PTSLR1210

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

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 5.00 A
- Fast time-to-trip

Agency information

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

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)

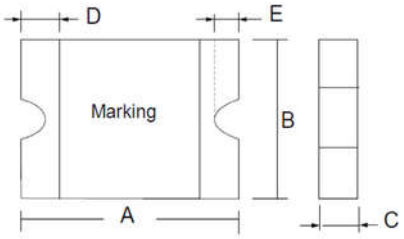
Powering Business Worldwide

Product specifications

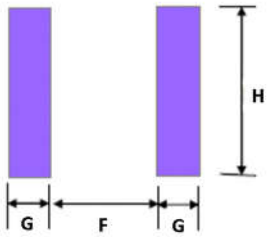
	Vmax[1]	Imax[2]	Ihold[3]	Itrip[4]	Pd[5]	Time-to-trip (maximum)		Resistance[6]			Safety approvals	
Part number	**(V_{dc})**	**(A)**	**(A)**	**(A)**	**typical (W)**	**(A)**	**(seconds)**	**Initial (R_i) minimum (Ω)**	**Post trip (R_1) maximum (Ω)**	**Part marking**	**cURus**	**TÜV**
PTSLR12106V175	6	50	1.75	3.5	0.8	8.0	2.5	0.006	0.040	LA	√	√
PTSLR12106V200	6	50	2.00	4.0	0.8	8.0	3.0	0.005	0.024	LB	√	√
PTSLR12106V260	6	50	2.60	5.0	0.8	8.0	4.0	0.003	0.020	LE	√	√
PTSLR12106V300	6	50	3.00	6.0	0.8	15	2.0	0.003	0.020	LG	√	√
PTSLR12106V350	6	50	3.50	7.0	0.8	17.5	2.0	0.003	0.018	LN	√	√
PTSLR12106V380	6	50	3.80	8.0	0.8	19	2.0	0.003	0.016	LK	√	√
PTSLR12106V400	6	50	4.00	8.0	0.8	20	2.0	0.002	0.014	LM	√	√
PTSLR12106V450	6	50	4.50	9.0	0.8	22.5	2.0	0.002	0.014	LP	√	√
PTSLR12106V500	6	50	5.00	10	0.8	25	2.0	0.002	0.012	LQ	√	√

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



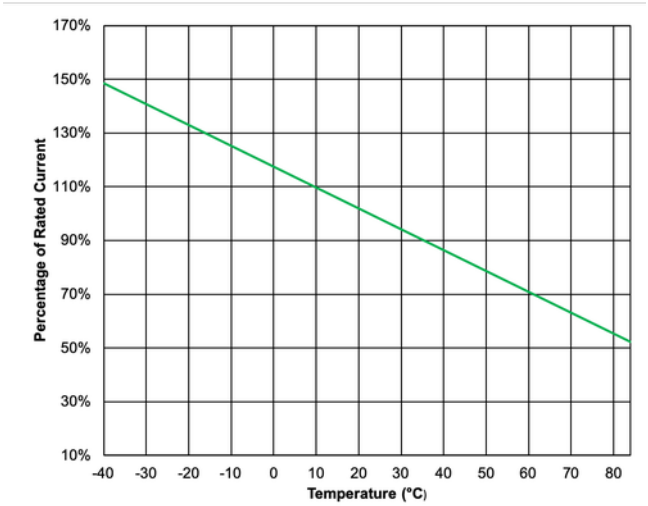
Recommended pad layout



A min	A max	B min	B max	C min	C max	D min	D max	E max	E max	F	G	H
3.00	3.43	2.35	2.80	0.40* 0.60**	0.70* 1.2**	0.13	0.75	0.08	0.50	2.0	1.0	2.8

* PTSLR12106V175, PTSLR12106V200, PTSLR12106V260
** PTSLR12106V300, PTSLR12106V350, PTSLR12106V380, PTSLR12106V400, PTSLR12106V450, PTSLR12106V500

Thermal derating curve



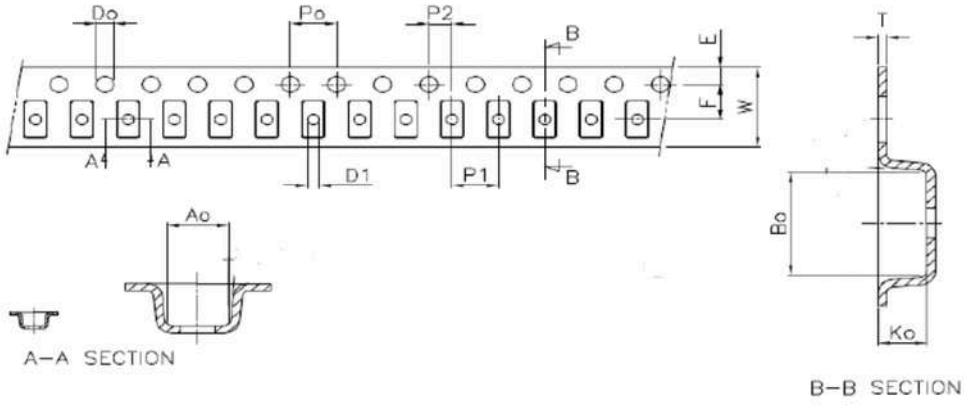
General specifications

Operating temperature: -40 °C to +85 °C (with derating)
Storage temperature: -10 °C to +40 °C
Storage relative humidity: ≤75%
Storage conditon: Keep away form 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 ⊣ Imax, 1000 hours
Solderability: IEC60068-2-58, +245 °C, 3 seconds
Moisture sensitivity test: J-STD-020, MSL=2a

Packaging information

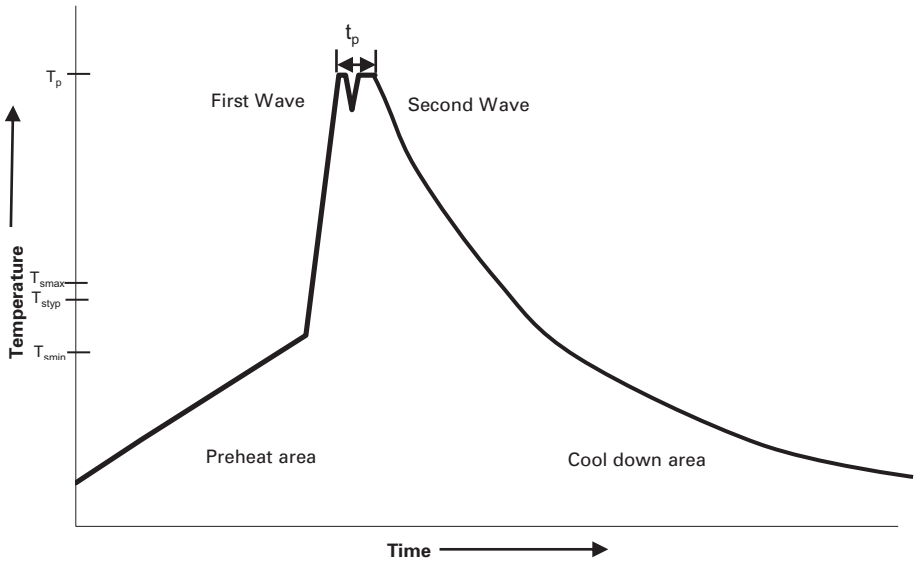
Supplied in tape and reel packaging, 3000 parts per 7.0" (178 mm) diameter reel

Taping specification



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
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

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 (Tp)*		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

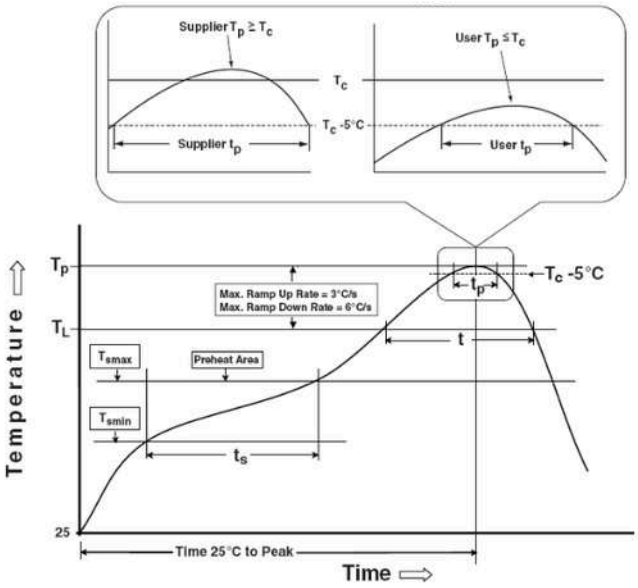


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume 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) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 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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Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

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