

# PTSAHT1206

## Automotive high temperature SMD PTC fuses



### 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

### Applications

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

### Environmental compliance



### Part number system/ordering:

#### PTSAHT120630V016

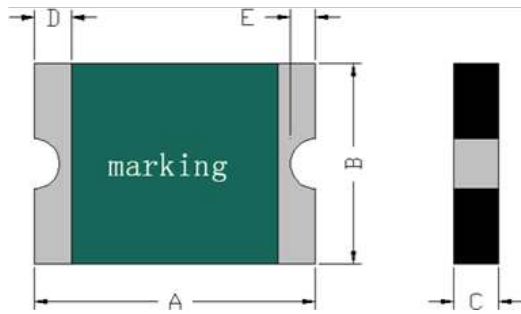
- PT= PTC resettable fuse
- S= Surface mount
- AHT= Automotive with high operating temperature
- 1206= Dimension code
- 30V= Maximum voltage
- 016= Ihold current rating (016= 0.16 A)

**Product specifications**

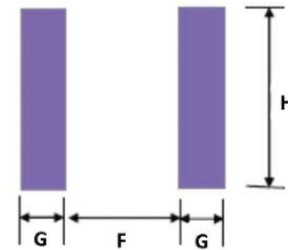
Part number	V <sub>max</sub> <sup>1</sup>	I <sub>max</sub> <sup>2</sup>	I <sub>hold</sub> <sup>3</sup>	I <sub>trip</sub> <sup>4</sup>	P <sub>d</sub> <sup>5</sup>	Time-to-trip (maximum)		Resistance <sup>6</sup>		Part marking
	(V <sub>dc</sub> )	(A)	(A)	(A)	typical (W)	(A)	(seconds)	Initial (R <sub>i</sub> ) minimum (Ω)	Post trip (R <sub>p</sub> ) maximum (Ω)	
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

- 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
- I<sub>trip</sub>: Minimum current that will transition the device from low resistance to high resistance at +23 °C still air
- P<sub>d</sub>: Power dissipated from the device when in tripped state at +23 °C still air
- R<sub>i</sub>: Minimum resistance of the device 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 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<sub>hold</sub> (A)**

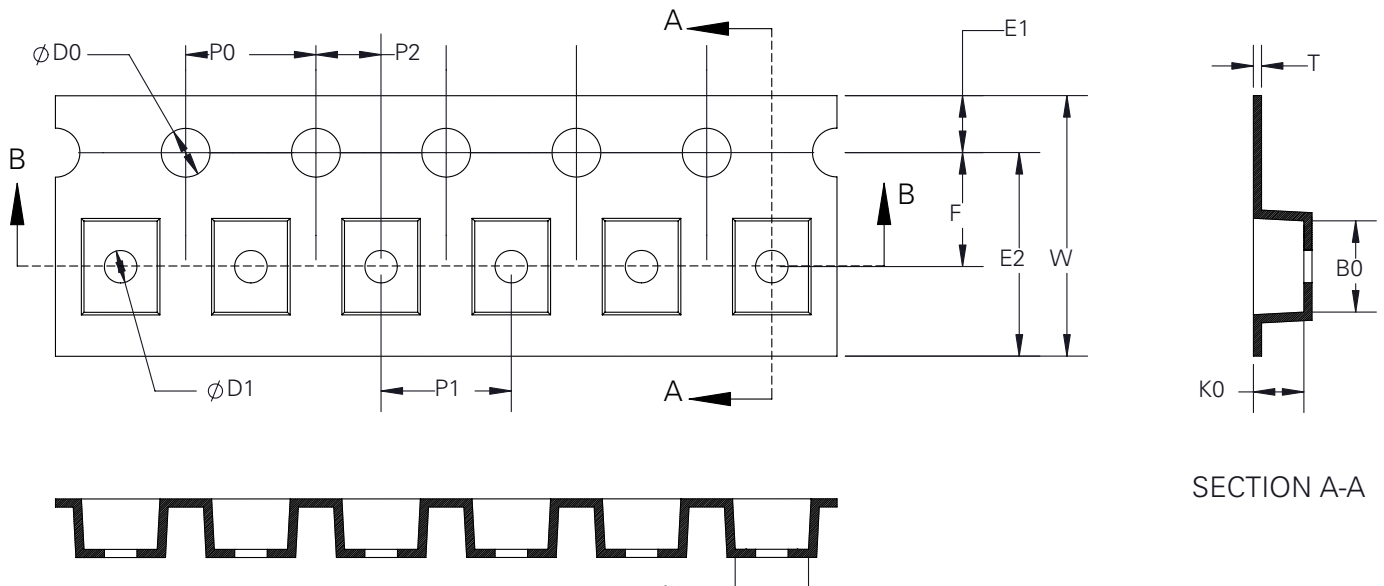
Part number	Maximum ambient temperature (°C)									
	-40	-20	0	25	40	50	60	70	85	125
PTSAHT120630V016	0.25	0.21	0.19	0.16	0.14	0.13	0.12	0.11	0.09	0.05
PTSAHT120616V035	0.54	0.48	0.43	0.35	0.32	0.29	0.26	0.24	0.20	0.10
PTSAHT120630V035	0.51	0.46	0.41	0.35	0.31	0.29	0.26	0.24	0.20	0.10
PTSAHT120624V050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

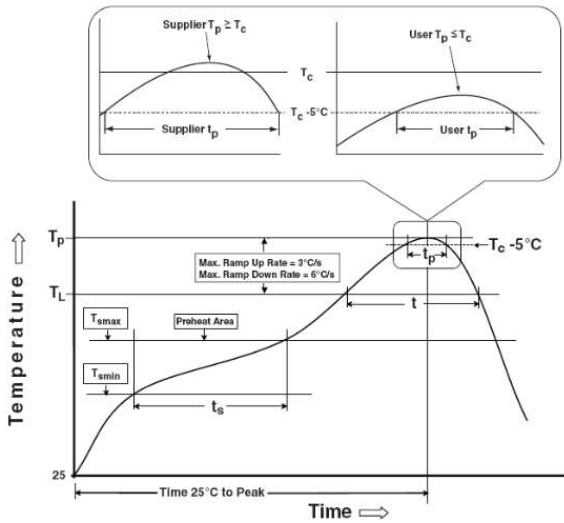
**Packaging information**

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 $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq$ 350
<2.5 mm)	235 °C	220 °C
$\geq$ 2.5 mm	220 °C	220 °C

**Table 2 - Lead (Pb) Free Solder ( $T_c$ )**

Package thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >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	<ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul>	<ul style="list-style-type: none"> <li>100 °C</li> <li>150 °C</li> <li>60-120 seconds</li> </ul>
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 ( $T_p$ )*	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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