PTSLR1812

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 1812 (4532 metric) footprint
- Voltage rating 6 V
- Current rating from 1.90 A to 5.00 A
- Fast time-to-trip

Agency information

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

Part number system/ordering:

PTSLR18126V190

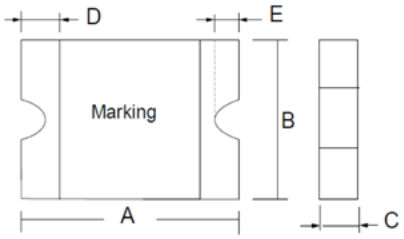
- PT= PTC resettable fuse
- S= Surface mount
- LR= Low resistance
- 1812= Dimension code
- 6V= Maximum voltage
- 190= Ihold current rating (190= 1.90 A)

Product specifications

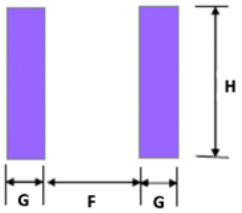
	Vmax[1]	Imax[2]	Ihold[3]	Itrip[4]	Pd[5]	Time-to-trip (maximum)		Resistance[6]			Safety approvals	
Part number	**(V_{dc})**	**(A)**	**(A)**	**(A)**	**typical (W)**	**(A)**	**(seconds)**	**Initial (R_i) minimum (Ω)**	**Post trip (R_1) maximum (Ω)**	**Part marking**	**cURus**	**TÜV**
PTSLR18126V190	6	50	1.90	4.9	1.0	9.5	4.5	0.003	0.025	L190	√	√
PTSLR18126V260	6	50	2.60	6.0	1.0	13	2.0	0.003	0.024	L260	√	√
PTSLR18126V270	6	50	2.70	6.2	1.0	13	2.0	0.003	0.023	L270	√	√
PTSLR18126V300	6	50	3.00	6.2	1.0	8.0	5.0	0.003	0.021	L300	√	√
PTSLR18126V350	6	50	3.50	8.1	1.0	8.0	5.0	0.003	0.020	L350	√	√
PTSLR18126V370	6	50	3.70	9.1	1.0	18.5	2.0	0.003	0.018	L370	√	√
PTSLR18126V400	6	50	4.00	8.0	1.0	20	2.0	0.003	0.017	L400	√	√
PTSLR18126V450	6	50	4.50	9.0	1.0	22.5	2.0	0.001	0.014	L450	√	√
PTSLR18126V500	6	50	5.00	10	1.0	25	2.0	0.001	0.013	L500	√	√

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



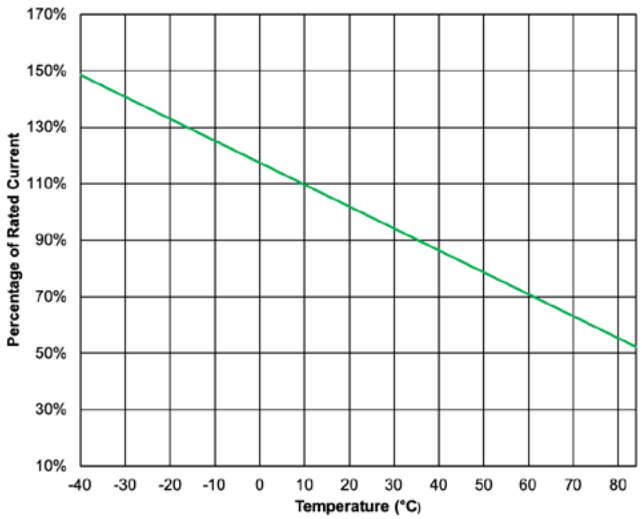
Recommended pad layout



A min	A max	B min	B max	C min	C max	D min	D max	E max	E max	F	G	H
4.37	4.73	3.07	3.41	0.40* 0.60**	0.70* 1.2**	0.20	1.20	0.15	0.65	3.45	1.78	3.50

* PTSLR18126V190, PTSLR18126V260, PTSLR18126V270, PTSLR18126V300, PTSLR18126V350, PTSLR18126V370, PTSLR18126V400
** PTSLR18126V450, PTSLR18126V500

Thermal derating curve



General specifications

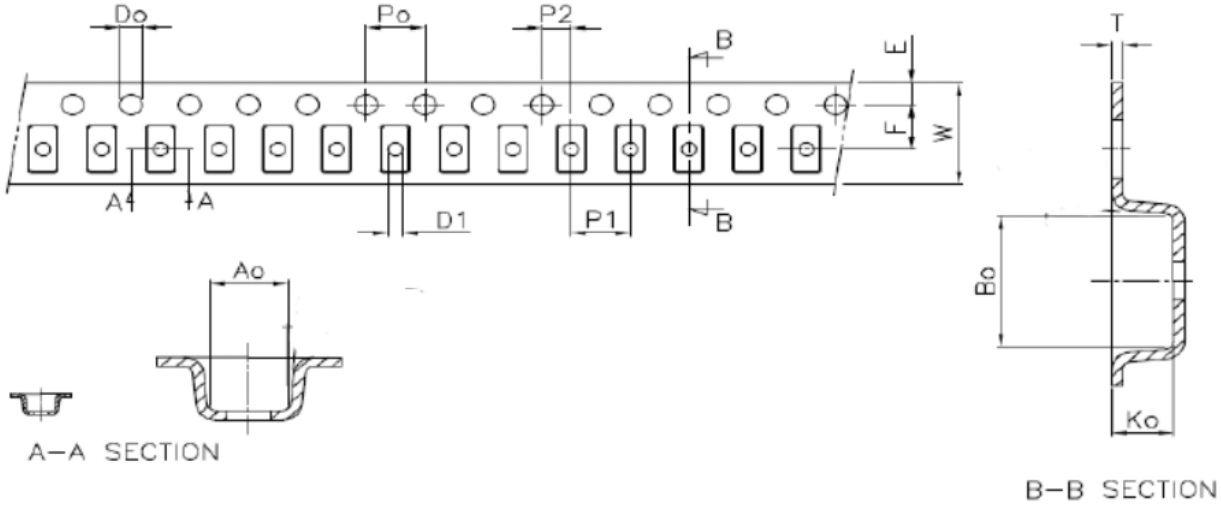
Operating temperature: -40 °C to +85 °C (with derating)
Storage temperature: -10 °C to +40 °C
Storage relative humidity: ≤75%
Storage conditon: Keep away form corrosive atmosphere and sunlight
Passive aging: IEC60738-1, +85 °C, 1000 hours
Humidity aging: +85 °C, 80 to 85% relative humidity, 100 hours
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, 2000 parts per 7.0" (178 mm) diameter reel
PTSLR18126V190, PTSLR18126V260, PTSLR18126V270, PTSLR18126V300, PTSLR18126V350, PTSLR18126V370, PTSLR18126V400

Supplied in tape and reel packaging, 1000 parts per 7.0" (178 mm) diameter reel
PTSLR18126V450, PTSLR18126V500

Taping specification



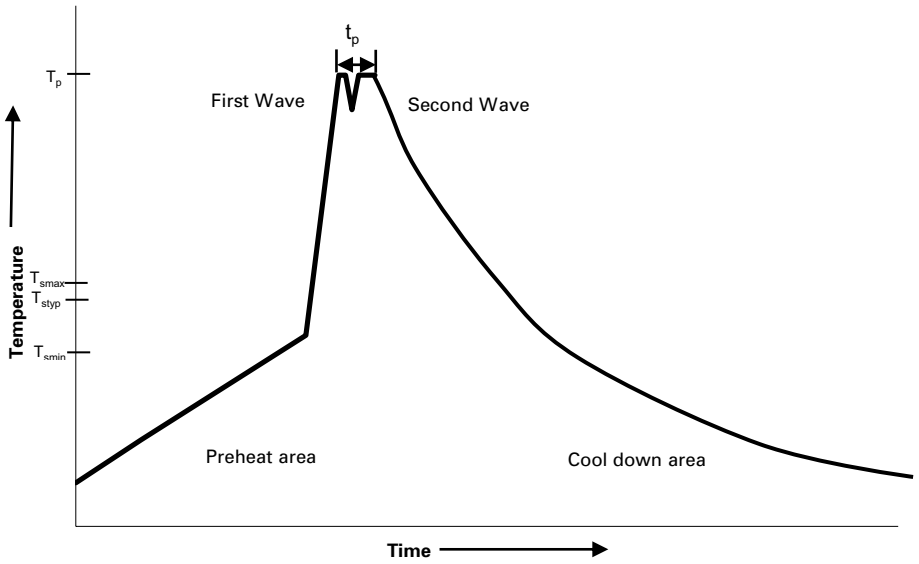
PTSLR18126V190, PTSLR18126V260, PTSLR18126V270, PTSLR18126V300, PTSLR18126V350, PTSLR18126V370, PTSLR18126V400

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 ± 0.03	E ± 0.10	F ± 0.10	D_0 ± 0.05	D_1 min	W ± 0.30	$10P_0$ ± 0.20
3.50	5.00	0.90	4.0	8.0	2.0	0.25	1.75	5.50	1.55	1.50	12	40

PTSLR18126V450, PTSLR18126V500

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
3.56	4.94	1.70	4	8	2	0.25	1.75	5.50	1.55	1.50	12	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

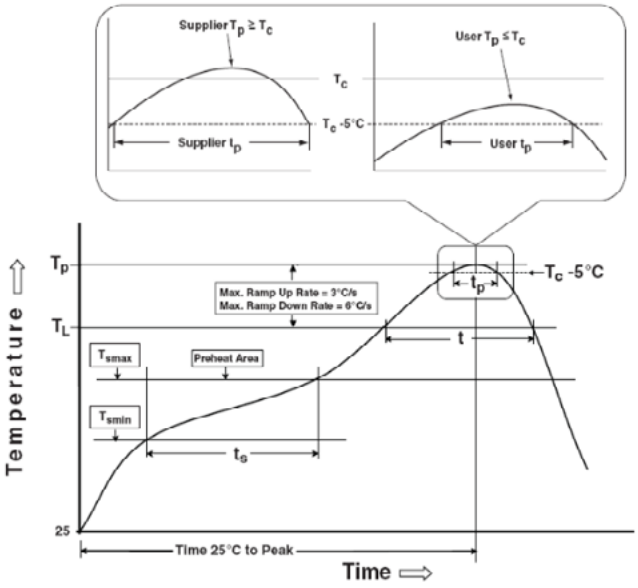


Table 1 - Standard SnPb solder (T_C)

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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