

# PTSA0805

## Automotive SMD PTC fuses



### Product features

- AEC-Q200 qualified
- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Compact 0805 (2012 metric) footprint
- Low resistance
- Fast time-to-trip
- Current rating from 0.10 to 0.12 A
- Voltage rating 15 V

### Applications

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

### Environmental compliance



### Part number system/ordering:

#### **PTSA080515V010**

- PT= PTC resettable fuse
- S= Surface mount
- A= Automotive
- 0805= Dimension code
- 15V= Maximum voltage
- 010= Ihold current rating (010= 0.10 A)

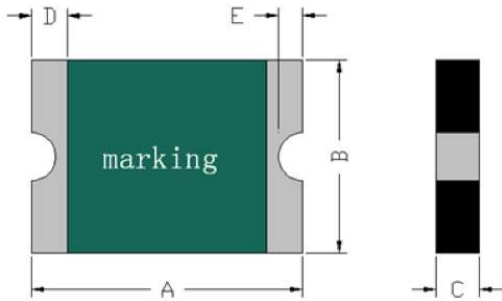
**Product specifications**

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)	
PTSA080515V010	15	10	0.10	0.30	0.50	0.50	2.00	0.50	10.0	0
PTSA080515V012	15	20	0.12	0.30	0.50	1.00	0.50	0.40	9.0	0

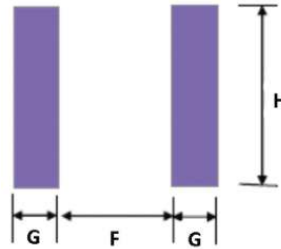
1. V<sub>max</sub>: Maximum continuous voltage the device can withstand without damage at rated current
2. I<sub>max</sub>: Maximum fault current the device can withstand without damage at rated voltage
3. I<sub>hold</sub>: Maximum current the device will pass without interruption at +23 °C still air
4. I<sub>trip</sub>: Minimum current that will transition the device from low resistance to high resistance at +23 °C still air
5. P<sub>d</sub>: Power dissipated from the device when in tripped state at +23 °C still air

6. 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
PTSA080515V010	2.25	2.50	1.50	1.60	0.50	1.00	0.20	0.08	1.2	1.0	1.50
PTSA080515V012	2.25	2.50	1.50	1.60	0.50	1.00	0.20	0.08	1.2	1.0	1.50

**Thermal derating chart - I<sub>hold</sub> (A)**

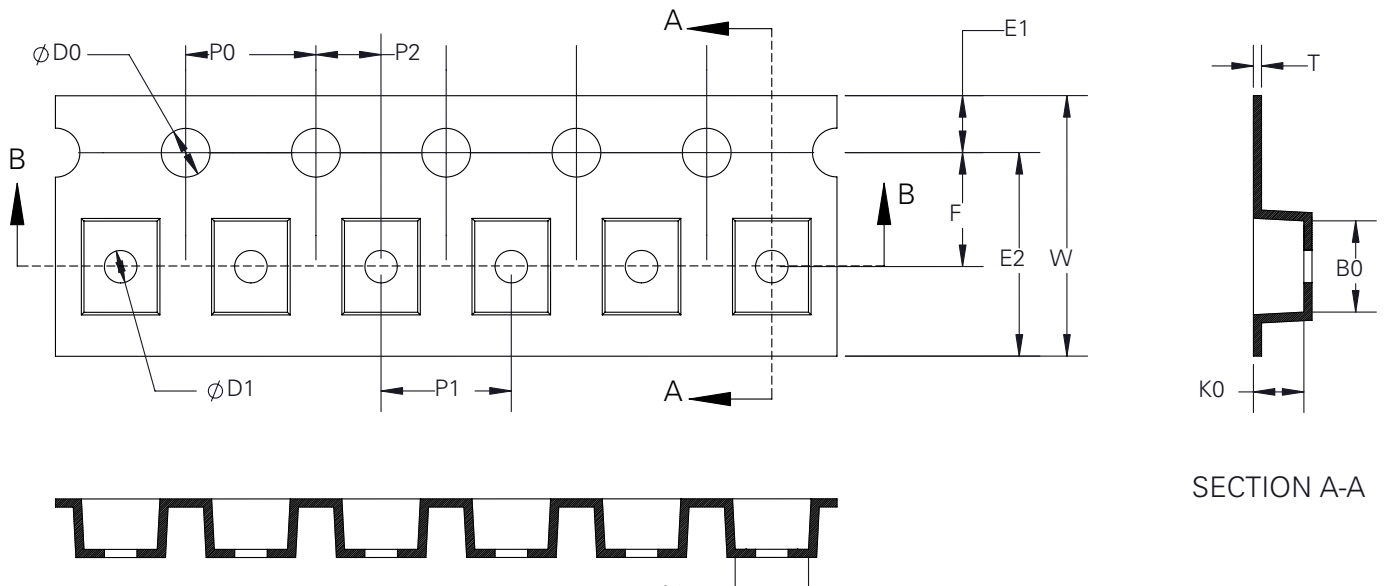
Part number	Maximum ambient temperature (°C)								
	-40	-20	0	25	40	50	60	70	85
PTSA080515V010	0.14	0.13	0.12	0.10	0.09	0.08	0.07	0.06	0.04
PTSA080515V012	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.05

**General specifications**

Operating temperature: -40 °C to + 85 °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 , +65 °C, 1000 hours, ≤ 20% IEC60738-1 , +85 °C, 1000 hours, ≤ 20%
Humidity aging: +85 °C, 85% RH, 100 hours, ≤ 20%
Thermal shock: IEC60738-1, +85 °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

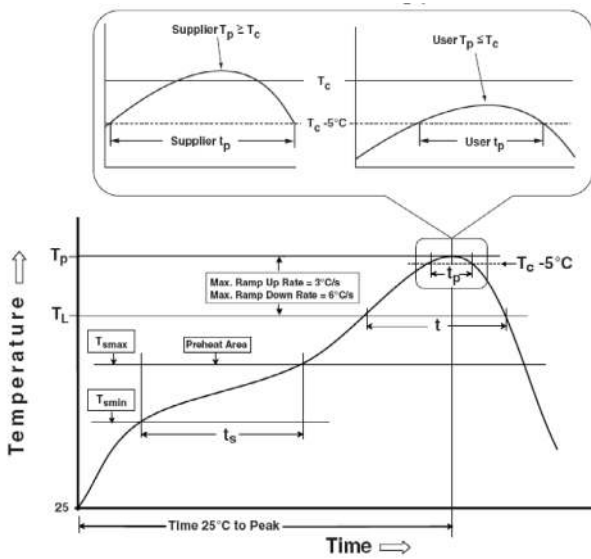
**Packaging information**

Supplied in tape and reel packaging, 4000 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	1.50 + 0.10/-0	-	1.68 ± 0.10	2.44 ± 0.10	1.04 ± 0.10	0.22 ± 0.05

**Solder reflow profile**



**Table 1 - Standard SnPb solder ( $T_c$ )**

Package thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥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 <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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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