

Performance Specification

| Model | Marking | V _{max} | I _{max} | I _{hold} | I _{trip} | P _d | Maximum Time To Trip | | Resistance | |
|------------------|---------|------------------|------------------|-------------------|-------------------|----------------|----------------------|---------------|---------------------------|--------------------------|
| | | (V dc) | (A) | @25°C (A) | @25°C (A) | Typ. (W) | Current (A) | Time (Sec) | R _{i min} (Ω) | R _{1max} (Ω) |
| SMD1210R005SF | RA | 30.0 | 100 | 0.05 | 0.15 | 0.6 | 0.25 | 1.50 | 2.800 | 50.000 |
| SMD1210R010SF | R1 | 30.0 | 100 | 0.10 | 0.30 | 0.6 | 0.50 | 0.60 | 0.800 | 15.000 |
| SMD1210R020SF | R2 | 30.0 | 100 | 0.20 | 0.40 | 0.6 | 8.0 | 0.02 | 0.400 | 5.000 |
| SMD1210R035SF | R3 | 6.0 | 100 | 0.35 | 0.75 | 0.6 | 8.0 | 0.20 | 0.200 | 1.300 |
| SMD1210R035SF16v | R3 | 16.0 | 100 | 0.35 | 0.75 | 0.6 | 8.0 | 0.20 | 0.200 | 1.300 |
| SMD1210R050SF | R5 | 13.2 | 100 | 0.50 | 1.00 | 0.6 | 8.0 | 0.10 | 0.180 | 0.900 |
| SMD1210R050SF24v | R5 | 24.0 | 100 | 0.50 | 1.00 | 0.6 | 8.0 | 0.10 | 0.180 | 0.900 |
| SMD1210R075SF | R7 | 6.0 | 100 | 0.75 | 1.50 | 0.6 | 8.0 | 0.10 | 0.070 | 0.400 |
| SMD1210R075SF16v | R7 | 16.0 | 100 | 0.75 | 1.50 | 0.6 | 8.0 | 0.10 | 0.070 | 0.400 |
| SMD1210R110SF | R0 | 6.0 | 100 | 1.10 | 2.20 | 0.6 | 8.0 | 0.30 | 0.050 | 0.210 |
| SMD1210R110SF | R0 | 16.0 | 35 | 1.10 | 2.20 | 0.6 | 8.0 | 0.30 | 0.050 | 0.210 |
| SMD1210R150SF | RX | 6.0 | 100 | 1.50 | 3.00 | 0.6 | 8.0 | 0.50 | 0.030 | 0.110 |
| SMD1210R150SF12v | RX | 12.0 | 100 | 1.50 | 3.00 | 0.6 | 8.0 | 0.50 | 0.030 | 0.110 |
| SMD1210R175SF | RY | 6.0 | 100 | 1.75 | 3.50 | 0.8 | 8.0 | 0.60 | 0.020 | 0.080 |
| SMD1210R200SF | RZ | 6.0 | 100 | 2.00 | 4.00 | 0.8 | 8.0 | 1.00 | 0.015 | 0.070 |
| SMD1210R260SF | R— | 6.0 | 100 | 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

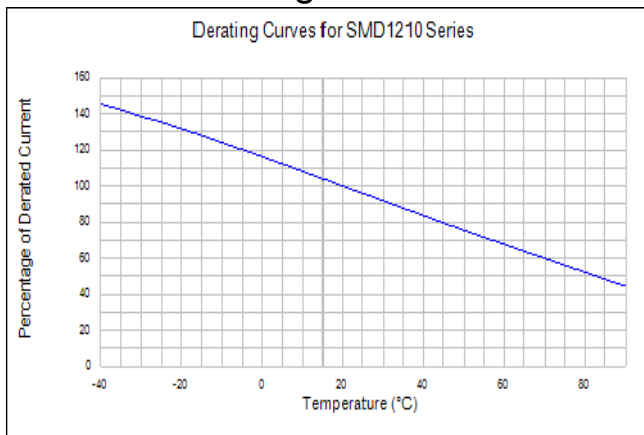
| Agency | File Number | Regulation | Standard |
|--------|-------------|---|------------|
| UL | pending |  | 2002/95/EC |
| TUV | pending |  | EN14582 |

Thermal Derating Chart

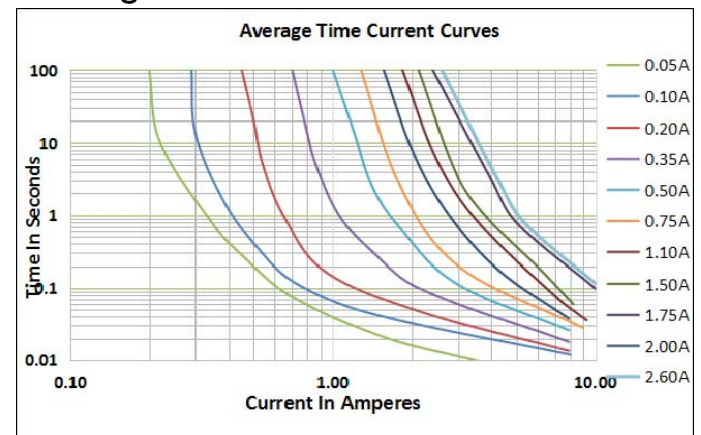
Recommended Hold Current(A) at Ambient Temperature(°C)

| 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 |

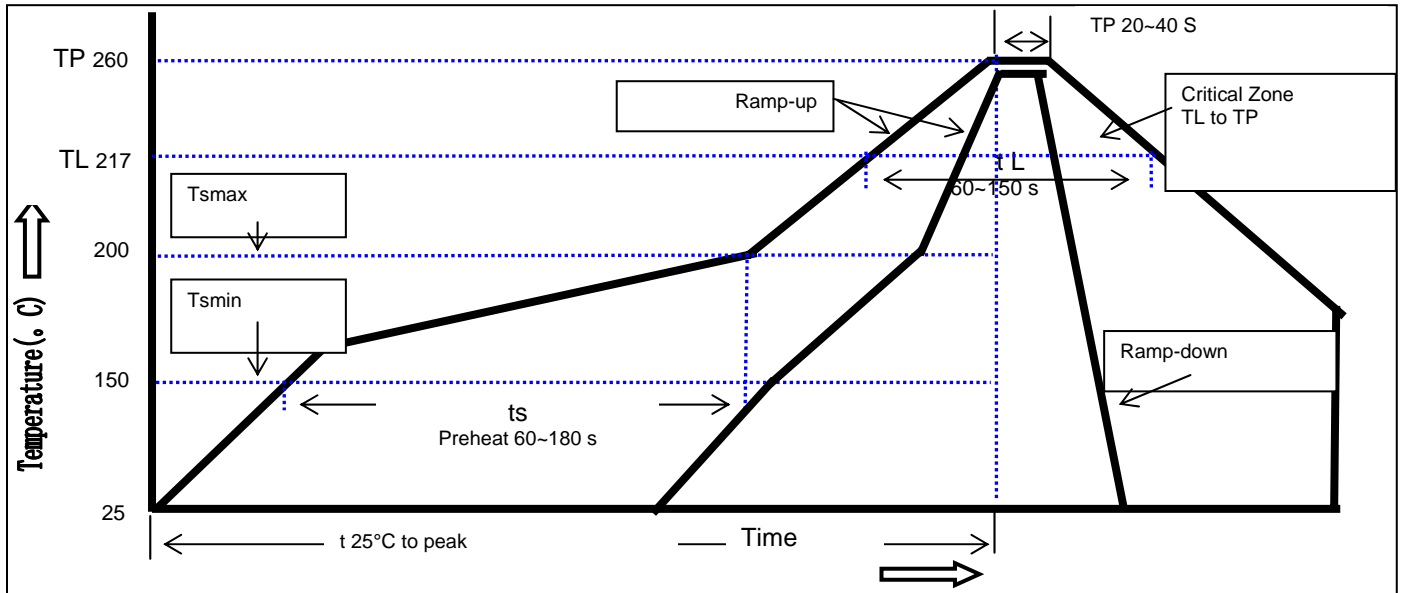
Thermal Derating Curve



Average Time-Current Curve



Soldering Parameters



| Profile Feature | Pb-Free Assembly |
|---|--------------------|
| Average Ramp-Up Rate(T _s max to T _p) | 3°C/second max. |
| Preheat | |
| -Temperature Min(T _s min) | 150°C |
| -Temperature Max(T _s max) | 200°C |
| -Time(T _s min to T _s max) | 60~180 seconds |
| Time maintained above: | |
| -Temperature(T _L) | 217°C |
| -Time(t _L) | 60~150 seconds |
| Peak Temperature(T _p) | 260°C |
| Ramp-Down Rate | 6°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max |
| Storage Condition | 0°C~35°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.

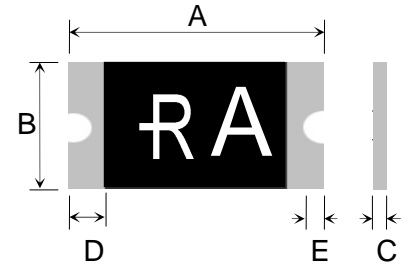
FSMD1210 Series

SMD Polyswith Resettable Devices



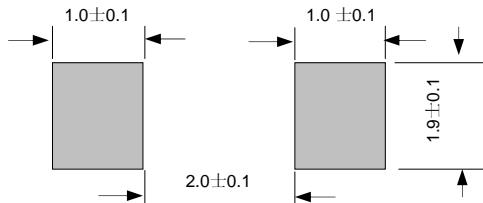
Physical Dimensions(mm.)

| 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 |
| 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 |
| 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 |
| 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 |
| SMD1210R035SF16V | 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 |
| SMD1210R075SF | 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 |
| SMD1210R150SF | 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 |
| 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

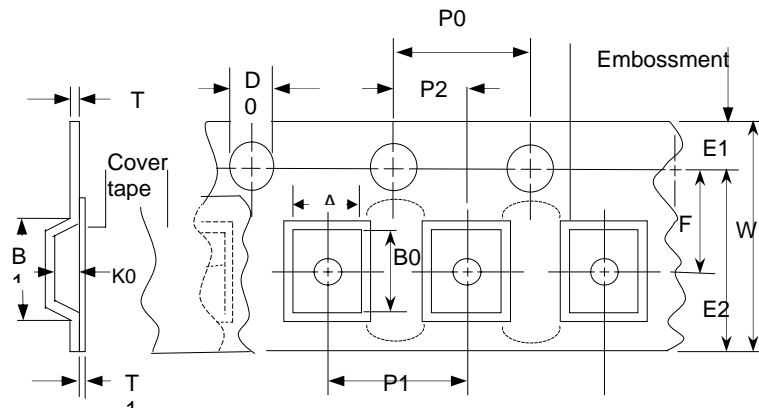
| Part Number | Quantity |
|-------------|---------------|
| SMD1210 | 4000 pcs/reel |

Tape & reel packaging per EIA481-1

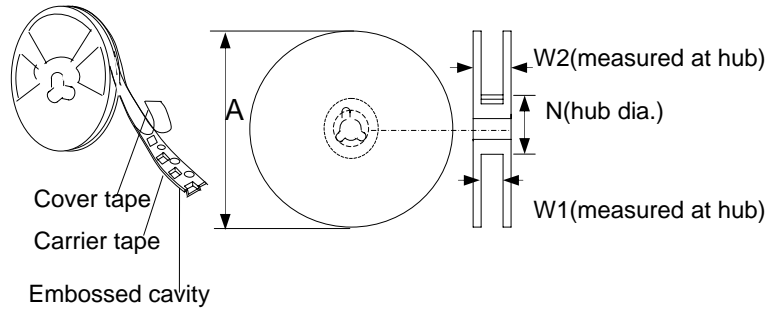
Tape And Reel Specifications (mm)

| Governing Specifications | 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: 35°C max, 30%~60% R.H. | |
| · Devices may not meet specified performance if storage conditions are exceeded. | |

EIA Tape Component Dimensions

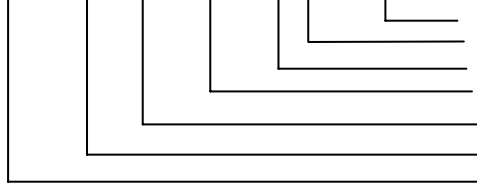


EIA Reel Dimensions



Part Number System

SMD 1210 R □□□ SF □□V



- Special voltage Rating(Optional)
- Lead-Free
- Tin-plated Nickel-Copper
- Holding Current Rating
- LOGO
- Device Dimensions: Length/width(Unit:1/100 inch) Size 3225 mm / 1210 inch
- Surface Mount Device