

Type R2920

Resettable Fuse (PTC's)

Surface Mount



www.optifuse.com (619) 593-5050

Application:

All high-density boards

Product Features:

2920 Dimension, small surface mount, solid state
Faster time to trip than standard SMD devices.

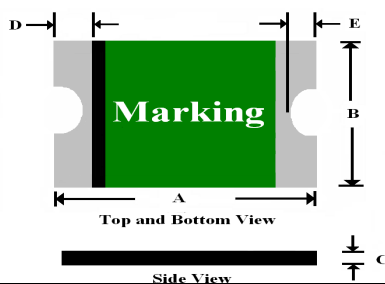
Operation Current: 300mA ~ 5A

Maximum Voltage: 6~60VDC

Temperature Range: -40°C to 85°C

Termination Pad Characteristics: Pure Tin

Product Dimensions (millimeters)



Agency Standards and Listings:



R2920-AAA-VV-X

A: Amperage rating

V: Voltage rating

X: Type of resettable fuse

| Part Number | A | | B | | C | | D | | E | |
|----------------|------|------|------|------|------|------|------|------|------|------|
| | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max |
| R2920-030-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-050-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-075-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-075-60-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.60 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-100-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.00 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-110-60-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.70 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-125-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-150-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-185-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-200-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-200-24-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.20 | 0.80 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-250-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-260-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.30 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-260-24-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.65 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-300-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 0.90 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-300-15-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-300-24-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.65 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-330-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.65 | 1.15 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-400-16-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.50 | 0.50 | 1.20 | 0.50 | 0.90 |
| R2920-500-16-R | 6.73 | 7.98 | 4.80 | 5.44 | 0.40 | 1.50 | 0.50 | 1.20 | 0.50 | 0.90 |

Note: All specifications subject to change without notice.

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Electrical Characteristics (23°C)

| Part Number | Hold Current | Trip Current | Rated Voltage | Max Current | Typical Power | Max Time to Trip | | Resistance | |
|----------------|--------------------|--------------------|------------------------|----------------------|--------------------|------------------|------|------------------|-------------------|
| | | | | | | Current | Time | R _{MIN} | R _{1MAX} |
| | I _H , A | I _T , A | V _{MAX} , VDC | I _{MAX} , A | P _d , W | A | Sec | Ohms | Ohms |
| R2920-030-R | 0.30 | 0.60 | 60 | 100 | 1.5 | 1.5 | 3.0 | 1.000 | 4.800 |
| R2920-050-R | 0.50 | 1.00 | 60 | 100 | 1.5 | 2.5 | 4.0 | 0.300 | 1.400 |
| R2920-075-R | 0.75 | 1.50 | 33 | 100 | 1.5 | 8.0 | 0.3 | 0.180 | 1.000 |
| R2920-075-60-R | 0.75 | 1.50 | 60 | 100 | 1.5 | 8.0 | 0.3 | 0.180 | 1.000 |
| R2920-100-R | 1.10 | 2.20 | 33 | 100 | 1.5 | 8.0 | 0.5 | 0.090 | 0.410 |
| R2920-110-60-R | 1.10 | 2.20 | 60 | 100 | 1.5 | 8.0 | 0.5 | 0.090 | 0.410 |
| R2920-125-R | 1.25 | 2.50 | 33 | 100 | 1.5 | 8.0 | 2.0 | 0.050 | 0.250 |
| R2920-150-R | 1.50 | 3.00 | 33 | 100 | 1.5 | 8.0 | 2.0 | 0.050 | 0.230 |
| R2920-185-R | 1.85 | 3.70 | 33 | 100 | 1.5 | 8.0 | 2.5 | 0.040 | 0.150 |
| R2920-200-R | 2.00 | 4.00 | 16 | 100 | 1.5 | 8.0 | 4.5 | 0.035 | 0.120 |
| R2920-200-24-R | 2.00 | 4.00 | 24 | 100 | 1.5 | 8.0 | 5.0 | 0.035 | 0.120 |
| R2920-250-R | 2.50 | 5.00 | 16 | 100 | 1.5 | 8.0 | 16.0 | 0.025 | 0.085 |
| R2920-260-R | 2.60 | 5.20 | 6 | 100 | 1.5 | 8.0 | 20.0 | 0.020 | 0.075 |
| R2920-260-24-R | 2.60 | 5.20 | 24 | 100 | 1.5 | 8.0 | 20.0 | 0.020 | 0.075 |
| R2920-300-R | 3.00 | 5.20 | 6 | 100 | 1.5 | 8.0 | 25.0 | 0.010 | 0.048 |
| R2920-300-15-R | 3.00 | 5.20 | 15 | 100 | 1.5 | 8.0 | 20.0 | 0.010 | 0.048 |
| R2920-300-24-R | 3.00 | 5.20 | 24 | 100 | 1.5 | 8.0 | 20.0 | 0.010 | 0.048 |
| R2920-330-R | 3.30 | 5.50 | 24 | 100 | 1.5 | 8.0 | 20.0 | 0.010 | 0.048 |
| R2920-400-16-R | 4.00 | 8.00 | 16 | 100 | 1.5 | 20.0 | 4.0 | 0.010 | 0.040 |
| R2920-500-16-R | 5.00 | 10.00 | 16 | 100 | 1.5 | 20.0 | 5.0 | 0.005 | 0.025 |

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's rated current.

I_{MAX} = Maximum fault current device can withstand without damage at rated voltage (V max).

P_d = Typical power dissipated from device when in the tripped state in 23°C still air environment.

R_{MIN} = Minimum device resistance at 23°C.

R_{1MAX} = Maximum device resistance at 23°C, 1 hour after tripping.

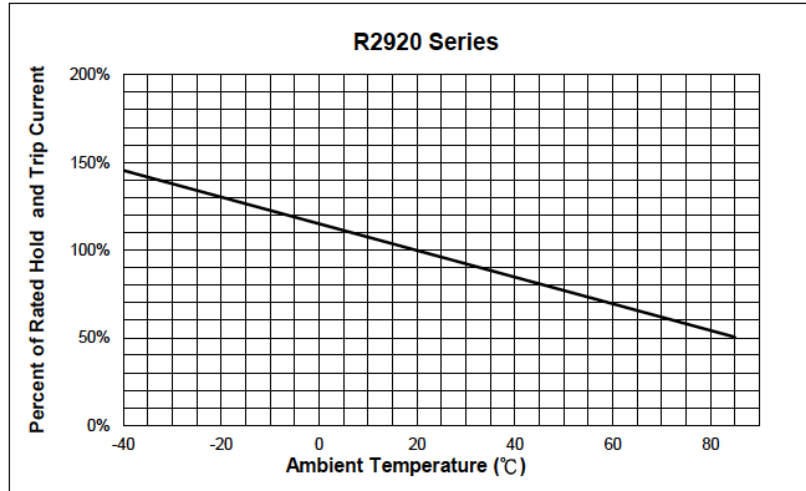
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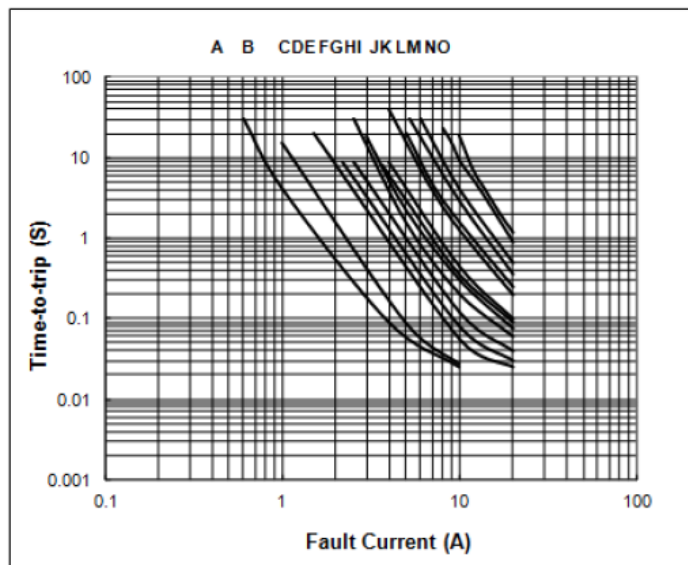
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Thermal Derating Curve



Typical Time-To-Trip (at 23°C)

- A** = R2920-030-R
- B** = R2920-050-R
- C** = R2920-075-R
- D** = R2920-075-60-R
- E** = R2920-100-R
- F** = R2920-110-60-R
- G** = R2920-125-R
- H** = R2920-150-R
- I** = R2920-185-R
- J** = R2920-200-R
- K** = R2920-200-24-R
- L** = R2920-250-R
- M** = R2920-260-R
- N** = R2920-260-24-R
- O** = R2920-300-R
- L** = R2920-300-15-R
- L** = R2920-300-24-R
- M** = R2920-330-R
- N** = R2920-400-16-R
- O** = R2920-500-16-R



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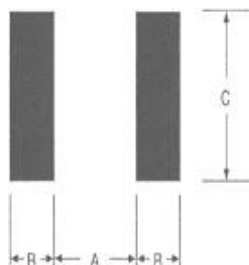
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Pad Layouts – Solder Reflow and Rework Recommendations

The dimensions in the table below provide the recommended pad layout for each R2920 devices.



| Pad Dimensions (millimeters) | |
|------------------------------|----------|
| A – Nominal | – 5.1 mm |
| B – Nominal | – 2.3 mm |
| C – Nominal | – 5.6 mm |

| Profile Feature | Pb-Free Assembly |
|--|--------------------------|
| Average Ramp-Up Rate (T_{max} to T_p) | 3 °C/second max. |
| Preheat : | |
| Temperature Min (T _{min}) | 150 °C |
| Temperature Max (T _{max}) Time (t _{min} to t _{max}) | 200 °C 60-180 seconds |
| Time maintained above: | |
| Temperature(T _L) Time (t _L) | 217 °C 60-150 seconds |
| Peak/Classification Temperature(T_p) : | 260 °C |
| Time within 5°C of actual Peak : | |
| Temperature (t _p) | 20-40 seconds |
| Ramp-Down Rate : | 6 °C/second max. |
| Time 25 °C to Peak Temperature : | 8 minutes max. |

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

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 paste thickness is 0.25mm.(Nominal)
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:

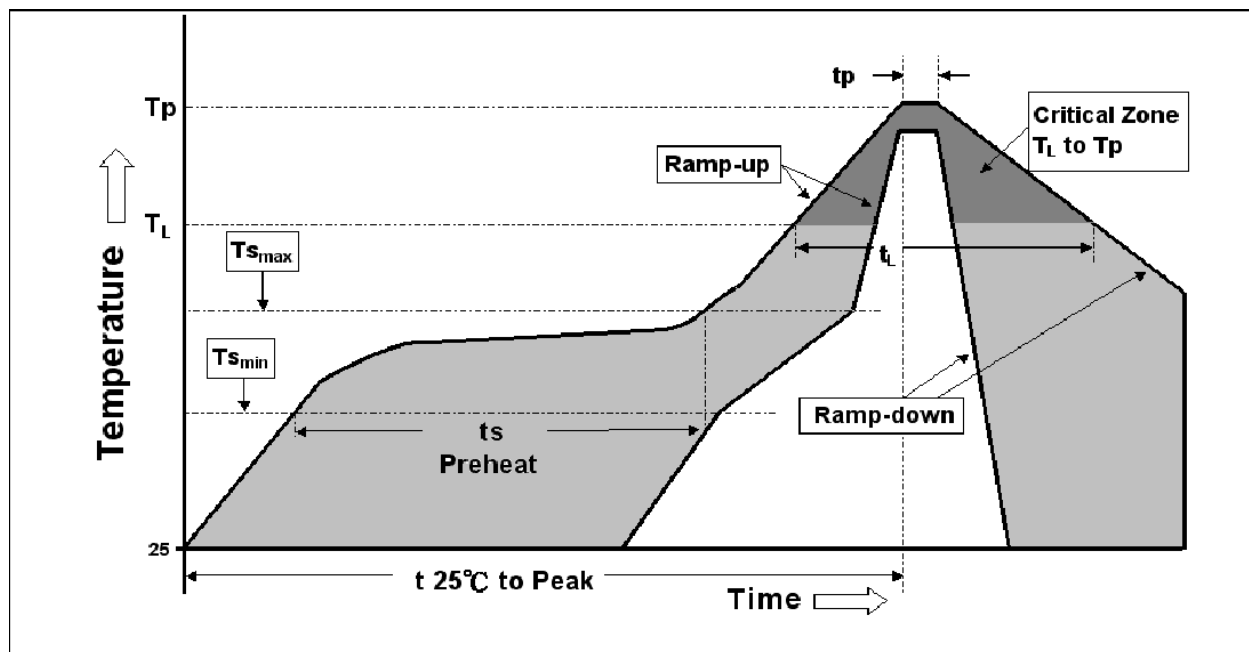
1. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.
2. Devices are not designed to be wave soldered to the bottom side of the board.

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Reflow Profile



Package Information

| Part Number | Reel/Tape |
|-------------------------------|-----------|
| R2920-030-R~R2920-100-R | 2.0K |
| R2920-110-60-R | 1.0K |
| R2920-125-R~R2920-330-R | 2.0K |
| R2920-400-16-R~R2920-500-16-R | 1.0K |

| | |
|--|--|
| <p>Warning:</p>  | <p>-Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.</p> <p>-PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.</p> <p>-Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.</p> |
|--|--|