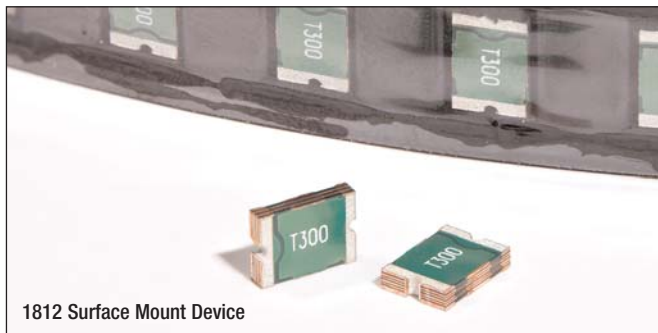


6-60 Volt DC Surface Mount, PolyTron™ PTC Devices

PolyTron™ PTS1812 Series



1812 Surface Mount Device

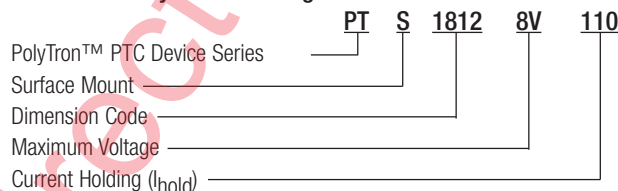
Description

- PolyTron™ surface mount PTC device
- 6 to 60 volts
- Current ratings from 0.1 to 3.0 amps
- Fast time-to-trip
- Low resistance
- Halogen free
- Lead free
- RoHS compliant

Agency Information

- cURus: Recognized Card: File E343021 (I_{hold} 0.1-3.0A)
- TUV File: R 50192872

Part Number System/Ordering



Tape and Reel Packaging/Quantities

- PTS181216V035, PTS181216V050, PTS181213V075, PTS18128V110, PTS18126V125, PTS18128V150, PTS18128V160, PTS18128V200 - 2000 PTC devices per reel
- All Others - 1000 PTC devices per reel

Applications

- Medical equipment
- Telecommunications
- Rechargeable battery packs
- White goods
- Computers and peripherals

Specifications

Catalog Number	V _{max} (Vdc)	I _{max} (Amps)	I _{hold} @23°C (Amps)	I _{trip} @23°C (Amps)	Pd Typ. (W)	Time to Trip (Max.)		Resistance (Ω)		Agency Information	
						(Amps)	(Sec)	Initial (R _i) Min.	Post Trip (R ₁) Max.	cURus	TUV
PTS181230V010	30	100	0.10	0.30	0.8	0.5	1.5	1.6	15	X	X
PTS181260V014	60	10	0.14	0.34	0.8	1.5	0.15	1.5	6	X	X
PTS181230V020	30	100	0.20	0.40	0.8	8	0.02	0.8	5	X	X
PTS181216V035	16	100	0.35	0.70	0.8	8	0.1	0.32	1.5	X	X
PTS181216V050	16	100	0.50	1.00	0.8	8	0.15	0.15	1	X	X
PTS181213V075	13.2	100	0.75	1.50	0.8	8	0.2	0.11	0.45	X	X
PTS181224V075	24	100	0.75	1.50	0.8	8	0.2	0.11	0.29	X	X
PTS181233V075	33	20	0.75	1.50	0.8	8	0.2	0.11	0.4	X	X
PTS18128V110	8	100	1.10	2.20	0.8	8	0.3	0.04	0.21	X	X
PTS181216V110	16	100	1.10	2.20	0.8	8	0.5	0.06	0.18	X	X
PTS181224V110	24	20	1.10	2.20	0.8	8	0.5	0.06	0.2	X	X
PTS181233V110	33	20	1.10	2.20	0.8	8	0.5	0.06	0.2	X	X
PTS18126V125	6	100	1.25	2.50	0.8	8	0.4	0.05	0.14	X	X
PTS181216V125	16	100	1.25	2.50	0.8	8	0.4	0.05	0.14	X	X
PTS18128V150	8	100	1.50	3.00	0.9	8	0.3	0.04	0.11	X	X
PTS181212V150	12	100	1.50	3.00	0.9	8	0.5	0.04	0.11	X	X
PTS181224V150	24	20	1.50	3.00	0.9	8	1.5	0.04	0.12	X	X
PTS18128V160	8	100	1.60	3.20	0.8	8	1.0	0.03	0.1	X	X
PTS18128V200	8	100	2.00	3.50	1.2	8	2.0	0.02	0.06	X	X
PTS18126V260	6	100	2.60	5.00	1.2	8	2.5	0.015	0.047	X	X
PTS18126V300	6	100	3.00	5.00	1.2	8	4.0	0.012	0.04	X	X

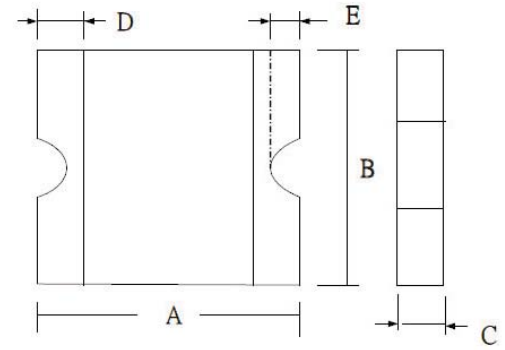
Notes:

- I_{hold} - Hold current: Maximum current device will pass without interruption in 23°C still air.
- I_{trip} - Trip current: Minimum current that will switch the device from low resistance to high resistance in 23°C still air.
- V_{max}: Maximum continuous voltage device can withstand without damage at rated current.
- I_{max}: Maximum fault current device can withstand without damage at rated voltage.
- P_d: Power dissipated from device when in the tripped state in 23°C still air.
- R_i (min.): Minimum resistance of device as supplied at 23°C unless otherwise specified.
- R_i (max.): Maximum resistance of device as supplied at 23°C unless otherwise specified.
- R₁ (max.): Maximum resistance of device when measured one hour post reflow (SMD) or one hour post trip (radial-leaded device) at 23C unless otherwise specified.

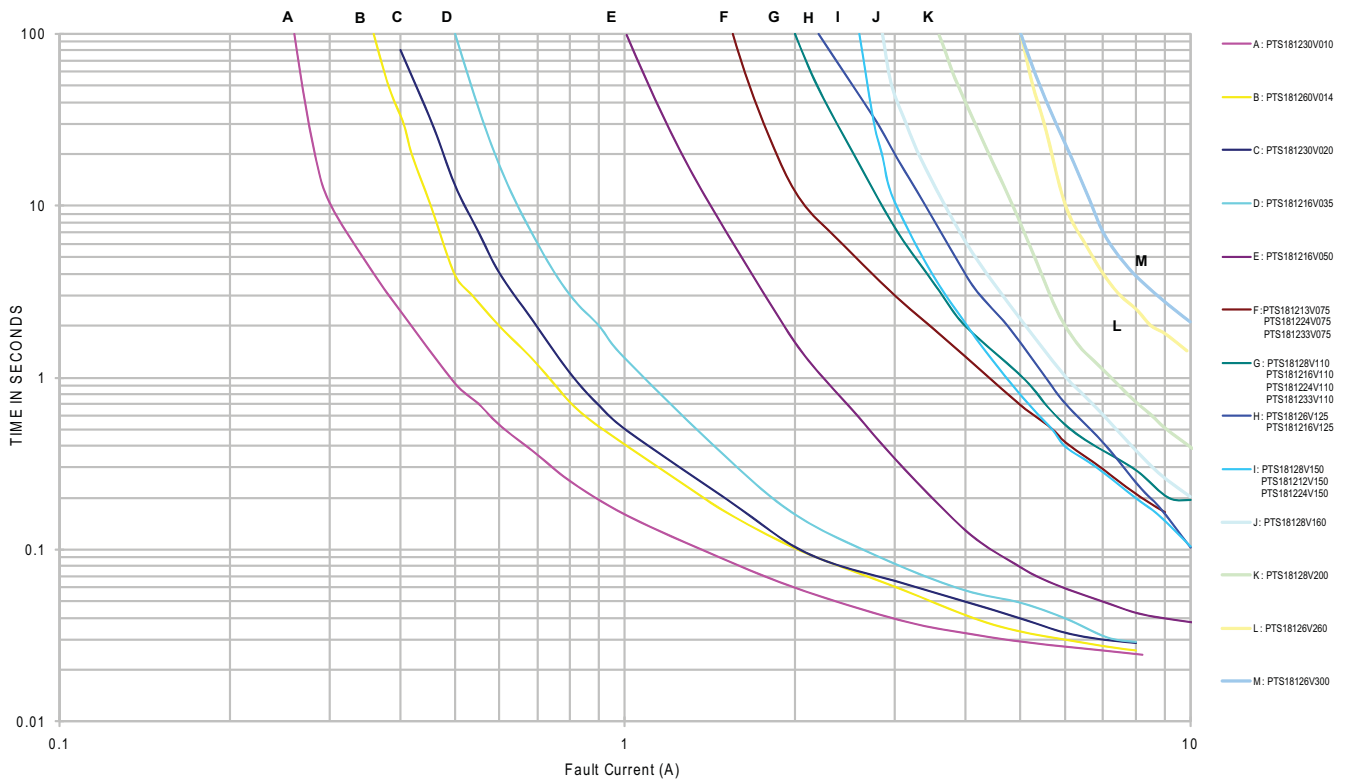
Dimensions - mm

Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.	Max.	
PTS181230V010	4.37	4.73	3.07	3.41	0.50	0.90	0.20	0.15	0.65	
PTS181260V014	4.37	4.73	3.07	3.41	0.50	0.90	0.20	0.15	0.65	
PTS181230V020	4.37	4.73	3.07	3.41	0.50	0.90	0.20	0.15	0.65	
PTS181216V035	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS181216V050	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS181213V075	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS181224V075	4.37	4.73	3.07	3.41	0.60	1.20	0.20	0.15	0.65	
PTS181233V075	4.37	4.73	3.07	3.41	0.60	1.20	0.20	0.15	0.65	
PTS18128V110	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS181216V110	4.37	4.73	3.07	3.41	0.60	1.00	0.20	0.15	0.65	
PTS181224V110	4.37	4.73	3.07	3.41	0.60	1.00	0.20	0.15	0.65	
PTS181233V110	4.37	4.73	3.07	3.41	0.80	1.60	0.20	0.15	0.65	
PTS18126V125	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS181216V125	4.37	4.73	3.07	3.41	0.30	0.90	0.20	0.15	0.65	
PTS18128V150	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS181212V150	4.37	4.73	3.07	3.41	0.60	1.00	0.20	0.15	0.65	
PTS181224V150	4.37	4.73	3.07	3.41	0.70	1.50	0.20	0.15	0.65	
PTS18128V160	4.37	4.73	3.07	3.41	0.28	0.68	0.20	0.15	0.65	
PTS18128V200	4.37	4.73	3.07	3.41	0.35	0.90	0.20	0.15	0.65	
PTS18126V260	4.37	4.73	3.07	3.41	0.35	0.90	0.20	0.15	0.65	
PTS18126V300	4.37	4.73	3.07	3.41	0.60	1.20	0.20	0.15	0.65	

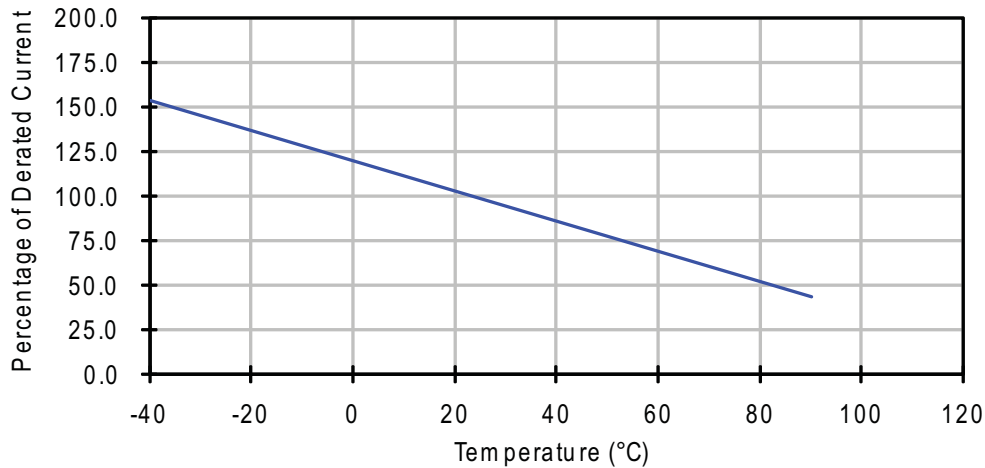
1812 Package



Time to Trip Curves at 23°C



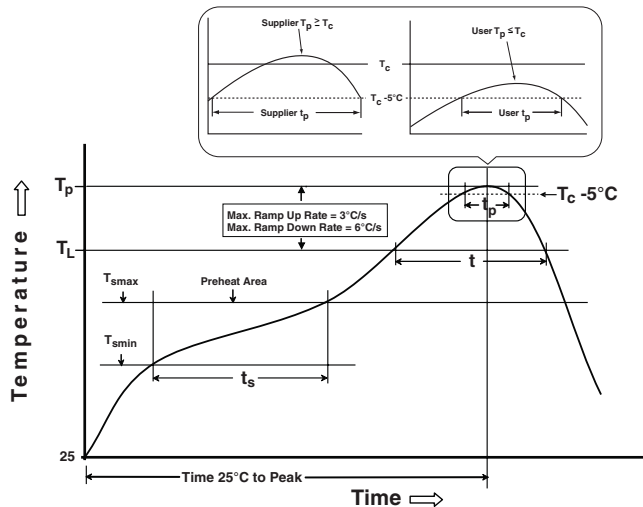
Thermal Derating Curve



Soldering Methods

- Wave Solder
 - Reservoir Temperature: 260°C (500°F)
 - Recommended time in reservoir: 10 seconds.
- Infrared Reflow
 - Temperature: 260°C
 - Time: 10 seconds maximum at peak temperature.

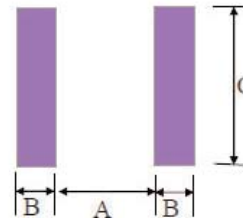
Recommended Wave Solder Profile



Environmental Specifications

Characteristic	Value
Operating Temperature Range	-40°C to +85°C
Surface Temperature Trip State	125°C max.
Thermal Shock	+85°C to -40°C, 10 cycles, 5% typical resistance change
Solvent Resistance	MIL-STD-202 Method 215, no change
Humidity Age Test	+85°C, 85% RH, 1000 hours ±5% typical resistance change. Specified temperature (23°C ± 3°C)
Storage Temperature Range	-10°C to +40°C
Storage Duration	One year
Storage Relative Humidity	≤75%
Storage Conditions	Keep away from corrosive atmosphere and sunlight

Recommended Land Pattern - mm (in)



A	B	C
3.45 (0.136)	1.78 (0.07)	3.5 (0.138)

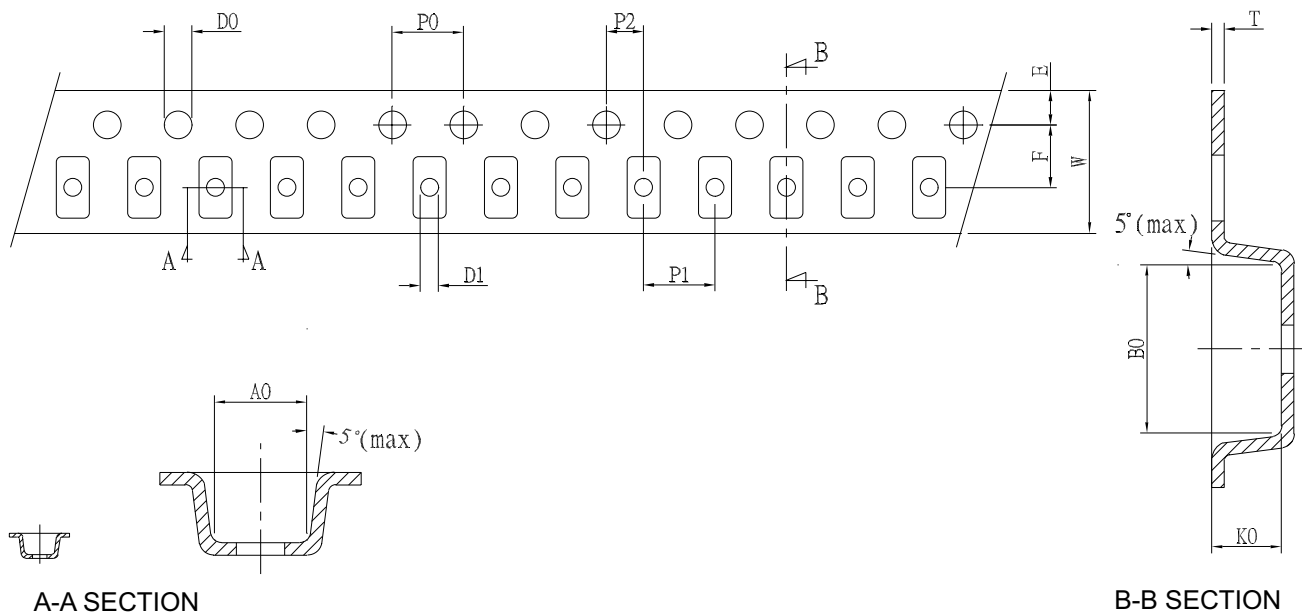
Material Composition

- Terminal material: Nickel/tin-plated copper

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat & 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
Average ramp-up rate (T_{smax} to T_p)	3°C/second max.	3°C/second max.
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_l)	60-150 seconds	60-150 seconds
Peak package body temperature (T_p)*	See classification temp in Table 4.1	See classification temp in Table 4.2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20** seconds	30** seconds
Average ramp-down rate (T_p to T_{smax})	6°C/second max.	6°C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.

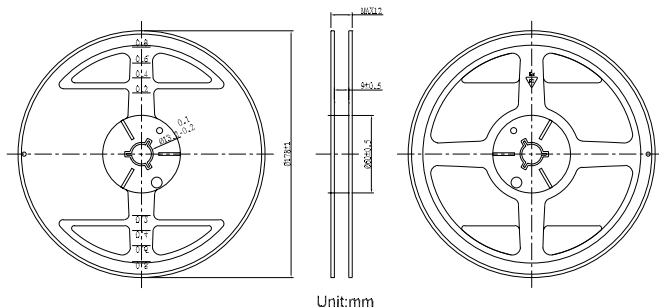
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

Packaging Specifications



For PTS181216V035, PTS181216V050, PTS181213V075, PTS18128V110, PTS18126V125, PTS18128V150, PTS18128V160, PTS18128V200													
Index	A0	B0	K0	P0	P1	P2	T	E	F	D0	D1	W	10P0
Type	±0.1	±0.1	±0.06	±0.1	±0.1	±0.05	±0.1	±0.1	±0.05	±0.05	Min.	±0.3	±0.2
1812	3.58	4.93	0.87	4.0	8.0	2.0	0.25	1.75	5.5	1.55	1.5	12	40
For PTS181230V010, PTS181260V014, PTS181230V020, PTS181224V075, PTS181233V075, PTS181216V110, PTS181224V110, PTS181233V110, PTS181216V125, PTS181212V150, PTS181224V150, PTS18126V260, PTS18126V300													
Index	A0	B0	K0	P0	P1	P2	T	E	F	D0	D1	W	10P0
Type	±0.1	±0.1	±0.1	±0.1	±0.1	±0.05	±0.1	±0.1	±0.05	±0.05	+0.15/-0	±0.3	±0.2
1812	3.56	4.94	1.7	4.0	8.0	2.0	0.25	1.75	5.5	1.55	1.5	12	40

Reel Specifications



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