SMD2920 Series

ROHS

Surface Mount Resettable PTCs

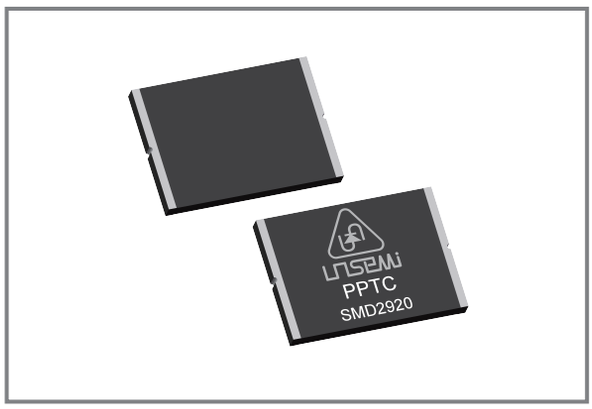
www.unsemi.com.tw

Description

The SMD2920 Series PTC provides surface mount over-current protection for applications where space is at a premium and reset table protection is desired.

Features

- RoHS compliant, Lead-Free and Halogen-Free
- Faster tripping, 2920 Dimension
- Compact design saves board space
- Compatible with high temperature solders
- Agency recognition: UL
- Low-profile



Applicable

- Battery PCM
- PDAs & Charger, Analog & digital line card
- Digital cameras
- General electronics
- USB peripherals
- Power ports

Electrical Parameters

Part Number	Marking	I hold (A)	I trip (A)	V max (Vdc)	I max (A)	Pdtyp. (W)	Maximum Time To Trip		Resistance	
							Current (A)	Time (Sec.)	R min (Ω)	R 1max (Ω)
SMD2920-030	UN030	0.30	0.60	60	100	1.5	1.5	3.0	0.600	4.800
SMD2920-050	UN050	0.50	1.00	60	100	1.5	2.5	4.0	0.180	1.400
SMD2920-075	UN075	0.75	1.50	33	100	1.5	8.0	0.3	0.100	1.000
SMD2920-100	UN100	1.00	2.20	33	100	1.5	8.0	0.5	0.065	0.410
SMD2920-125	UN125	1.25	2.50	33	100	1.5	8.0	2.0	0.050	0.250
SMD2920-150	UN150	1.50	3.00	33	100	1.5	8.0	2.0	0.035	0.230
SMD2920-185	UN185	1.85	3.70	33	100	1.5	8.0	2.5	0.030	0.150
SMD2920-200	UN200	2.00	4.00	16	100	1.5	8.0	4.5	0.020	0.120
SMD2920-200/24V	UN200	2.00	4.00	24	100	1.5	8.0	4.5	0.020	0.120
SMD2920-250	UN250	2.50	5.00	16	100	1.5	8.0	16.0	0.020	0.085
SMD2920-260	UN260	2.60	5.20	16	100	1.5	8.0	10.0	0.014	0.075
SMD2920-300/6V	UN300	3.00	6.00	6	100	1.5	8.0	20.0	0.012	0.048
SMD2920-300/16V	UN300	3.00	6.00	16	100	1.5	8.0	20.0	0.012	0.048

I hold= Hold current: maximum current device will pass without tripping in 25°C still air.
I trip= Trip current: minimum current at which the device will trip in 25°C still air.
V max= Maximum voltage device can withstand without damage at rated current (Imax)
I max= Maximum fault current device can withstand without damage at rated voltage (Vmax)
Pdtyp.= Power dissipated from device when in the tripped state at 25°C still air.
R min= Minimum resistance of device in initial (un-soldered) state.
R max= Maximum resistance of device in initial (un-soldered) state.
R 1max= Maximum resistance of device at 25°C measured one hour after tripping.

Temperature Rerating Chart- I hold (A)

Part Number	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
	Hold Current (A)								
SMD2920-030	0.44	0.37	0.35	0.30	0.28	0.23	0.20	0.18	0.14
SMD2920-050	0.73	0.62	0.59	0.50	0.47	0.38	0.34	0.30	0.24
SMD2920-075	1.09	0.92	0.88	0.75	0.70	0.56	0.50	0.45	0.36
SMD2920-100	1.45	1.23	1.17	1.00	0.93	0.75	0.67	0.60	0.48
SMD2920-125	1.81	1.54	1.46	1.25	1.16	0.94	0.84	0.75	0.60
SMD2920-150	2.18	1.85	1.76	1.50	1.40	1.13	1.01	0.90	0.72
SMD2920-185	2.68	2.28	2.16	1.85	1.72	1.39	1.24	1.11	0.89
SMD2920-200	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
SMD2920-200/24V	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
SMD2920-250	3.63	3.08	2.93	2.50	2.33	1.88	1.68	1.50	1.20
SMD2920-260	3.77	3.20	3.04	2.60	2.42	1.95	1.74	1.56	1.25
SMD2920-300/6V	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44
SMD2920-300/16V	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44

Test Procedures and Requirement

Test Item	Test Conditions	Accept/Reject Criteria
Initial Resistance	In still air at 25°C	$R_{MIN} \le R \le R1_{MAX}$
Time to Trip	Specified current, V_{MAX}, 25°C	T ≤ Maximum Time to Trip
Hold Current	30min, at IH, 25°C	No trip
Trip Cycle Life	V_{MAX}, Imax, 100cycles	No arcing or burning
Trip Endurance	V_{MAX}, 1 hour	No arcing or burning

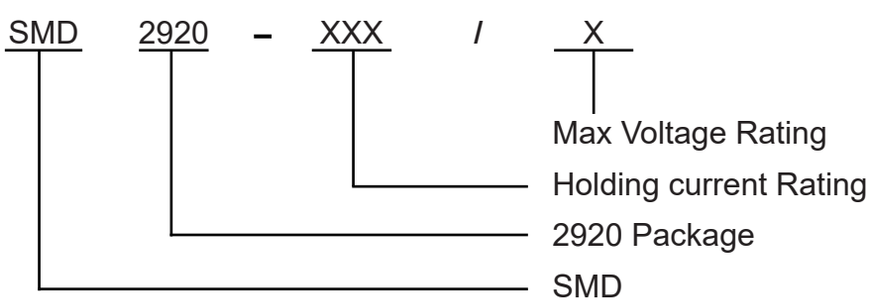
Physical Characteristics

Terminal Materials	Tin-Plated Nickle-copper
Soldering Zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

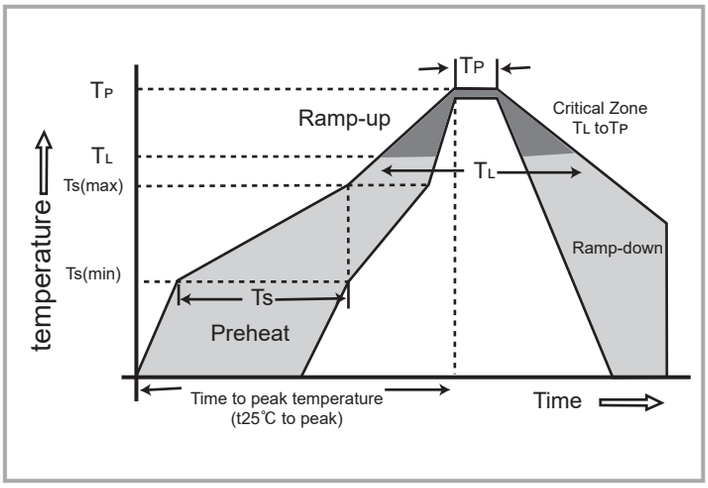
Environmental Specifications

Test Item	Test Conditions	Resistance Change
Passive Aging	85°C ,1000 hours	±10% typical
Humidity Aging	85°C/85%RH.1000 hours	±5% typical
Thermal Shock	MIL-STD-202,Method 107G +85 °C/-40°C ,20 times	-30% typical
Solvent Resistance	MIL-STD-202,Method 215	No change
Vibration	ML-STD-883C,Test Condition A	No change

Part Numbering System



Soldering Parameters



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm(0.010inch).
- Devices can be cleaned using standard industry methods and solvents.
- Soldering temperature profile meets RoHs lead free process.

  Notes: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Reflow Condition		Lead–free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (Ts)	60 -120 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (Ts)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (T_P)		30 Seconds
Ramp-down Rate		3°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

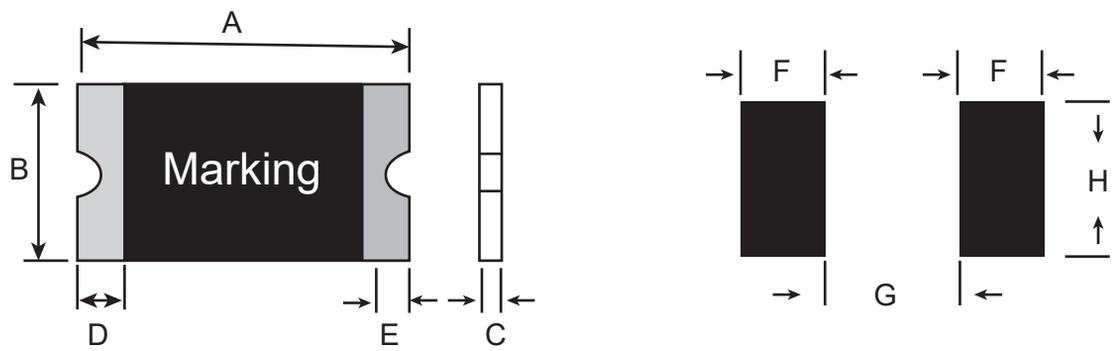
Caution:

1、If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements

2、Operation beyond the specified rating may result in damage and possible arcing and flame.

3、PPTC 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.

Dimensions Unit: mm



Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SMD2920-030	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
SMD2920-050	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
SMD2920-075	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
SMD2920-100	6.73	7.98	4.80	5.44	0.60	1.00	0.30	0.15
SMD2920-125	6.73	7.98	4.80	5.44	0.60	1.00	0.30	0.15
SMD2920-150	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SMD2920-185	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SMD2920-200	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SMD2920-200/24V	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SMD2920-250	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SMD2920-260	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SMD2920-300/6V	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SMD2920-300/16V	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15

Layout Dimensions Unit: mm

Part Number	F	G	H
	Normal Value	Normal Value	Normal Value
SMD2920Series	2.3±0.1	5.1±0.1	5.6±0.1

Ordering Information

Part Number	Quantity
SMD2920-030 -- SMD2920-075	1,500 pcs/Reel
SMD2920-100 -- SMD2920-200	1,500 pcs/Reel
SMD2920-250 -- SMD2920-300	1,500 pcs/Reel
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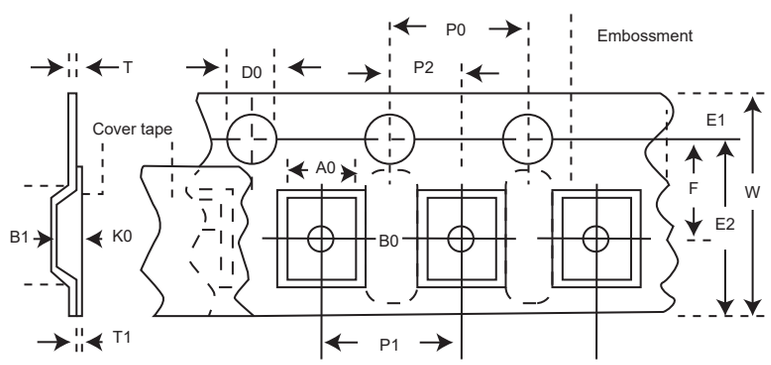
Tape Specification and Reel Specifications

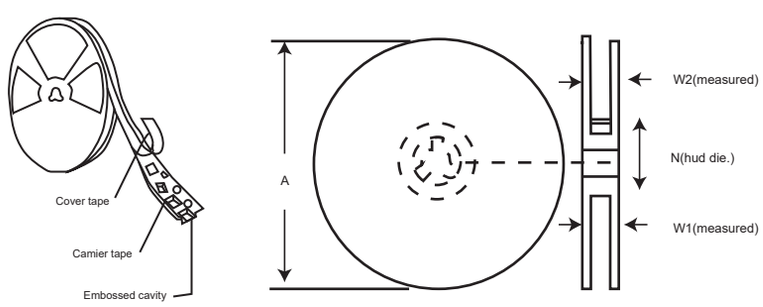
Coverning Specifications EIA 481-1(Unit:mm)	
W	8.00±0.10
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.05
A0	0.95±0.10
B0	1.85±0.10
D0	1.55±0.05
F	3.50±0.05
E1	1.75±0.10
T	0.20±0.02
Leader min.	390
Traile min.	160

Reel Dimensions	
A	178±1.0
N	59±1.0
W1	8.5 + 1.0/-0.2
W2	12.0±1.0

ELA Tape Component Dimentions



EIA Reel Dimentions



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