

APPROVAL SHEET

MODEL NO.: _____

CUSTOMER:

CUSTOMER'S APPROVAL:

AUTHORIZED SIGNATURE/STAMP

DATE

MANUFACTURER:

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Submitted by:

Approved by:

Date:

Performance Specification

Model	Marketing	V _{max} (V dc)	I _{max} (A)	I _{hold} @25°C (A)	I _{trip} @25°C (A)	P _d Typ. (W)	Maximum Time To Trip		Resistance		认证
							Current (A)	Time (Sec)	R _{i min} (Ω)	R _{1max} (Ω)	UL
SMD1210R005SF	RA	30.0	30	0.05	0.15	0.6	0.25	1.50	2.800	50.000	
SMD1210R005SF13.2V	RA	13.2	30	0.05	0.15	0.6	0.25	1.50	2.800	50.000	√
SMD1210R005SF60V	RA	60	30	0.05	0.15	0.6	0.25	1.50	2.800	50.000	
SMD1210R010SF	R1	30.0	30	0.10	0.30	0.6	0.50	0.60	0.800	15.000	
SMD1210R010SF13.2V	R1	13.2	30	0.10	0.30	0.6	0.50	0.60	1.600	15.000	√
SMD1210R010SF60V	R1	60	30	0.10	0.30	0.6	0.50	0.60	1.600	15.000	
SMD1210R020SF	R2	30.0	30	0.20	0.40	0.6	8.0	0.02	0.400	5.000	
SMD1210R020SF13.2V	R2	13.2	30	0.20	0.40	0.6	8.0	0.02	0.400	5.000	√
SMD1210R020SF60V	R2	60	30	0.20	0.40	0.6	8.0	0.02	0.400	5.000	
SMD1210R035SF	R3	6.0	30	0.35	0.75	0.6	8.0	0.20	0.200	1.300	√
SMD1210R035SF13.V	R3	13.2	30	0.35	0.75	0.6	8.0	0.20	0.200	1.300	√
SMD1210R035SF16v	R3	16.0	30	0.35	0.75	0.6	8.0	0.20	0.200	1.300	
SMD1210R035SF24v	R3	24.0	30	0.35	0.75	0.6	8.0	0.20	0.200	1.300	
SMD1210R050SF	R5	13.2	30	0.50	1.00	0.6	8.0	0.10	0.180	0.900	√
SMD1210R050SF16v	R5	16.0	30	0.50	1.00	0.6	8.0	0.10	0.180	0.900	
SMD1210R050SF24v	R5	24.0	30	0.50	1.00	0.6	8.0	0.10	0.180	0.900	
SMD1210R050SF30v	R5	30.0	30	0.50	1.00	0.6	8.0	0.10	0.180	0.900	
SMD1210R075SF	R7	6.0	30	0.75	1.50	0.6	8.0	0.10	0.070	0.400	√
SMD1210R075SF16v	R7	16.0	30	0.75	1.50	0.6	8.0	0.10	0.070	0.400	
SMD1210R075SF24v	R7	24.0	30	0.75	1.50	0.6	8.0	0.10	0.070	0.400	
SMD1210R110SF	R0	6.0	35	1.10	2.20	0.6	8.0	0.30	0.050	0.210	√
SMD1210R110SF16V	R0	16.0	35	1.10	2.20	0.6	8.0	0.30	0.050	0.210	
SMD1210R150SF	RX	6.0	35	1.50	3.00	0.6	8.0	0.50	0.030	0.110	√
SMD1210R150SF12v	RX	12.0	35	1.50	3.00	0.6	8.0	0.50	0.030	0.110	
SMD1210R150SF16v	RX	16.0	35	1.50	3.00	0.6	8.0	0.50	0.030	0.110	
SMD1210R175SF	RY	6.0	35	1.75	3.50	0.8	8.0	0.60	0.020	0.080	√
SMD1210R200SF	RZ	6.0	35	2.00	4.00	0.8	8.0	1.00	0.015	0.070	√
SMD1210R200SF16V	RZ	16.0	35	2.00	4.00	0.8	8.0	1.00	0.015	0.070	
SMD1210R260SF	R—	6.0	35	2.60	5.20	0.8	8.0	2.00	0.010	0.060	

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}).

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.

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

CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.

Environmental Specifications

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions : - 40 °C to +85 °C		
Maximum surface temperature of the device in the tripped state is 125 °C		

Agency Approval and Environmental Compliance

Agency	File Number	Regulation	Standard
UL	E486890		2002/95/EC
TUV	pending		EN14582

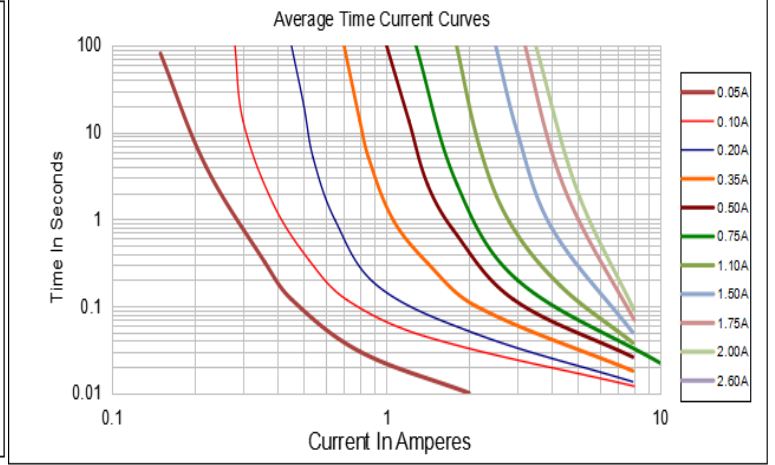
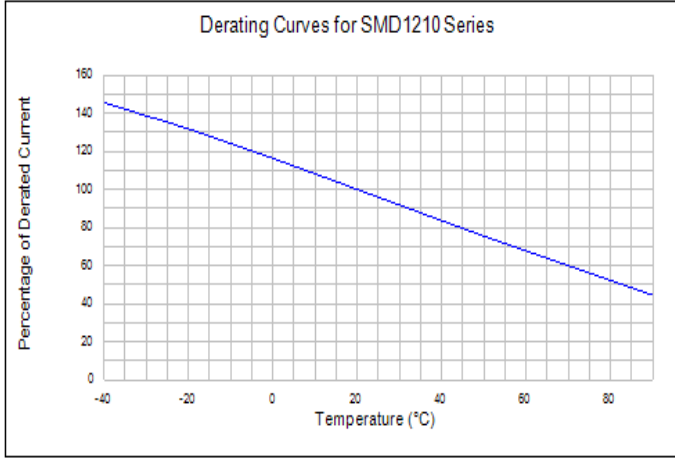
Thermal Derating Chart

Recommended Hold Current(A) at Ambient Temperature(°C)

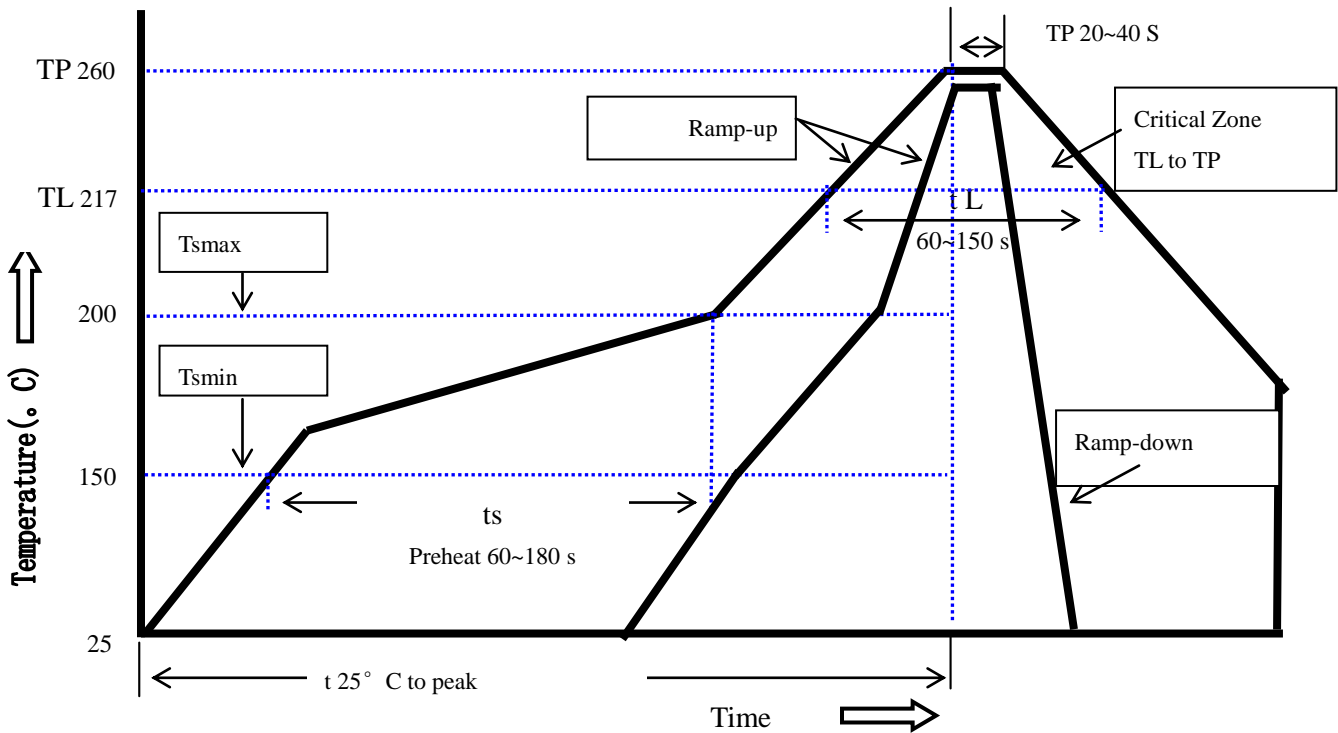
Model	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD1210R005SF	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02
SMD1210R010SF	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
SMD1210R020SF	0.29	0.26	0.22	0.20	0.16	0.14	0.13	0.11	0.08
SMD1210R035SF	0.47	0.45	0.40	0.35	0.33	0.28	0.24	0.21	0.18
SMD1210R050SF	0.76	0.67	0.58	0.50	0.43	0.40	0.36	0.32	0.28
SMD1210R075SF	1.00	0.97	0.86	0.75	0.64	0.59	0.54	0.48	0.40
SMD1210R110SF	1.69	1.48	1.29	1.10	0.88	0.76	0.65	0.57	0.43
SMD1210R150SF	2.13	1.92	1.71	1.50	1.26	1.14	1.01	0.89	0.71
SMD1210R175SF	2.54	2.30	2.02	1.75	1.47	1.33	1.18	1.05	0.86
SMD1210R200SF	2.90	2.63	2.31	2.00	1.68	1.52	1.35	1.20	0.98
SMD1210R260SF	3.43	3.22	2.93	2.60	2.23	2.03	1.87	1.57	1.35

Thermal Derating Curve

Average Time-Current Curve



Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate(Ts max to T p)	3°C/second mac.
Preheat	
-Temperature Min(Ts min)	150°C

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SMD1210 HF Series Surface Mount PTC Devices

-Temperature Max(Ts max)	200°C
-Time(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
Ramp-Down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max
Storage Condition	0°C~30°C,30%~60%RH

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

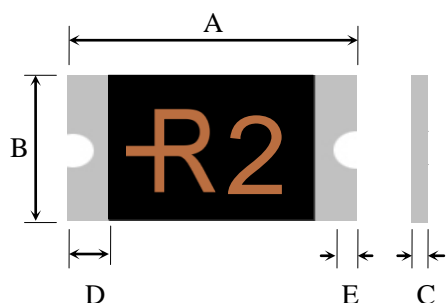
Recommended maximum paste thickness is 0.25mm

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

Physical Dimensions(mm.)



Model	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SMD1210R005SF	3.00	3.50	2.35	2.80	0.60	1.20	0.30	0.10
SMD1210R005SF13.2V	3.00	3.50	2.35	2.80	0.60	1.20	0.30	0.10
SMD1210R005SF60V	3.00	3.50	2.35	2.80	0.60	1.20	0.30	0.10
SMD1210R010SF	3.00	3.50	2.35	2.80	0.60	1.20	0.30	0.10
SMD1210R010SF13.2V	3.00	3.50	2.35	2.80	0.60	1.20	0.30	0.10
SMD1210R010SF60V	3.00	3.50	2.35	2.80	0.60	1.20	0.30	0.10
SMD1210R020SF	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R020SF13.2V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R020SF60V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R035SF	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R035SF13.2V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R035SF16V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10

R HuiZhou DaRong Electronic Technology CO.,LTD
SMD1210 HF Series Surface Mount PTC Devices

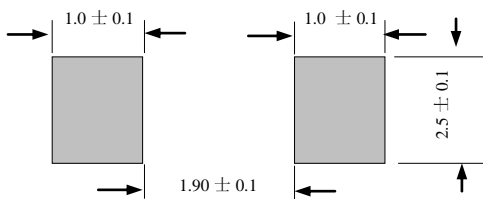
SMD1210R035SF24V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R050SF	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R050SF16V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R050SF24V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R050SF30V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R075SF	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R075SF16V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R075SF24V	3.00	3.50	2.35	2.80	0.50	1.10	0.30	0.10
SMD1210R110SF	3.00	3.50	2.35	2.8	0.50	1.10	0.30	0.10
SMD1210R110SF16V	3.00	3.50	2.35	2.8	0.50	1.10	0.30	0.10
SMD1210R150SF	3.00	3.50	2.35	2.80	0.50	1.20	0.30	0.10
SMD1210R150SF12V	3.00	3.50	2.35	2.80	0.50	1.20	0.30	0.10
SMD1210R150SF16V	3.00	3.50	2.35	2.80	0.50	1.20	0.30	0.10
SMD1210R175SF	3.00	3.50	2.35	2.80	0.80	1.40	0.30	0.10
SMD1210R200SF	3.00	3.50	2.35	2.80	0.80	1.40	0.30	0.10
SMD1210R200SF16V	3.00	3.50	2.35	2.80	0.80	1.40	0.30	0.10
SMD1210R260SF	3.00	3.50	2.35	2.80	1.00	1.60	0.30	0.10

Termination Pad Characteristics

Terminal pad materials: Tin-plated Nickel-Copper

Terminal pad solder ability: Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3.

Recommended Pad Layout (mm.)



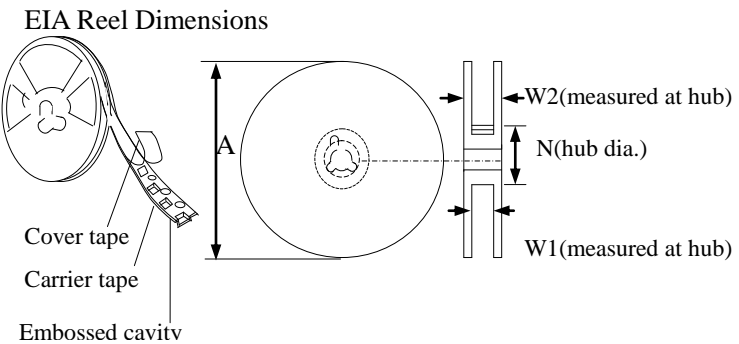
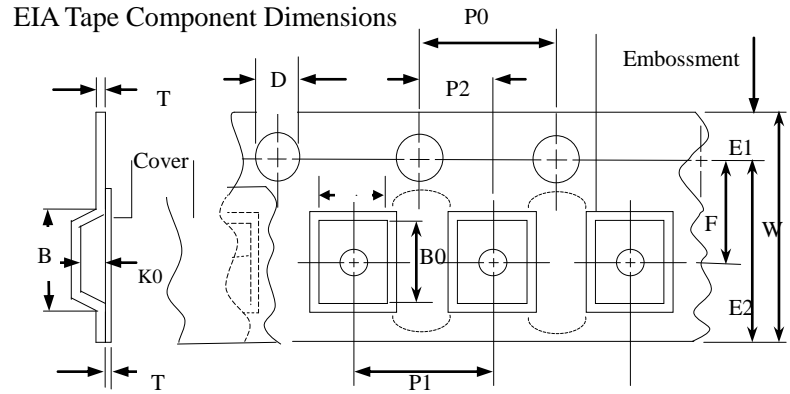
Packaging Quantity

Part Number	Quantity
SMD1210	4000 pcs/reel

Tape & reel packaging per EIA481-1

Tape And Reel Specifications (mm)

Governing Specifications	
Specifications	EIA 481-1
W	8.15 ± 0.2
P0	4.0 ± 0.10
P1	4.0 ± 0.10
P2	2.0 ± 0.05
A0	2.82 ± 0.10
B0	3.52 ± 0.10
B1max.	4.35
D0	1.50 + 0.1, -0
F	3.5 ± 0.05
E1	1.75 ± 0.10
E2min.	6.25
T	0.6
T1max.	0.1
K0	1.04 ± 0.1
Leader min.	390
Trailer min.	160
Reel Dimensions	
A max.	178
N min.	60
W1	9 ± 0.5
W2	12.6 ± 0.5



Storage And Handling

- Storage conditions: 30°C max, 30%~60% R.H.
- Devices may not meet specified performance if storage conditions are exceeded.

Part Number System

SMD 1210 R □□□ S F □□ V

