A) | (A) | typical (W) | (A) | (seconds) | Initial (R _i) minimum (Ω) | Post trip (R _t) maximum (Ω) | | cURus | TUV |
| PTSLR08056V075 | 6 | 50 | 0.75 | 1.50 | 0.6 | 8 | 0.2 | 0.040 | 0.160 | A | √ | √ |
| PTSLR08056V110 | 6 | 50 | 1.10 | 1.80 | 0.6 | 8 | 0.3 | 0.030 | 0.130 | B | √ | √ |
| PTSLR08056V150 | 6 | 50 | 1.50 | 3.00 | 0.6 | 8 | 0.5 | 0.015 | 0.065 | C | √ | √ |
| PTSLR08056V175 | 6 | 50 | 1.75 | 3.50 | 0.6 | 8 | 0.6 | 0.005 | 0.055 | D | √ | √ |
| PTSLR08058V200 | 8 | 50 | 2.0 | 4.0 | 1.2 | 8 | 5 | 0.008 | 0.04 | 10 | √ | √ |
| PTSLR08058V260 | 8 | 50 | 2.6 | 5.2 | 1.2 | 8 | 5 | 0.007 | 0.03 | a | √ | √ |
| PTSLR08058V300 | 8 | 50 | 3.0 | 6.0 | 1.2 | 8 | 5 | 0.005 | 0.02 | b | √ | √ |
| PTSLR08058V350 | 8 | 50 | 3.5 | 7.0 | 1.2 | 8 | 5 | 0.004 | 0.018 | e | √ | √ |
| PTSLR08058V380 | 8 | 50 | 3.8 | 7.6 | 1.2 | 8 | 60 | 0.002 | 0.016 | f | √ | √ |
| PTSLR08058V400 | 8 | 50 | 4.0 | 8.0 | 1.2 | 8 | 60 | 0.002 | 0.014 | g | √ | √ |
| PTSLR08058V450 | 8 | 50 | 4.5 | 9.0 | 1.2 | 8 | 60 | 0.002 | 0.012 | h | √ | √ |

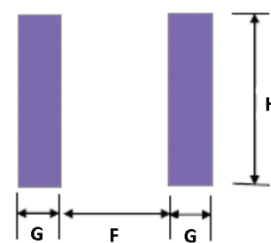
- V_{max}: Maximum continuous voltage the device can withstand without damage at rated current
- I_{max}: Maximum fault current the device can withstand without damage at rated voltage
- I_{hold}: Maximum current the device will pass without interruption at +23 °C still air
- I_{trip}: Minimum current 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
R_t: Maximum resistance of the device one hour after tripping at +23 °C

Dimensions—mm



Recommended pad layout



| Part number | A min | A max | B min | B max | C min | C max | D min | D max | E min | E max | F | G | H |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|
| PTSLR08056V075 | 2.00 | 2.22 | 1.20 | 1.50 | 0.40 | 0.70 | 0.15 | 0.55 | 0.05 | 0.45 | 1.2 | 1.0 | 1.5 |
| PTSLR08056V110 | 2.00 | 2.22 | 1.20 | 1.50 | 0.40 | 0.70 | 0.15 | 0.55 | 0.05 | 0.45 | 1.2 | 1.0 | 1.5 |
| PTSLR08056V150 | 2.00 | 2.22 | 1.20 | 1.50 | 0.50 | 0.88 | 0.15 | 0.55 | 0.05 | 0.45 | 1.2 | 1.0 | 1.5 |
| PTSLR08056V175 | 2.00 | 2.22 | 1.20 | 1.50 | 0.50 | 0.88 | 0.15 | 0.55 | 0.05 | 0.45 | 1.2 | 1.0 | 1.5 |
| PTSLR08058V200 | | 2.50 | | 1.60 | | 0.70 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |
| PTSLR08058V260 | | 2.50 | | 1.60 | | 0.70 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |
| PTSLR08058V300 | | 2.50 | | 1.60 | | 1.00 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |
| PTSLR08058V350 | | 2.50 | | 1.60 | | 1.00 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |
| PTSLR08058V380 | | 2.50 | | 1.60 | | 1.00 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |
| PTSLR08058V400 | | 2.50 | | 1.60 | | 1.40 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |
| PTSLR08058V450 | | 2.50 | | 1.60 | | 1.40 | 0.20 | | 0.10 | | 1.2 | 1.0 | 1.5 |

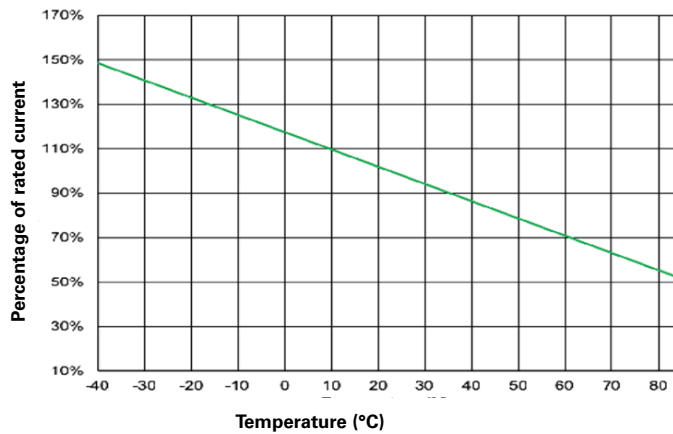
General specifications (PTSLR08056V075-V175)

| |
|---|
| Operating temperature: -40 °C to + 85 °C (with derating) |
| Storage temperature: -10 °C to + 40 °C |
| Storage relative humidity: ≤75% |
| Storage condition: Keep away from corrosive atmosphere and sunlight |
| Passive aging: IEC60738-1, +85 °C, 1000 hours |
| Humidity aging: +85 °C, 80 to 85% relative humidity, 100 hours |
| Rapid change of temperature: IEC60738-1, +85 °C to -40 °C, 20 cycles, 30 minutes each |
| Overload endurance: UL1434, Vmax, 120% Imax, 50 cycles Vmax, 300% Itrip, 6000 cycles |
| Trip endurance: UL1434, Vmax, Itrip ≤ IImax, 1000 hours |
| Solderability: IEC60068-2-58, +245 °C, 3 seconds |
| Moisture sensitivity test: J-STD-020, MSL=2a |

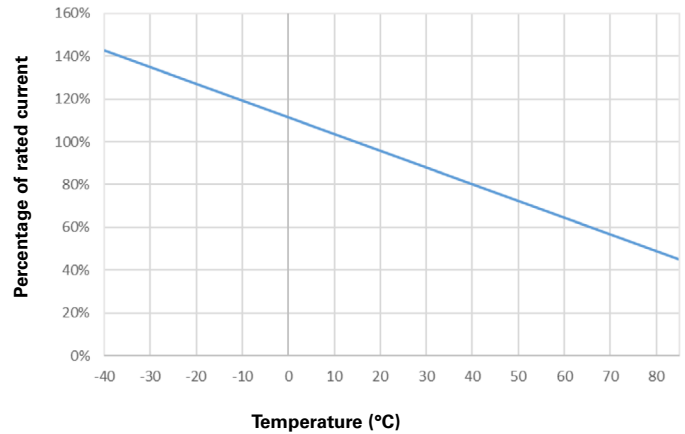
General specifications (PTSLR08058V200-V450)

| |
|--|
| 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, Imax, 100 cycles, no arcing or burning |
| Trip endurance: UL1434, Vmax, Itrip ≤ IImax, 2 hours, no arcing or burning |
| Solvent resistance: Freon, Trichloroethane, Hydrocarbons: no change |
| Moisture sensitivity test: J-STD-020, MSL=2, pass and no visible damage |

**Thermal derating curve
PTSLR08056V075-V175**

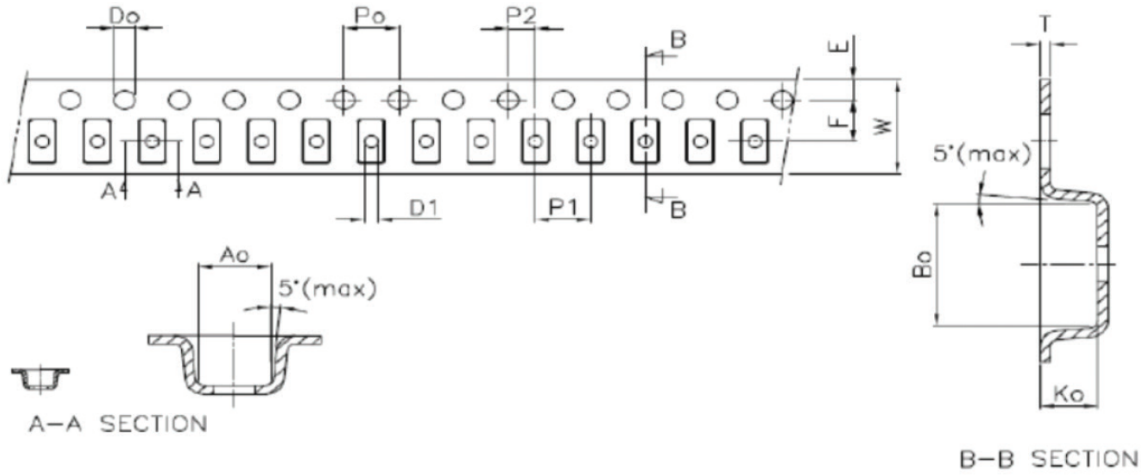


**Thermal derating curve
PTSLR08058V200-V450**



Packaging information
PTSLR08058V075-V175

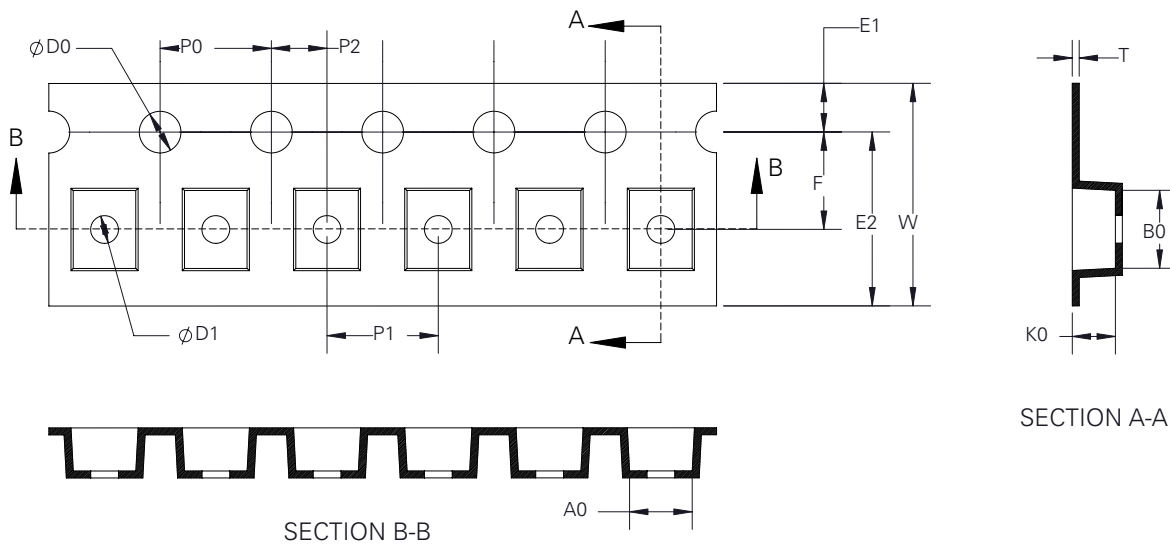
Supplied in tape and reel packaging, 4000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)



| A_o ± 0.10 | B_o ± 0.10 | K_o ± 0.05 | P_o ± 0.08 | P_1 ± 0.10 | P_2 ± 0.05 | T ± 0.10 | E ± 0.10 | F ± 0.05 | D_o ± 0.05 | D_1 min | W ± 0.10 | $10P_o$ ± 0.20 |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------------------|-------------------|-------------------|---------------------|--------------|-------------------|-----------------------|
| 1.60 | 2.30 | 0.90 | 4.0 | 4.0 | 2.0 | 0.25 | 1.75 | 3.50 | 1.55 | 1.0 | 8.00 | 40 |

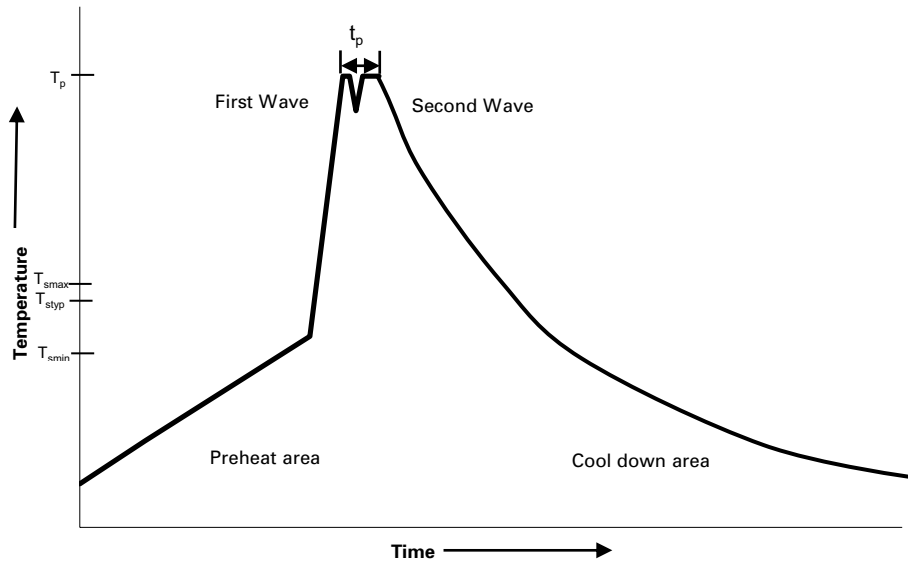
Packaging information
PTSLR08058V200-V450

Supplied in tape and reel packaging, 4000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)



| W | F | E_1 | E_2 | P_0 | P_1 | P_2 | D_0 | D_1 | A_0 | B_0 | K_0 | 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 | $1.50 + 0.10 / -0$ | - | 1.68 ± 0.10 | 2.44 ± 0.10 | 1.04 ± 0.10 | 0.22 ± 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 |
| | • Temperature typ. (T_{styp}) | 120 °C |
| | • Temperature max. (T_{smax}) | 130 °C |
| | • Time (T_{smin} to T_{smax}) (t_s) | 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

Solder reflow profile

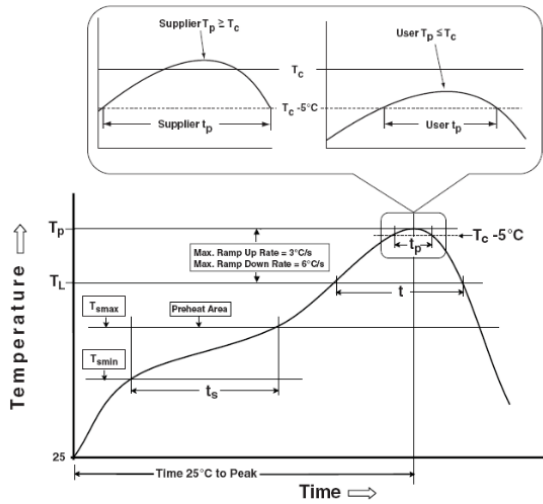


Table 1 - Standard SnPb solder (T_c)

| Package thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5 mm) | 235 °C | 220 °C |
| ≥2.5 mm | 220 °C | 220 °C |

Table 2 - Lead (Pb) Free Solder (T_c)

| Package thickness | Volume mm ³ <350 | Volume mm ³ 350 - 2000 | Volume mm ³ >2000 |
|-------------------|-----------------------------|-----------------------------------|------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 – 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

Reference J-STD-020

| Profile feature | Standard SnPb solder | Lead (Pb) free solder |
|---|---|--|
| Preheat and soak | <ul style="list-style-type: none"> Temperature min. (T_{smin}) Temperature max. (T_{smax}) Time (T_{smin} to T_{smax}) (t_s) | <ul style="list-style-type: none"> 100 °C 150 °C 60-120 seconds |
| Ramp up rate T _L to T _p | 3 °C/ second max. | 3 °C/ second max. |
| Liquidous temperature (T _L) Time (t _L) maintained above T _L | <ul style="list-style-type: none"> 183 °C 60-150 seconds | <ul style="list-style-type: none"> 217 °C 60-150 seconds |
| Peak package body temperature (T _p)* | Table 1 | Table 2 |
| Time (t _p)* within 5 °C of the specified classification temperature (T _c) | 20 seconds* | 30 seconds* |
| Ramp-down rate (T _p to T _L) | 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.

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