

PTSAHT1206

Automotive high temperature SMD PTC fuses



Applications

- Infotainment
- In-vehicle navigation
- Telematics
- Car lighting
- Power window and seat control
- Instrument clusters
- PCB trace protection

Environmental compliance



Product features

- AEC-Q200 qualified
- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Compact 1206 (3216 metric) footprint
- High temperature
- Voltage rating 16 V to 30 V
- Current rating from 0.16 A to 0.50 A
- Fast time-to-trip

Part number system/ordering:

PTSAHT120630V016

- PT= PTC resettable fuse
- S= Surface mount
- AHT= Automotive with high operating temperature
- 1206= Dimension code
- 30V= Maximum voltage
- 016= Ihold current rating (016= 0.16 A)

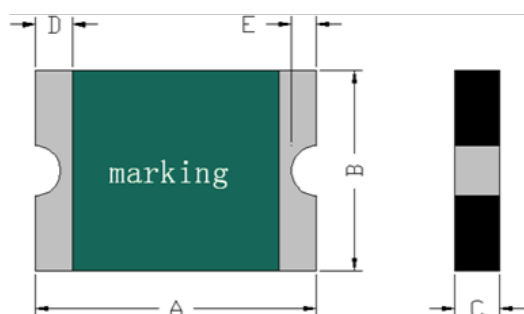
Product specifications

	V _{max} ¹	I _{max} ²	I _{hold} ³	I _{trip} ⁴	P _d ⁵	Time-to-trip (maximum)		Resistance ⁶		
Part number	(V _{dc})	(A)	(A)	(A)	typical (W)	(A)	(seconds)	Initial (R _i) minimum (Ω)	Post trip (R _p) maximum (Ω)	Part marking
PTSAHT120630V016	30	20	0.16	0.80	0.90	8.00	0.10	0.70	6.00	01H
PTSAHT120616V035	16	50	0.35	0.95	1.00	3.50	0.20	0.20	1.60	03H
PTSAHT120630V035	30	20	0.35	1.75	1.20	8.00	0.10	0.20	2.20	03H
PTSAHT120624V050	24	20	0.50	2.50	1.70	8.00	0.10	0.20	1.60	05H

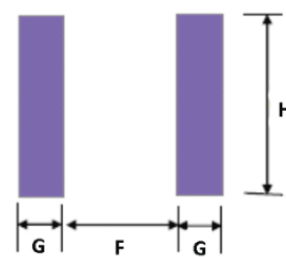
1. V_{max}: Maximum continuous voltage the device can withstand without damage at rated current
2. I_{max}: Maximum fault current the device can withstand without damage at rated voltage
3. I_{hold}: Maximum current the device will pass without interruption at +23 °C still air
4. I_{trip}: Minimum current that will transition the device from low resistance to high resistance at +23 °C still air
5. P_d: Power dissipated from the device when in tripped state at +23 °C still air

6. R_i: Minimum resistance of the device at +23 °C
R_p: Maximum resistance of the device one hour after tripping at +23 °C

Dimensions—mm



Recommended pad layout



Part number	A typ	A max	B typ	B max	C typ	C max	D min	E min	F	G	H
PTSAHT120630V016	3.35	3.50	1.70	1.80	0.60	0.89	0.25	0.076	1.8	1.0	1.8
PTSAHT120616V035	3.35	3.50	1.70	1.80	0.65	1.14	0.25	0.076	1.8	1.0	1.8
PTSAHT120630V035	3.35	3.50	1.70	1.80	1.05	1.46	0.25	0.076	1.8	1.0	1.8
PTSAHT120624V050	3.35	3.50	1.70	1.80	1.05	1.46	0.25	0.076	1.8	1.0	1.8

Thermal derating chart - I_{hold} (A)

Part number	Maximum ambient temperature (°C)									
	-40	-20	0	25	40	50	60	70	85	125
PTSAHT120630V016	0.25	0.21	0.19	0.16	0.14	0.13	0.12	0.11	0.09	0.05
PTSAHT120616V035	0.54	0.48	0.43	0.35	0.32	0.29	0.26	0.24	0.20	0.10
PTSAHT120630V035	0.51	0.46	0.41	0.35	0.31	0.29	0.26	0.24	0.20	0.10
PTSAHT120624V050	0.73	0.66	0.58	0.50	0.45	0.42	0.39	0.35	0.31	0.17

General specifications

Operating temperature: -40 °C to + 125 °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, 1000 hours, ± ≤ 20%
IEC60738-1, +85 °C, 1000 hours, ± ≤ 20%

Humidity aging: +85 °C, 85% RH, 100 hours, ± ≤ 20%

Thermal shock: IEC60738-1, +125 °C/ -40 °C, 20 cycles, ≤ 50%

Trip cycle life: UL1434, Vmax, Imax, 100 cycles, no arcing or burning

Trip endurance: UL1434, Vmax, Itrip ≤ I ≤ Imax, 2 hours, no arcing or burning

MSL test: J-STD-020, MSL=1, pass and no visible damage

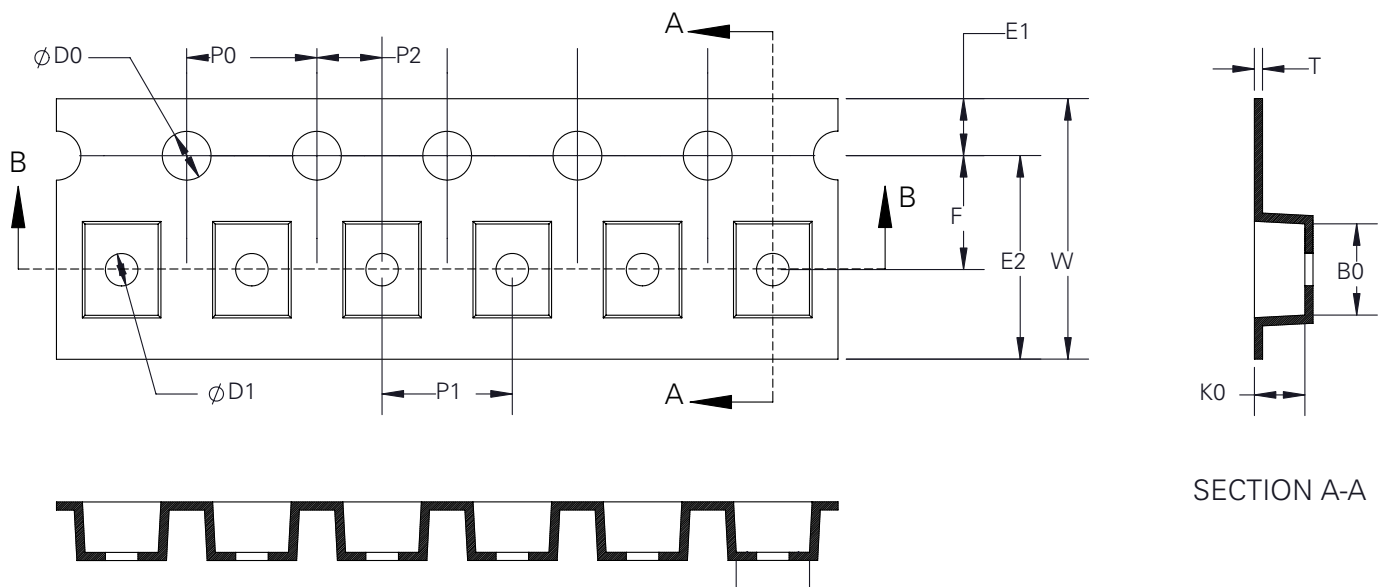
Packaging information

PTSAHT120616V035, PTSAHT120630V016

Supplied in tape and reel packaging, 4000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)

PTSAHT120624V050, PTSAHT120630V035

Supplied in tape and reel packaging, 3000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)



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	-	1.77 ± 0.10	3.40 ± 0.10	1.04 ± 0.10	0.22 ± 0.05

Solder reflow profile

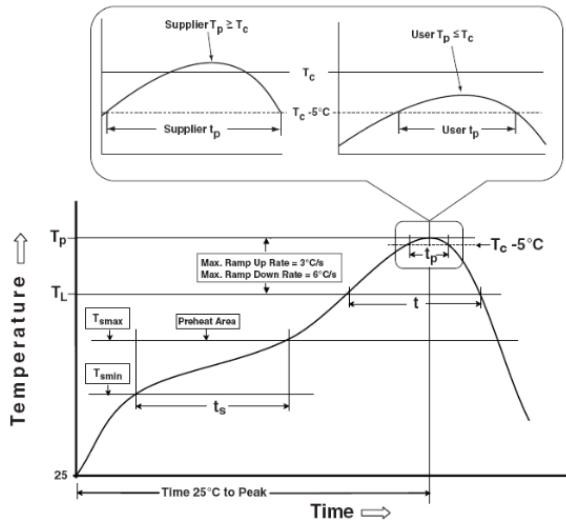


Table 1 - Standard SnPb solder (T_c)

Package thickness	Volume mm ³ <350	Volume mm ³ ≥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)	183 °C	217 °C
Time (t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature (T_p)*	Table 1	Table 2
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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