


Agency	File Number	Ampere Range
	E319512	1~6A

General

- Inrush withstand capability
- 1.6mm× 0.8mm physical size
- Thick film manufacturing method, ceramic substrate, silver fusing element
- -55°C~125°C operating temperature
- Excellent environmental integrity
- RoHS compliant
- Halogen-free
- Lead free

Application

- Battery pack
- PC related equipment and peripherals (Hard driver, Printer, etc.)
- Digital camera (Digital still camera)
- Game equipment
- LCD monitor, LCD modules
- Wireless base station
- Power supply
- Medical device

Electrical Specifications

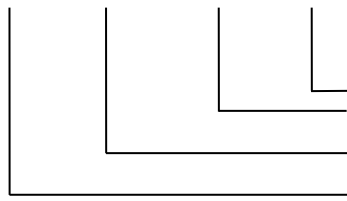
Part Number	Marking	Current Rating (A)	Voltage Rating (V)	Interrupting Rating (V)	Typical Cold DCR* (mΩ)	Typical I ² T** (A ² s)
S0603-SD-1.0A	H	1.0	63	50A 63V DC	235	0.0746
S0603-SD-1.5A	K	1.5	63		87	0.1800
S0603-SD-2.0A	N	2.0	63		47	0.1952
S0603-SD-2.5A	O	2.5	63		31	0.4001
S0603-SD-3.0A	P	3.0	63		23	0.7329
S0603-SD-3.5A	R	3.5	63		19	0.9758
S0603-SD-4.0A	S	4.0	63		13	2.1722
S0603-SD-5.0A	T	5.0	63		8.7	3.3128
S0603-SD-6.0A	6	6.0	63		6.3	7.8480

* Measured at $\leq 10\%$ rated current and 25°C

** Melting I²T at 10 times of rated current

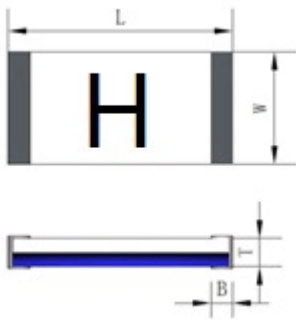
Part Number Information

S 0603-SD-1.0A



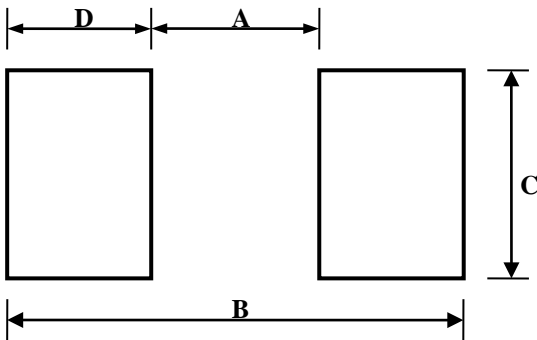
“1.0A” Ampere Rating: 1A
 “SD” Electrical Characteristic: S = Special Inrush, D=63V
 “0603” Size Number
 “S” Symbol of SART

Dimensions



Type	L (mm)	W (mm)	T (mm)	B (mm)
S0603-SD	1.60±0.15	0.80±0.15	0.45±0.10	0.30±0.20

Recommended Land Patterns



Dimensions	A (mm)	B (mm)	C (mm)	D (mm)
Spec	1.00±0.20	3.00±0.50	1.40±0.20	1.00±0.30

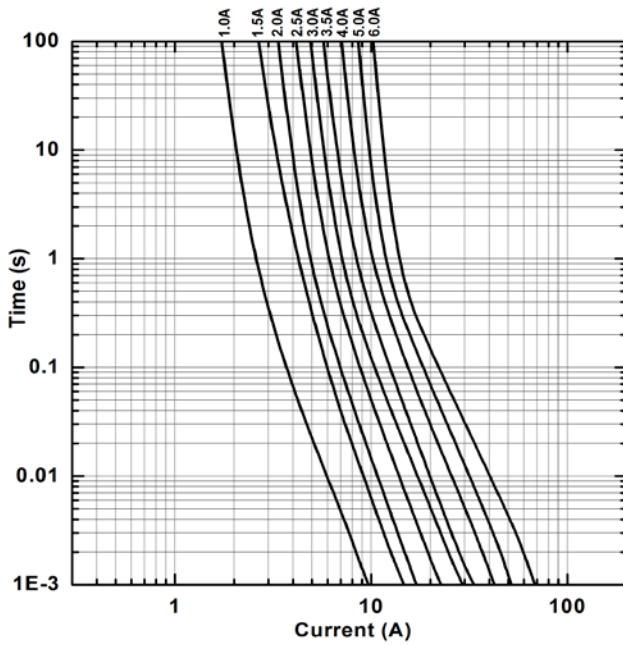
Materials

Components	Material
Body	Ceramic
Terminations	Silver over plated with tin (100%)
Element	Silver or Silver/Palladium

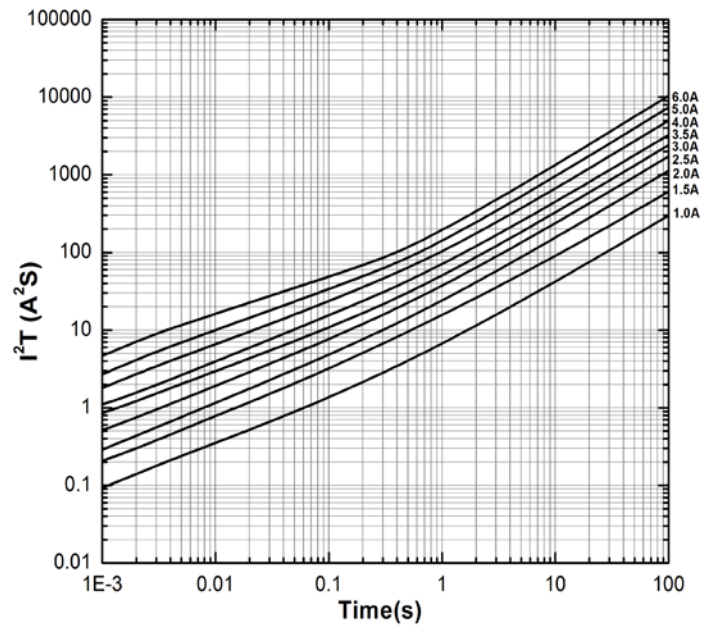
Dimensions of Standard Test Board

Type	Ampere Rating	Board Thickness (mm)	Copper Layer Thickness (mm)	Copper Trace Width (mm)
S0603-SD	1A~6.0A	1.6	0.035	5.0

Time Current Curve



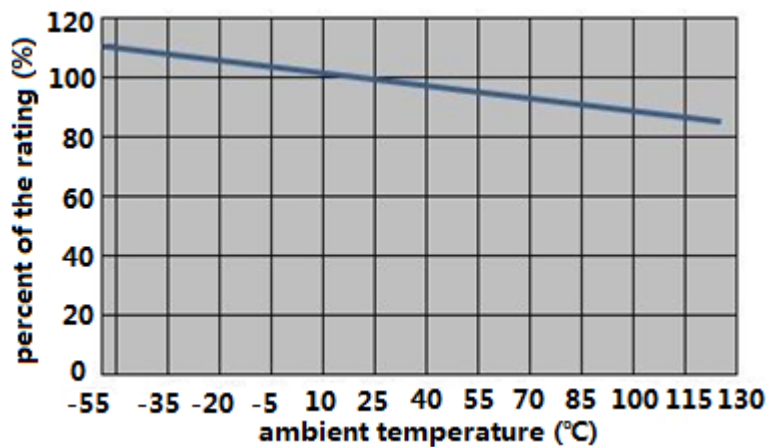
I²T VS Time Curve



Electrical Characteristics

Type	Ampere Rating	% of Current Rating	Opening Time
S0603-SD	1.0A~6.0A	100	>4hours
	1.0A~6.0A	250	≤5sec
	1.0A~6.0A	1000	>0.3ms

Temperature Derating Curve



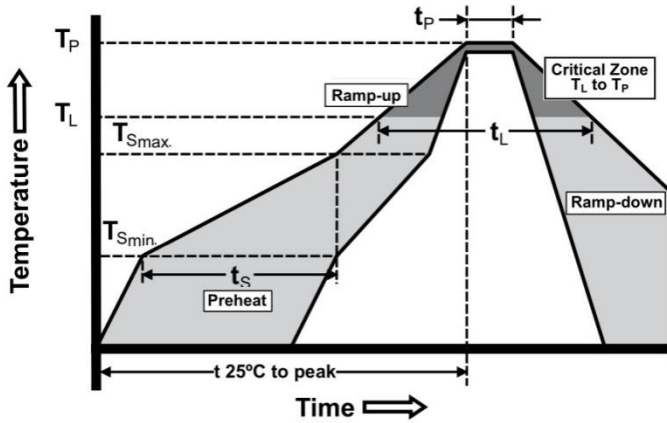
Product Characteristics

Item	Test condition/ Methods	Performance	Standard
Time/Current	100% of current rating	No Fusing, 4hours Min.	UL248-14
	250% of current rating	≤5sec	SART SPEC
	1000% of current rating	1.0A~6.0A: >0.3ms	
Voltage Drop	100% of current rating	Deviation between the mean value: <15%	SART SPEC
Endurance Test	Repeating 100 cycles of 1In for 1h "ON", for 15min "OFF", then following by 1h of 1.25In and testing Temperature rise	$ \Delta R < 10\%$ $\Delta T < 75^\circ\text{C}$	IEC-60127-4
Interrupting Ability	50A 63V DC	without permanent arcing, ignition and bursting of fuse link	UL248-14 IEC60127-4
Solderability	240°C±5°C, 3sec±0.5sec	95% coverage Min.	IEC60127-4 IEC60068-2-20; MIL-STD-202
Resistance to Soldering	260°C±5°C, 10sec±0.5sec	$ \Delta R < 10\%$ Legible appearance	MIL-STD-202 Method 210
Bending Test	Distance between holding points: 90mm Bending: 1mm, time: 10s	$ \Delta R < 10\%$ No mechanical damages	IEC60127-4
High Temperature Operating Life	T=70°C±2°C, 60%In, 96hours	$ \Delta R < 10\%$; No fusing	MIL-STD-202 Method 108
Humidity (Steady State)	T=40°C±2°C, 90%~95%RH, 1000hours	$ \Delta R < 10\%$	MIL-STD-202 Method 103
Low Temperature Storage	T=-55°C±3°C, 96hours	$ \Delta R < 10\%$	IEC60068-2-1
High Temperature Storage	T=125°C±2°C, 96hours	$ \Delta R < 10\%$	IEC60068-2-2
Salt Spray	5% salt solution, 48hours	$ \Delta R < 10\%$ Legible appearance	MIL-STD-202 Method 101
Thermal Shock	100 cycles between -65°C/+125°C 60 minutes, each extreme	$ \Delta R < 10\%R$ No mechanical damages	MIL-STD-202 Method 107

Recommended Solder Curve

1. Infrared Reflow:

- Temperature: 260°C
- Time: 5sec Max.
- Recommend Reflow profile



Profile Feature	Pb-Free Assembly
Average Ramp-up Rate(T_{Smax} to T_p)	3°C/sec Max.
Preheat Temperature Min. (T_{Smin})	150°C
Preheat Temperature Max. (T_{Smax})	200°C
Preheat Time (T_{Smin} to T_{Smax})	60sec~120sec
Peak Temperature (T_p)	260°C
Time within 5°C of actual Peak Temperature (T_p)	5sec
Melting tin time (T_L)	20sec~30sec
Ramp-down Rate	6°C/sec Max.
Time 25°C to peak Temperature	8minutes Max.

2. Wave soldering

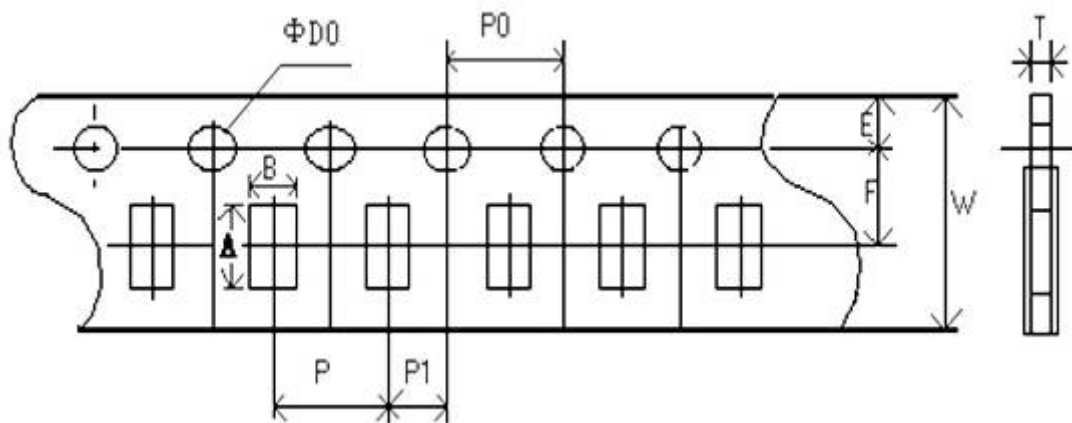
- Reservoir Temperature: 260°C
- Time in Reservoir: 10secMax.

3. Hand Soldering

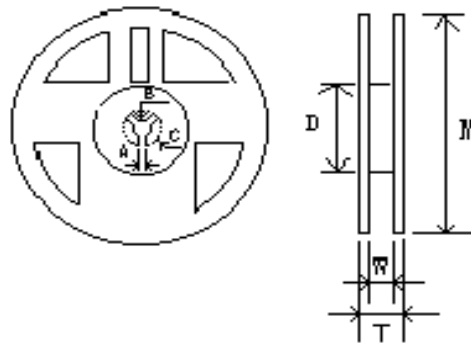
- Temperature: 350°C
- Time: 5secMax.

Packaging

- 5000 pieces of fuses in emboss taper and reeled on a 178mm(7 inch) reel.



Type	A(mm)	B(mm)	W(mm)	E(mm)	F(mm)
Spec	1.85±0.10	1.10±0.10	8.00±0.20	1.75±0.10	3.50±0.05
Type	P(mm)	P0(mm)	P1(mm)	D0(mm)	T(mm)
Spec	4.00±0.10	4.00±0.10	2.00±0.10	1.50±0.10	0.60±0.10



Type	M(mm)	W(mm)	T(mm)	A(mm)	B(mm)	C(mm)	D(mm)
Spec	178.00±2.00	9.50±1.00	12.50±1.50	2.00±0.50	13.00±0.50	21.00±0.50	58.00±2.00

Storage

- The ambient temperature recommended for storage shall be between 5°C~30°C
- The relative humidity recommended for storage shall be between 25%RH~60%RH
- 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