SOCAY

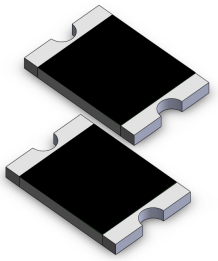
HF RoHS

Surface Mount Resettable PTCs

SCF2920RB Series

Features

- RoHS Compliant & Halogen Free
- Faster tripping, 2920 Dimension, Surface mountable, Solid state
- Operation Current: 0.30A ~ 6.00A
- Maximum Voltage: 6V ~ 60Vdc
- Operating Temperature: -40℃ ~ + 85℃



Electrical Parameters

Part Number	Hold Current	Trip Current	Rated Voltage	Max Current	Typical Power	Maximum Time To Trip		Resistance	
	I_{hold} (A)	I_{trip} (A)	V_{max} (Vdc)	I_{max} (A)	$P_{dtyp.}$ (W)	Current (A)	Time (Sec.)	R_{min} (Ω)	R_{1max} (Ω)
SCF030-2920RB	0.30	0.60	60.0	100	1.5	1.50	3.00	0.60	4.80
SCF050-2920RB	0.50	1.00	60.0	100	1.5	2.50	4.00	0.18	1.40
SCF075-2920RB	0.75	1.50	33.0	100	1.5	8.00	0.30	0.10	1.00
SCF075-60-2920RB	0.75	1.50	60.0	40	1.5	8.00	0.30	0.10	1.00
SCF100-2920RB	1.00	2.20	33.0	100	1.5	8.00	0.50	0.065	0.41
SCF100-60-2920RB	1.00	2.20	60.0	100	1.5	8.00	0.50	0.065	0.41
SCF125-2920RB	1.25	2.50	33.0	100	1.5	8.00	2.00	0.05	0.25
SCF150-2920RB	1.50	3.00	33.0	100	1.5	8.00	2.00	0.035	0.23
SCF185-2920RB	1.85	3.70	33.0	100	1.5	8.00	2.50	0.030	0.15
SCF200-2920RB	2.00	4.00	16.0	100	1.5	8.00	4.50	0.020	0.12
SCF200-24-2920RB	2.00	4.00	24.0	100	1.5	8.00	4.50	0.020	0.12
SCF250-2920RB	2.50	5.00	16.0	100	1.5	8.00	16.0	0.020	0.085
SCF260-2920RB	2.60	5.20	16.0	100	1.5	8.00	10.0	0.014	0.075
SCF260-24-2920RB	2.60	5.20	24.0	100	1.5	8.00	18.0	0.014	0.075
SCF300-2920RB	3.00	6.00	6.0	100	1.5	8.00	20.0	0.012	0.048
SCF300-16-2920RB	3.00	6.00	16.0	100	1.5	8.00	20.0	0.012	0.048
SCF400-16-2920RB	4.00	8.00	16.0	40	1.5	20.0	4.00	0.008	0.040
SCF500-16-2920RB	5.00	10.00	16.0	40	1.5	25.0	5.00	0.005	0.031
SCF600-12-2920RB	6.00	12.0	12.0	40	1.5	25.0	6.00	0.004	0.020

I_{hold} = Hold Current. Maximum current device will not trip in 25℃ still air.

I_{trip} = Trip Current. Minimum current at which the device will always trip in 25℃ still air.

V_{max} = Maximum operating voltage device can withstand without damage at rated current (Imax).

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

P_{dtyp} =Maximum power dissipation when device is in the tripped state in 25℃ still air environment at rated voltage.

R_{min} = Minimum device resistance prior to tripping at 25℃.

R_{1max} = Maximum device resistance is measured one hour post reflow.

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Test Procedures and Requirements

Test Item	Test Conditions	Accept / Reject Criteria
Resistance	In still air @ 25℃	$R_{min} \le R \le R_{1max}$
Time to Trip	Specified current, V_{max}, 25℃	T≤Maximum Time to Trip
Holding Current	30min, at I_H	No trip
Trip Cycle Life	V_{max}, I_{max}, 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℃,1000 hours	±10%
Humidity Aging	85℃/85%RH.168 hours	±5%
Thermal Shock	MIL-STD-202, Method 107G +85℃/-40℃, 20 times	±33% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change
Vibration	ML-STD-883C, Test Condition A	No change

Thermal Derating Chart - I_H (A)

Model	Maximum Ambient Operating Temperature (℃)								
	-40	-20	0	25	40	50	60	70	85
SCF030-2920RB	0.44	0.37	0.35	0.30	0.28	0.23	0.20	0.18	0.14
SCF050-2920RB	0.73	0.62	0.59	0.50	0.47	0.38	0.34	0.30	0.24
SCF075-2920RB	1.09	0.92	0.88	0.75	0.70	0.56	0.50	0.45	0.36
SCF075-60-2920RB	1.09	0.92	0.88	0.75	0.70	0.56	0.50	0.45	0.36
SCF100-2920RB	1.45	1.23	1.17	1.00	0.93	0.75	0.67	0.60	0.48
SCF100-60-2920RB	1.45	1.23	1.17	1.00	0.93	0.75	0.67	0.60	0.48
SCF125-2920RB	1.81	1.54	1.46	1.25	1.16	0.94	0.84	0.75	0.60
SCF150-2920RB	2.18	1.85	1.76	1.50	1.40	1.13	1.01	0.90	0.72
SCF185-2920RB	2.68	2.28	2.16	1.85	1.72	1.39	1.24	1.11	0.89
SCF200-2920RB	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
SCF200-24-2920RB	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
SCF250-2920RB	3.63	3.08	2.93	2.50	2.33	1.88	1.68	1.50	1.20
SCF260-2920RB	3.77	3.20	3.04	2.60	2.42	1.95	1.74	1.56	1.25
SCF260-24-2920RB	3.77	3.20	3.04	2.60	2.42	1.95	1.74	1.56	1.25
SCF300-2920RB	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44

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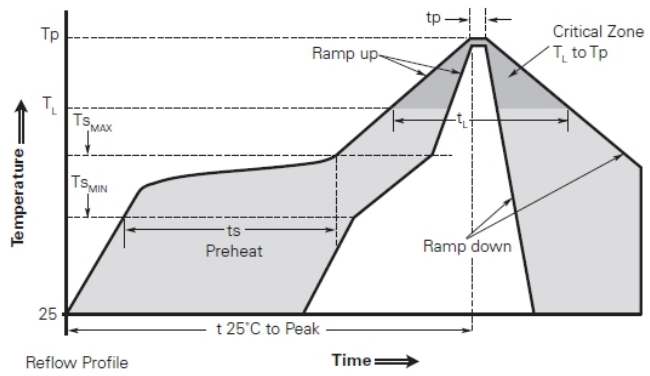
Thermal Derating Chart - I_H (A) (Continue)

Model	Maximum Ambient Operating Temperature (℃)								
	-40	-20	0	25	40	50	60	70	85
SCF300-16-2920RB	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44
SCF400-16-2920RB	5.80	4.92	4.68	4.00	3.72	3.00	2.68	2.40	1.92
SCF500-16-2920RB	7.25	6.15	5.85	5.00	4.65	3.75	3.35	3.0	2.4
SCF600-12-2920RB	8.7	7.38	7.02	6.00	5.58	4.5	4.02	3.6	2.88

Soldering Parameters

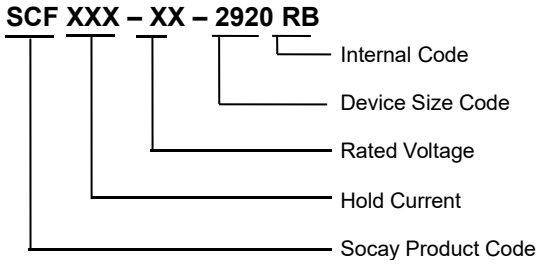


Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T_S max to T_P)	3℃/second max.
Preheat : Temperature Min ($T_S$min) Temperature Max ($T_S$max) Time ($T_S$min to $T_S$max)	 150℃ 200℃ 60-120 seconds
Time maintained above: Temperature(T_L) Time (T_L)	 217℃ 60-150 seconds
Peak/Classification Temperature(T_P)	260℃
Time within 5 ℃ of actual peak temperature: Time (T_P)	30 seconds max.
Ramp-down Rate	3℃/ second max.
Time 25℃ to Peak Temperature	8 minutes max.

- *Recommended reflow methods: I_R, 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 leadfree process.*

Note 1: All temperature refer to topside of the package,measured on the package body surface.
Note 2: If reflow temperature exceed the recommended profile,devices may not meet the performance requirements.

Part Numbering



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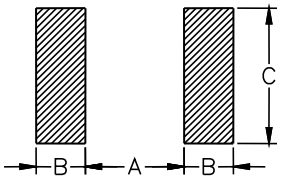
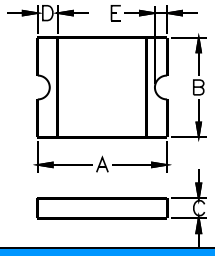
Recommended Solder Pad Layout Dimensions (Unit: mm)

The dimension in the table below provide the recommended pad layout for each SCF2920RB Series device



Device	A	B	C
2920 Series	5.1±0.1	2.3±0.1	5.6±0.1

Product Dimensions (Unit: mm)



Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SCF030-2920RB	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
SCF050-2920RB	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
SCF075-2920RB	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
SCF075-60-2920RB	6.73	7.98	4.80	5.44	0.80	1.60	0.30	0.15
SCF100-2920RB	6.73	7.98	4.80	5.44	0.60	1.00	0.30	0.15
SCF100-60-2920RB	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
SCF125-2920RB	6.73	7.98	4.80	5.44	0.60	1.00	0.30	0.15
SCF150-2920RB	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SCF185-2920RB	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SCF200-2920RB	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SCF200-24-2920RB	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SCF250-2920RB	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SCF260-2920RB	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SCF260-24-2920RB	6.73	7.98	4.80	5.44	0.40	1.20	0.30	0.15
SCF300-2920RB	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
SCF300-16-2920RB	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SCF400-16-2920RB	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
SCF500-16-2920RB	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
SCF600-12-2920RB	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15

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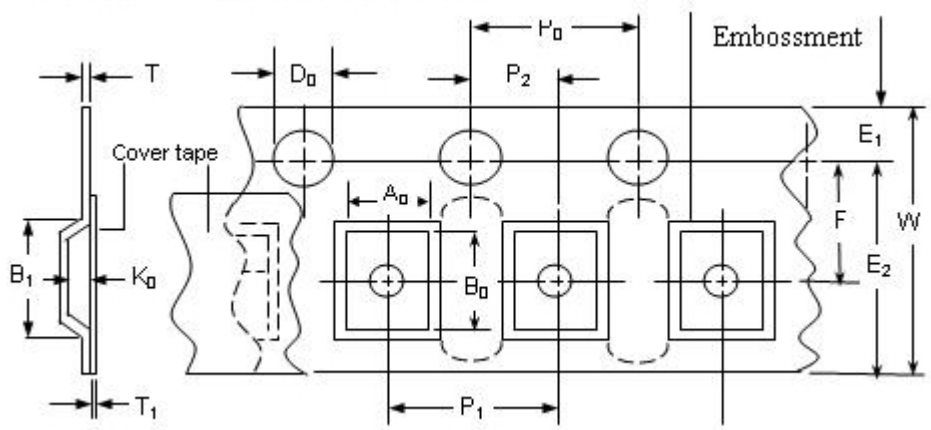
Packaging Quantity

Part Number	Quantity	Part Number	Quantity
SCF030-2920RB	2000 PCS	SCF200-24-2920RB	1500 PCS
SCF050-2920RB	2000 PCS	SCF250-2920RB	2000 PCS
SCF075-2920RB	2000 PCS	SCF260-2920RB	2000 PCS
SCF075-60-2920RB	1500 PCS	SCF260-24-2920RB	1500 PCS
SCF100-2920RB	2000 PCS	SCF300-2920RB	2000 PCS
SCF100-60-2920RB	1500 PCS	SCF300-16-2920RB	1500 PCS
SCF125-2920RB	2000 PCS	SCF400-16-2920RB	1500 PCS
SCF150-2920RB	2000 PCS	SCF500-16-2920RB	1500 PCS
SCF185-2920RB	1500 PCS	SCF600-12-2920RB	1500 PCS
SCF200-2920RB	2000 PCS	--	--

Tape Specifications (Unit: mm)

EIA Tape Component Dimensions



Symbol	Dimensions
W	16.00±0.30
P_0	4.00±0.10
P_1	8.00±0.10
P_2	2.00±0.10
A_0	5.74±0.10
B_0	8.02±0.10
D_0	1.55±0.05
F	7.50±0.10
E_1	1.75±0.10
T	0.20±0.10
Leader min.	390
Trailer min.	160

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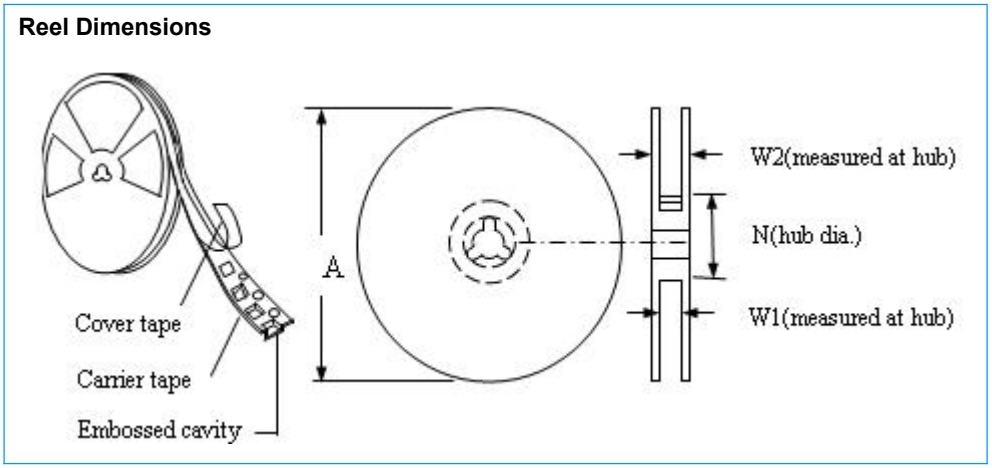
Reel Specifications (Unit: mm)

Reel Dimensions



Symbol	Dimensions
A	178±1.0
N	58±1.0
W1	16.9±0.80
W2	19.3±0.10

Warning

- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- The electrical resistance and electrical performance specified in the specification are all tested on the test board designated after a reflow soldering. If there is a secondary soldering or other thermal processes, the performance may be attenuated.
- The holding current of PTC varies at different temperatures, please refer to the specifications and the actual ambient temperature for selection.
- PTC is designed to protect the occasional overcurrent or overheating failure phenomenon. Long-term or frequent failures will reduce the holding current of the product.
- The PTC soldering process is reflow soldering. The soldering process can refer to the temperature curve recommended in the specification. Manual soldering of PTC is prohibited. The use of hot air gun soldering of adjacent components will also affect the performance of PTC.
- PTC is a heat-sensitive component, avoid installing heat source components around it, and avoid installing it in an environment that is compressed or affects its thermal expansion.
- During installation or use, the PTC is forbidden to be mechanically damaged. It is not recommended to use liquid cleaning products containing organic solvents, which may affect the solder ability of PTC.