

**Product Size & Current Range:**



**PBT Series : High temp PPTC**

PBT	Hold Current, A
0805 	0.05 ↔ 0.50
1206 	0.10 ↔ 0.75
1210 	0.10 ↔ 1.50

## Surface Mount Polymer PTC

### Features:

PBT Series

- Operating temperature range  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Low thermal derating factor
- Higher hold currents at elevated temperature
- RoHS compliant
- Halogen free

### Applications:

PBT Series

- Overcurrent surge protection of electronic equipment required to operate at high operating temperature ranges
- Resettable fault protection of general electronic equipment

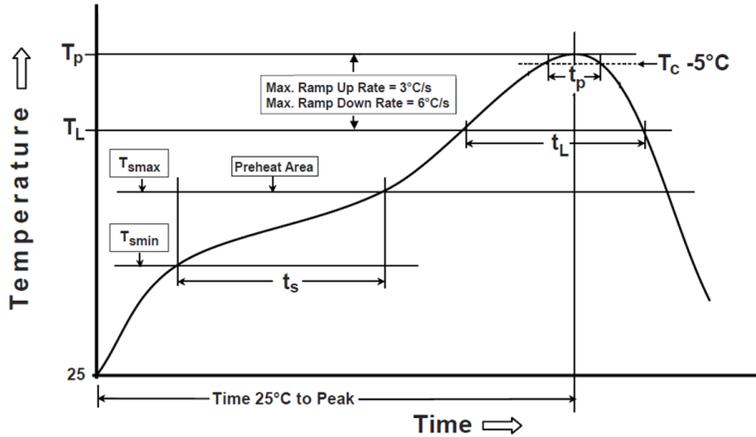
### Quick Index:

Series	Size	Current (A)	Page
PBT	0805	Hold ( $I_H$ ): 0.05, 0.10, 0.16, 0.20, 0.35, 0.50	3
		Trip ( $I_T$ ): 0.25, 0.50, 0.80, 1.00, 1.75, 2.00	
PBT	1206	Hold ( $I_H$ ): 0.10, 0.16, 0.20, 0.35, 0.50, 0.75	6
		Trip ( $I_T$ ): 0.50, 0.80, 1.00, 1.75, 2.50, 3.00	
PBT	1210	Hold ( $I_H$ ): 0.10, 0.16, 0.20, 0.35, 0.50, 0.75, 1.10, 1.25, 1.50	9
		Trip ( $I_T$ ): 0.50, 0.80, 1.00, 1.75, 2.50, 3.75, 4.50, 5.50	

## Automotive Grade Surface Mount Polymer PTC

### Soldering Temperature Profile:

\* Recommended Temperature Profile for Reflow Soldering



Profile Feature	Pb-Free Assembly
<b>Preheat/Soak</b> Temperature Min ( $T_{smin}$ ) Temperature Max ( $T_{smax}$ ) Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	150°C 200°C 60~180 seconds
Ramp-up rate ( $T_L$ to $T_p$ )	3°C/second max.
Liquidous temperature ( $T_L$ ) Time ( $t_L$ ) maintained above $T_L$	217°C 60~150 seconds
Peak package body temperature ( $T_p$ )	260°C
Time ( $t_p$ )* within 5°C of the specified classification temperature ( $T_c$ )	20~40 seconds *
Ramp-down rate ( $T_p$ to $T_L$ )	6°C/second max.
Time 25°C to peak temperature	8 minutes max.
* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum	

**Note:**

Polymer PTC cannot be wave soldered. Please contact AEM for hand soldering recommendations.  
 If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.  
 Compatible with Pb and Pb-free solder reflow profiles.  
 Excess solder may cause a short circuit, especially during hand soldering.

**Caution:**

Operation beyond the rated voltage or current may result in rupture electrical arcing or flame.

### Warning:

Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.

The devices are intended for protection against occasional over-current or over-temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.

Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices.

Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal and mechanical procedures for electronic components.

Operation in circuit with a large inductance can generate a circuit voltage ( $L di/dt$ ) above the rated voltage of the PPTC device.

## Surface Mount Polymer PTC High Operating Temperature, PBT Series, 0805 Size

### Ordering Code:

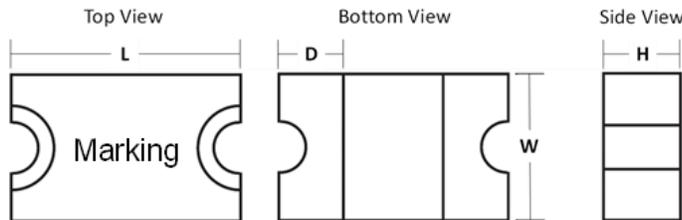
**PBT 0805—010**  
(1) (2) (3)

- (1) Series code
- (2) Size code
- (3) Current rating code 010: 0.1A

### Agency Approval:

Pending

### Product Dimensions:



Part Number	L mm (inches)		W mm (inches)		H mm (inches)		D mm (inches)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PBT0805-005 PBT0805-010 PBT0805-016	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.40 (0.016)	0.80 (0.031)	0.25 (0.010)
PBT0805-020 PBT0805-035 PBT0805-050	2.00 (0.079)	2.30 (0.091)	1.20 (0.047)	1.50 (0.059)	0.60 (0.024)	1.20 (0.047)	0.25 (0.010)

### Typical Ratings and Characteristics (@ 23°C):

Operating temperature: -40 to +125°C

Part Number	Current (A)		V <sub>Max</sub> (Vdc)	I <sub>Max</sub> (A)	Max. Time to Trip (sec)		Typical Power (Pd, W)	Resistance Min. (Ω)	One Hours Post Reflow Resistance R <sub>1</sub> Max. (Ω) <sup>1</sup>
	Hold (I <sub>H</sub> )	Trip (I <sub>T</sub> )			Current (A)	Time (sec)			
PBT0805-005	0.05	0.25	16	40	0.50	1.50	0.9	1.50	50.0
PBT0805-010	0.10	0.50	16	40	2.50	1.50	0.9	1.00	7.50
PBT0805-016	0.16	0.80	16	40	8.00	0.10	0.9	0.70	6.00
PBT0805-020	0.20	1.00	16	40	8.00	0.10	0.9	0.50	5.00
PBT0805-035	0.35	1.75	16	40	8.00	0.10	0.9	0.25	3.00
PBT0805-050	0.50	2.00	12	40	8.00	0.10	0.9	0.12	1.60

1. The max resistance of one-hour post reflow is a reference value. The value may change a little according to reflow conditions and soldering state.

## Surface Mount Polymer PTC

### High Operating Temperature, PBT Series, 0805 Size

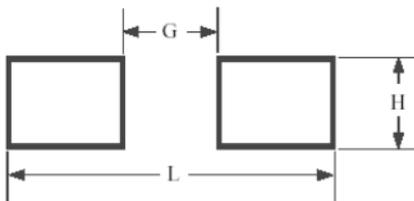
#### Packaging and Marking Information:

Part Number	Part Marking	Tape & Reel Quantity (piece)
PBT0805-005	C	3,000
PBT0805-010	D	
PBT0805-016	I	
PBT0805-020	K	
PBT0805-035	H	
PBT0805-050	L	

#### Thermal De-rating Hold Current (A) at Ambient Temperature (23°C):

Part Number	Ambient temperature									
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C	125°C
PBT0805-005	0.07	0.07	0.06	0.05	0.04	0.04	0.04	0.03	0.03	0.01
PBT0805-010	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.07	0.06	0.03
PBT0805-016	0.23	0.21	0.19	0.16	0.14	0.13	0.12	0.11	0.09	0.04
PBT0805-020	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.11	0.05
PBT0805-035	0.51	0.46	0.41	0.35	0.31	0.28	0.26	0.23	0.20	0.09
PBT0805-050	0.73	0.66	0.58	0.50	0.44	0.41	0.37	0.34	0.28	0.14

#### Recommended Foot Print Dimensions:

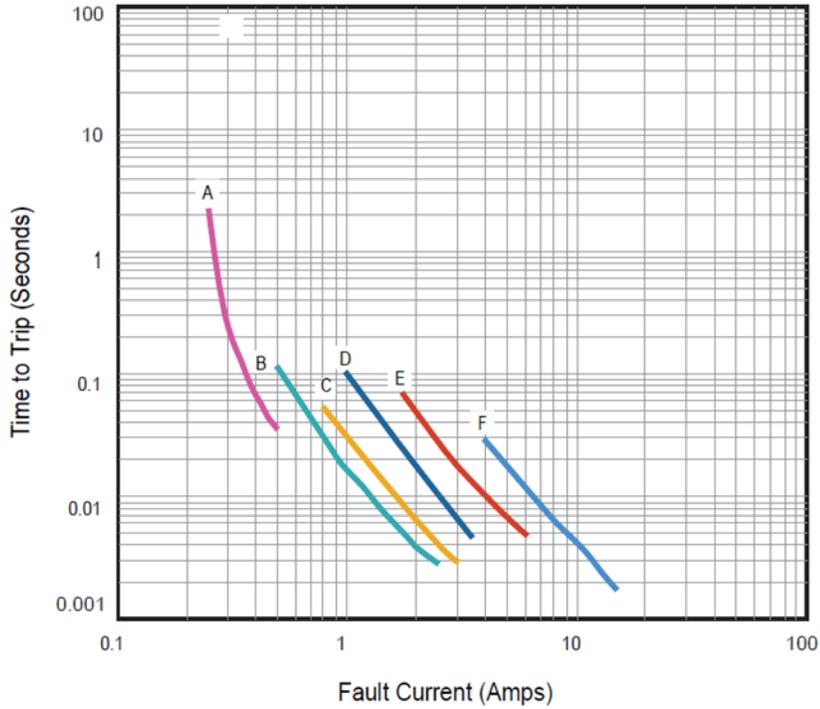


G (mm)	H (mm)	L (mm)
1.20±0.10	1.50±0.10	3.20±0.10

# Surface Mount Polymer PTC

## High Operating Temperature, PBT Series, 0805 Size

### Typical Time to Trip (@ 23°C):



- A-PBT0805-005
- B-PBT0805-010
- C-PBT0805-016
- D-PBT0805-020
- E-PBT0805-035
- F-PBT0805-050

# Surface Mount Polymer PTC

## High Operating Temperature, PBT Series, 1206 Size

### Ordering Code:

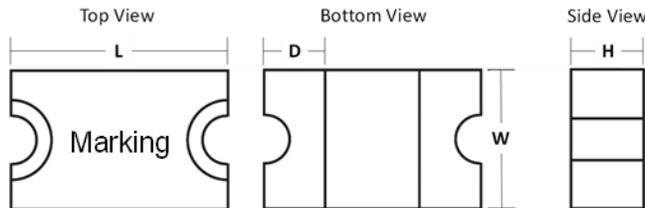
### Agency Approval:

**PBT 1206—016**  
(1) (2) (3)

Pending

- (1) Series code
- (2) Size code
- (3) Current rating code 016: 0.16A

### Product Dimensions:



Part Number	L mm (inches)		W mm (inches)		H mm (inches)		D mm (inches)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PBT1206-010 PBT1206-016 PBT1206-020 PBT1206-035	3.00 (0.118)	3.40 (0.134)	1.40 (0.055)	1.80 (0.071)	0.40 (0.016)	0.85 (0.033)	0.25 (0.010)
PBT1206-050 PBT1206-075	3.00 (0.118)	3.40 (0.134)	1.40 (0.055)	1.80 (0.071)	0.60 (0.024)	1.20 (0.047)	0.25 (0.010)

### Typical Ratings and Characteristics (@ 23°C):

Operating temperature: -40 to +125°C

Part Number	Current (A)		V <sub>Max</sub> (Vdc)	I <sub>Max</sub> (A)	Max. Time to Trip (sec)		Typical Power (Pd, W)	Resistance Min. (Ω)	One Hours Post Reflow Resistance R <sub>1</sub> Max. (Ω) <sup>1</sup>
	Hold (I <sub>H</sub> )	Trip (I <sub>T</sub> )			Current (A)	Time (sec)			
PBT1206-010	0.10	0.50	30	20	2.50	1.50	0.9	1.00	7.50
PBT1206-016	0.16	0.80	30	20	8.00	0.10	0.9	0.70	6.00
PBT1206-020	0.20	1.00	30	20	8.00	0.10	0.9	0.60	5.00
PBT1206-035	0.35	1.75	30	20	8.00	0.10	0.9	0.40	2.60
PBT1206-050	0.50	2.50	16	20	8.00	0.10	0.9	0.17	1.60
PBT1206-075	0.75	3.00	12	40	8.00	5.00	1.2	0.08	0.70

1. The max resistance of one-hour post reflow is a reference value. The value may change a little according to reflow conditions and soldering state.

## Surface Mount Polymer PTC

### High Operating Temperature, PBT Series, 1206 Size

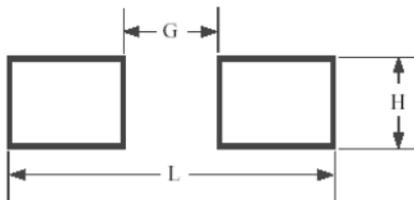
#### Packaging and Marking Information:

Part Number	Part Marking	Tape & Reel Quantity (piece)
PBT1206-010	B	3,000
PBT1206-016	D	
PBT1206-020	N	
PBT1206-035	F	
PBT1206-050	H	
PBT1206-075	L	

#### Thermal De-rating Hold Current (A) at Ambient Temperature (23°C):

Part Number	Ambient temperature									
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C	125°C
PBT1206-010	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.07	0.06	0.03
PBT1206-016	0.23	0.21	0.19	0.16	0.14	0.13	0.12	0.11	0.09	0.04
PBT1206-020	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.11	0.05
PBT1206-035	0.51	0.46	0.41	0.35	0.31	0.28	0.26	0.23	0.20	0.09
PBT1206-050	0.73	0.66	0.58	0.50	0.44	0.41	0.37	0.34	0.28	0.14
PBT1206-075	1.09	0.98	0.87	0.75	0.66	0.61	0.56	0.50	0.42	0.20

#### Recommended Foot Print Dimensions:

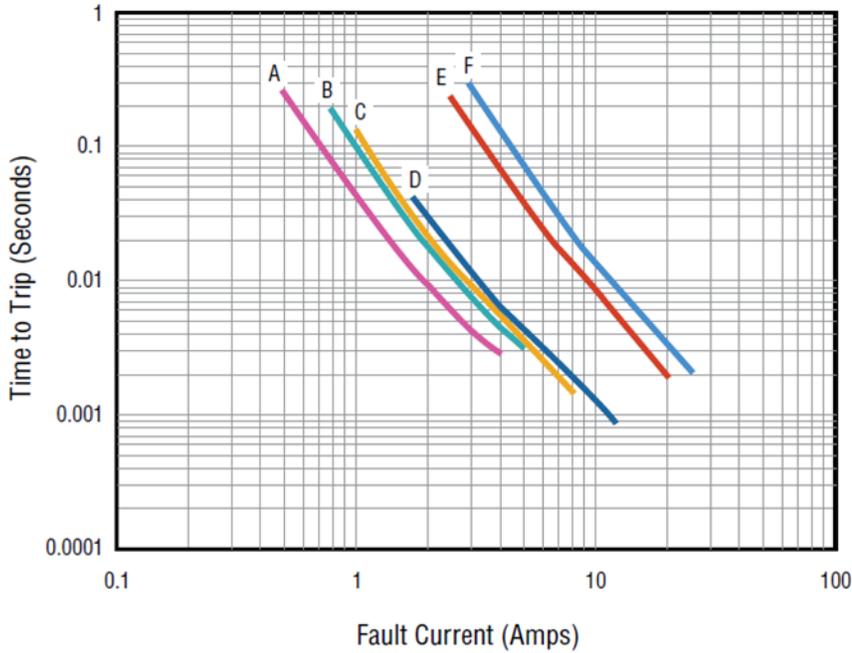


G (mm)	H (mm)	L (mm)
2.0±0.1	1.6±0.1	4.0±0.1

# Surface Mount Polymer PTC

## High Operating Temperature, PBT Series, 1206 Size

### Typical Time to Trip (@ 23°C):



PBT1206-010  
PBT1206-016  
PBT1206-020  
PBT1206-035  
PBT1206-050  
PBT1206-075

## Surface Mount Polymer PTC

### High Operating Temperature, PBT Series, 1210 Size

#### Ordering Code:

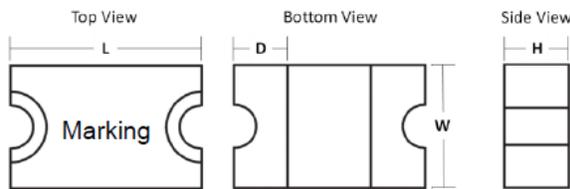
**PBT 1210—016**  
(1) (2) (3)

- (1) Series code
- (2) Size code
- (3) Current rating code 016: 0.16A

#### Agency Approval:

Pending

#### Product Dimensions:



Part Number	L mm (inches)		W mm (inches)		H mm (inches)		D mm (inches)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
PBT1210-010 PBT1210-016 PBT1210-020 PBT1210-035 PBT1210-050	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.40 (0.016)	0.85 (0.033)	0.30 (0.012)
PBT1210-075	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.60 (0.024)	1.20 (0.047)	0.30 (0.012)
PBT1210-110 PBT1210-125 PBT1210-150	3.00 (0.118)	3.43 (0.135)	2.35 (0.093)	2.80 (0.110)	0.80 (0.031)	1.60 (0.063)	0.30 (0.012)

#### Typical Ratings and Characteristics (@ 23°C):

Operating temperature: -40 to +125°C

Part Number	Current (A)		V <sub>Max</sub> (Vdc)	I <sub>Max</sub> (A)	Max. Time to Trip (sec)		Typical Power (Pd, W)	Resistance Min. (Ω)	One Hours Post Reflow Resistance R <sub>1</sub> Max. (Ω) <sup>1</sup>
	Hold (I <sub>H</sub> )	Trip (I <sub>T</sub> )			Current (A)	Time (sec)			
PBT1210-010	0.10	0.50	30	20	2.50	1.50	1.0	1.00	7.50
PBT1210-016	0.16	0.80	30	20	8.00	0.10	1.0	0.70	6.00
PBT1210-020	0.20	1.00	30	20	8.00	0.10	1.0	0.60	5.00
PBT1210-035	0.35	1.75	30	20	8.00	0.10	1.0	0.40	2.20
PBT1210-050	0.50	2.50	30	20	8.00	0.10	1.0	0.30	1.60
PBT1210-075	0.75	3.75	16	20	8.00	5.00	1.0	0.10	1.00
PBT1210-110	1.10	5.50	9	20	8.00	5.00	1.0	0.06	0.50
PBT1210-125	1.25	3.75	9	40	8.00	5.00	1.5	0.03	0.30
PBT1210-150	1.50	4.50	9	40	8.00	5.00	1.5	0.025	0.25

1. The max resistance of one-hour post reflow is a reference value. The value may change a little according to reflow conditions and

## Surface Mount Polymer PTC High Operating Temperature, PBT Series, 1210 Size

### Packaging and Marking Information:

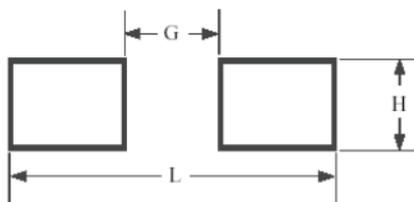
Part Number	Part Marking	Tape & Reel Quantity (piece)
PBT1210-010	B w	3,000
PBT1210-016	D w	
PBT1210-020	E w	
PBT1210-035	F w	
PBT1210-050	K w	
PBT1210-075	L w	
PBT1210-110	N w	2,000
PBT1210-125	P w	
PBT1210-150	S w	

\* B w → B = 0.10A; w = Week code (w=Y → week 49~50)

### Thermal De-rating Hold Current (A) at Ambient Temperature (23°C):

Part Number	Ambient temperature									
	-40°C	-20°C	0°C	23°C	40°C	50°C	60°C	70°C	85°C	125°C
PBT1210-010	0.15	0.13	0.12	0.10	0.09	0.08	0.07	0.07	0.06	0.03
PBT1210-016	0.23	0.21	0.19	0.16	0.14	0.13	0.12	0.11	0.09	0.04
PBT1210-020	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.11	0.05
PBT1210-035	0.51	0.46	0.41	0.35	0.31	0.28	0.26	0.23	0.20	0.09
PBT1210-050	0.73	0.66	0.58	0.50	0.44	0.41	0.37	0.34	0.28	0.14
PBT1210-075	1.09	0.98	0.87	0.75	0.66	0.61	0.56	0.50	0.42	0.20
PBT1210-110	1.60	1.44	1.28	1.10	0.97	0.89	0.81	0.74	0.62	0.30
PBT1210-125	1.81	1.64	1.45	1.25	1.10	1.01	0.93	0.84	0.70	0.34
PBT1210-150	2.18	1.97	1.74	1.50	1.32	1.22	1.11	1.01	0.84	0.41

### Recommended Foot Print Dimensions:

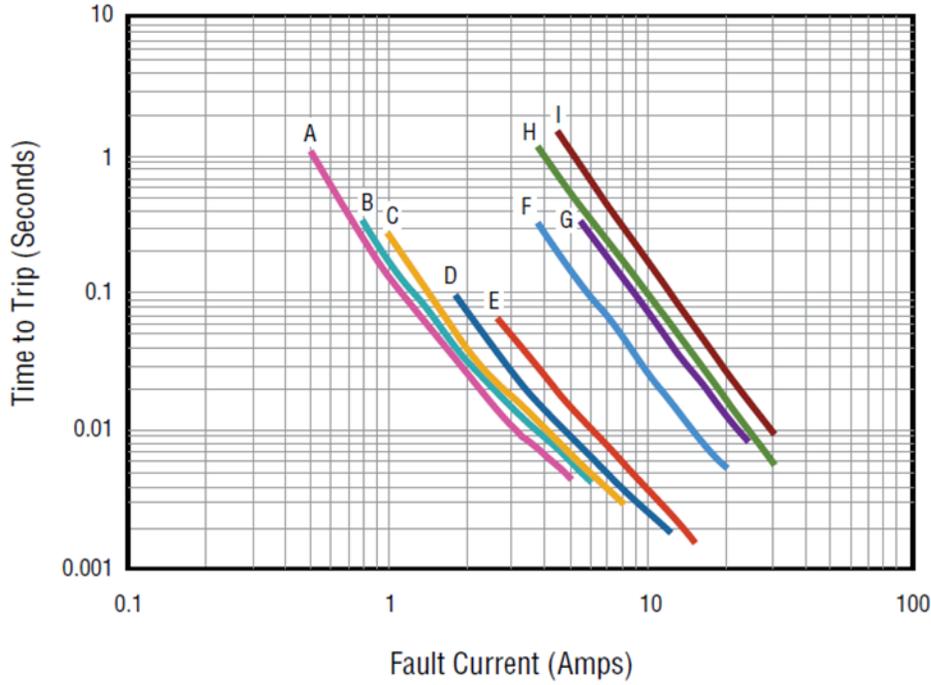


G (mm)	H (mm)	L (mm)
1.8±0.1	2.8±0.1	3.8±0.1

# Surface Mount Polymer PTC

## High Operating Temperature, PBT Series, 1210 Size

### Typical Time to Trip (@ 23°C):



- PBT1210-010
- PBT1210-016
- PBT1210-020
- PBT1210-035
- PBT1210-050
- PBT1210-075
- PBT1210-110
- PBT1210-125
- PBT1210-150

## Disclaimer

*Specifications are subject to change without notice. AEM products are designed for specific applications and should not be used for any purpose (including, without limitation, automotive, aerospace, medical, life-saving applications, or any other application which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property) not expressly set forth in applicable AEM product documentation. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Warranties granted by AEM shall be deemed void for products used for any purpose not expressly set forth in applicable AEM product documentation. AEM shall not be liable for any claims or damages arising out of products used in applications not expressly intended by AEM as set forth in applicable AEM product documentation. The sale and use of AEM products is subject to AEM terms and conditions of sale. Please refer to AEM's website for updated catalog and terms and conditions of sale.*





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