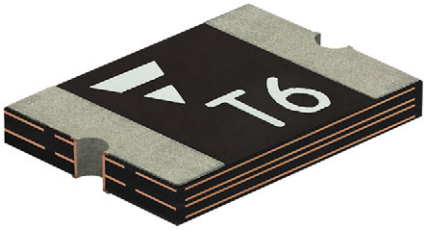
SMD 2920 Polymer PTCs



FEATURES

- Fast response to overcurrent
- Low resistance for minimal voltage drop
- Compact design and low profile
- Compatible with high temperature solders
- C-UL-US recognized under file E148885
- TÜV approved under file R 50719915
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

LINKS TO ADDITIONAL RESOURCES

SPICE Models

3D Models

APPLICATIONS

Overcurrent protection in:

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

QUICK REFERENCE DATA

PARAMETER (1)	VALUE	UNIT
Hold current (I_{hold}) (2)(3)	0.5 to 5.0	A
Trip current (I_{trip}) (2)(3)	1 to 10	A
Maximum voltage ($V_{max.}$) (2)(3)	15 to 60	V_{DC}
Maximum current ($I_{max.}$) (2)(3)	10 to 40	A
Power dissipation (P_D typ.) (3)	1.5 to 2	W
Minimum initial resistance ($R_{min.}$) (2)(3)	0.005 to 0.35	Ω
Maximum resistance after tripping and 1 h cool down (R_1 max.) (2)(3)	0.025 to 1.4	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

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.

MOUNTING

Important mounting and handling instructions: see www.vishay.com/doc?29264

By soldering in any position.

Not intended for potting or sealing.

Maximum surface temperature in case of overload can reach 125 °C.

PACKAGING

Available in 8 mm tape on 178 mm reel, sealed in a plastic bag. Packing quantity per reel: see table.

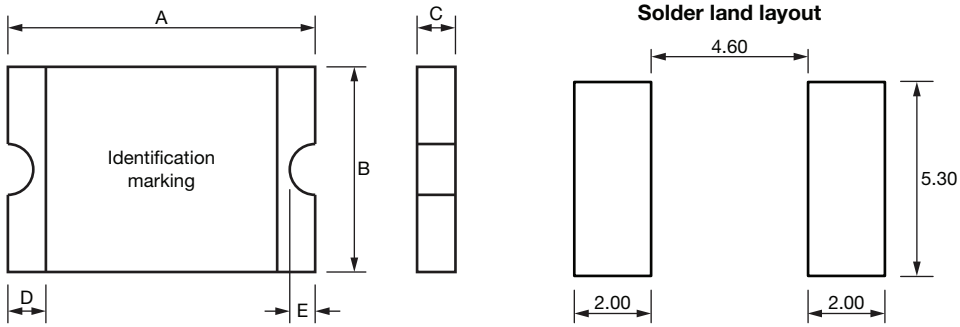
ELECTRICAL DATA AND ORDERING INFORMATION

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)
PPTC2920E3050V60	0.50	1.00	60	10	1.5	2.5	4	0.35	1.40
PPTC2920E3075V60	0.75	1.50	60	10	1.5	8.0	0.30	0.30	0.95
PPTC2920E3110V60	1.10	2.20	60	20	2	8.0	0.50	0.12	0.41
PPTC2920E3185V33	1.85	3.70	33	40	1.5	8.0	2.50	0.05	0.15
PPTC2920E3200V24	2.00	4.00	24	40	1.5	8.0	5.00	0.050	0.125
PPTC2920E3250V15	2.50	5.00	15	40	1.5	8.0	5.00	0.035	0.085
PPTC2920E3260V24	2.60	5.00	24	40	1.5	8.0	5.00	0.025	0.075
PPTC2920E3300V15	3.00	5.00	15	40	1.5	8.0	20.0	0.015	0.048
PPTC2920E3500V16	5.00	10.00	16	40	2	20.0	5.00	0.005	0.025

PERFORMANCE

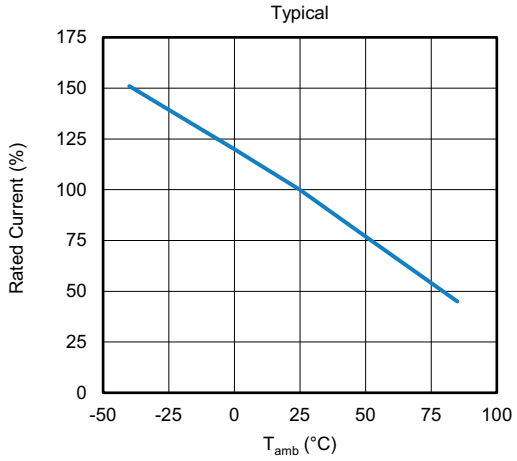
ENVIRONMENTAL SPECIFICATIONS	
Operating temperature	-40 °C to +85 °C
Storage condition	10 °C to 35 °C, ≤ 70 % RH, without condensation
Maximum device surface temperature in tripped state	125 °C
Passive aging	+85 °C, 1000 h ± 5 % typical resistance change
Humidity aging	+85 °C, 85 % RH, 1000 h ± 5 % typical 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

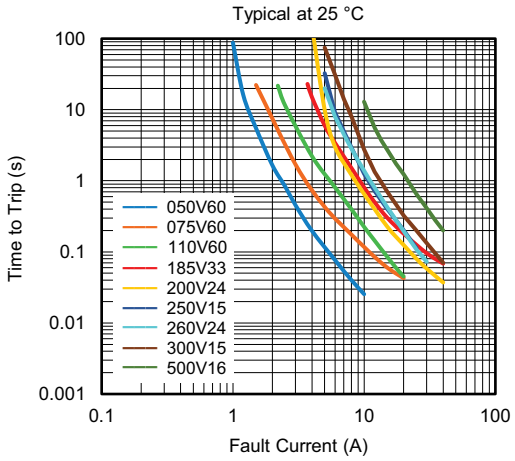


COMPONENT DIMENSIONS in millimeters										
PART NUMBER	MARKING	A		B		C		D		E	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
PPTC2920E3050V60	O6	6.73	7.98	4.80	5.44	0.75	1.25	0.3	2.5	0.25	2.0
PPTC2920E3075V60	P7					1.20	1.80				
PPTC2920E3110V60	R7					1.20	2.00				
PPTC2920E3185V33	W3					0.75	1.25				
PPTC2920E3200V24	X3					0.75	1.25				
PPTC2920E3250V15	Y1					0.75	1.25				
PPTC2920E3260V24	Z3					0.75	1.25				
PPTC2920E3300V15	AA1					0.75	1.25				
PPTC2920E3500V16	AD2					0.80	1.60				

THERMAL DERATING



TIME TO TRIP CURVE



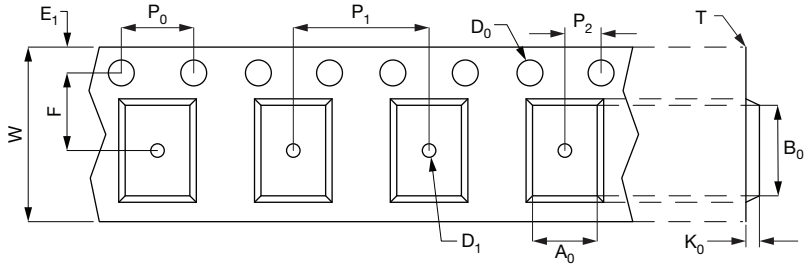
RECOMMENDED HOLD CURRENT in Amperes									
PART NUMBER	-40 °C	-20 °C	0 °C	25 °C	40 °C	50 °C	60 °C	70 °C	85 °C
PPTC2920E3050V60	0.76	0.67	0.59	0.50	0.42	0.38	0.33	0.29	0.23
PPTC2920E3075V60	1.13	1.01	0.88	0.75	0.62	0.56	0.50	0.44	0.34
PPTC2920E3110V60	1.66	1.47	1.29	1.10	0.91	0.83	0.73	0.64	0.50
PPTC2920E3185V33	2.80	2.47	2.17	1.85	1.54	1.39	1.22	1.07	0.85
PPTC2920E3200V24	3.14	2.77	2.42	2.00	1.73	1.56	1.38	1.20	0.98
PPTC2920E3250V15	3.78	3.35	2.93	2.50	2.08	1.88	1.65	1.45	1.13
PPTC2920E3260V24	3.64	3.25	2.91	2.60	2.26	2.08	1.95	1.74	1.48
PPTC2920E3300V15	4.20	3.85	3.44	3.00	2.69	2.50	2.31	2.12	1.83
PPTC2920E3500V16	7.55	6.70	5.85	5.00	4.15	3.75	3.30	2.90	2.25

Note

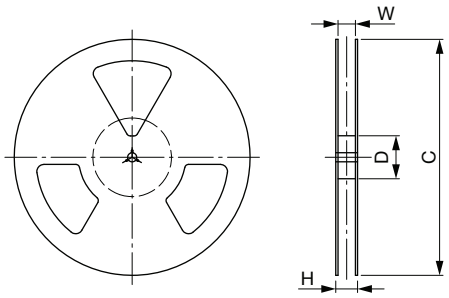
- Recommended hold currents prevail the thermal derating graph; hold and trip currents are depending on mounting

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	K_0	T
PPTC2920E3050V60	16.0 ± 0.3	7.5 ± 0.1	1.75 ± 0.10	1.55 ± 0.05	1.50 ± 0.10	4 ± 0.10	8 ± 0.10	2.0 ± 0.1	5.74 ± 0.10	8.02 ± 0.10	1.30 ± 0.10	0.30 ± 0.10
PPTC2920E3075V60				1.50 ± 0.10	1.50 min.				5.70 ± 0.10	8.10 ± 0.10	2.00 ± 0.10	
PPTC2920E3110V60												
PPTC2920E3185V33				1.55 ± 0.05	1.50 ± 0.10				5.74 ± 0.10	8.02 ± 0.10	1.30 ± 0.10	
PPTC2920E3200V24												
PPTC2920E3250V15												
PPTC2920E3260V24												
PPTC2920E3300V15												
PPTC2920E3500V16				1.50 ± 0.10	1.50 Min				5.70 ± 0.10	8.02 ± 0.10	2.00 ± 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**
PPTC2920E3050V60	1500
PPTC2920E3075V60	1000
PPTC2920E3110V60	1000
PPTC2920E3185V33	1500
PPTC2920E3200V24	1500
PPTC2920E3250V15	1500
PPTC2920E3260V24	1500
PPTC2920E3300V15	1500
PPTC2920E3500V16	1000

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