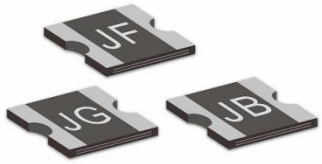
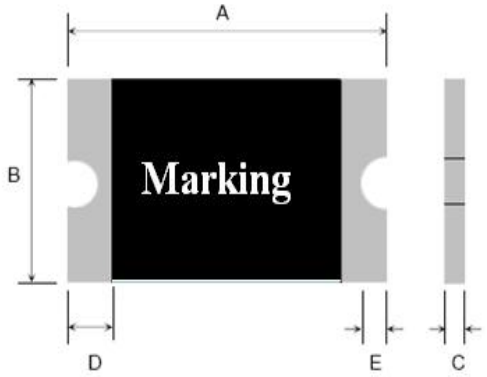
Surface Mountable PTC Resettable Fuse: JK-SMD1210 Series

Features：

- ✧ RoHS Compliant & Halogen Free
- ✧ faster tripping, 1210 Dimension, Surface mountable, Solid state
- ✧ Operation Current: 0.05A~2.00A
- ✧ Maximum Voltage: 6V~60Vdc
- ✧ Operating Temperature：-40℃ TO 85℃



Product Dimensions



Pig.1

Terminal pad materials :Tin-Plated Nickle-copper
Terminal pad solderability : Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

Unit ： mm

Model	Marking	A		B		C		D	E
		Min	Max	Min	Max	Min	Max	Min	Min
JK-SMD1210-005	JN	3.00	3.43	2.35	2.80	0.60	1.25	0.15	0.10
JK-SMD1210-010	JN	3.00	3.43	2.35	2.80	0.60	1.25	0.15	0.10
JK-SMD1210-020	JF	3.00	3.43	2.35	2.80	0.50	1.00	0.15	0.10
JK-SMD1210-035	JB	3.00	3.43	2.35	2.80	0.35	0.90	0.15	0.10
JK-SMD1210-035-30	JB	3.00	3.43	2.35	2.80	0.35	1.00	0.15	0.10
JK-SMD1210-050	JG	3.00	3.43	2.35	2.80	0.35	0.90	0.15	0.10
JK-SMD1210-075	JA	3.00	3.43	2.35	2.80	0.35	0.85	0.15	0.10
JK-SMD1210-110	JK	3.00	3.43	2.35	2.80	0.40	1.10	0.15	0.10
JK-SMD1210-110-12	JK	3.00	3.43	2.35	2.80	0.40	1.40	0.15	0.10
JK-SMD1210-150	JK	3.00	3.43	2.35	2.80	0.60	1.40	0.15	0.10
JK-SMD1210-175	JK	3.00	3.43	2.35	2.80	0.60	1.40	0.15	0.10
JK-SMD1210-200	JK	3.00	3.43	2.35	2.80	0.60	1.50	0.15	0.10

Thermal Derating Chart-IH（A）

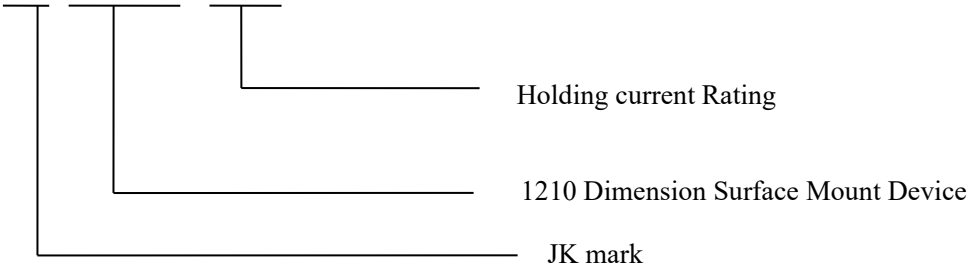
Model	Maximum ambient operating temperatures（℃）								
	-40	-20	0	25	40	50	60	70	85
JK-SMD1210-005	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
JK-SMD1210-010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.05
JK-SMD1210-020	0.29	0.26	0.22	0.20	0.16	0.14	0.13	0.11	0.08
JK-SMD1210-035	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
JK-SMD1210-035-30	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
JK-SMD1210-050	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
JK-SMD1210-075	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
JK-SMD1210-110	1.60	1.42	1.26	1.10	0.94	0.86	0.80	0.70	0.58
JK-SMD1210-110-12	1.60	1.42	1.26	1.10	0.94	0.86	0.80	0.70	0.58
JK-SMD1210-150	2.30	2.02	1.76	1.50	1.24	1.11	1.00	0.85	0.65
JK-SMD1210-175	2.45	2.22	2.01	1.75	1.45	1.26	1.10	0.98	0.80
JK-SMD1210-200	2.60	2.44	2.35	2.00	1.78	1.67	1.50	1.45	1.10

Electrical Characteristic

Model	V_{max}	I_{max}	I_{hold}	I_{trip}	P_d	Maximum time to trip		Resistence	
	(Vdc)	(A)	(A)	(A)	Max. (W)	Current (A)	Time (Sec)	Ri_{min} (Ω)	$R1_{max}$ (Ω)
SMD1210-005	60	100	0.05	0.15	0.6	0.25	1.50	2.8	50
SMD1210-010	30	100	0.10	0.30	0.6	0.50	0.60	0.8	15
SMD1210-020	30	100	0.20	0.40	0.6	8.0	0.02	0.40	5
SMD1210-035-30V	30	100	0.35	0.75	0.6	8.0	0.20	0.20	1.3
SMD1210-035	16	100	0.35	0.75	0.6	8.0	0.20	0.20	1.3
SMD1210-050	16	100	0.50	1.00	0.6	8.0	0.10	0.18	0.9
SMD1210-075	6	100	0.75	1.50	0.6	8.0	0.10	0.07	0.4
SMD1210-110	6	100	1.10	2.20	0.6	8.0	0.30	0.05	0.21
SMD1210-110-12V	12	100	1.10	2.20	0.8	8.0	0.30	0.05	0.25
SMD1210-150	6	100	1.50	3.00	0.8	8.0	0.50	0.03	0.21
SMD1210-175	6	100	1.75	3.50	0.8	8.0	0.60	0.02	0.08
SMD1210-200	6	100	2.00	4.00	0.8	8.0	1.00	0.015	0.07

Modeling System

JK- SMD1210 □□□



Test Procedures And Requirements

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @ 25℃	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current，V_{max}，25℃	Tmaximum Time to Trip
Hold Current	30min，at I_H	No trip
Trip Cycle Life	Vmax，Imax，100cycles	No arcing or burning
Trip Endurance	Vmax，1 hours	No arcing or burning

Physical Characteristics and Environmental Specifications

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	Conditions	Resistance Change
Passive aging	85℃,1000hours	±10%
Humidity aging	85℃/85%RH.1000 hours	±5%
Thermal shock	MIL-STD-202,Method 107G +85℃/-40℃,20times	-30% typical resistance change
Solvent Resistance	MIL-STD-202,Method 215	no change
Vibration	ML-STD-883C,Test Condition A	No chage

Electrical Specifications:

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

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

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

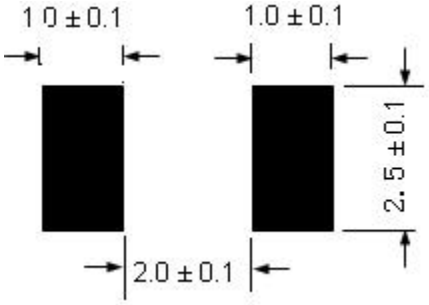
I_{max} = Maximum fault current device can withstand without damage at rated voltage (Vmax).

Pd=Maximum power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

$Ri_{min/max}$ = Minimum/Maximum device resistance prior to tripping at 25°C.

$R1_{max}$ = Maximum device resistance is measured one hour post reflow.

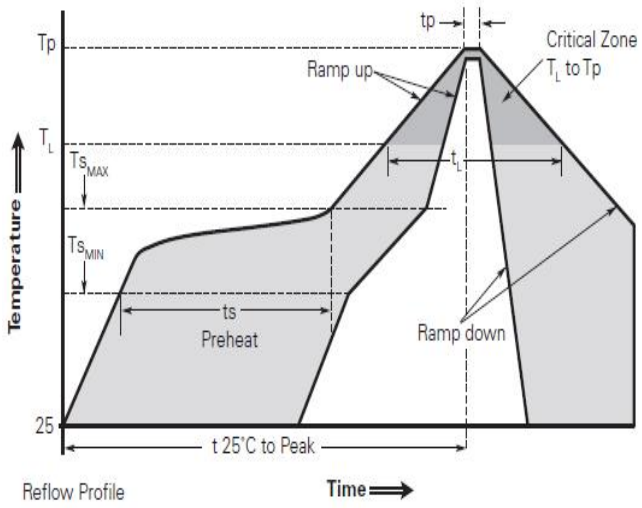
Recommended pad layout (mm)



Solder reflow conditions

Profile Feature	Pb-Free Assembly
Average ramp up rate (Ts_{MAX} to Tp)	3°C/second max.
Preheat	
• Temperature min. (Ts_{MIN})	150°C
• Temperature max. (Ts_{MAX})	200°C
• Time (ts_{MIN} to ts_{MAX})	60-120 seconds
Time maintained above:	
• Temperature (T_L)	217°C
• Time (t_L)	60-150 seconds
Peak/Classification temperature (Tp)	260°C
Time within 5°C of actual peak temperature	
Time (tp)	30 seconds max.
Ramp down rate	3°C/second max.
Time 25°C to peak temperature	8 minutes max.

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



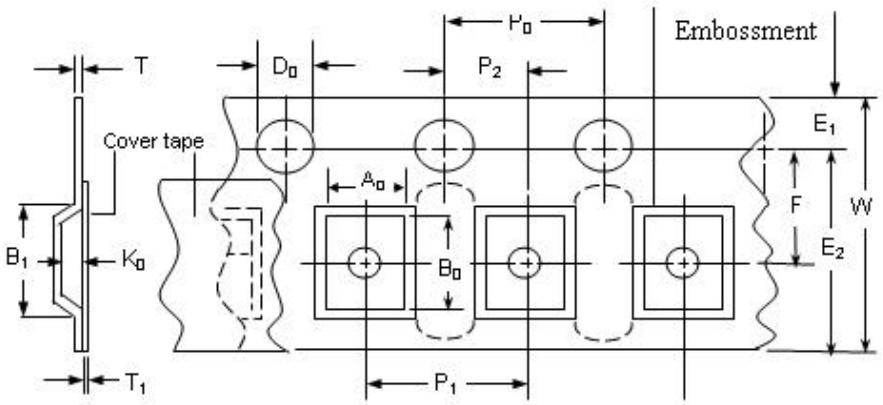
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.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

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

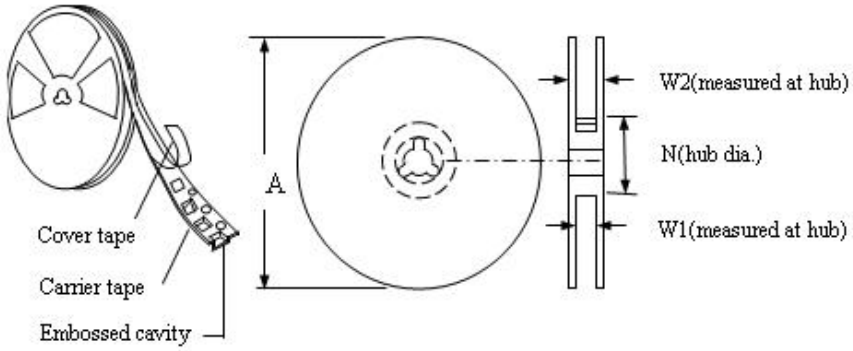
Tape Specification And Reel Dimensions

Coverning Specifications EIA 481-1(Unit:mm)	
W	8.0± 0.3
P_0	4.0 ± 0.10
P_1	4.0 ± 0.10
P_2	2.0 ± 0.05
A_0	2.82± 0.10
B_0	3.46± 0.10
D_0	1.55 ± 0.05
F	3.5 0± 0.05
E_1	1.75 ± 0.10
T	0.25 ± 0.10
Leader min.	390
Trailer min.	160
Reel Dimensions	
A	178±1.0
N	59±1
W_1	8.5+1.0/-0.2
W_2	12.0±1

EIA Tape Component Dimentions



EIA Reel Dimentions



Packaging Quantity

Model	Quantity	Model	Quantity
SMD1210-005	4000	SMD1210-075	4000
SMD1210-010	4000	SMD1210-110	4000
SMD1210-020	4000	SMD1210-110-12V	3500
SMD1210-035-30V	4000	SMD1210-150	4000
SMD1210-035	4000	SMD1210-175	3000
SMD1210-050	4000	SMD1210-200	3000

Storage

The maximum ambient temperature shall not exceed 38℃. Storage temperatures higher than 38℃ could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 60%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present

WARNING

• Use PPTC beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
• PPTC 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.
• Use PPTC with a large inductance in circuit will generate a circuit voltage (L di/dt) above the rated voltage of the PPTC.
• Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
• Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices.PPTC SMD can be cleaned by standard methods.
• Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profilecould negatively impact solderability performance of our devices.

Notes：

The specification is intended to present application,product and technical data to assist the user in selecting PPTC circuit production devices,However,users should imdependently evaluate and test the suitability of each product.JinRui makes on warranties as to the acduracy or completeness of the information and disclaims any liatility resulting form its use,JinRui's only obligations are those im the JinRui Standard Rerms and Conditions of Sale and in no case will JinRui be liable for any incidental,imdirect,or consequential damages arising from the sale,resale,or misues of its products. Jinrui reserves the right to change of update, without notice, any information contained in this specification.