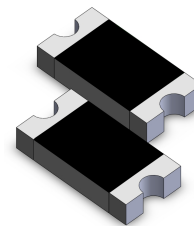


Surface Mount Resettable PTCs

SCF1812RZB Series

Features

- ◆ RoHS Compliant & Halogen Free
- ◆ Faster tripping, 1812 Dimension, Surface mountable, Solid state
- ◆ Operation Current: 1.9A ~ 9.0A, @25°C
- ◆ Maximum Voltage: 6V / 12V
- ◆ Operating Temperature: -40°C ~ + 85°C



Electrical Characteristics

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)
SCF190-1812RZB	1.9	3.8	6.0	50.0	1.5	8.0	5.0	0.003	0.025
SCF190-12-1812RZB	1.9	3.8	12.0	50.0	1.5	8.0	5.0	0.003	0.025
SCF260-1812RZB	2.6	5.2	6.0	50.0	1.5	8.0	5.0	0.003	0.024
SCF260-12-1812RZB	2.6	5.2	12.0	50.0	1.5	8.0	5.0	0.003	0.024
SCF300-1812RZB	3.0	6.0	6.0	50.0	1.5	15.0	2.0	0.003	0.022
SCF300-12-1812RZB	3.0	6.0	12.0	50.0	1.5	15.0	2.0	0.003	0.022
SCF350-1812RZB	3.5	7.0	6.0	50.0	1.5	17.5	2.0	0.003	0.02
SCF350-12-1812RZB	3.5	7.0	12.0	50.0	1.5	17.5	2.0	0.003	0.02
SCF400-1812RZB	4.0	8.0	6.0	50.0	1.8	20.0	2.0	0.003	0.018
SCF400-12-1812RZB	4.0	8.0	12.0	50.0	1.8	20.0	2.0	0.003	0.018
SCF450-1812RZB	4.5	9.0	6.0	50.0	1.8	22.5	2.0	0.003	0.016
SCF450-12-1812RZB	4.5	9.0	12.0	50.0	1.8	22.5	2.0	0.003	0.016
SCF500-1812RZB	5.0	10.0	6.0	50.0	1.8	25.0	2.0	0.003	0.014
SCF500-12-1812RZB	5.0	10.0	12.0	50.0	1.8	25.0	2.0	0.003	0.014
SCF550-1812RZB	5.5	11.0	6.0	50.0	1.8	27.5	2.0	0.002	0.012
SCF550-12-1812RZB	5.5	11.0	12.0	50.0	1.8	27.5	2.0	0.002	0.012
SCF600-1812RZB	6.0	12.0	6.0	50.0	1.8	30.0	2.0	0.002	0.010
SCF600-12-1812RZB	6.0	12.0	12.0	50.0	1.8	30.0	2.0	0.002	0.010
SCF650-1812RZB	6.5	13.0	6.0	50.0	1.8	32.5	2.0	0.002	0.008
SCF650-12-1812RZB	6.5	13.0	12.0	50.0	1.8	32.5	2.0	0.002	0.008
SCF700-1812RZB	7.0	14.0	6.0	50.0	2.0	35.0	2.0	0.001	0.007
SCF700-12-1812RZB	7.0	14.0	12.0	50.0	2.0	35.0	2.0	0.001	0.007
SCF750-1812RZB	7.5	15.0	6.0	50.0	2.0	37.5	2.0	0.001	0.006
SCF750-12-1812RZB	7.5	15.0	12.0	50.0	2.0	37.5	2.0	0.001	0.006

Surface Mount Resettable PTCs

SCF1812RZB Series

Electrical Characteristics (Continue)

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)
SCF800-1812RZB	8.0	16.0	6.0	50.0	2.0	40.0	2.0	0.0008	0.005
SCF800-12-1812RZB	8.0	16.0	12.0	50.0	2.0	40.0	2.0	0.0008	0.005
SCF850-1812RZB	8.5	17.0	6.0	50.0	2.2	42.5	2.0	0.0008	0.004
SCF850-12-1812RZB	8.5	17.0	12.0	50.0	2.2	42.5	2.0	0.0008	0.004
SCF900-1812RZB	9.0	18.0	6.0	50.0	2.2	45.0	2.0	0.0005	0.005
SCF900-12-1812RZB	9.0	18.0	12.0	50.0	2.2	45.0	2.0	0.0005	0.005

I_{hold} = Hold Current. Maximum current at which the device will not interrupt in 25 °C still air.

I_{trip} = Trip Current. Minimum current at which the device from low resistance to high resistance in 25 °C still air.

V_{max} = Maximum continuous voltage device can withstand without damage at rated current..

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

Maximum Time-to-trip: Maximum time to trip at assigned current.

$P_{dtyp.}$ = Typical power dissipation: Typical amount of power dissipated from the device when in 25 °C still air environment.

R_{min} = Minimum resistance of device at 25 °C prior to tripping.

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

Test Procedures and Requirements

Test Item	Test Conditions	Accept / Reject Criteria
Initial Resistance	In still air, 25°C	$R_{min} \leq R \leq R_{1max}$
Time to Ttrip	Specified current, V_{max} , 25°C	$T \leq$ Maximum Time to Trip
Hold Current	30min, at I_H , 25°C	No trip
Trip Endurance	V_{MAX} , I_{MAX} , 1 hour	No arcing or burning

Environmental Specifications

Test Item	Test Conditions	Resistance Change
Passive Aging	85°C, 1000 hours	±10% typical
Humidity Aging	85°C/85%RH, 100 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

Surface Mount Resettable PTCs

SCF1812RZB Series

Thermal Derating Chart - I_H (A)

Model	Maximum Ambient Operating Temperature (°C)								
	-40	-20	0	25	40	50	60	70	85
SCF190-1812RZB	2.76	2.47	2.22	1.90	1.63	1.46	1.31	1.18	0.95
SCF190-12-1812RZB	2.76	2.47	2.22	1.90	1.63	1.46	1.31	1.18	0.95
SCF260-1812RZB	3.78	3.38	3.04	2.60	2.23	2.00	1.79	1.61	1.30
SCF260-12-1812RZB	3.78	3.38	3.04	2.60	2.23	2.00	1.79	1.61	1.30
SCF300-1812RZB	4.35	3.90	3.51	3.00	2.58	2.31	2.07	1.86	1.50
SCF300-12-1812RZB	4.35	3.90	3.51	3.00	2.58	2.31	2.07	1.86	1.50
SCF350-1812RZB	5.08	4.55	4.10	3.50	3.01	2.70	2.42	2.17	1.75
SCF350-12-1812RZB	5.08	4.55	4.10	3.50	3.01	2.70	2.42	2.17	1.75
SCF400-1812RZB	5.80	5.20	4.68	4.00	3.44	3.08	2.76	2.48	2.00
SCF400-12-1812RZB	5.80	5.20	4.68	4.00	3.44	3.08	2.76	2.48	2.00
SCF450-1812RZB	6.54	5.85	5.26	4.50	3.86	3.46	3.10	2.79	2.25
SCF450-12-1812RZB	6.54	5.85	5.26	4.50	3.86	3.46	3.10	2.79	2.25
SCF500-1812RZB	7.26	6.50	5.84	5.00	4.29	3.84	3.45	3.11	2.50
SCF500-12-1812RZB	7.26	6.50	5.84	5.00	4.29	3.84	3.45	3.11	2.50
SCF550-1812RZB	7.99	7.15	6.43	5.50	4.72	4.23	3.79	3.42	2.75
SCF550-12-1812RZB	7.99	7.15	6.43	5.50	4.72	4.23	3.79	3.42	2.75
SCF600-1812RZB	8.72	7.80	7.01	6.00	5.15	4.61	4.14	3.73	3.00
SCF600-12-1812RZB	8.72	7.80	7.01	6.00	5.15	4.61	4.14	3.73	3.00
SCF650-1812RZB	9.44	8.45	7.59	6.50	5.58	4.99	4.48	4.04	3.25
SCF650-12-1812RZB	9.44	8.45	7.59	6.50	5.58	4.99	4.48	4.04	3.25
SCF700-1812RZB	10.17	9.10	8.18	7.00	6.01	5.38	4.83	4.35	3.50
SCF700-12-1812RZB	10.17	9.10	8.18	7.00	6.01	5.38	4.83	4.35	3.50
SCF750-1812RZB	10.89	9.75	8.76	7.50	6.44	5.76	5.18	4.66	3.75
SCF750-12-1812RZB	10.89	9.75	8.76	7.50	6.44	5.76	5.18	4.66	3.75
SCF800-1812RZB	11.62	10.40	9.34	8.00	6.87	6.15	5.52	4.97	4.00
SCF800-12-1812RZB	11.62	10.40	9.34	8.00	6.87	6.15	5.52	4.97	4.00
SCF850-1812RZB	12.34	11.05	9.93	8.50	7.30	6.53	5.87	5.28	4.25
SCF850-12-1812RZB	12.34	11.05	9.93	8.50	7.30	6.53	5.87	5.28	4.25
SCF900-1812RZB	13.07	11.70	10.51	9.00	7.73	6.92	6.21	5.59	4.50
SCF900-12-1812RZB	13.07	11.70	10.51	9.00	7.73	6.92	6.21	5.59	4.50

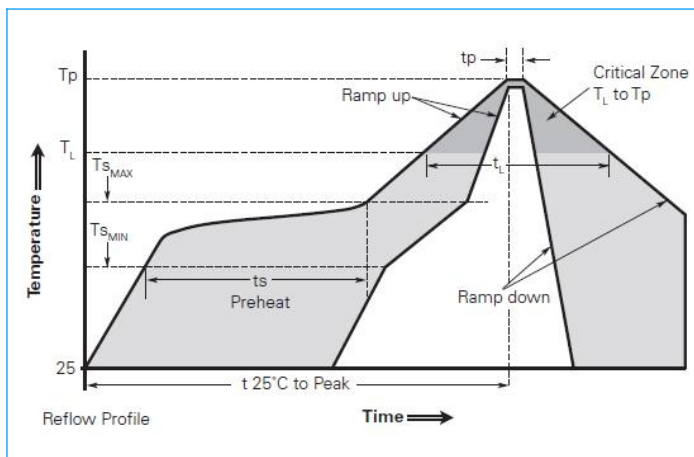
Surface Mount Resettable PTCs

SCF1812RZB Series

Physical Characteristics

Terminal pad materials	Tin-Plated Nickle-copper
Soldering Zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.
Moisture Sensitivity	Level 1, per IPC/JEDEC J-STD 020C

Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T_s max to T_p)	3°C/second max.
Preheat : Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (T_{smin} to T_{smax})	150°C 200°C 60-120 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: Time (T_p)	30 seconds max.
Ramp-down Rate	3°C/ second max.
Time 25°C to Peak Temperature	8 minutes max.

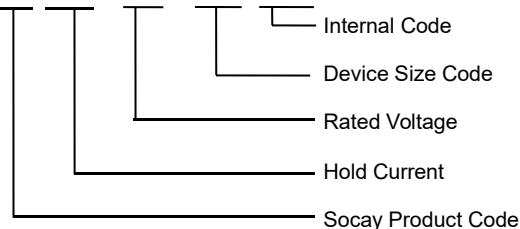
- Recommended reflow methods: I_R , vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.

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

SCF XXX – XX – 1812 RZB

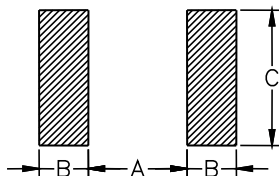


Surface Mount Resettable PTCs

SCF1812RZB Series

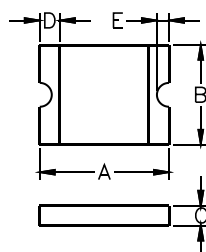
Recommended Solder Pad Layout Dimensions (Unit: mm)

The dimension in the table below provide the recommended pad layout for each SCF1812RZB device



Device	A	B	C
1812RZB Series	3.45 ± 0.1	1.78 ± 0.1	3.15 ± 0.1

Product Dimensions (Unit: mm)



Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SCF190-1812RZB	4.37	4.73	3.07	3.41	0.30	0.70	0.30	0.15
SCF190-12-1812RZB	4.37	4.73	3.07	3.41	0.30	0.70	0.30	0.15
SCF260-1812RZB	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.15
SCF260-12-1812RZB	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.15
SCF300-1812RZB	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.15
SCF300-12-1812RZB	4.37	4.73	3.07	3.41	0.40	1.00	0.30	0.15
SCF350-1812RZB	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.15
SCF350-12-1812RZB	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.15
SCF400-1812RZB	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.15
SCF400-12-1812RZB	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.15
SCF450-1812RZB	4.37	4.73	3.07	3.41	0.40	1.40	0.30	0.15
SCF450-12-1812RZB	4.37	4.73	3.07	3.41	0.40	1.40	0.30	0.15
SCF500-1812RZB	4.37	4.73	3.07	3.41	0.50	1.40	0.30	0.15
SCF500-12-1812RZB	4.37	4.73	3.07	3.41	0.50	1.40	0.30	0.15
SCF550-1812RZB	4.37	4.73	3.07	3.41	0.50	1.40	0.30	0.15
SCF550-12-1812RZB	4.37	4.73	3.07	3.41	0.50	1.40	0.30	0.15

Surface Mount Resettable PTCs

SCF1812RZB Series

Product Dimensions (Unit: mm) (Continue)

Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SCF600-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF600-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF650-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF650-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF700-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF700-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF750-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF750-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF800-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF800-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF850-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF850-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF900-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15
SCF900-12-1812RZB	4.37	4.73	3.07	3.41	0.60	1.60	0.30	0.15

Packaging Quantity

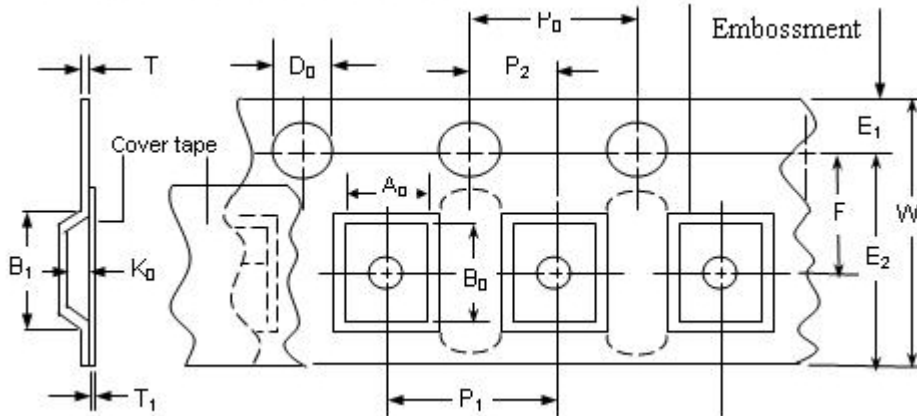
Part Number	Quantity	Part Number	Quantity
SCF190-1812RZB	2000 PCS	SCF550-12-1812RZB	2000 PCS
SCF190-12-1812RZB	2000 PCS	SCF600-1812RZB	1500 PCS
SCF260-1812RZB	2000 PCS	SCF600-12-1812RZB	1500 PCS
SCF260-12-1812RZB	2000 PCS	SCF650-1812RZB	1500 PCS
SCF300-1812RZB	2000 PCS	SCF650-12-1812RZB	1500 PCS
SCF300-12-1812RZB	2000 PCS	SCF700-1812RZB	1500 PCS
SCF350-1812RZB	2000 PCS	SCF700-12-1812RZB	1500 PCS
SCF350-12-1812RZB	2000 PCS	SCF750-1812RZB	1500 PCS
SCF400-1812RZB	2000 PCS	SCF750-12-1812RZB	1500 PCS
SCF400-12-1812RZB	2000 PCS	SCF800-1812RZB	1500 PCS
SCF450-1812RZB	2000 PCS	SCF800-12-1812RZB	1500 PCS
SCF450-12-1812RZB	2000 PCS	SCF850-1812RZB	1500 PCS
SCF500-1812RZB	2000 PCS	SCF850-12-1812RZB	1500 PCS
SCF500-12-1812RZB	2000 PCS	SCF900-1812RZB	1500 PCS
SCF550-1812RZB	2000 PCS	SCF900-12-1812RZB	1500 PCS

Surface Mount Resettable PTCs

SCF1812RZB Series

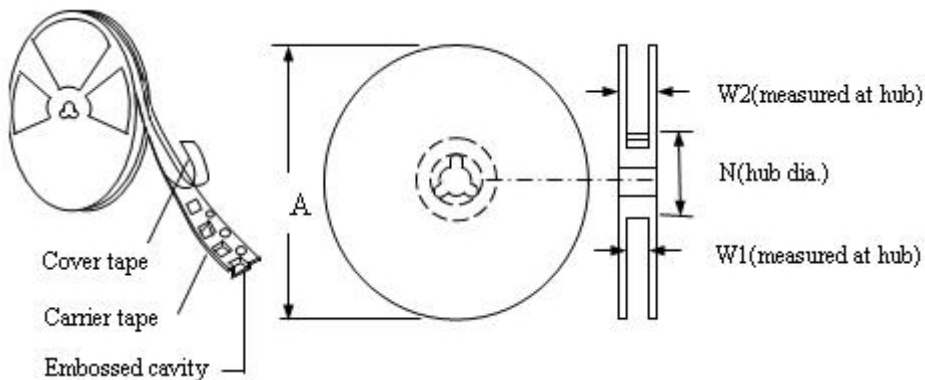
Tape Specifications and Reel Specifications (Unit: mm)

Tape Component Dimensions



Symbol	Dimensions
W	12.0±0.3/-0
P₀	4.0±0.10
P₁	8.0±0.10
P₂	2.0±0.10
A₀	3.5±0.10
B₀	4.9±0.10
D₀	1.5±0.10/-0
F	5.5±0.05
E₁	1.75±0.10
T	0.3±0.10
Leader min.	390
Trailer min.	160

Reel Dimensions



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

Surface Mount Resettable PTCs

SCF1812RZB Series

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.