

## »Performance Specification

Model	Marking	V <sub>max</sub>	I <sub>max</sub>	I <sub>hold</sub>	I <sub>trip</sub>	P <sub>d</sub>	Maximum		Resistance	
							Time To Trip		R <sub>i min</sub>	R <sub>1max</sub>
							Current	Time		
	g	(V dc)	(A)	@25°C	@25°C	Typ.	(A)	(Sec)	(Ω)	(Ω)
SMD0603-001/60N	X	60	20	0.01	0.03	0.5	0.2	1.00	15.000	100.000
SMD0603-002/60N	Y	60	20	0.02	0.06	0.5	0.2	1.00	12.000	70.000
SMD0603-002/09N	Y	9	20	0.02	0.06	0.5	0.2	1.00	12.000	70.000
SMD0603-003/30N	Z	30	20	0.03	0.09	0.5	0.2	1.00	6.000	50.000
SMD0603-003/09N	Z	9	20	0.03	0.09	0.5	0.2	1.00	6.000	50.000
SMD0603-004/15N	-	15.0	20	0.04	0.12	0.5	0.20	1.00	4.000	40.000
SMD0603-005/15N	-	15.0	20	0.05	0.15	0.5	0.25	1.00	3.800	30.000
SMD0603-005/30N	-	30.0	20	0.05	0.15	0.5	0.25	1.00	3.800	30.000
SMD0603-010/15N	1	15.0	35	0.10	0.30	0.5	0.5	1.00	0.900	6.000
SMD0603-010/09N	1	9.0	35	0.10	0.30	0.5	0.5	1.00	0.900	6.000
SMD0603-020/09N	2	9.0	35	0.20	0.50	0.5	1.0	0.60	0.550	3.500
SMD0603-020/16N	2	16.0	35	0.20	0.50	0.5	1.0	0.60	0.550	3.500
SMD0603-025/09N	2	9.0	35	0.25	0.55	0.5	8.0	0.08	0.500	3.000
SMD0603-025/16N	2	16.0	35	0.25	0.55	0.5	8.0	0.08	0.500	3.000
SMD0603-035/06N	3	6.0	35	0.35	0.75	0.5	8.0	0.10	0.200	1.000
SMD0603-040/06N	5	6.0	35	0.40	0.80	0.5	8.0	0.10	0.150	0.900
SMD0603-050/06N	5	6.0	35	0.50	1.00	0.5	8.0	0.10	0.100	0.800
SMD0603-050/12N	5	12.0	35	0.50	1.00	0.5	8.0	0.10	0.100	0.800
SMD0603-060/06N	7	6.0	35	0.60	1.20	0.5	8.0	0.10	0.080	0.600
SMD0603-065/06N	7	6.0	35	0.65	1.30	0.5	8.0	0.10	0.070	0.550
SMD0603-075/06N	7	6.0	35	0.75	1.40	0.5	8.0	0.10	0.060	0.450
SMD0603-100/06N	0	6.0	35	1.00	2.00	0.5	8.0	0.10	0.050	0.300

V<sub>max</sub> = Maximum operating voltage device can withstand without damage at rated current (I<sub>max</sub>).

I<sub>max</sub> = Maximum fault current device can withstand without damage at rated voltage (V<sub>max</sub>).

I<sub>hold</sub> = Hold Current. Maximum current device will not trip in 25°C still air.

I<sub>trip</sub> = Trip Current. Minimum current at which the device will always trip in 25°C still air.

P<sub>d</sub> = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

R<sub>i min/max</sub> = Minimum/Maximum device resistance prior to tripping at 25°C.

R<sub>1max</sub> = Maximum device resistance is measured one hour post reflow.

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

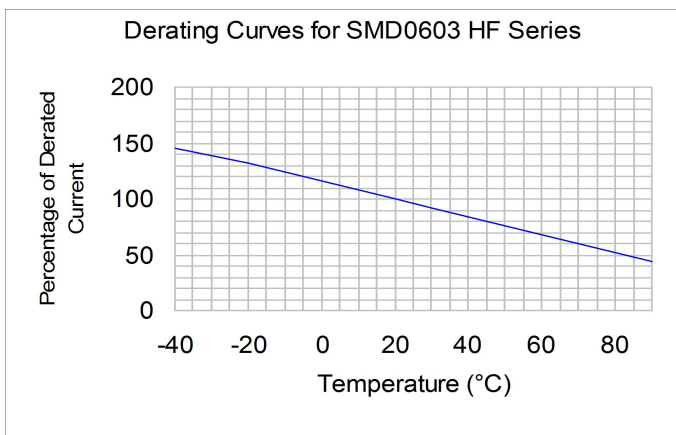
## »Environmental Specifications

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		

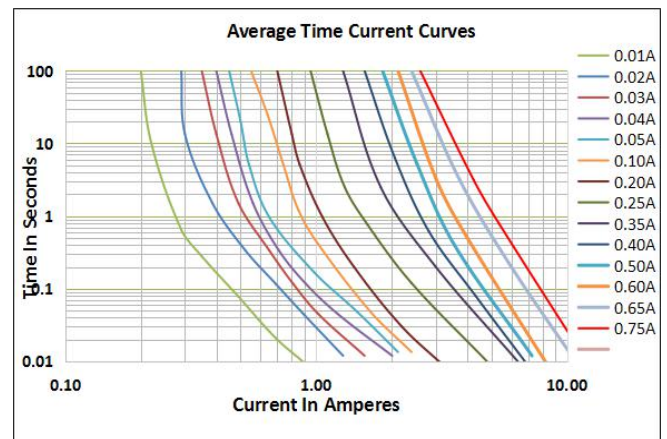
»Thermal Derating Chart Recommended Hold Current(A) at Ambient Temperature(°C)

Model	Ambient Operation Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD0603-001N	0.016	0.014	0.012	0.010	0.008	0.007	0.006	0.005	0.0035
SMD0603-002N	0.031	0.027	0.024	0.020	0.016	0.014	0.012	0.011	0.007
SMD0603-003N	0.047	0.041	0.036	0.030	0.024	0.021	0.018	0.016	0.0108
SMD0603-004N	0.052	0.048	0.044	0.040	0.032	0.028	0.024	0.020	0.012
SMD0603-005N	0.065	0.060	0.055	0.050	0.040	0.035	0.031	0.025	0.015
SMD0603-010N	0.13	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.03
SMD0603--020N	0.27	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
SMD0603-025N	0.32	0.29	0.27	0.25	0.21	0.18	0.16	0.14	0.10
SMD0603-035N	0.47	0.41	0.38	0.35	0.29	0.26	0.24	0.20	0.14
SMD0603-040N	0.54	0.47	0.43	0.40	0.33	0.29	0.27	0.22	0.16
SMD0603-050N	0.67	0.59	0.54	0.50	0.41	0.37	0.34	0.29	0.20
SMD0603-060N	0.81	0.70	0.651	0.60	0.49	0.44	0.41	0.34	0.24
SMD0603-065N	0.87	0.76	0.71	0.65	0.54	0.48	0.44	0.37	0.26
SMD0603-075N	0.98	0.85	0.81	0.75	0.60	0.54	0.44	0.40	0.31
SMD0603-100N	1.19	1.13	1.08	1.00	0.80	0.72	0.59	0.54	0.43

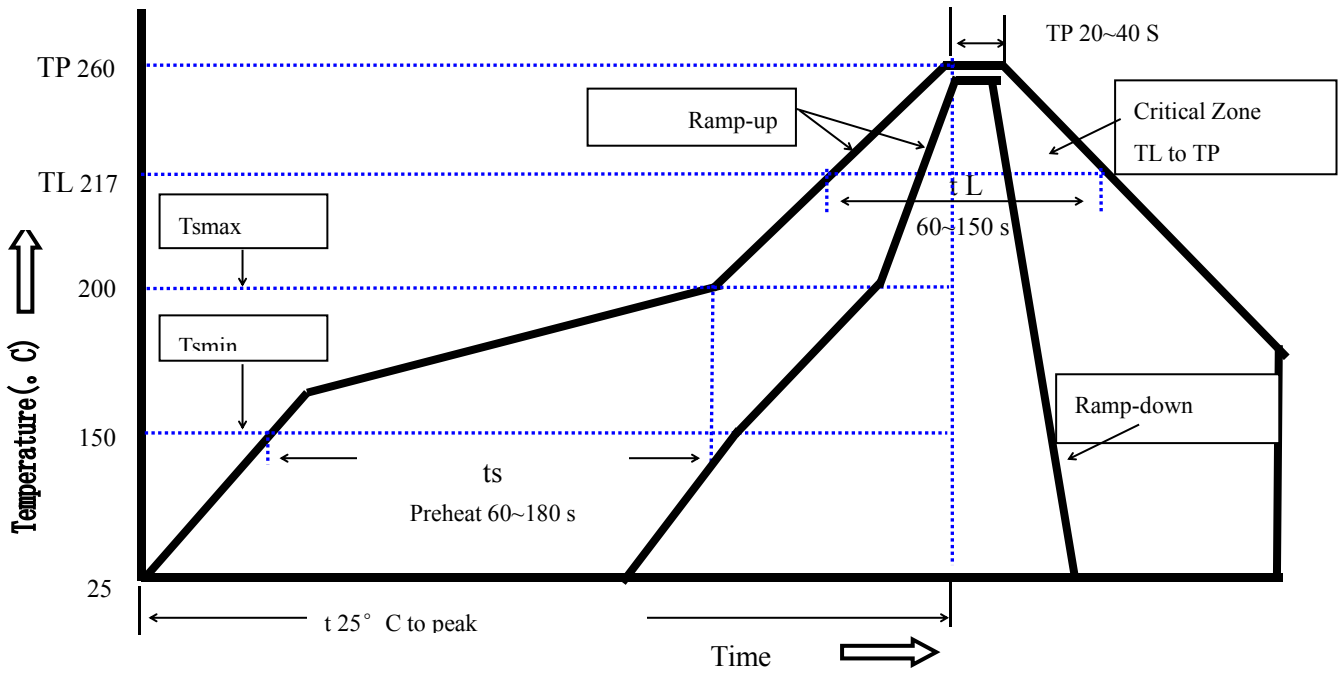
»Thermal Derating Curve



»Average Time-Current Curve



»Soldering Parameters



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate(Ts max to T p)	3°C/second max.
Preheat	
-Temperature Min(Ts min)	150°C
-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~35°C,30%-60%RH

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

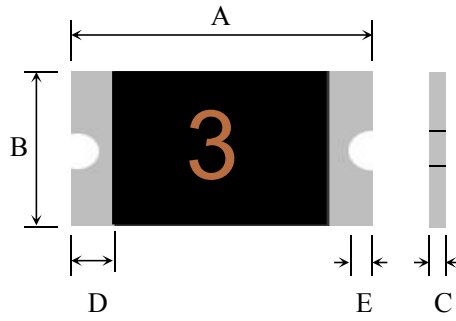
Recommended maximum paste thickness is 0.25mm

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

»Physical Dimensions(mm.)



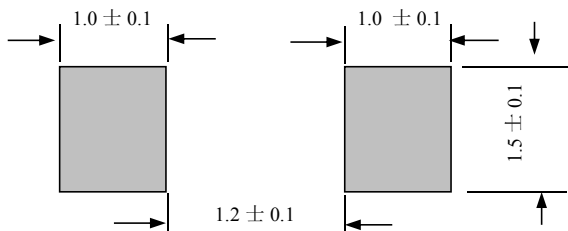
型號	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
SMD0603-001N	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.10
SMD0603-002N	1.45	1.85	0.65	1.05	0.35	0.75	0.15	0.10
SMD0603-003N	1.45	1.85	0.65	1.05	0.35	0.75	0.15	0.10
SMD0603-004N	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.10
SMD0603-005N	1.45	1.85	0.65	1.05	0.35	0.75	0.15	0.10
SMD0603-010N	1.45	1.85	0.65	1.05	0.35	0.75	0.15	0.10
SMD0603-020N	1.45	1.85	0.65	1.05	0.30	0.70	0.15	0.10
SMD0603-020/16N	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.10
SMD0603-025N	1.45	1.85	0.65	1.05	0.30	0.70	0.15	0.10
SMD0603-025/16N	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.10
SMD0603-035N	1.45	1.85	0.65	1.05	0.35	0.90	0.15	0.10
SMD0603-040N	1.45	1.85	0.65	1.05	0.40	0.90	0.15	0.10
SMD0603-050N	1.45	1.85	0.65	1.05	0.55	1.15	0.15	0.10
SMD0603-050/15N	1.45	1.85	0.65	1.05	0.55	1.15	0.15	0.10
SMD0603-060N	1.45	1.85	0.65	1.05	0.55	1.15	0.15	0.10
SMD0603-065N	1.45	1.85	0.65	1.05	0.55	1.15	0.15	0.10
SMD0603-075N	1.45	1.85	0.65	1.05	0.55	1.15	0.15	0.10
SMD0603-100N	1.45	1.85	0.65	1.05	0.55	1.15	0.15	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.)



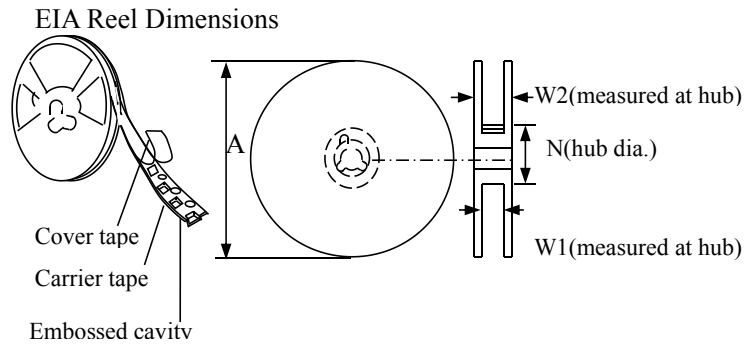
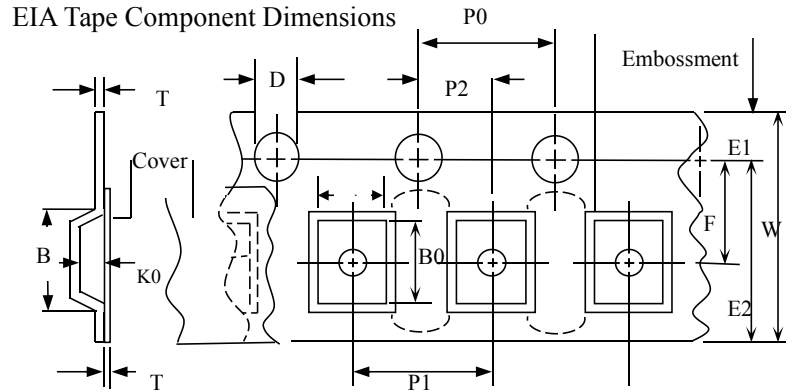
»Packaging Quantity

Part Number	Quantity
SMD0603 Series	4,000 pcs/reel

Tape & reel packaging per EIA481-1

»Tape And Reel Specifications (mm)

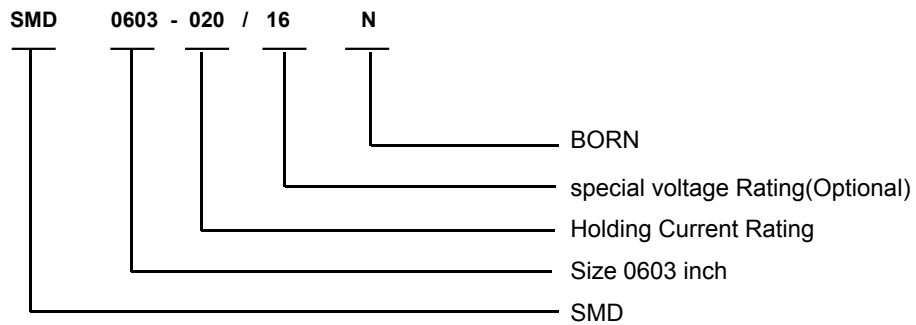
Governing Specifications		EIA 481-1
W		8.0 ± 0.2
P <sub>0</sub>		4.0 ± 0.10
P <sub>1</sub>		4.0 ± 0.10
P <sub>2</sub>		2.0 ± 0.05
A <sub>0</sub>		1.05 ± 0.10
B <sub>0</sub>		1.85 ± 0.10
D <sub>0</sub>		1.55 + 0.05
F		3.5 ± 0.05
E <sub>1</sub>		1.75 ± 0.10
E <sub>2</sub> min.		6.25
T		0.20
T <sub>1</sub> max.		0.1
K <sub>0</sub>		0.75/0.95 ± 0.1
Leader min.		390
Trailer min.		160
Reel Dimensions		
A max.		178
N min.		60
W <sub>1</sub>		9.0 ± 0.5
W <sub>2</sub>		12.0 ± 0.05
W		8.0 ± 0.2



Storage And Handling

- Storage conditions: 35°C max,30%-60%R.H.
- Devices may not meet specified performance if storage conditions are exceeded.

»Part Number System



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