

 <b>FUZETEC TECHNOLOGY CO., LTD.</b>	<b>NO.</b>	<b>PQ11-01E</b>		
	<b>Product Specification and Approval Sheet</b>	<b>Version</b>	<b>C0</b>	<b>Page</b>

## Surface Mountable PTC Resettable Fuse : FSMD2920 Series

### 1. Summary

- (a) **RoHS Compliant & Halogen Free**
- (b) **Applications : All high-density boards**
- (c) **Product Features : 2920 Dimension, Surface mountable, Solid state, Faster time to trip than standard SMD devices.**
- (d) **Operation Current : 300mA~3.0A**
- (e) **Maximum Voltage : 6V~60V<sub>DC</sub>**
- (f) **Temperature Range : -40°C to 85°C**

### 2. Agency Recognition

UL : File No. E211981  
C-UL: File No. E211981  
TÜV: File No. R50090556

### 3. Electrical Characteristics (23°C)

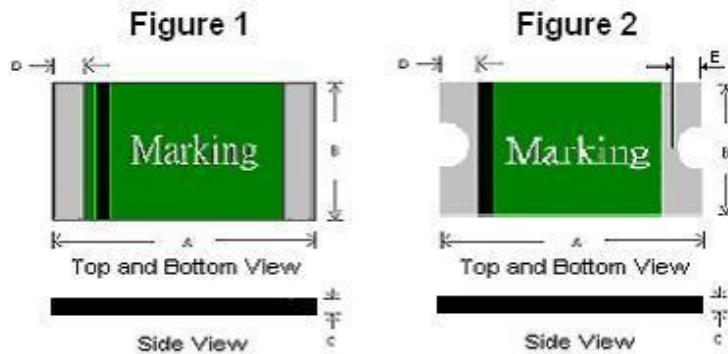
Part Number	Hold Current	Trip Current	Rated Voltage	Max Current	Typical Power	Max Time to Trip		Resistance	
	I <sub>H</sub> , A	I <sub>T</sub> , A	V <sub>MAX</sub> , VDC	I <sub>MAX</sub> , A	P <sub>d</sub> , W	Current	Time	R <sub>MIN</sub>	R <sub>1MAX</sub>
	I <sub>H</sub> , A	I <sub>T</sub> , A	V <sub>MAX</sub> , VDC	I <sub>MAX</sub> , A	P <sub>d</sub> , W	A	Sec	Ohms	Ohms
FSMD030-2920	0.30	0.60	60	100	1.5	1.5	3.0	1.000	4.800
FSMD030-2920-R	0.30	0.60	60	100	1.5	1.5	3.0	1.000	4.800
FSMD050-2920	0.50	1.00	60	100	1.5	2.5	4.0	0.300	1.400
FSMD050-2920-R	0.50	1.00	60	100	1.5	2.5	4.0	0.300	1.400
FSMD075-2920	0.75	1.50	33	100	1.5	8.0	0.3	0.180	1.000
FSMD075-2920-R	0.75	1.50	33	100	1.5	8.0	0.3	0.180	1.000
FSMD075-60-2920-R	0.75	1.50	60	100	1.5	8.0	0.3	0.180	1.000
FSMD100-2920	1.10	2.20	33	100	1.5	8.0	0.5	0.090	0.410
FSMD100-2920-R	1.10	2.20	33	100	1.5	8.0	0.5	0.090	0.410
FSMD100-60-2920R	1.10	2.20	60	100	1.5	8.0	0.5	0.090	0.410
FSMD125-2920	1.25	2.50	33	100	1.5	8.0	2.0	0.050	0.250
FSMD125-2920-R	1.25	2.50	33	100	1.5	8.0	2.0	0.050	0.250
FSMD150-2920	1.50	3.00	33	40	1.5	8.0	2.0	0.050	0.230
FSMD150-2920-R	1.50	3.00	33	100	1.5	8.0	2.0	0.050	0.230
FSMD185-2920	1.85	3.70	33	40	1.5	8.0	2.5	0.040	0.150
FSMD185-2920-R	1.85	3.70	33	100	1.5	8.0	2.5	0.040	0.150
FSMD200-2920	2.00	4.00	16	100	1.5	8.0	4.5	0.035	0.120
FSMD200-2920-R	2.00	4.00	16	100	1.5	8.0	4.5	0.035	0.120
FSMD200-24-2920-R	2.00	4.00	24	100	1.5	8.0	5.0	0.035	0.120
FSMD250-2920	2.50	5.00	16	100	1.5	8.0	16.0	0.025	0.085
FSMD250-2920-R	2.50	5.00	16	100	1.5	8.0	16.0	0.025	0.085
FSMD260-2920	2.60	5.20	6	100	1.5	8.0	20.0	0.020	0.075
FSMD260-2920-R	2.60	5.20	6	100	1.5	8.0	20.0	0.020	0.075
FSMD300-2920	3.00	5.20	6	100	1.5	8.0	25.0	0.010	0.048
FSMD300-2920-R	3.00	5.20	6	100	1.5	8.0	25.0	0.010	0.048
FSMD300-15-2920R	3.00	5.20	15	100	1.5	8.0	25.0	0.010	0.048

NOTE : Specification subject to change without notice.



$I_H$ =Hold current-maximum current at which the device will not trip at 23°C still air.  
 $I_T$ =Trip current-minimum current at which the device will always trip at 23°C still air.  
 $V_{MAX}$ =Maximum voltage device can withstand without damage at it rated current ( $I_{MAX}$ )  
 $I_{MAX}$ = Maximum fault current device can withstand without damage at rated voltage ( $V_{MAX}$ ).  
 $P_d$ =Typical power dissipated-type amount of power dissipated by the device when in the tripped state in 23°C still air environment.  
 $R_{MIN}$ =Minimum device resistance at 23°C prior to tripping.  
 $R_{1MAX}$ =Maximum device resistance at 23°C measured 1 hour after tripping or reflow soldering of 260°C for 20 seconds.  
 Termination pad characteristics  
 Termination pad materials : Pure Tin

#### 4. FSMD Product Dimensions (Millimeters)

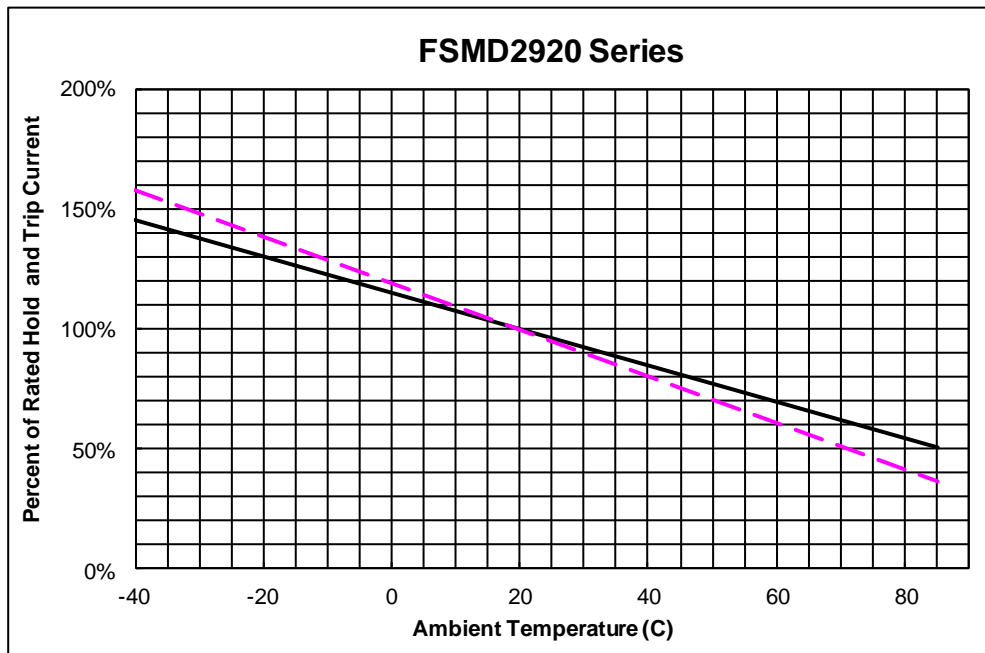


Part Number	Figure	A		B		C		D		E	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
FSMD030-2920	1	6.73	7.98	4.80	5.44	0.60	1.15	0.35	—	—	—
FSMD030-2920-R	2	6.73	7.98	4.80	5.44	0.60	1.15	0.50	1.20	0.50	0.90
FSMD050-2920	1	6.73	7.98	4.80	5.44	0.60	1.15	0.35	—	—	—
FSMD050-2920-R	2	6.73	7.98	4.80	5.44	0.60	1.15	0.50	1.20	0.50	0.90
FSMD075-2920	1	6.73	7.98	4.80	5.44	0.40	1.15	0.35	—	—	—
FSMD075-2920-R	2	6.73	7.98	4.80	5.44	0.40	1.15	0.50	1.20	0.50	0.90
FSMD075-60-2920-R	2	6.73	7.98	4.80	5.44	0.60	1.15	0.50	1.20	0.50	0.90
FSMD100-2920	1	6.73	7.98	4.80	5.44	0.40	1.00	0.35	—	—	—
FSMD100-2920-R	2	6.73	7.98	4.80	5.44	0.40	1.00	0.50	1.20	0.50	0.90
FSMD100-60-2920R	2	6.73	7.98	4.80	5.44	0.40	1.70	0.50	1.20	0.50	0.90
FSMD125-2920	1	6.73	7.98	4.80	5.44	0.40	0.90	0.35	—	—	—
FSMD125-2920-R	2	6.73	7.98	4.80	5.44	0.40	0.90	0.50	1.20	0.50	0.90
FSMD150-2920	1	6.73	7.98	4.80	5.44	0.40	0.90	0.35	—	—	—
FSMD150-2920-R	2	6.73	7.98	4.80	5.44	0.40	0.90	0.50	1.20	0.50	0.90
FSMD185-2920	1	6.73	7.98	4.80	5.44	0.30	0.90	0.35	—	—	—
FSMD185-2920-R	2	6.73	7.98	4.80	5.44	0.30	0.90	0.50	1.20	0.50	0.90
FSMD200-2920	1	6.73	7.98	4.80	5.44	0.30	0.90	0.35	—	—	—
FSMD200-2920-R	2	6.73	7.98	4.80	5.44	0.30	0.90	0.50	1.20	0.50	0.90
FSMD200-24-2920-R	2	6.73	7.98	4.80	5.44	0.20	0.80	0.50	1.20	0.50	0.90
FSMD250-2920	1	6.73	7.98	4.80	5.44	0.30	0.90	0.35	—	—	—
FSMD250-2920-R	2	6.73	7.98	4.80	5.44	0.30	0.90	0.50	1.20	0.50	0.90
FSMD260-2920	1	6.73	7.98	4.80	5.44	0.30	0.90	0.35	—	—	—
FSMD260-2920-R	2	6.73	7.98	4.80	5.44	0.30	0.90	0.50	1.20	0.50	0.90
FSMD300-2920	1	6.73	7.98	4.80	5.44	0.40	0.90	0.35	—	—	—
FSMD300-2920-R	2	6.73	7.98	4.80	5.44	0.40	0.90	0.50	1.20	0.50	0.90
FSMD300-15-2920R	2	6.73	7.98	4.80	5.44	0.65	1.15	0.50	1.20	0.50	0.90

NOTE : Specification subject to change without notice.



### 5. Thermal Derating Curve



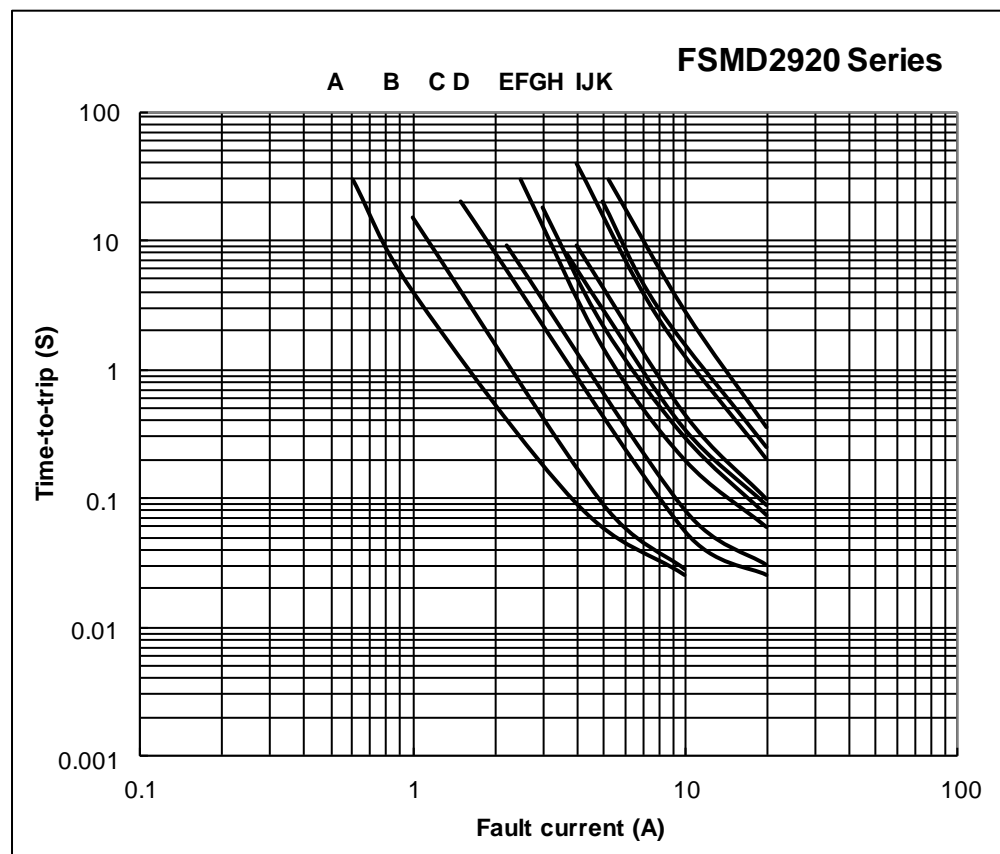
A= FSMD125-2920 ~ FSMD300-2920

B= FSMD030-2920 ~ FSMD100-2920

A  
B

### 6. Typical Time-To-Trip at 23°C

- A=FSMD030-2920/-R
- B=FSMD050-2920/-R
- C=FSMD075-2920/-R
- 075-60-2920-R
- D=FSMD100-2920/-R
- 100-60-2920R
- E=FSMD125-2920/-R
- F=FSMD150-2920/-R
- G=FSMD185-2920/-R
- H=FSMD200-2920/-R
- 200-24-2920-R
- I=FSMD250-2920/-R
- J=FSMD260-2920/-R
- K=FSMD300-2920/-R
- 300-15-2920R



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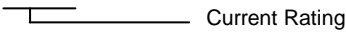
## 7. Material Specification

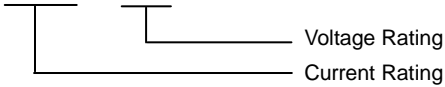
Terminal pad material : Pure Tin

Soldering characteristics: Meets EIA specification RS 186-9E, ANSI/J-std-002 Category 3


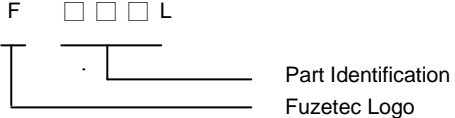
## 8. Part Numbering and Marking System

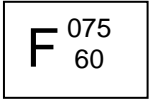
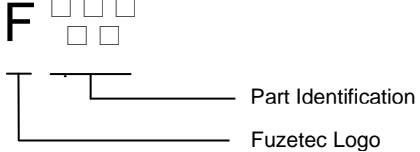
### Part Numbering System

F S M D □ □ □ - 2920 / - R  
 Current Rating

F S M D □ □ □ - □ □ - 2920 - R  
 Voltage Rating  
 Current Rating

### Part Marking System

 Example  
 Part Identification  
 Fuzetec Logo

 Example  
 Part Identification  
 Fuzetec Logo

**Warning:** -Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.



-PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.

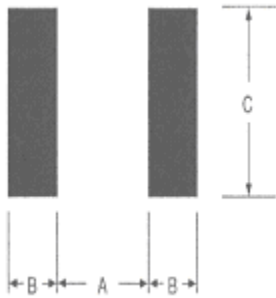
-Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.

**NOTE :** Specification subject to change without notice.



### 9. Pad Layouts 、 Solder Reflow and Rework Recommendations

The dimension in the table below provide the recommended pad layout for each FSMD2920 device



**Pad dimensions (millimeters)**

Device	A Nominal	B Nominal	C Nominal
All 2920 Series	5.1	2.3	5.6

Profile Feature	Pb-Free Assembly
<b>Average Ramp-Up Rate (T<sub>smax</sub> to T<sub>p</sub>)</b>	3 °C/second max.
<b>Preheat :</b>	
Temperature Min (T <sub>smin</sub> )	150 °C
Temperature Max (T <sub>smax</sub> )	200 °C
Time (t <sub>smin</sub> to t <sub>smax</sub> )	60-180 seconds
<b>Time maintained above:</b>	
Temperature(T <sub>L</sub> )	217 °C
Time (t <sub>L</sub> )	60-150 seconds
<b>Peak/Classification Temperature(T<sub>p</sub>) :</b>	260 °C
<b>Time within 5°C of actual Peak :</b>	
Temperature (t <sub>p</sub> )	20-40 seconds
<b>Ramp-Down Rate :</b>	6 °C/second max.
<b>Time 25 °C to Peak Temperature :</b>	8 minutes max.

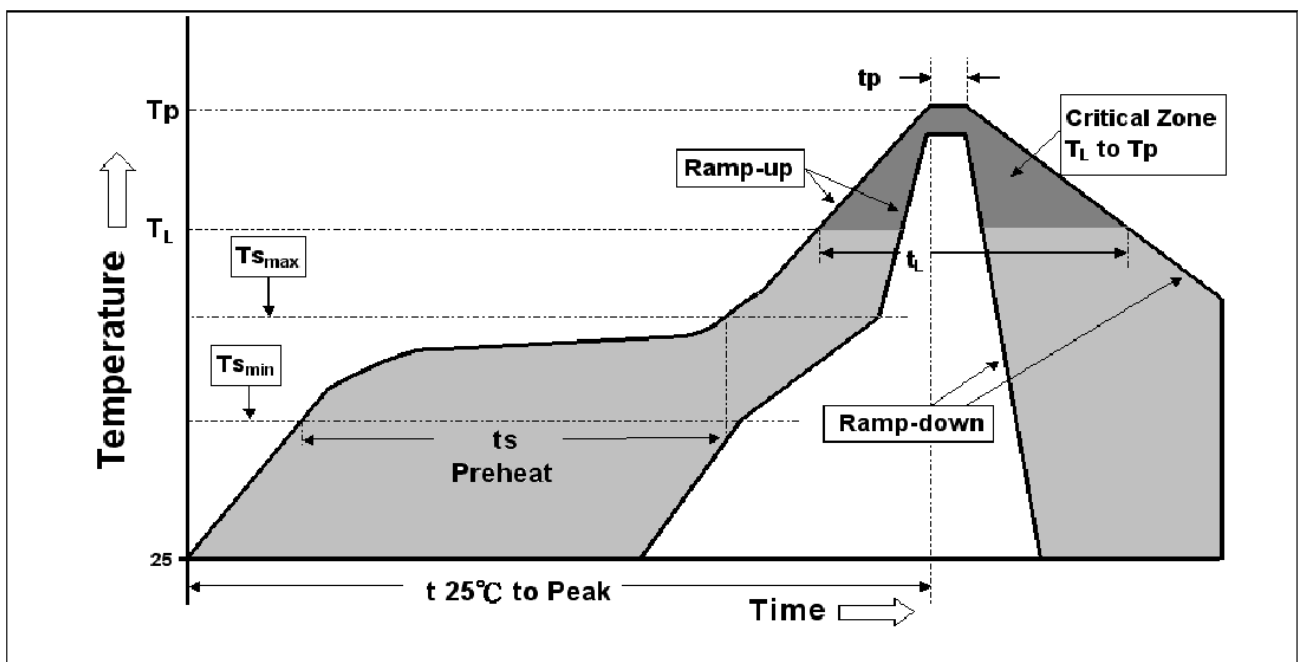
**Solder reflow**

- ※ Due to “Lead Free” nature, Temperature and Dwelling time for the soldering zone is higher than those for Regular. This may cause damage to other components.
- 1. Recommended max past thickness > 0.25mm.
- 2. Devices can be cleaned using standard methods and aqueous solvent.
- 3. Rework use standard industry practices.
- 4. Storage Environment : < 30°C / 60%RH

**Caution:**

- 1. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
- 2. Devices are not designed to be wave soldered to the bottom side of the board.

Note 1: All temperatures refer to of the package, measured on the package body surface.



**NOTE : Specification subject to change without notice.**