

Type R1210

Resettable Fuse (PTC's)

Surface Mount



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619-593-5050

Application:

All high-density boards

Product Features:

- Small surface mount, Solid State
- Faster time to trip than standard SMD devices.
- Lower resistance than standard SMD devices.

Operation Current: 50mA ~ 2.0A

Maximum Voltage: 6V - 60VDC

Temperature Range: -40°C to 85°C

Agency Standards and Listings:



Electrical Characteristics (23°C)

Part Number	Hold Current I_H , A	Trip Current I_T , A	Rated Voltage V_{MAX} , Vdc	Max Current I_{MAX} , A	Typical Power Pd, W	Max Time to Trip		Resistance Tolerance	
						Current Amp	Time Sec	R_{MIN} Ω	$R1_{MAX}$ Ω
R1210-005	0.05	0.15	60	10	0.60	0.25	3.00	3.600	50.00
R1210-005-R	0.05	0.15	60	10	0.60	0.25	3.00	3.600	50.00
R1210-010	0.10	0.25	60	10	0.60	0.50	1.50	1.600	15.00
R1210-010-R	0.10	0.25	60	10	0.60	0.50	1.50	1.600	15.00
R1210-020	0.20	0.40	30	10	0.60	8.00	0.02	0.800	5.000
R1210-020-R	0.20	0.40	30	10	0.60	8.00	0.02	0.800	5.000
R1210-035	0.35	0.70	16	40	0.60	8.00	0.20	0.320	1.300
R1210-035-R	0.35	0.70	16	100	0.60	8.00	0.20	0.320	1.300
R1210-050	0.50	1.00	16	40	0.60	8.00	0.10	0.250	0.900
R1210-050-R	0.50	1.00	16	100	0.60	8.00	0.10	0.250	0.900
R1210-075	0.75	1.50	8	100	0.60	8.00	0.10	0.130	0.400
R1210-075-R	0.75	1.50	8	100	0.60	8.00	0.10	0.130	0.400
R1210-075-24-R	0.75	1.50	24	100	0.60	8.00	0.10	0.130	0.400
R1210-110-R	1.10	2.20	6	100	0.80	8.00	0.30	0.060	0.210
R1210-150-R	1.50	3.00	6	100	0.80	8.00	0.50	0.040	0.110
R1210-175-R	1.75	4.00	6	100	0.80	8.00	0.60	0.020	0.080
R1210-200-R	2.00	4.00	6	100	0.80	8.00	1.00	0.015	0.070

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).

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

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

$R1_{MAX}$ = Maximum device resistance at 23°C, 1 hour after tripping.

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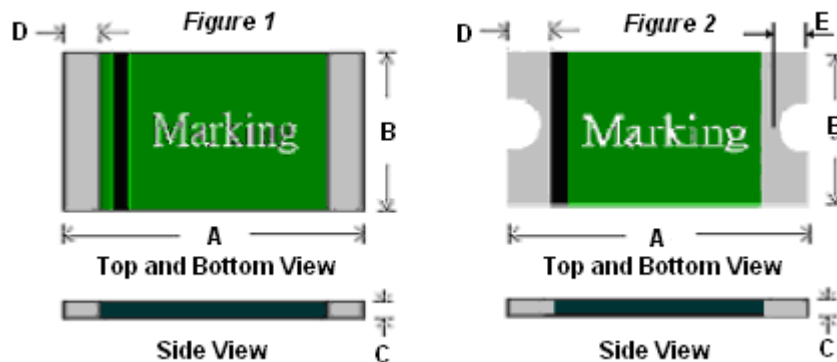
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Physical Specifications:

Termination Pad Characteristics: Pure Tin

R1210: Product Dimensions (millimeters)



Part Number	Figure	A		B		C		D		E	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
R1210-005	1	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	-	-
R1210-005-R	2	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	0.10	0.45
R1210-010	1	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	-	-
R1210-010-R	2	3.00	3.43	2.35	2.80	0.60	1.15	0.25	0.75	0.10	0.45
R1210-020	1	3.00	3.43	2.35	2.80	0.40	0.85	0.25	0.75	-	-
R1210-020-R	2	3.00	3.43	2.35	2.80	0.40	0.85	0.25	0.75	0.10	0.45
R1210-035	1	3.00	3.43	2.35	2.80	0.40	0.80	0.25	0.75	-	-
R1210-035-R	2	3.00	3.43	2.35	2.80	0.40	0.80	0.25	0.75	0.10	0.45
R1210-050	1	3.00	3.43	2.35	2.80	0.30	0.75	0.25	0.75	-	-
R1210-050-R	2	3.00	3.43	2.35	2.80	0.30	0.75	0.25	0.75	0.10	0.45
R1210-075	1	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	-	-
R1210-075-R	2	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	0.10	0.45
R1210-075-24-R	2	3.00	3.43	2.35	2.80	0.90	1.30	0.25	0.75	0.10	0.45
R1210-110-R	2	3.00	3.43	2.35	2.80	0.40	0.90	0.25	0.75	0.10	0.45
R1210-150-R	2	3.00	3.43	2.35	2.80	0.50	0.90	0.25	0.75	0.10	0.45
R1210-175-R	2	3.00	3.43	2.35	2.80	0.80	1.40	0.25	0.75	0.10	0.45
R1210-200-R	2	3.00	3.43	2.35	2.80	0.80	1.40	0.25	0.75	0.10	0.45

Note: All specifications subject to change without notice.

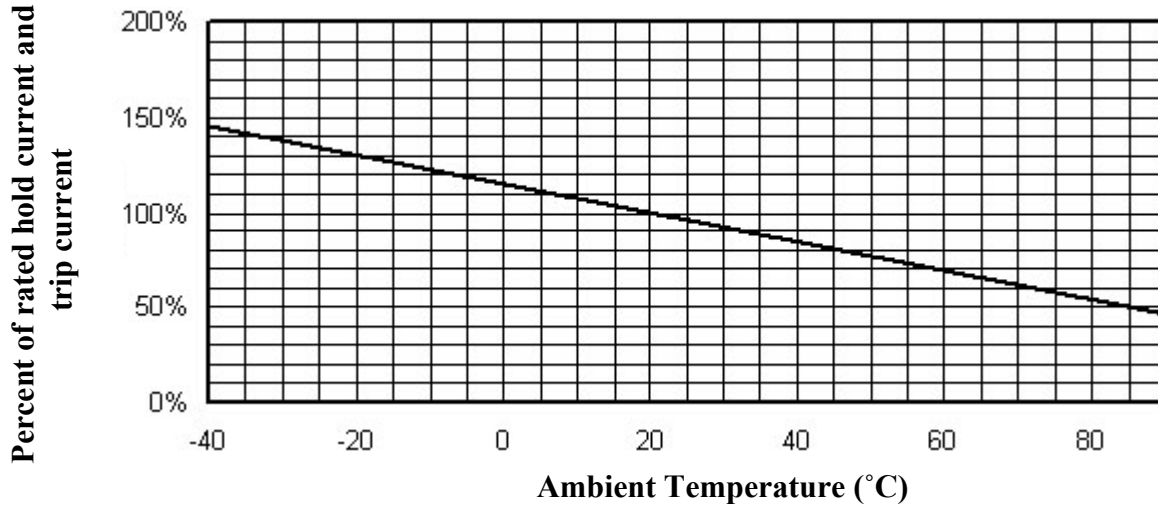
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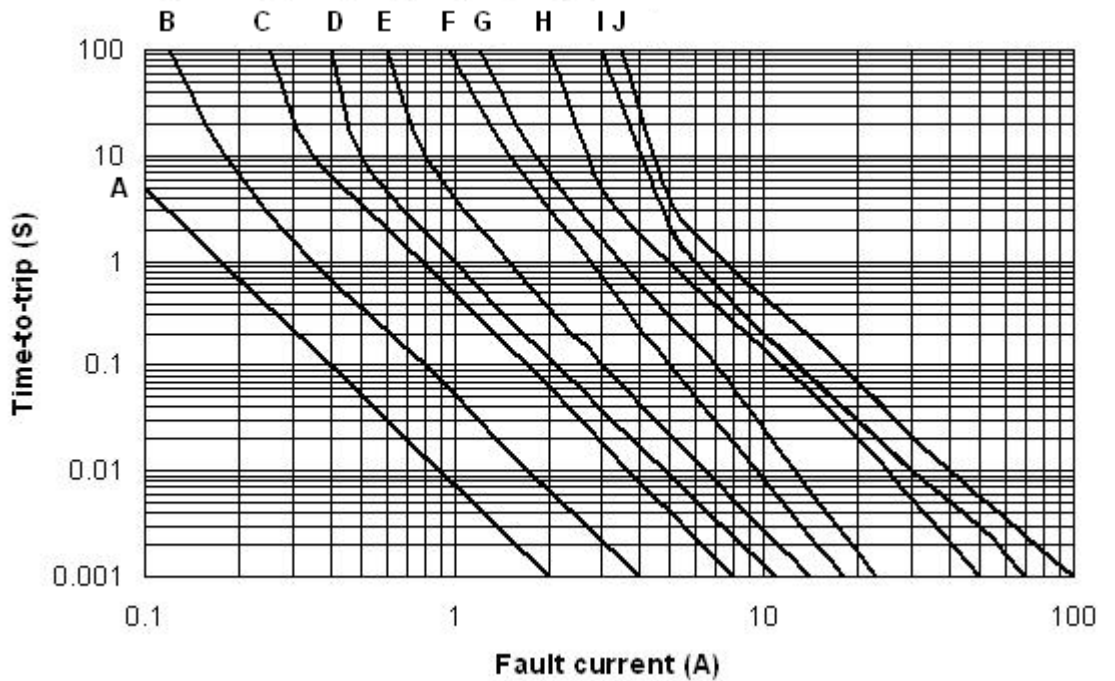
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Thermal Derating Curve – R1210 Series



Typical Time-To-Trip at 23°C

- A = R1210-005's
- B = R1210-010's
- C = R1210-020's
- D = R1210-035's
- E = R1210-050's
- F = R1210-075's
- G = R1210-110's
- H = R1210-150's
- I = R1210-175's
- J = R1210-200's



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Profile Features	Pb-Free Assembly
Average Ramp-Up Rate (T_{smax} 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 60-180 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 minute max.

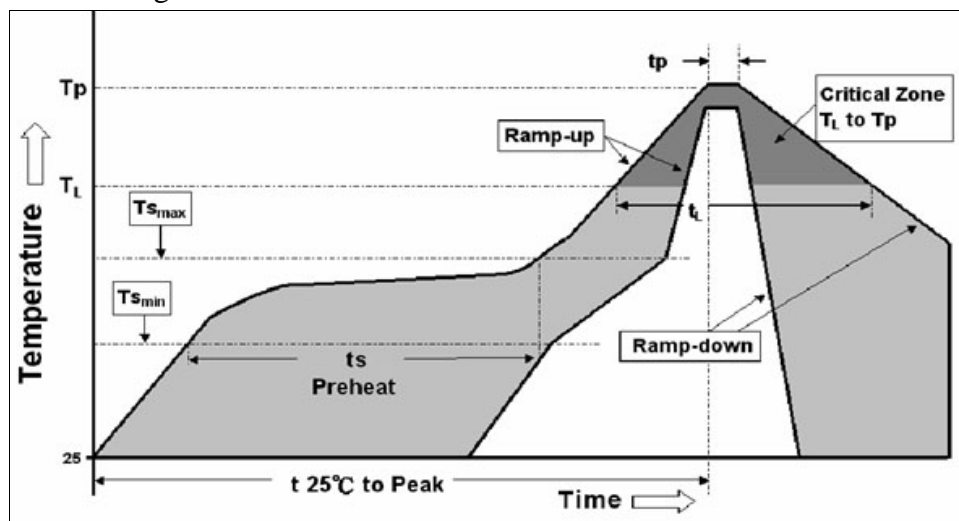
Solder reflow

* 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 maximum paste thickness > 0.25mm.
2. Devices can be cleaned using standard industry methods and aqueous solvents.
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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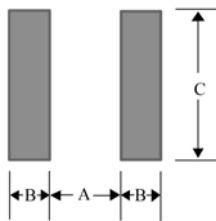
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Standard Package

Part Number	Reel/Tape
R1210-005's ~ R1210-020's	3K
R1210-035's ~ R1210-075's	4K
R1210-110-R ~ R1210-200	3K

Pad Layouts – Solder Reflow and Rework Recommendations

The dimensions in the table below provide the recommended pad layout for each R1210 device.



Pad Dimensions (millimeters)

- A – Nominal – 2.00 mm
- B – Nominal – 1.00 mm
- C – Nominal – 2.80 mm

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.

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