APPROVAL SHEET

MODEL NO.： SMD0402R010SF

CUSTOMER：

CUSTOMER'S APPROVAL：

AUTHORIZED SIGNATURE/STAMP DATE

MANUFACTURER:

The Fourth Industrial Zone,Luokeng Village, Xiaotie District, Xiaojinkou Town, Huizhou City, Guangdong Province, China
Tel: 0752-7213069/7213070
Fax: 0752-7213065

Submitted by:
Approved by:
Date:

Performance Specification

Model	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	
						Current (A)	Time (Sec)	$R_{i\ min}$ (Ω)	R1max (Ω)
SMD0402R010SF	6.0	40	0.10	0.30	0.5	0.50	1.00	0.15	2.800

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 (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.
Pd = 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.
R1max = 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	條件	
Passive aging	+85°C, 1000 hrs.	
Thermal shock	+85°C to -40°C,	
Resistance to solvent	MIL-STD-202,Method 215	电阻不變化
Vibration	MIL-STD-202,Method 201	电阻不變化
操作條件環境： - 40 ° C~+85° C		
在跳閘狀態下產品的表面最高溫度為125° C		

Agency Approval and Environmental Complianc

Agency	File Number
UL	pending
TUV	pending

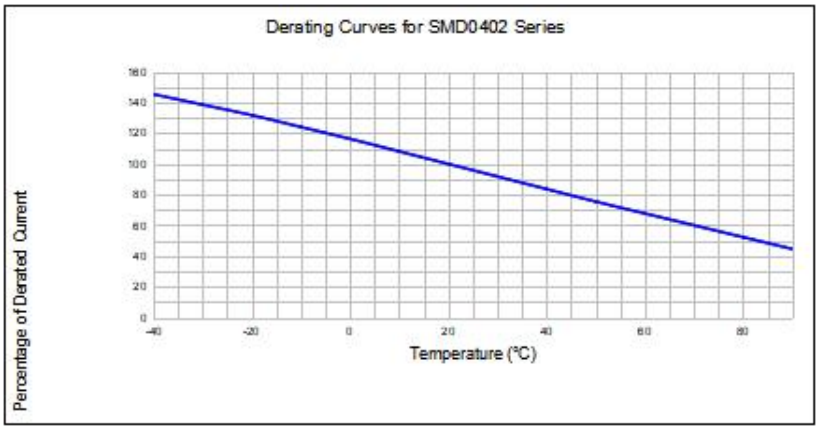
Regulation	Standard
Pb RoHS	2011/65/EU
HF	EN14582

Thermal Derading Chart

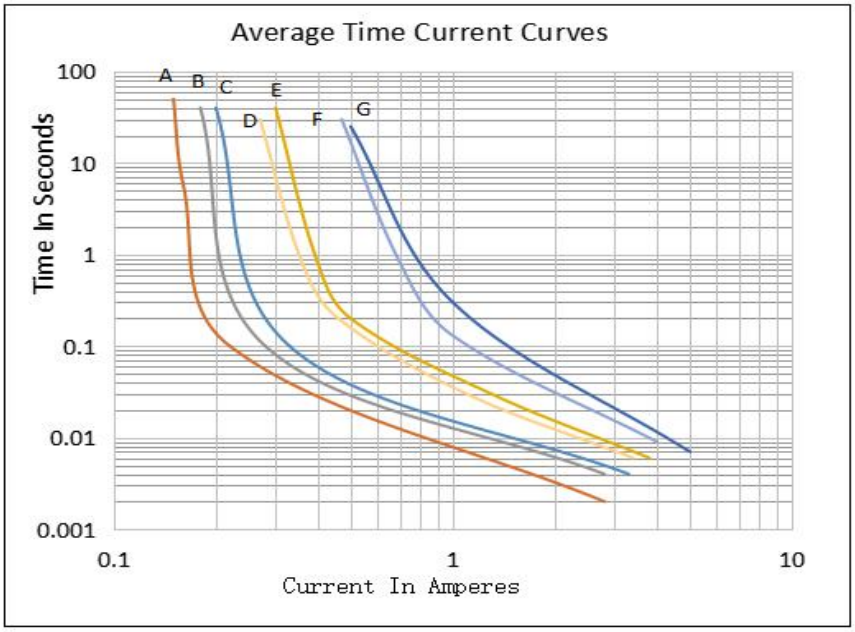
Recommended Hold Current(A) at Ambient Temperature(°C)

Model	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD0402R010SF	0.14	0.13	0.11	0.10	0.09	0.08	0.07	0.06	0.05

Thermal Derating Curve

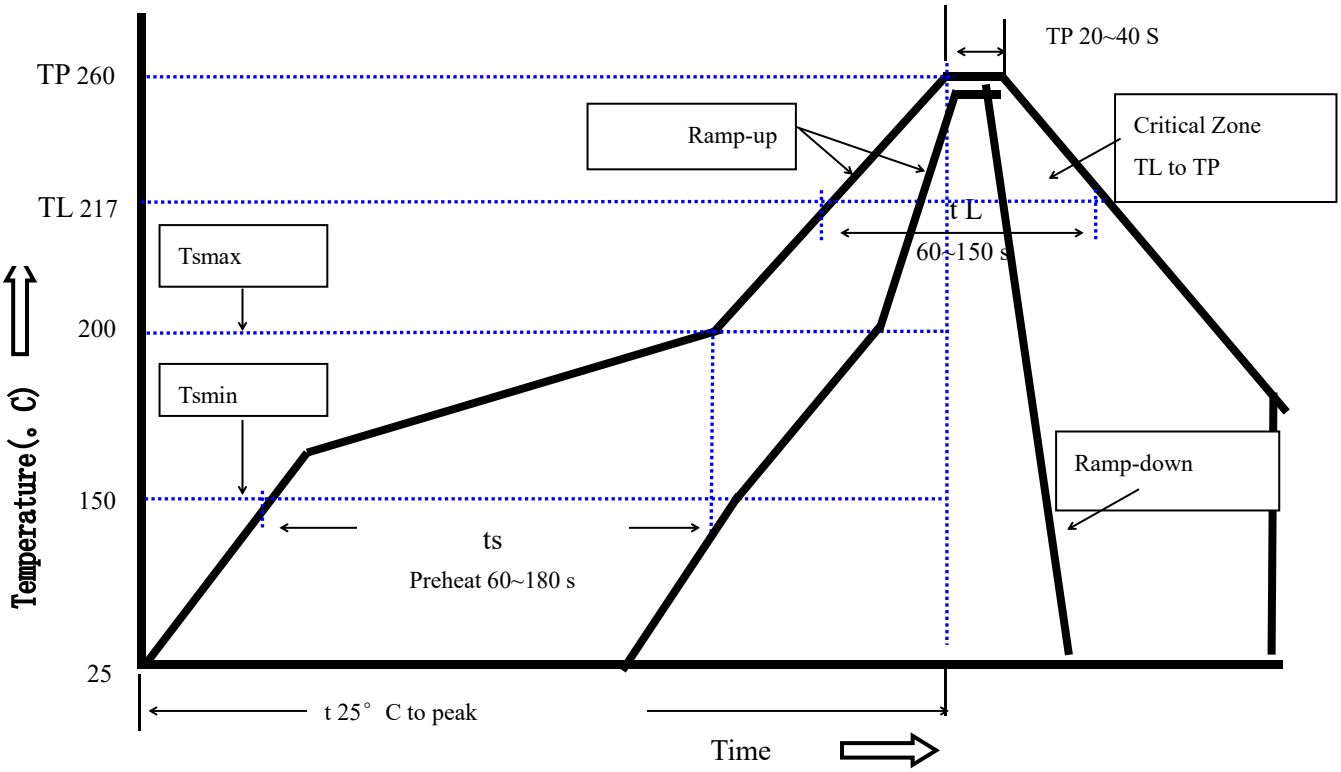


Average Time-Current Curve



A=0402R004
B=0402R005
C=0402R0075
D=0402R009
E=0402R010
F=0402R018
G=0402R020

Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate(Ts max to T p)	3℃/second mac.
Preheat	
-Temperature Min(Ts min)	150℃
-Temperature Max(Ts max)	200℃
-Time(Ts min to Ts max)	60~180 seconds
Time maintained above:	
-Temperature(TL)	217℃
-Time(tL)	60~150 seconds
Peak Temperature(Tp)	260℃
Ramp-Down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max
Storage Condition	遮光密封

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

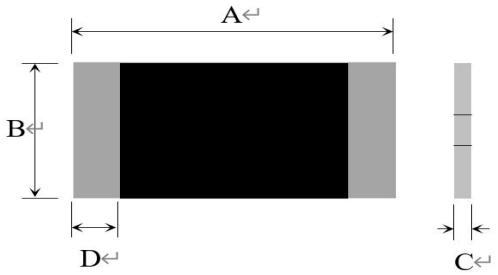
Recommended maximum paste thickness is 0.25mm

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.)



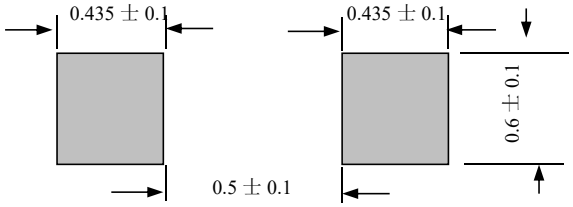
型號	A		B		C		D
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
SMD0402R010SF	0.85	1.15	0.35	0.65	0.4	1.0	0.10

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.)



注：在此印锡面积条件下，推荐钢网厚度为≧0.12MM(钢网厚度不够要增大刷锡面积）

Packaging Quantity

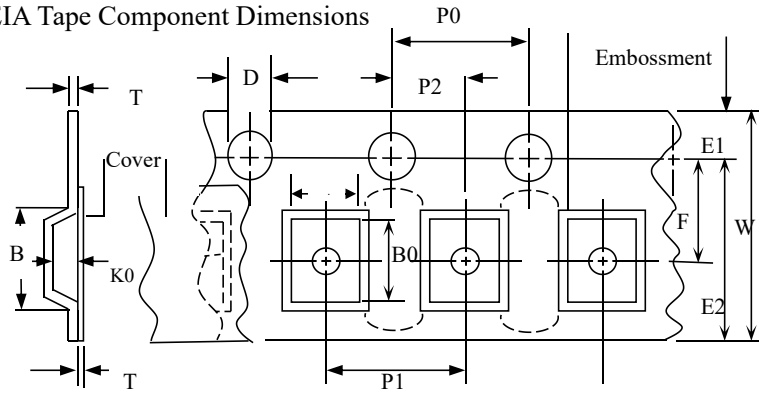
Part Number	Quantity
SMD0402HF Series	10,000 pcs/reel

Tape & reel packaging per EIA481-1

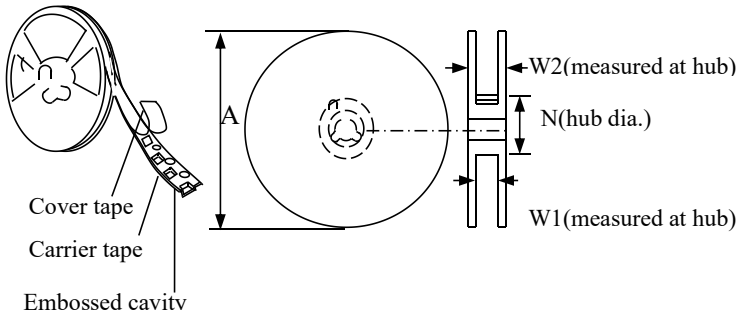
Tape And Reel Specifications (mm)

Governing Specifications	EIA 481-1
W	8.0 ± 0.2
P_0	4.0 ± 0.10
P_1	4.0 ± 0.10
P_2	2.0 ± 0.05
A_0	0.65 ± 0.10
B_0	1.15 ± 0.10
D_0	1.55 + 0.05
F	3.5 ± 0.05
E_1	1.75 ± 0.10
E_2min.	6.25
T	0.20
T_1max.	0.1
K_0	0.60/0.75 ± 0.1
Leader min.	390
Trailer min.	160
卷軸規格	
A max.	178
N min.	60
W_1	9.0 ± 0.5
W_2	12.0 ± 0.05
W	8.0 ± 0.2

EIA Tape Component Dimensions



EIA Reel Dimensions



Storage And Handling

· Storage conditions：遮光密封

· Devices may not meet specified performance if storage conditions are exceeded.

Part Number System

SMD 0402 R □□□ S F □□ V

- special voltage Rating(Optional)
- Lead-Free
- Tin-plated Nickel-Copper
- Holding Current Rating
- Da Rong
- Device Dimensions: Length/width(Unit:1/100 inch) Size1608mm / 0603 inch
- Surface Mount Device

注意事项

PPTC 使用注意事项：

• PPTC 为热敏元件，对环境温度比较敏感，建议在 PPTC 周围不要设计热源元件，环境温度最高控制在 85℃，尽量减少外部热源的影响，否则会影响产品性能导致焊后电阻大于规格。

• 请在规格书规定的参数下(<10%)使用，超出电压电流规格值，会导致 PPTC 出现电弧，阻值升高，甚至烧片。

• 规格书的电气特性，均是基于在大容指定测试板经过一次回流焊之后的测试；如果客户有二次回流焊或者注塑点胶等其他热工序，会对上述参数有一定程度的衰减，需要验证其适用性。

. PPTC 设备在故障状态下会发生热膨胀。如果 PPTC 装置安装或放置在 PPTC 装置与周围材料（如覆盖材料、包装材料、封装材料等）之间的空间不足的应用中，将对热膨胀产生抑制作用。挤压、扭曲、弯曲和其他类型的机械应力也会对 PPTC 设备的性能产生不利影响，不得使用或施加。

• PPTC 贴片产品是为 SMT 工艺设计的封装形式，焊接工艺为回流焊；要求客户遵守我们推荐的焊盘布局和回流焊配置文件。不正确的电路板布局或回流配置可能会对 PPTC 的可焊性性能产生负面影响。焊接工艺可参考大容推荐的回流焊曲线。如果回流焊温度超过推荐的值，PPTC 将有可能受到损伤。使用手工焊及波峰焊接 PPTC 可能会导致产品焊后电阻超出规格。

• 某些注塑料、单组份、双组份固化胶粘剂、硅胶、特种润滑理基脂、侵蚀性溶剂、石蜡污染 PPTC 材料破坏芯片，需要对注塑料胶料、石蜡等材料牌号以及应用参数（如温度、时间等）进行验证，以确保产品及工艺的匹配性，确认不会影响 PPTC 性能之后方可使用。PPTC 在充电线端应用中，建议使用 PP 类材料做内膜，禁止使用 TPE 类与 PVC 类等材料做内膜。

• PPTC 贴装或使用过程中，不建议使用洗板水或其他清洗剂进行清洗。如必须使用，需要验证各类清洗剂、洗板水以及溶剂的适用性，确认不会影响 PPTC 性能之后方可使用。已知对 PPTC 有影响的化学药品包括但不仅限于醚类、苯类、酮类以及脂类等较强溶解性、破坏性的有机化合物，清洗后将产品放置于敞开的环境中至少 24 小时，将残留的溶剂进行充分的挥发。

• 装配过程中，避免用暴力砸、挤、压、拉、扭、刺等方式作用 PPTC 本体，以免引起 PPTC 性能衰减。

• PPTC 元件是为电路中偶尔出现的过流而设计的，不建议用在连续且持续过流、重复故障的电路中（此类故障情况可能是由连接器的错误引脚连接引起的），或过大范围跳闸事件可能发生时，不得使用。

• 大容 SMD PPTC 产品为遮光密封包装。客户如在库存中发现有包装破损的，立即将产品隔离处理；使用时如有余料，需恢复之前包装状态，做遮光密封保存，否则会影响产品性能导致焊后电阻大于规格。

• 产品废弃时，可按照一般电子废弃物处理，具体材料组成可参见 MSDS

如果以上注意事项的任何项目未得到遵守，则免除所有的责任。