

# PTSLR1210

## Low resistance SMD PTC fuses



### Product features

- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Low resistance
- Compact 1210 (3225 metric) footprint
- Voltage rating 6 V
- Current rating from 1.75 A to 7.5 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

### Agency information

- cURus Recognized file no. E343021
- TUV: File R 50455924, R 50506608



### Environmental compliance



### Part number system/ordering:

#### PTSLR12106V175

- PT= PTC resettable fuse
- S= Surface mount
- LR= Low resistance
- 1210= Dimension code
- 6V= Maximum voltage
- 175= Ihold current rating (175= 1.75 A)

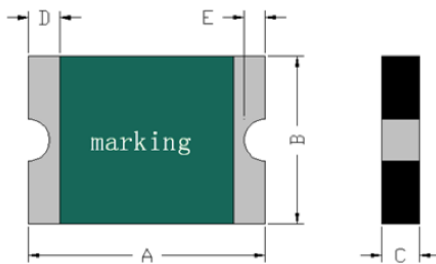
Product specifications

Part number	V <sub>max</sub> <sup>1</sup>	I <sub>max</sub> <sup>2</sup>	I <sub>hold</sub> <sup>3</sup>	I <sub>trip</sub> <sup>4</sup>	P <sub>d</sub> <sup>5</sup>	Time-to-trip (maximum)		Resistance <sup>6</sup>		Safety approvals		
	(V <sub>dc</sub> )	(A)	(A)	(A)	typical (W)	(A)	(seconds)	Initial (R <sub>i</sub> ) minimum (Ω)	Post trip (R <sub>p</sub> ) maximum (Ω)	Part marking	cURIs	TÜV
PTSLR12106V175	6	50	1.75	3.5	0.8	8.0	2.5	0.006	0.040	LA	√	√
PTSLR12106V200	6	50	2.0	4	0.8	8.0	3	0.005	0.024	LB	√	√
PTSLR12106V260	6	50	2.6	5	0.8	8.0	4	0.003	0.020	LE	√	√
PTSLR12106V300	6	50	3.0	6	0.8	15.0	2	0.003	0.020	LG	√	√
PTSLR12106V350	6	50	3.5	7	0.8	17.5	2	0.003	0.018	LN	√	√
PTSLR12106V380	6	50	3.8	8	0.8	19.0	2	0.003	0.016	LK	√	√
PTSLR12106V400	6	50	4.0	8	0.8	20.0	2	0.002	0.014	LM	√	√
PTSLR12106V450	6	50	4.5	9	0.8	22.5	2	0.002	0.014	LP	√	√
PTSLR12106V500	6	50	5.0	10	0.8	25.0	2	0.002	0.012	LQ	√	√
PTSLR12106V550	6	50	5.5	11	1.5	27.5	5	0.001	0.010	D9	√	√
PTSLR12106V600	6	50	6.0	12	1.5	30.0	5	0.001	0.010	B6	√	√
PTSLR12106V650	6	50	6.5	13	1.5	32.5	5	0.001	0.009	B65	√	√
PTSLR12106V700	6	50	7.0	14	1.5	35.0	5	0.001	0.008	B7	√	√
PTSLR12106V750	6	50	7.5	15	1.5	37.5	5	0.001	0.007	B75	√	√

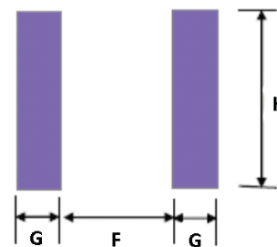
- V<sub>max</sub>: Maximum continuous voltage the device can withstand without damage at rated current
- I<sub>max</sub>: Maximum fault current the device can withstand without damage at rated voltage
- I<sub>hold</sub>: Maximum current the device will pass without interruption at +23 °C still air unless otherwise specified
- I<sub>trip</sub>: Minimum current that will transition the device from low resistance to high resistance at +23 °C still air, unless otherwise specified

- P<sub>d</sub>: Power dissipated from the device when in tripped state at +23 °C still air, unless otherwise specified
- R<sub>i</sub>: Minimum resistance of the device prior to tripping at +23 °C
- R<sub>p</sub>: 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
PTSLR12106V175	3.00	3.43	2.35	2.80	0.40	0.70	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V200	3.00	3.43	2.35	2.80	0.40	0.70	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V260	3.00	3.43	2.35	2.80	0.40	0.70	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V300	3.00	3.43	2.35	2.80	0.60	1.20	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V350	3.00	3.43	2.35	2.80	0.60	1.20	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V380	3.00	3.43	2.35	2.80	0.60	1.20	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V400	3.00	3.43	2.35	2.80	0.60	1.20	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V450	3.00	3.43	2.35	2.80	0.60	1.20	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V500	3.00	3.43	2.35	2.80	0.60	1.20	0.13	0.75	0.08	0.50	2.0	1.0	2.8
PTSLR12106V550		3.43		2.80		1	0.25		0.1		2.0	1.0	2.5
PTSLR12106V600		3.43		2.80		1	0.25		0.1		2.0	1.0	2.5
PTSLR12106V650		3.50		2.85		1	0.25		0.1		2.0	1.0	2.5
PTSLR12106V700		3.50		2.85		1	0.25		0.1		2.0	1.0	2.5
PTSLR12106V750		3.43		2.80		1	0.25		0.1		2.0	1.0	2.5

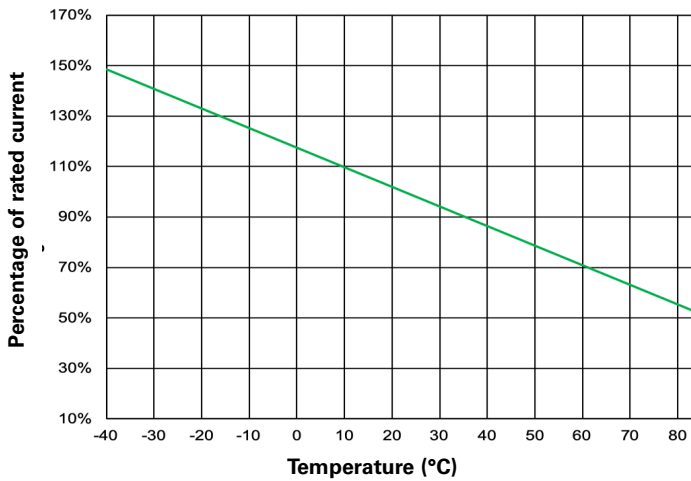
**General specifications (PTSLR12106V175-V500)**

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% I <sub>max</sub> , 50 cycles Vmax, 300% I <sub>trip</sub> , 6000 cycles
Trip endurance: UL1434, Vmax, I <sub>trip</sub> ≤ I <sub>max</sub> , 1000 hours
Solderability: IEC60068-2-58, +245 °C, 3 seconds
Moisture sensitivity test: J-STD-020, MSL=2a

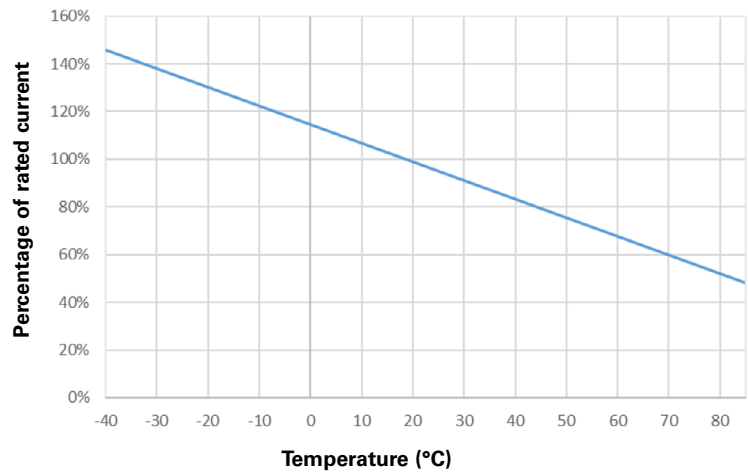
**General specifications (PTSLR12106V550-V750)**

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 <sub>max</sub> , 100 cycles, no arcing or burning
Trip endurance: UL1434, Vmax, I <sub>trip</sub> ≤ I ≤ I <sub>max</sub> , 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  
PTSLR12106V175-V500**

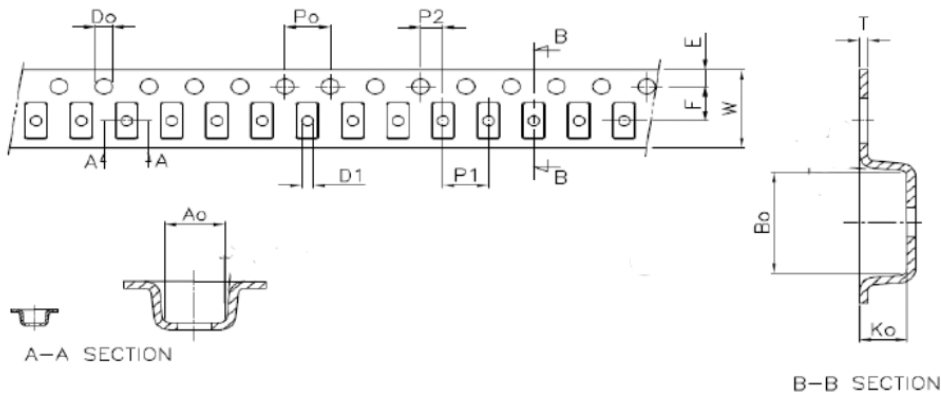


**Thermal derating curve  
PTSLR12106V550-V750**



**Packaging information**  
**PTSLR12106V175-500**

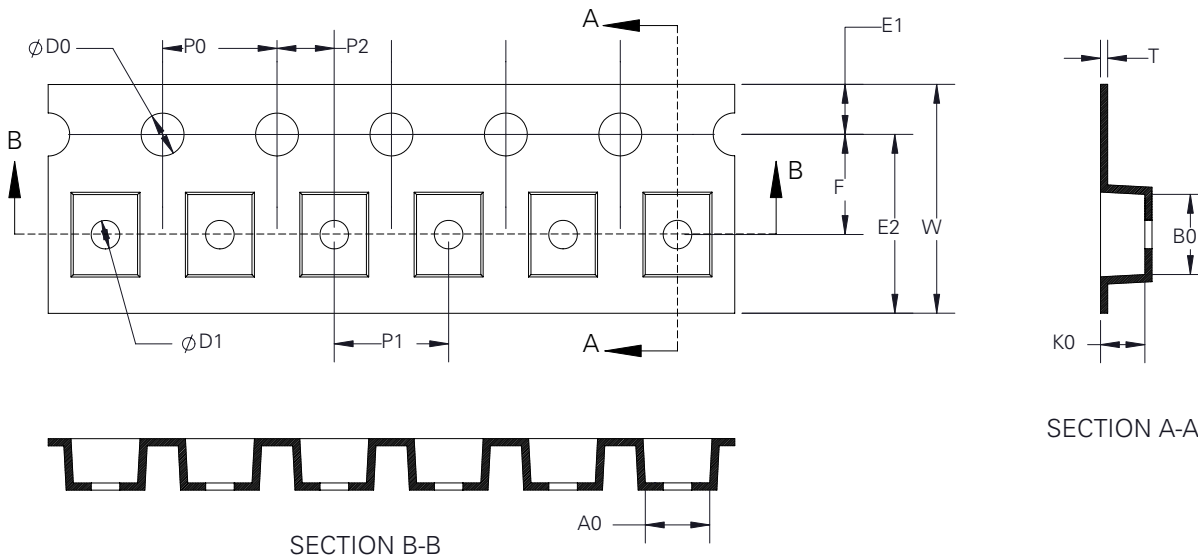
Supplied in tape and reel packaging, 3000 parts per 7.0" (178 mm) diameter reel



A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	T	E	F	D <sub>0</sub>	D <sub>1</sub> min	W	10P <sub>0</sub>
± 0.10	± 0.10	± 0.05	± 0.10	± 0.10	± 0.10	± 0.05	± 0.10	± 0.10	± 0.05	min	± 0.30	± 0.20
2.82	3.63	1.47	4.0	4.0	2.0	0.23	1.75	3.50	1.55	1.0	8.0	40

**Packaging information**  
**PTSLR12106V550-750**

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



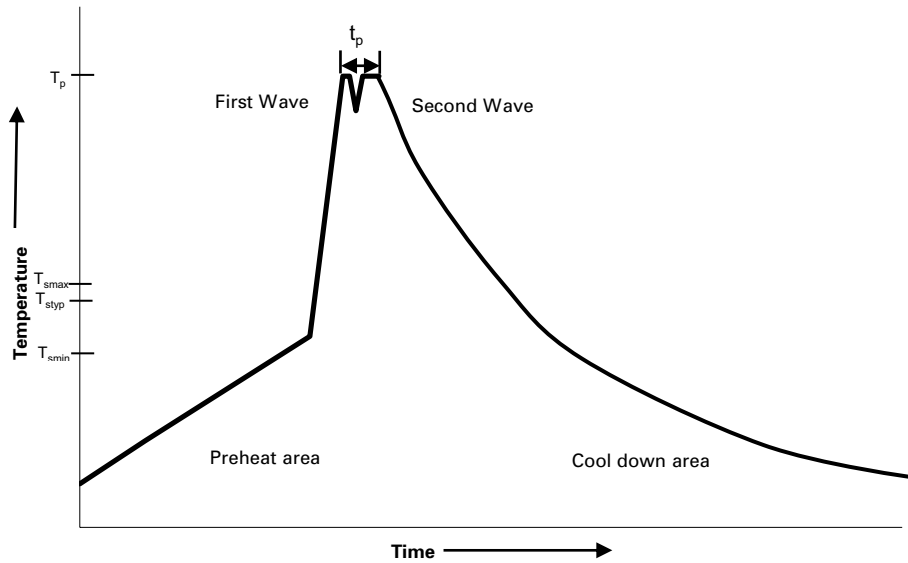
PTSLR12106V550, PTSLR12106V600, PTSLR12106V650

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	1.55 + 0.10/-0	-	2.82 ± 0.30	3.46 ± 0.30	1.00 ± 0.10	0.22 ± 0.05

PTSLR12106V700, PTSLR12106V750

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	1.55 + 0.10/-0	-	2.82 ± 0.30	3.46 ± 0.30	1.25 ± 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
$\Delta$ 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