# PTSLR1206

## Low resistance SMD PTC fuses






### 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

### Product features

- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Low resistance
- Compact 1206 (3216 metric) footprint
- Voltage rating 6 V
- Current rating from 0.75 A to 5.00 A
- Fast time-to-trip

### Agency information

- cURus Recognized file no. E343021
- TUV: File R 50455924

### Part number system/ordering:

**PTSLR1206V075**

- PT= PTC resettable fuse
- S= Surface mount
- LR = Low resistance
- 1206= Dimension code
- 6V= Maximum voltage
- 075= Ihold current rating (075= 0.75 A)

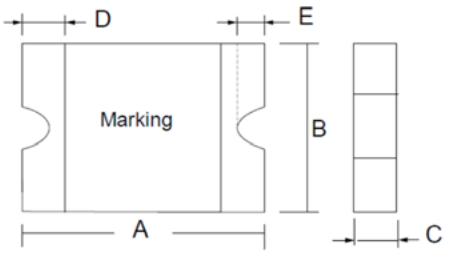
Powering Business Worldwide

## Product specifications

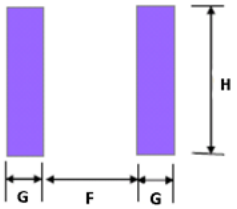
| Part number | Vmax[1] ($V_{dc}$) | Imax[2] (A) | Ihold[3] (A) | Itrip[4] (A) | Pd[5] typical (W) | Time-to-trip (maximum) (A) | Time-to-trip (maximum) (seconds) | Resistance[6] Initial ($R_i$) minimum (Ω) | Resistance[6] Post trip ($R_1$) maximum (Ω) | Part marking | Safety approvals cURus | Safety approvals TÜV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTSLR12066V075 | 6 | 50 | 0.75 | 1.5 | 0.8 | 8.0 | 0.3 | 0.017 | 0.18 | La | √ | √ |
| PTSLR12066V110 | 6 | 50 | 1.1 | 2.2 | 0.8 | 8.0 | 0.3 | 0.015 | 0.13 | Lb | √ | √ |
| PTSLR12066V150 | 6 | 50 | 1.5 | 3.0 | 0.8 | 8.0 | 0.3 | 0.010 | 0.080 | Lc | √ | √ |
| PTSLR12066V175 | 6 | 50 | 1.75 | 3.5 | 0.8 | 8.0 | 0.4 | 0.005 | 0.045 | L3 | √ | √ |
| PTSLR12066V200 | 6 | 50 | 2.0 | 4.0 | 0.8 | 8.0 | 0.5 | 0.005 | 0.040 | L7 | √ | √ |
| PTSLR12066V260 | 6 | 50 | 2.6 | 5.0 | 0.8 | 8.0 | 4.0 | 0.003 | 0.030 | L8 | √ | √ |
| PTSLR12066V300 | 6 | 50 | 3.0 | 6.0 | 0.8 | 8.0 | 4.0 | 0.003 | 0.026 | L9 | √ | √ |
| PTSLR12066V350 | 6 | 50 | 3.5 | 7.0 | 0.8 | 8.0 | 5.0 | 0.003 | 0.018 | L1 | √ | √ |
| PTSLR12066V380 | 6 | 50 | 3.8 | 8.0 | 0.8 | 8.0 | 5.0 | 0.002 | 0.014 | L2 | √ | √ |
| PTSLR12066V400 | 6 | 50 | 4.0 | 8.0 | 0.8 | 20 | 2.0 | 0.001 | 0.014 | L5 | √ | √ |
| PTSLR12066V450 | 6 | 50 | 4.5 | 9.0 | 0.8 | 22 | 2.0 | 0.001 | 0.014 | L6 | √ | √ |
| PTSLR12066V500 | 6 | 50 | 5.0 | 10 | 0.8 | 25 | 2.0 | 0.001 | 0.013 | Le | √ | √ |

1. Vmax: Maximum continuous voltage the device can withstand without damage at rated current
2. Imax: Maximum fault current the device can withstand without damage at rated voltage
3. Ihold: Maximum current the device will pass without interruption at +23 °C still air unless otherwise specified
4. Itrip: Minimum current that will transition the device from low resistance to high resistance at +23 °C still air, unless otherwise specified
5. Pd: Power dissipated from the device when in tripped state at +23 °C still air, unless otherwise specified
6. $R_i$: Minimum resistance of the device prior to tripping at +23 °C
   $R_1$: Maximum resistance of the device one hour after tripping at +23 °C

## Dimensions–mm



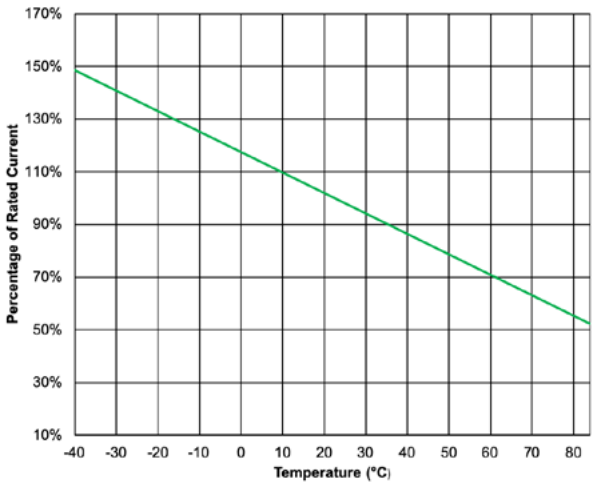

## Recommended pad layout




| A min | A max | B min | B max | C min | C max | D min | D max | E min | E max | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.00 | 3.50 | 1.50 | 1.80 | 0.40*<br>0.60** | 0.70*<br>1.20** | 0.125 | 0.75 | 0.08 | 0.45 | 2.0 | 1.0 | 1.9 |

* PTSLR12066V075, PTSLR12066V110, PTSLR12066V150,
** PTSLR12066V175, PTSLR12066V200 PTSLR12066V260, PTSLR12066V300, PTSLR12066V350, PTSLR12066V380, PTSLR12066V400, PTSLR12066V450, PTSLR12066V500

## Thermal derating curve



### General specifications

| |
|---|
| Operating temperature: -40 °C to + 85 °C (with derating) |
| Storage temperature: -10 °C to + 40 °C |
| Storage relative humidity: ≤75% |
| Storage conditon: Keep away from corrosive atmosphere and sunlight |
| Passive aging: IEC60738-1, +85 ± 5 °C, 1000 ± 24 hours |
| Humidity aging: +85 °C, 80 to 85% relative humidity, 100 ± 5 hours |
| Rapid change of temperature: IEC60738-1, +85 ± 5/-40 ± 5 °C , 20 cycles, 30 minutes |
| Overload endurance: UL1434, Vmax, 120% Imax, 50 cycles<br>Vmax, 300% Itrip, 6000 cycles |
| Trip endurance: UL1434, Vmax, Itrip ⊣ Imax, 1000 ± 24 hours |
| Solderability: IEC60068-2-58, +245 + 5 °C, 3 ± 0.3 seconds |
| Moisture sensitivity test: J-STD-020, MSL=2a |

### Packaging information

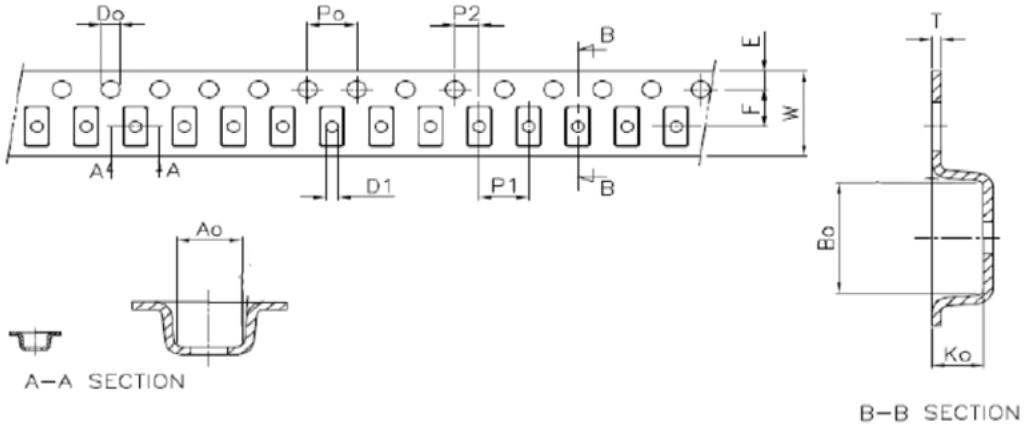
PTSLR12066V075, PTSLR12066V110, PTSLR12066V150,

Supplied in tape and reel packaging, 5000 parts per 7.0" (178 mm) diameter reel

PTSLR12066V175, PTSLR12066V200, PTSLR12066V260, PTSLR12066V300, PTSLR12066V350, PTSLR12066V380, PTSLR12066V400, PTSLR12066V450, PTSLR12066V500

Supplied in tape and reel packaging, 2500 parts per 7.0" (178 mm) diameter reel

### Taping specification



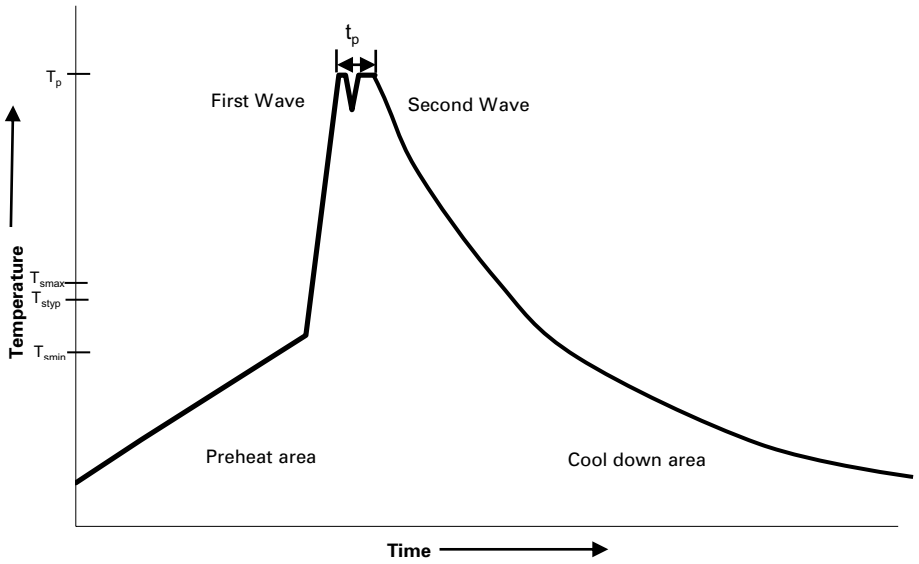

PTSLR12066V075, PTSLR12066V110, PTSLR12066V150,

| $A_0$ ± 0.10 | $B_0$ ± 0.10 | $K_0$ ± 0.05 | $P_0$ ± 0.10 | $P_1$ ± 0.10 | $P_2$ ± 0.10 | T ± 0.05 | E ± 0.10 | F ± 0.10 | $D_0$ ± 0.05 | $D_1$ min | W ± 0.30 | $10P_0$ ± 0.20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.85 | 3.45 | 0.85 | 4.0 | 4.0 | 2.0 | 0.23 | 1.75 | 3.50 | 1.55 | 1.0 | 8.0 | 40 |

PTSLR12066V175, PTSLR12066V200, PTSLR12066V260, PTSLR12066V300, PTSLR12066V350, PTSLR12066V380, PTSLR12066V400, PTSLR12066V450, PTSLR12066V500

| $A_0$ ± 0.10 | $B_0$ ± 0.10 | $K_0$ ± 0.05 | $P_0$ ± 0.10 | $P_1$ ± 0.10 | $P_2$ ± 0.10 | T ± 0.05 | E ± 0.10 | F ± 0.10 | $D_0$ ± 0.05 | $D_1$ min | W ± 0.30 | $10P_0$ ± 0.20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.95 | 3.55 | 1.40 | 4.0 | 4.0 | 2.0 | 0.23 | 1.75 | 3.50 | 1.55 | 1.0 | 8.0 | 40 |

### 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 |
| $\Delta$ preheat to max Temperature | | 150 °C max. | 150 °C max. |
| Peak temperature (Tp)* | | 235 °C – 260 °C | 250 °C – 260 °C |
| Time at peak temperature ($t_p$) | | 10 seconds max<br>5 seconds max each wave | 10 seconds max<br>5 seconds max each wave |
| Ramp-down rate | | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max | ~ 2 K/s min<br>~3.5 K/s typ<br>~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

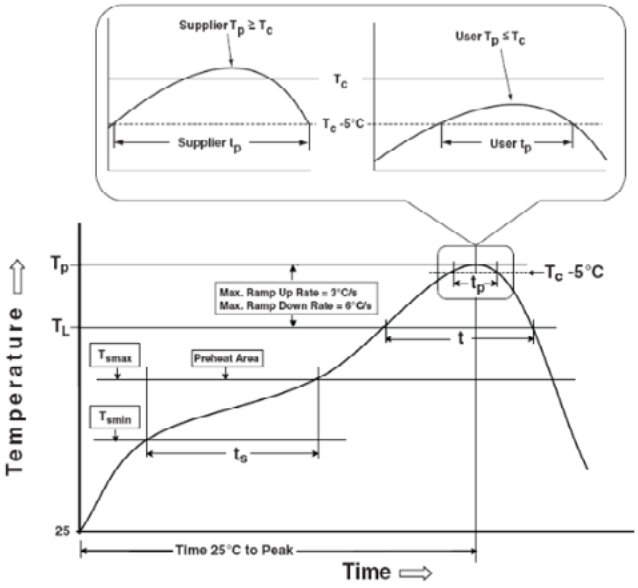



**Table 1 - Standard SnPb solder ($T_C$)**

| Package thickness | Volume mm3 <350 | Volume mm3 ≥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 | • 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 |
| Ramp up rate $T_L$ to $T_p$ | | 3 °C/ second max. | 3 °C/ second max. |
| Liquidous temperature ($T_L$)<br>Time ($t_L$) maintained above $T_L$ | | 183 °C<br>60-150 seconds | 217 °C<br>60-150 seconds |
| Peak package body temperature (Tp)* | | 235 °C | 260 °C |
| 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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