SMD 1210 Polymer PTCs

FEATURES

- Fast response to overcurrent
- Low resistance for minimal voltage drop
- Compact design and low profile
- Compatible with high temperature solders
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

QUICK REFERENCE DATA

PARAMETER (1)	VALUE	UNIT
Hold current (I_{hold}) (2)(3)	0.1 to 0.75	A
Trip current (I_{trip}) (2)(3)	0.25 to 1.5	A
Maximum voltage ($V_{max.}$) (2)(3)	13.2 to 90	V_{DC}
Maximum current ($I_{max.}$) (2)(3)	10 to 100	A
Power dissipation (P_D typ.) (3)	0.6 to 1.5	W
Minimum initial resistance ($R_{min.}$) (2)(3)	0.13 to 1.5	Ω
Maximum resistance after tripping and 1 h cool down (R_1 max.) (2)(3)	0.4 to 15	Ω
Operating temperature	-40 to +85	°C
Storage temperature	-40 to +85	°C
Maximum surface temperature in tripped state	125	°C

Notes

(1) Definitions, measurements, and tests are made in accordance with standard IEC 62319-1 “Polymeric thermistors - Directly heated positive step function temperature coefficient”

(2) Other values available on request

(3) All the parameters are characterized at 25 °C still air

APPLICATIONS

Overcurrent protection in:

- USB ports
- HDMI source
- PC motherboards - plug and play
- Mobile phones - battery and port
- PDAs / digital cameras
- Mobile internet devices
- IC VCC
- Battery protection
- Home automation sensors

DESCRIPTION

These polymer-based thermistors have a positive temperature coefficient and are primarily intended for resettable overcurrent protection. The terminals are 100 % matte tin plated. The part is laser marked with an identification letter.

PACKAGING

Available in 8 mm tape on 178 mm reel, sealed in a plastic bag.

ELECTRICAL DATA AND ORDERING INFORMATION

PART NUMBER	I_{hold} (A)	I_{trip} (A)	$V_{max.}$ (V_{DC})	$I_{max.}$ (A)	P_D TYP. (W)	MAX. TIME TO TRIP		RESISTANCE AT 25 °C	
						CURRENT (A)	TIME (s)	$R_{min.}$ (Ω)	$R_{1\ max.}$ (Ω)
PPTC1210E3010V90	0.10	0.25	90	10	1.5	8.00	0.30	1.500	15.00
PPTC1210E3050V13	0.50	1.00	13.2	100	0.6	8.00	0.05	0.250	0.900
PPTC1210E3075V24	0.75	1.50	24	100	0.6	8.00	0.10	0.130	0.400

For technical questions, contact: nlr@vishay.com

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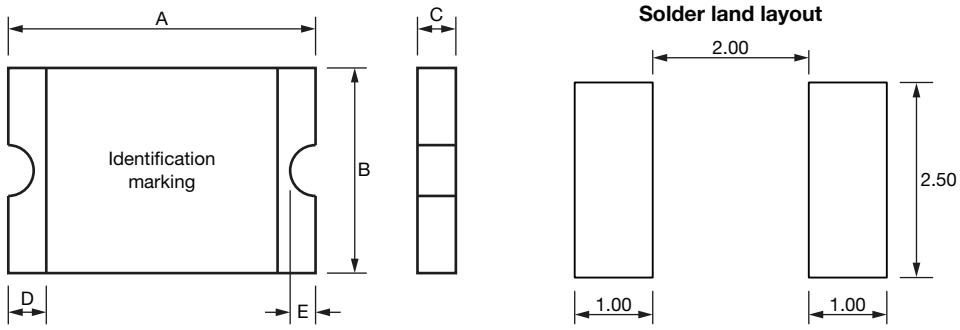
PERFORMANCE

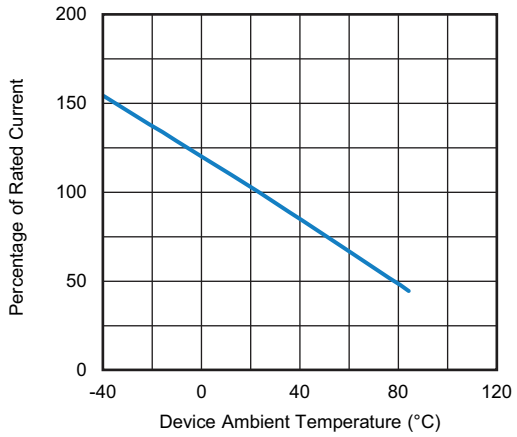
ENVIRONMENTAL SPECIFICATIONS	
Operating temperature	-40 °C to +85 °C
Storage condition	10 °C to 35 °C, ≤ 70 % RH, without condensation
Maximum device surface temperature in tripped state	125 °C
Passive aging	+85 °C, 1000 h ± 5 % typical resistance change
Humidity aging	+85 °C, 85 % RH, 1000 h ± 5 % typical resistance change
Thermal shock	MIL-STD-202 Method 107G +85 °C / -40 °C, 20 times -30 % typical resistance change
Solvent resistance	MIL-STD-202, Method 215 < ± 5 % resistance change
Vibration	MIL-STD-883C, Method 2007.1, Condition A < ± 5 % resistance change
Moisture sensitivity level	Level 1, J-STD-020C

DIMENSIONS AND MARKING in millimeters

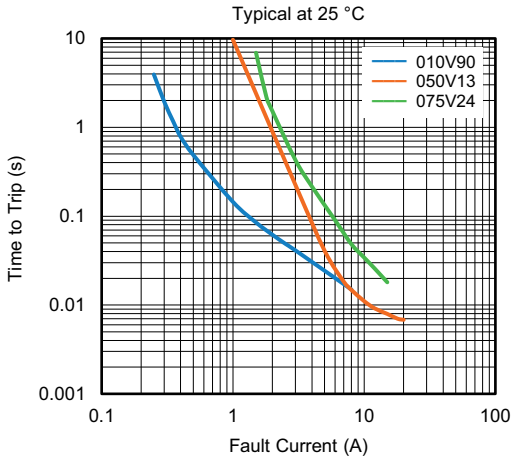


COMPONENT DIMENSIONS in millimeters											
PART NUMBER	MARKING	A		B		C		D		E	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
PPTC1210E3010V90	G9	3.00	3.43	2.35	2.80	0.75	1.25	0.25	0.75	0.10	0.50
PPTC1210E3050V13	O1	3.00	3.43	2.35	2.80	0.50	0.85	0.25	0.75	0.10	0.50
PPTC1210E3075V24	P3	3.00	3.43	2.35	2.80	1.20	1.80	0.25	0.75	0.10	0.50

THERMAL DERATING



TIME TO TRIP CURVE



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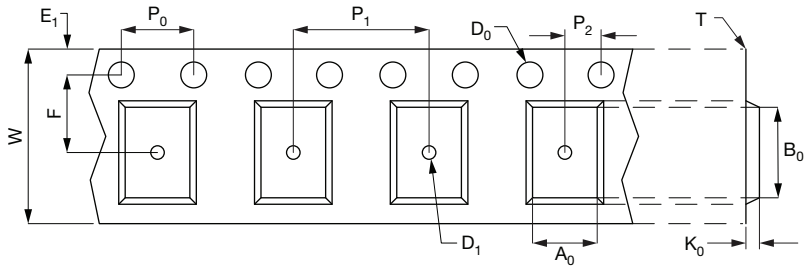
RECOMMENDED HOLD CURRENT in Amperes									
PART NUMBER	-40 °C	-20 °C	0 °C	25 °C	40 °C	50 °C	60 °C	70 °C	85 °C
PPTC1210E3010V90	0.157	0.139	0.121	0.100	0.084	0.075	0.066	0.057	0.043
PPTC1210E3050V13	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
PPTC1210E3075V24	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40

Note

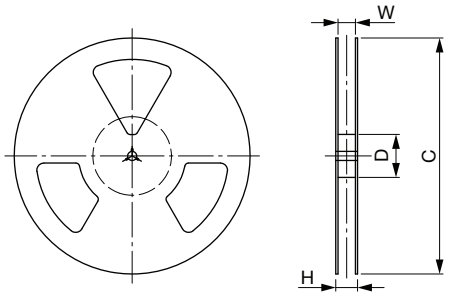
- Recommended hold currents prevail the thermal derating graph; hold and trip currents are depending on mounting

TAPE AND REEL DIMENSIONS

Taping on reel according to EIA-481.



TAPE DIMENSIONS in millimeters												
PART NUMBER	W	F	E_1	D_0	D_1	P_0	P_1	P_2	A_0	B_0	T	K_0
PPTC1210E3010V90	8.00 ± 0.30	3.50 ± 0.05	1.75 ± 0.10	1.55 ± 0.05	1.00 (min)	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	2.82 ± 0.10	3.50 ± 0.10	0.20 ± 0.10	1.30 ± 0.10
PPTC1210E3050V13	8.00 ± 0.30	3.50 ± 0.05	1.75 ± 0.10	1.55 ± 0.05	1.00 (min)	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	2.82 ± 0.10	3.46 ± 0.10	0.25 ± 0.10	1.00 ± 0.10
PPTC1210E3075V24	8.00 ± 0.30	3.50 ± 0.05	1.75 ± 0.10	1.55 ± 0.05	1.00 (min)	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	2.80 ± 0.10	3.50 ± 0.10	0.25 ± 0.10	1.60 ± 0.10



REEL DIMENSIONS in millimeters			
C	D	H	W
Ø 178 ± 1.0	Ø 60.2 ± 0.5	11.0 ± 0.5	9.0 ± 1.5

PACKAGING QUANTITY	
PART NUMBER	QUANTITY
PPTC1210E3010V90	3000
PPTC1210E3050V13	4000
PPTC1210E3075V24	2000

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