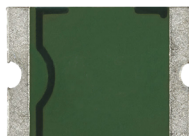


PTSA1812

Automotive SMD PTC fuses



Product features

- AEC-Q200 qualified
- Positive temperature coefficient (PTC)
- Surface mount resettable fuse
- Compact 1812 (4532 metric) footprint
- Low resistance
- Fast time-to-trip
- Current rating from 0.10 A to 2.60 A
- Voltage rating from 16 V to 60 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:

PTSA181260V010

- PT= PTC resettable fuse
- S= Surface mount
- A= Automotive
- 1812= Dimension code
- 60V= Maximum voltage
- 010= Ihold current rating (010= 0.10 A)

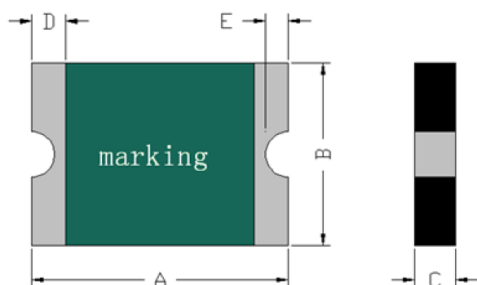
Product specifications

	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
PTSA181260V010	60	10	0.10	0.3	1.0	1.5	0.15	0.70	15.0	W010
PTSA181260V014	60	10	0.14	0.34	1.0	1.5	0.30	0.65	6.00	W014
PTSA181230V020	30	10	0.20	0.4	1.0	6.0	0.02	0.60	5.00	W020
PTSA181230V030	30	40	0.30	0.6	1.0	8.0	0.15	0.20	1.75	W030
PTSA181224V050	24	50	0.50	1.0	1.0	8.0	0.15	0.10	1.00	W050
PTSA181233V075	33	100	0.75	1.5	1.0	8.0	0.30	0.07	0.48	W075
PTSA181224V110	24	40	1.10	2.2	1.0	8.0	0.30	0.04	0.26	W110
PTSA181216V150	16	40	1.50	3.0	1.0	8.0	0.50	0.03	0.12	W150
PTSA181224V150	24	40	1.50	3.0	1.0	8.0	1.50	0.03	0.12	W150
PTSA181216V200	16	40	2.00	4.0	1.0	8.0	5.00	0.02	0.085	W200
PTSA181216V260	16	40	2.60	5.2	1.0	8.0	5.00	0.015	0.07	W260

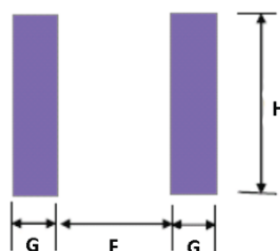
1. V_{max}: Maximum continuous voltage the device can withstand without damage at rated current
2. I_{max}: Maximum fault current the device can withstand without damage at rated voltage
3. I_{hold}: Maximum current the device will pass without interruption at +23 °C still air
4. I_{trip}: Minimum current 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
PTSA181260V010	4.50	4.73	3.20	3.41	0.79	1.0	0.3	0.2	3.10	1.68	3.2
PTSA181260V014	4.50	4.73	3.20	3.41	0.79	1.0	0.3	0.2	3.10	1.68	3.2
PTSA181230V020	4.50	4.73	3.20	3.41	0.79	1.0	0.3	0.2	3.10	1.68	3.2
PTSA181230V030	4.50	4.73	3.20	3.41	0.79	1.0	0.3	0.2	3.10	1.68	3.2
PTSA181224V050	4.50	4.73	3.20	3.41	0.75	1.05	0.3	0.2	3.10	1.68	3.2
PTSA181233V075	4.53	4.73	3.20	3.41	1.15	1.3	0.3	0.2	3.10	1.68	3.2
PTSA181224V110	4.50	4.73	3.20	3.41	0.79	1.3	0.3	0.2	3.10	1.68	3.2
PTSA181216V150	4.53	4.73	3.20	3.41	1.20	1.7	0.3	0.2	3.10	1.68	3.2
PTSA181224V150	4.53	4.73	3.20	3.41	1.20	1.7	0.3	0.2	3.10	1.68	3.2
PTSA181216V200	4.53	4.73	3.20	3.41	1.20	2.0	0.3	0.2	3.10	1.68	3.2
PTSA181216V260	4.53	4.83	3.20	3.41	1.20	2.0	0.3	0.2	3.10	1.68	3.2

Thermal derating chart - Ihold (A)

Part number	Maximum ambient temperature (°C)								
	-40	-20	0	25	40	50	60	70	85
PTSA181260V010	0.18	0.16	0.14	0.10	0.08	0.07	0.06	0.05	0.04
PTSA181260V014	0.23	0.20	0.18	0.14	0.12	0.11	0.09	0.07	0.05
PTSA181230V020	0.33	0.29	0.26	0.20	0.175	0.16	0.15	0.13	0.09
PTSA181230V030	0.49	0.44	0.39	0.30	0.27	0.24	0.22	0.18	0.14
PTSA181224V050	0.78	0.69	0.59	0.50	0.45	0.41	0.37	0.33	0.23
PTSA181233V075	1.12	1.02	0.89	0.75	0.66	0.58	0.53	0.47	0.39
PTSA181224V110	1.65	1.49	1.29	1.10	0.95	0.85	0.79	0.66	0.53
PTSA181216V150	2.28	2.05	1.85	1.50	1.26	1.14	1.05	0.92	0.73
PTSA181224V150	2.28	2.05	1.85	1.50	1.26	1.14	1.05	0.92	0.73
PTSA181216V200	2.90	2.61	2.40	2.00	1.70	1.51	1.41	1.21	0.95
PTSA181216V260	3.80	3.51	3.12	2.60	2.28	2.10	1.85	1.61	1.29

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, +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, +85 °C/-40 °C, 20 cycles, ≤ 50%

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

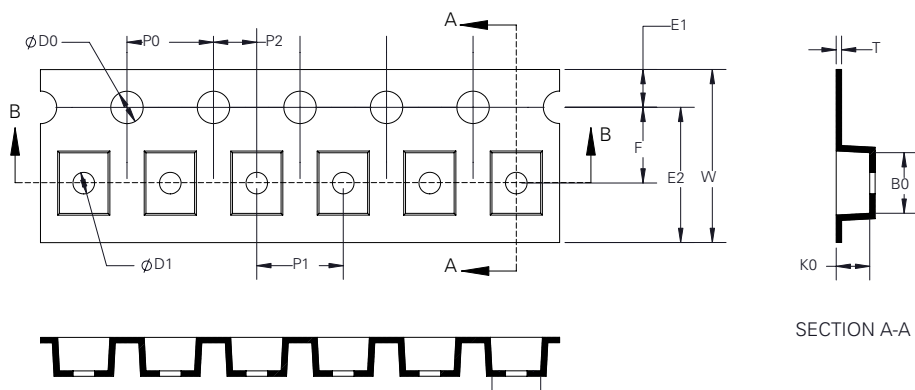
Trip endurance: UL1434, Vmax, Itrip ≤ I, 2 hours, no arcing or burning

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

Packaging information

PTSA181260V010, PTSA181260V014, PTSA181230V020, PTSA181230V030, PTSA181224V050, PTSA181224V110
Supplied in tape and reel packaging, 2000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)

PTSA181233V075, PTSA181224V150, PTSA181216V150, PTSA181216V200, PTSA181216V260
Supplied in tape and reel packaging, 1000 parts per 7.0" (178 mm) diameter reel (EIA-481 compliant)



PTSA181260V010, PTSA181260V014, PTSA181230V020, PTSA181230V030, PTSA181224V050

W	F	E1	E2	P0	P1	P2	D0	D1	A0	B0	K0	T
12.00 ± 0.30	5.50 ± 0.10	1.75 ± 0.10	-	4.00 ± 0.10	8.00 ± 0.10	1.75 ± 0.10	1.50 + 0.10/-0	-	3.55 ± 0.10	4.90 ± 0.10	0.80 ± 0.10	0.25 ± 0.05

PTSA181233V075, PTSA181224V150, PTSA181224V110, PTSA181216V150, PTSA181216V200, PTSA181216V260

W	F	E1	E2	P0	P1	P2	D0	D1	A0	B0	K0	T
12.00 ± 0.30	5.50 ± 0.10	1.75 ± 0.10	-	4.00 ± 0.10	8.00 ± 0.10	1.75 ± 0.10	1.50 + 0.10/-0	-	3.66 ± 0.10	4.95 ± 0.10	1.85 ± 0.10	0.24 ± 0.05

Solder reflow profile

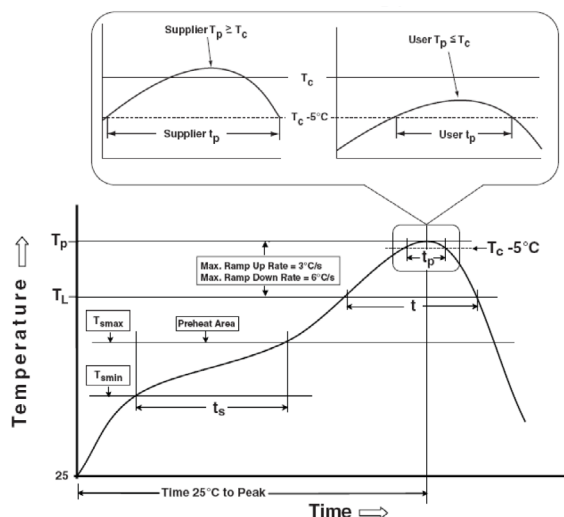


Table 1 - Standard SnPb solder (T_c)

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.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

© 2021 Eaton
All Rights Reserved
Printed in USA
Publication No. ELX1051 BU-ELX21051
June 2021

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Follow us on social media to get the latest product and support information.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Eaton:

<u>PTSA181216V150</u>	<u>PTSA181216V200</u>	<u>PTSA181216V260</u>	<u>PTSA181224V050</u>	<u>PTSA181224V110</u>	<u>PTSA181224V150</u>
<u>PTSA181230V020</u>	<u>PTSA181230V030</u>	<u>PTSA181233V075</u>	<u>PTSA181260V010</u>	<u>PTSA181260V014</u>	