

**Surface-Mount Device**

**SL1210**

ROHS



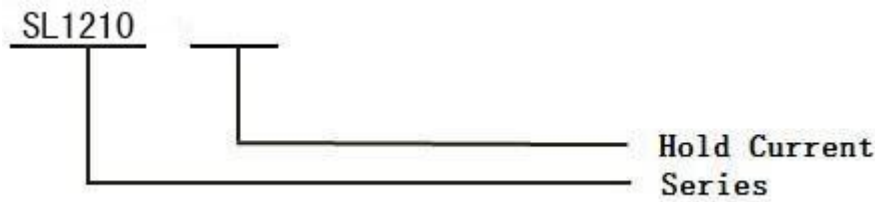
**Feature**

- Resettable over current and over temperature protection
- Small size of 1210
- Small footprint
- Low resistance
- Fast time-to-trip
- ROHS compliant

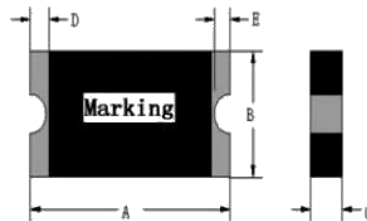
**Application**

- Computer
- Battery
- Mobile phones
- Industrial controls
- Automotive
- Portable electronics
- Multimedia
- Game machines
- Telephony and broadband

**Part Numbering**



**Product Dimensions in Millimeter**



Part Number	A		B		C		D	E
	Min	Max	Min	Max	Min	Max	Min	Min
SL1210150	3.00	3.50	2.35	2.85	0.4	1.0	0.25	0.10
SL1210175	3.00	3.50	2.35	2.85	0.4	1.0	0.25	0.10
SL1210190	3.00	3.50	2.35	2.85	0.4	1.0	0.25	0.10
SL1210200	3.00	3.50	2.35	2.85	0.4	1.0	0.25	0.10
SL1210210	3.00	3.50	2.35	2.85	0.4	1.0	0.25	0.10
SL1210230	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210250	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210260	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210300	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210350	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210380	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210400	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210450	3.00	3.50	2.35	2.85	0.5	1.2	0.25	0.10
SL1210500	3.00	3.50	2.35	2.85	0.6	1.5	0.25	0.10
SL1210550	3.00	3.50	2.35	2.85	0.6	1.5	0.25	0.10
SL1210600	3.00	3.50	2.35	2.85	0.6	1.5	0.25	0.10
SL1210650	3.00	3.50	2.35	2.85	0.6	1.5	0.25	0.10

**Electrical Characteristics**

Part Number	I(A)		V <sub>max</sub>	I <sub>max</sub>	Pd <sub>typ</sub>	T <sub>trip</sub>		R <sub>min</sub>	R <sub>max</sub>	R <sub>1max</sub>
	25°C		--	--	--	25°C		25°C		
	Hold	Trip	(V)	(A)	(W)	Current(A)	Time(S)	(Ω)	(Ω)	(Ω)
SL1210150	1.50	3.0	6.0	50	1.2	8.0	0.5	0.005	0.012	0.050
SL1210175	1.75	3.5	6.0	50	1.2	8.0	1.0	0.005	0.012	0.040
SL1210190	1.90	3.8	6.0	50	1.2	8.0	3.0	0.005	0.011	0.035
SL1210200	2.00	4.0	6.0	50	1.2	8.0	3.0	0.005	0.011	0.032
SL1210210	2.10	4.2	6.0	50	1.2	8.0	5.0	0.005	0.010	0.030
SL1210230	2.30	4.6	6.0	50	1.2	8.0	5.0	0.005	0.010	0.028
SL1210250	2.50	5.0	6.0	50	1.2	8.0	5.0	0.004	0.009	0.025
SL1210260	2.60	5.2	6.0	50	1.2	12.0	5.0	0.004	0.009	0.020
SL1210300	3.00	6.0	6.0	50	1.2	12.0	5.0	0.004	0.008	0.018
SL1210350	3.50	7.0	6.0	50	1.2	12.0	5.0	0.003	0.008	0.017
SL1210380	3.80	7.6	6.0	50	1.5	12.0	5.0	0.003	0.007	0.016
SL1210400	4.00	8.0	6.0	50	1.5	16.0	5.0	0.002	0.007	0.015
SL1210450	4.50	9.0	6.0	50	1.5	16.0	5.0	0.001	0.006	0.014
SL1210500	5.00	10.0	6.0	50	1.5	16.0	5.0	0.001	0.006	0.012
SL1210550	5.50	11.0	6.0	50	1.5	20.0	5.0	0.0008	0.005	0.010
SL1210600	6.00	12.0	6.0	50	1.5	20.0	5.0	0.0008	0.005	0.009
SL1210650	6.50	13.0	6.0	50	1.5	20.0	5.0	0.0005	0.004	0.008

I<sub>H</sub>=Hold current: maximum current at which the device will not trip at 25°C still air reflow soldering of 260°C for 20 sec.

I<sub>T</sub>=Trip current: minimum current at which the device will always trip at 25°C still air reflow soldering of 260°C for 20 sec.

V<sub>max</sub>=Maximum continuous voltage device can withstand without damage at rated current

I<sub>max</sub>=Maximum fault current device can withstand without damage at rated voltage.

T<sub>trip</sub>=Maximum time to trip(s) at assigned current reflow soldering of 260°C for 20 sec.

Pd<sub>typ</sub>=Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

R<sub>min</sub>= Minimum resistance of device in initial (un-soldered) state.

R<sub>max</sub>= Maximum resistance of device in initial (un-soldered) state.

R<sub>1max</sub>=Maximum resistance of device at 25°C measured one hour after reflow soldering of 260°C for 20 sec.

**Value specified is determined by using the PWB with 0.030" \*1.5oz coppertraces.**

**Caution: Operation beyond the specified rating may result in damage and possible arcing and flame.**

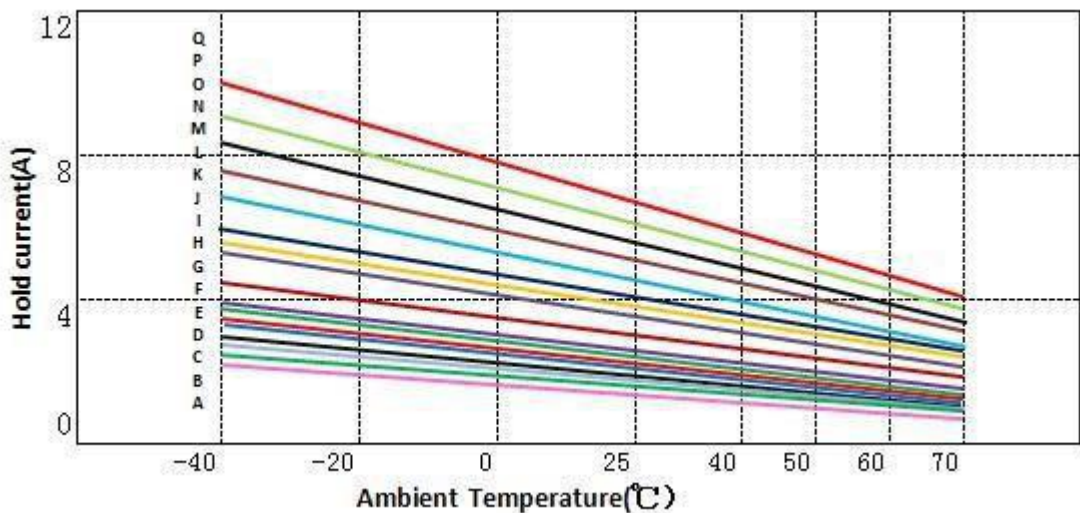
**Environmental Specifications**

Test	Test Conditions	Resistance Change/ Criteria
Recommended storage conditions	40°C max, 70% R.H. max	± 5%
Passive aging:	85°C, 1000 hours	≤ R <sub>1max</sub>
Moisture Resistance	85% RH, 85°C, 1000hrs	≤ R <sub>1max</sub>
Thermal Shock	MIL-STD-202 Method 107G +85°C /-40°C 20 times	≤ R <sub>1max</sub>
Vibration	MIL-STD-883C, Method 2007.1, Condition A	± 5%
Solvent Resistance	MIL-STD-202, Method 215	Appearance No change
Moisture Level Sensitivity	J-STD-020C	Level 2a

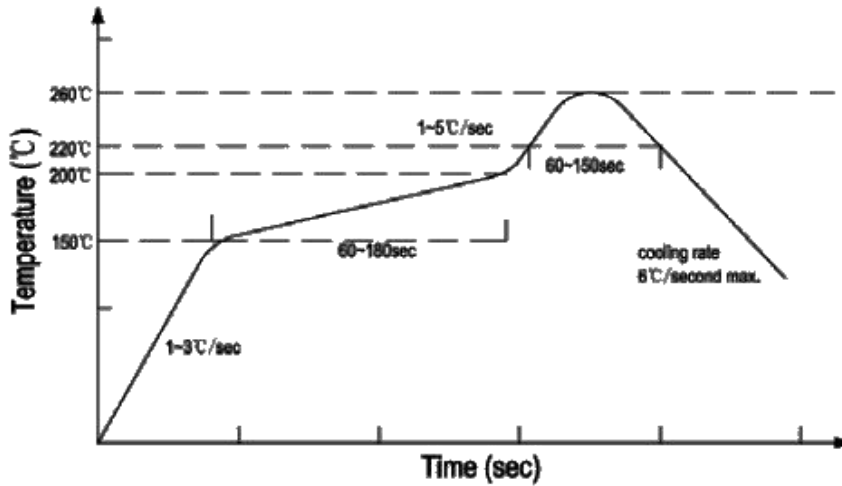
**Thermal Derating [ Hold Current (A) at Ambient Temperature (°C)]**

Part Number	Maximum Ambient Operating Temperature (°C)							
	-40	-20	0	25	40	50	60	70
SL1210150	2.3	2.0	1.7	1.5	1.3	1.2	1.1	0.9
SL1210175	2.6	2.3	2.0	1.75	1.5	1.3	1.2	1.1
SL1210190	2.9	2.5	2.2	1.9	1.6	1.5	1.3	1.2
SL1210200	3.0	2.7	2.3	2.0	1.7	1.5	1.4	1.2
SL1210210	3.2	2.8	2.4	2.1	1.8	1.6	1.5	1.3
SL1210230	3.5	3.1	2.7	2.3	2.0	1.8	1.6	1.4
SL1210250	3.8	3.3	2.9	2.5	2.2	1.9	1.8	1.5
SL1210260	3.9	3.5	3.0	2.6	2.2	2.0	1.9	1.6
SL1210300	4.5	4.0	3.5	3.0	2.6	2.3	2.1	1.8
SL1210350	5.3	4.7	4.1	3.5	3.0	2.7	2.5	2.1
SL1210380	5.7	5.1	4.4	3.8	3.3	2.9	2.7	2.3
SL1210400	6.0	5.3	4.6	4.0	3.4	3.1	2.8	2.4
SL1210450	6.8	6.0	5.2	4.5	3.9	3.5	3.2	2.7
SL1210500	7.5	6.7	5.8	5.0	4.3	3.9	3.5	3.1
SL1210550	8.3	7.3	6.4	5.5	4.7	4.2	3.9	3.4
SL1210600	9.0	8.0	7.0	6.0	5.2	4.6	4.2	3.7
SL1210650	9.8	8.6	7.5	6.5	5.6	5.0	4.6	4.0

- A=SL1210150
- B=SL1210175
- C=SL1210190
- D=SL1210200
- E=SL1210210
- F=SL1210230
- G=SL1210250
- H=SL1210260
- I=SL1210300
- J=SL1210350
- K=SL1210380
- L=SL1210400
- M=SL1210450
- N=SL1210500
- O=SL1210550
- P=SL1210600
- Q=SL1210650



**Solder Reflow Recommendation**



Reflow -curve

Recommended reflow methods:IR,hot air oven ,nitrogen oven  
 Devices can be cleaned using standard industry methods and solvents.

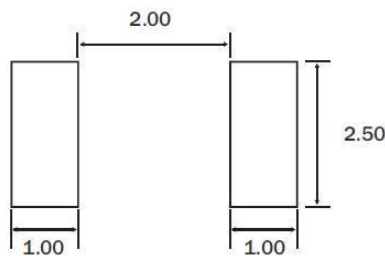
**NOTE:**

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

**Caution:** Operation beyond the rated voltage or current may result in rupture electrical arcing or flame

**Packaging Quantity and Marking**

Recommended Pad Layout (mm.)



Device	Standard Quantity (pcs)
SL1210150	4000
SL1210175	4000
SL1210190	4000
SL1210200	4000
SL1210210	4000
SL1210230	4000
SL1210250	4000
SL1210260	4000
SL1210300	4000



SL1210350	4000
SL1210380	4000
SL1210400	4000
SL1210450	4000
SL1210500	4000
SL1210550	4000
SL1210600	4000
SL1210650	4000

 **CAUTION:**

Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame. The devices 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. Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.

**Contact information**

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Rev. letter		Date	
Design	Check	Audit	Approve

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