

### Resettable Fuse PTC SMD1210 Series

#### Features

RoHS Compliant & Halogen Free

faster tripping, 1210 Dimension, Surface mountable, Solid state

Operation Current: 0.05A~2.0A

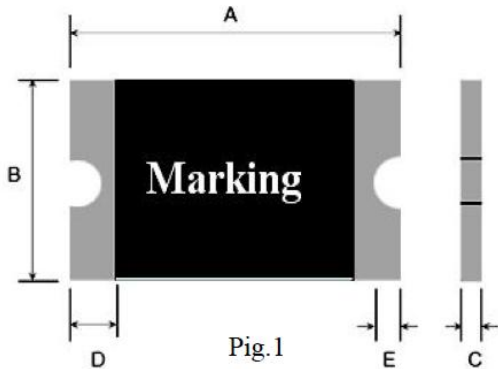
Maximum Voltage: 6V~60Vdc

Operating Temperature: -40°C to +85°C

Agency recognition:  RoHS



#### Dimensions(3225mm/ 1210 mils) Unit: mm



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

Part number	Marking	A		B		C		D	E	Certification		Delivery Time	
		Min	max	Min	Max	Min	Max	Min	Min	UL	TUV	in stock	Produce
JK-SMD1210-005	JN	3.00	3.43	2.35	2.8	0.6	1.25	0.15	0.1	-	-	3days	18days
JK-SMD1210-010	JN	3.00	3.43	2.35	2.8	0.6	1.25	0.15	0.1	-	-	3days	18days
JK-SMD1210-020	JF	3.00	3.43	2.35	2.8	0.5	1.00	0.15	0.1	-	-	3days	18days
JK-SMD1210-035	JB	3.00	3.43	2.35	2.8	0.35	0.90	0.15	0.1	-	-	3days	18days
JK-SMD1210-035-30	JB	3.00	3.43	2.35	2.8	0.35	1.00	0.15	0.1	-	-	3days	18days
JK-SMD1210-050	JG	3.00	3.43	2.35	2.8	0.35	0.90	0.15	0.1	-	-	3days	18days
JK-SMD1210-075	JA	3.00	3.43	2.35	2.8	0.35	0.85	0.15	0.1	-	-	3days	18days
JK-SMD1210-075-24	JA	3.00	3.43	2.35	2.8	0.50	1.10	0.15	0.1	-	-	3days	18days
JK-SMD1210-110	JK	3.00	3.43	2.35	2.8	0.4	1.10	0.15	0.1	-	-	3days	18days
JK-SMD1210-110-12	JK	3.00	3.43	2.35	2.8	0.4	1.40	0.15	0.1	-	-	3days	18days
JK-SMD1210-110-16	JK	3.00	3.43	2.35	2.8	0.4	1.40	0.15	0.1	-	-	3days	18days
JK-SMD1210-150	JK	3.00	3.43	2.35	2.8	0.6	1.40	0.15	0.1	-	-	3days	18days
JK-SMD1210-175	JK	3.00	3.43	2.35	2.8	0.6	1.40	0.15	0.1	-	-	3days	18days
JK-SMD1210-200	JK	3.00	3.43	2.35	2.8	0.6	1.50	0.15	0.1	-	-	3days	18days

Specifications are subject to change without notice

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### Thermal Derating Chart-IH(A)



Maximum ambient operating temperatures °C

Part Number	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
JK-SMD1210-005	0.08	0.07	0.06	0.05A	0.04	0.04	0.03	0.03	0.02
JK-SMD1210-010	0.16	0.14	0.12	0.10A	0.08	0.07	0.06	0.05	0.05
JK-SMD1210-020	0.29	0.26	0.22	0.20A	0.16	0.14	0.13	0.11	0.08
JK-SMD1210-035	0.47	0.45	0.40	0.35A	0.33	0.28	0.24	0.21	0.18
JK-SMD1210-035-30	0.47	0.45	0.40	0.35A	0.33	0.28	0.24	0.21	0.18
JK-SMD1210-050	0.76	0.67	0.58	0.50A	0.43	0.40	0.36	0.32	0.28
JK-SMD1210-075	1.00	0.97	0.86	0.75A	0.64	0.59	0.54	0.48	0.40
JK-SMD1210-075-24	1.00	0.97	0.86	0.75A	0.64	0.59	0.54	0.48	0.40
JK-SMD1210-110	1.60	1.42	1.26	1.10A	0.94	0.86	0.80	0.70	0.58
JK-SMD1210-110-12	1.60	1.42	1.26	1.10A	0.94	0.86	0.80	0.70	0.58
JK-SMD1210-110-16	1.60	1.42	1.26	1.10A	0.94	0.86	0.80	0.70	0.58
JK-SMD1210-150	2.30	2.02	1.76	1.50A	1.24	1.11	1.00	0.85	0.65
JK-SMD1210-175	2.45	2.22	2.01	1.75A	1.45	1.26	1.10	0.98	0.80
JK-SMD1210-200	2.60	2.44	2.35	2.00A	1.78	1.67	1.50	1.45	1.10

### Electrical characteristics(25°C)

Part Number	I <sub>Hold</sub>	I <sub>Trip</sub>	V <sub>max</sub>	I <sub>max</sub>	P <sub>d</sub> Max	Maximum Time to Trip		Resistance (Ω)		Certification		Delivery Time	
	A	A	DC	A	W	Current (A)	Time (S)	R <sub>imin</sub>	R <sub>1max</sub>	UL	TUV	in stock	Produce
JK-SMD1210-005	0.05	0.15	60V	100	0.6	0.25	1.50	2.8	50	-	-	3days	18days
JK-SMD1210-010	0.10	0.30	30V	100	0.6	0.50	0.60	0.8	15	-	-	3days	18days
JK-SMD1210-020	0.20	0.40	30V	100	0.6	8.0	0.02	0.40	5	-	-	3days	18days
JK-SMD1210-035	0.35	0.75	16V	100	0.6	8.0	0.20	0.20	1.3	-	-	3days	18days
JK-SMD1210-035-30	0.35	0.75	30V	100	0.6	8.0	0.20	0.20	1.3	-	-	3days	18days
JK-SMD1210-050	0.50	1.00	16V	100	0.6	8.0	0.10	0.18	0.9	-	-	3days	18days
JK-SMD1210-075	0.75	1.50	6V	100	0.6	8.0	0.10	0.07	0.4	-	-	3days	18days
JK-SMD1210-075-24	0.75	1.50	24V	100	0.6	8.0	0.10	0.07	0.45	-	-	3days	18days
JK-SMD1210-110	1.10	2.20	6V	100	0.6	8.0	0.30	0.05	0.21	-	-	3days	18days
JK-SMD1210-110-12	1.10	2.20	12V	100	0.8	8.0	0.30	0.05	0.25	-	-	3days	18days
JK-SMD1210-110-16	1.10	2.20	16V	100	0.8	8.0	0.30	0.05	0.25	-	-	3days	18days
JK-SMD1210-150	1.50	3.00	6V	100	0.8	8.0	0.50	0.03	0.21	-	-	3days	18days
JK-SMD1210-175	1.75	3.50	6V	100	0.8	8.0	0.60	0.02	0.08	-	-	3days	18days
JK-SMD1210-200	2.00	4.00	6V	100	0.8	8.0	1.00	0.015	0.07	-	-	3days	18days

### Electrical characteristics(25°C)

$I_{hold}$  = 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 ( $I_{max}$ ).

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

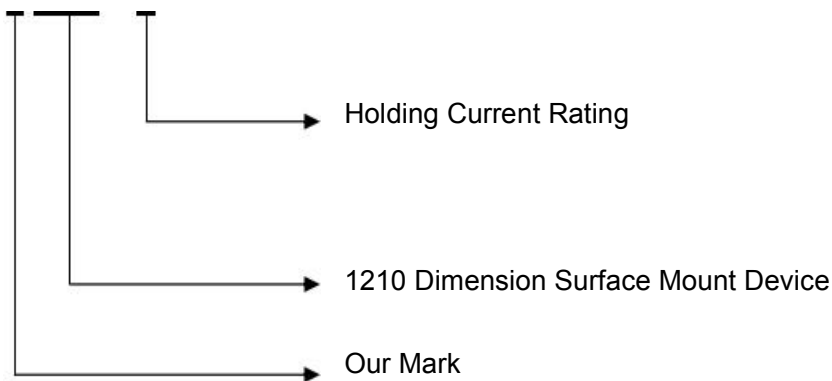
$P_d$  = Maximum power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

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

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

### Part number System

JK-SMD1210-XXX



### Test Procedures and Requirements

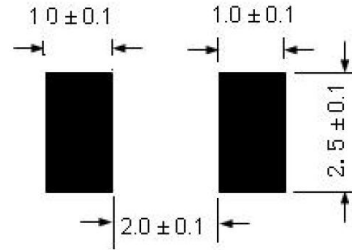
Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @ 25°C	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current, $V_{max}$ , 25°C	Tmaximum Time to Trip
Hold Current	30min ,at $I_H$	No trip
Trip Cycle Life	$V_{max}$ , $I_{max}$ , 100cycles	No arcing or burning
Trip Endurance	$V_{max}$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

### Physical Characteristics

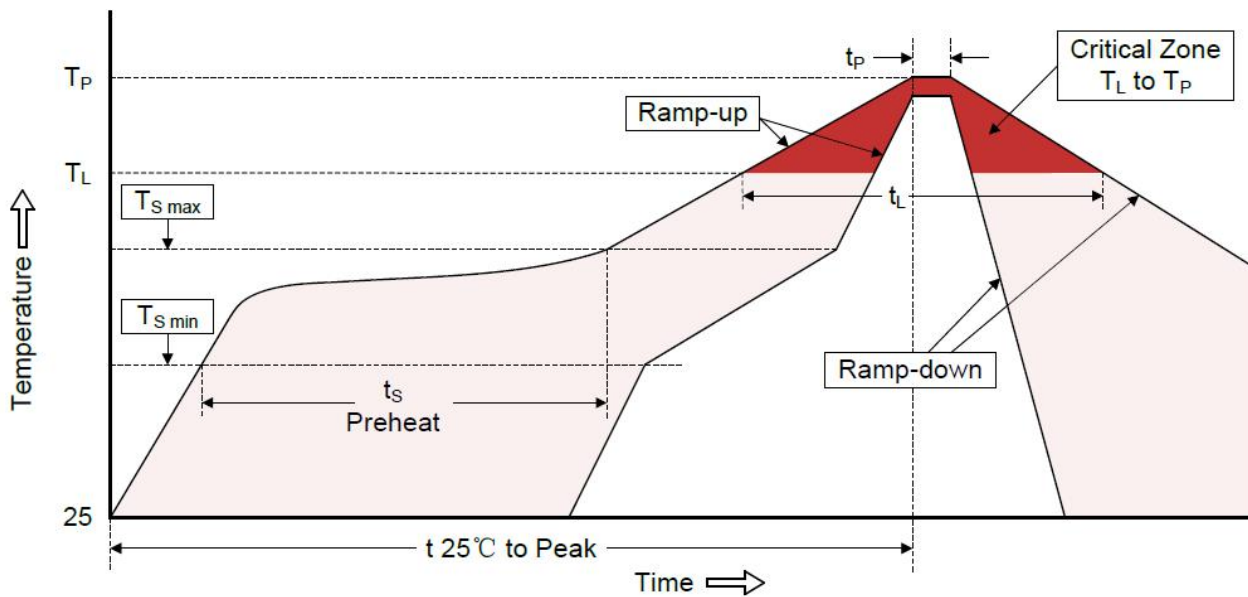
Terminal materials :	Tin-Plated Nickle-copper
Soldering zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.

### Environmental Specifications

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



### 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 (min to max) (TS min to TS max)	60-180 seconds
Time maintained above:	
-Temperature (TL)	217°C
-Time (tL)	60-150 seconds
Peak Temperature (TP)	260°C
Time within 5°C of actual Peak Temperature (tP)	20-40 seconds
Ramp-down Rate	3°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
Storage Condition	0°C~35°C, ≤70%RH

• Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free

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### Solder reflow conditions

- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010 inch)
- Device can be cleaned using standard industry methods and solvents.
- Soldering temperature profile meets RoHs leadfree process.

Note : If reflow temperatures exceed the recommended profile, devices may not meet the performance Requirements

### Tape Specification and Reel Dimensions

Tape	Symbol	Dimensions(mm)
	W	8.00±0.30
	F	3.50±0.05
	E	1.75±0.10
	D0	1.55±0.05
	D1	1.00(MIN)
	P0	4.00±0.10
	P1	4.00±0.10
	P2	2.00±0.05
	A0	2.82±0.10
	B0	3.46±0.10
	T	0.25±0.10
	K0	1.0/1.3/1.8±0.10
	Leader min	390
	Trailer min	160
Reel	C	Φ178±1.0
	D	Φ60.2±0.5
	H	11.0±0.5
	W	9.0±1.5

### Packaging Quantity

Part Number	Quantity	Part Number	Quantity	Part Number	Quantity
JK-SMD1210-005	4000PCS	JK-SMD1210-050	4000PCS	JK-SMD1210-110-16	4000PCS
JK-SMD1210-010	4000PCS	JK-SMD1210-075	4000PCS	JK-SMD1210-150	4000PCS
JK-SMD1210-020	4000PCS	JK-SMD1210-075-24	4000PCS	JK-SMD1210-175	3000PCS
JK-SMD1210-035	4000PCS	JK-SMD1210-110	4000PCS	JK-SMD1210-200	3000PCS
JK-SMD1210-035-30	4000PCS	JK-SMD1210-110-12	4000PCS	--	--

**Resettable Fuse PTC SMD1210 Series****Storage**

The maximum ambient temperature shall not exceed 38°C. Storage temperatures higher than 38°C 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 profile could 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 independently evaluate and test the suitability of each product. HUAAN makes no warranties as to the accuracy or completeness of the information and disclaims any liability resulting from its use, HUAAN's only obligations are those in the HUAAN Standard Terms and Conditions of Sale and in no case will HUAAN be liable for any incidental, indirect, or consequential damages arising from the sale, resale, or misuse of its products. HUAAN reserves the right to change or update, without notice, any information contained in this specification.