

## General

- Chip size 2512
- Resistance value from 0.5mΩ to 50mΩ
- High power rating
- Low inductance 0.5nH to 5nH
- Low TCR
- Compatible with RoHS & Halogen free
- Compliant with AEC-Q200 standard

## Application

- Switching model power supply
- Battery pack
- Notebook, personal computer
- Test Instrument
- Power Amplifier

## Electrical Specifications

Type	Power Rating at 70°C(W)	Resistance Range (mΩ)	TCR (ppm/°C)	Resistance Tolerance	Operation Temp. Range
2512	3	0.5	±160	±1%(F)	-55°C~+170°C
		1	±100		
		2~50	±50		

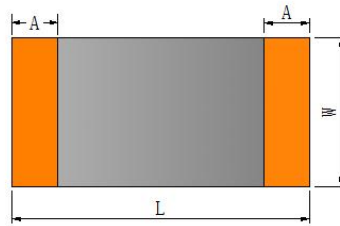
## Part Number Information

SMAA    25        A        3        F        R001    I        00  
 【1】        【2】        【3】        【4】        【5】        【6】        【7】        【8】

- 【1】 Series Name: Sart Metal Strip Type Automotive grade  
 【2】 Chip size: 25: 2512  
 【3】 Material Code: A:Alloy  
 【4】 Power Code: 3: 3W  
 【5】 Resistance Tolerance: F: ±1%  
 【6】 Resistance Code: R001 = 1 mΩ ; 0M50 = 0.5 mΩ  
 【7】 Packaging Code: T:Tape& Reel    B: Bulk Pack  
 【8】 Application Code: 00: wide electrode ;01: narrow electrode

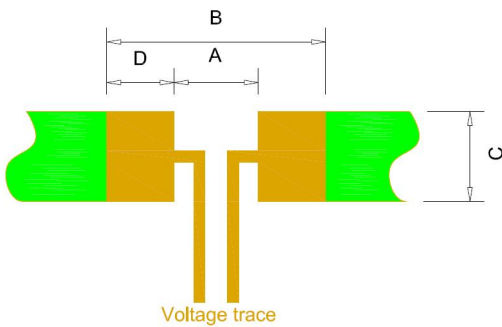
Type	Application	Resistance Range (mΩ)
2512	wide electrode	0.5、1
	narrow electrode	1~50

## Dimensions



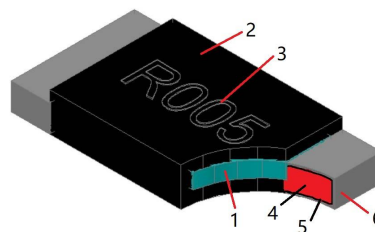
Type	Resistance Range (mΩ)	L (mm)	W (mm)	T (mm)	A (mm)
2512	0.5、1	6.40±0.30	3.20±0.30	0.9±0.20	1.90±0.25
	1~50	6.40±0.30	3.20±0.30	0.9±0.20	1.00±0.25

## Recommended Land Patterns



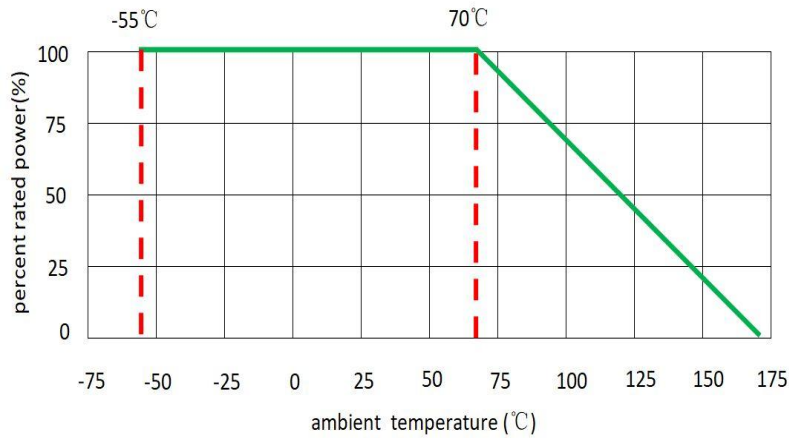
Type	Resistance Range (mΩ)	A (mm)	B (mm)	C (mm)	D (mm)
2512	0.5、1	1.50	7.40	3.57	2.95
	1~50	3.18	7.40	3.57	2.11

## Materials



No.	Materials	No.	Materials
1	Alloy	4	Copper
2	Epoxy molding compounds	5	Nickel
3	Marking	6	Tin

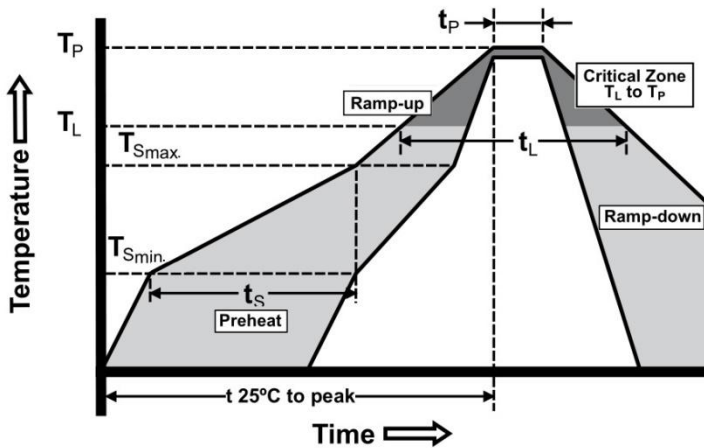
## Power Derating Curve



## Recommended Solder Curve

### 1. Infrared Reflow

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



Profile Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts <sub>max</sub> to Tp)	3°C/sec Max.
Preheat Temperature Min.(Ts <sub>min</sub> )	150°C
Temperature Max.(Ts <sub>max</sub> )	200°C
Time(Ts <sub>min</sub> to Ts <sub>max</sub> )	60sec~120sec
Peak Temperature(Tp)	260°C
Time within 5°C of actual Peak Temperature(Tp)	5sec
Melting tin time(T <sub>L</sub> )	20sec~30sec
Ramp-down Rate	6°C/sec Max.
Time 25°C to peak Temperature	8 min Max.

### 2. Wave soldering

- Reservoir Temperature: 260°C
- Time in Reservoir: 10sec Max.

### 3. Hand Soldering

- Temperature: 350°C
- Time: 5sec Max.

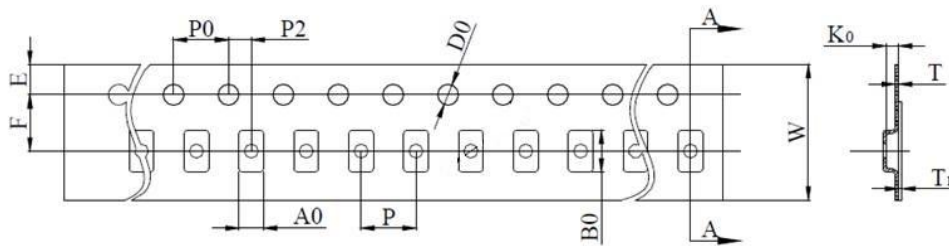
## Product Characteristics

Item	Test condition / Methods	Performance	Standard
Temperature Coefficient of Resistance (TCR)	$TCR = \frac{(R-R_0)}{R_0(T_2-T_1)} \times 10^6$ Test temperature: +25°C~+125°C	Refer to SART Spec	MIL-STD-202 Method 304
Short Time Overload	P= 5Pr ; T=25°C±2°C , t = 5sec	$ \Delta R  \leq \pm 1\%R$	IEC 60115-1 4.13
High Temp. Exposure	T = +170°C±2°C; t = 1000hours Unpowered	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 108
Temperature Cycling	-55°C(30min)/+155°C(30 min),1000 cycles	$ \Delta R  \leq \pm 1\%R$	JESD22 Method JA-104
Biased humidity (85°C、85%RH)	1000hours T=85°C±2°C ; RH=85% ;10% of Operating power; t= 1.5hours “ON”, 0.5hours “OFF”	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 103
Operational Life	1000 hours at rated power, 125°C±2°C, 1.5hours “ON”, 0.5hours “OFF”	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 108
External Visual	Electrical test not required. Inspect device construction, marking and workmanship	Refer to SART Spec	MIL-STD-883 Method 2009
Physical Dimension	Verify physical dimensions to the applicable device detail specification. Electrical test not required	Refer to SART Spec	JESD22 Method JB-100
Resistance to Solvents	Immersed in solvents after 3 min ~3.5min immersion, a total of 3 times, room temperature on the surface of the ventilation drying	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 215
Mechanical Shock	Positive half-sine wave, peak acceleration: 100 g's, pulse duration:6ms, six direction, each direction 3cycle,total 18cycles	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 213
Vibration	Frequency: 10Hz ~2000Hz acceleration: 5g's for 20 min, 12 cycles each of 3 orientations	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 204
Resistance to Soldering Heat	260°C±5°C, 10sec±1sec	$ \Delta R  \leq \pm 1\%R$	MIL-STD-202 Method 210
Solderability	Lead-free solder bath at 245°C±5°C for 3sec±0.5sec	95% coverage Min.	J-STD-002 IEC 60115-1 4.17
Flammability	V-0 or V-1 are acceptable. Electrical test not required	-	UL-94
Bending test (Board Flex)	Bending width 2mm, Epoxy thickness 1.6mm, Fulcrums distance 90mm	$ \Delta R  \leq \pm 1\%R$	ACE-Q200-005

Terminal Strength	Applying force 17.7N for 60sec	$ \Delta R  \leq \pm 1\%R$	AEC-Q200-006
Operation at Low Temperature	T= -55°C±5°C, 1hour without load, rated current or limiting element current whichever is lower for 1.5hours "ON", 0.5hours "OFF"	$ \Delta R  \leq \pm 1\%R$	IEC-60115-1 4.36

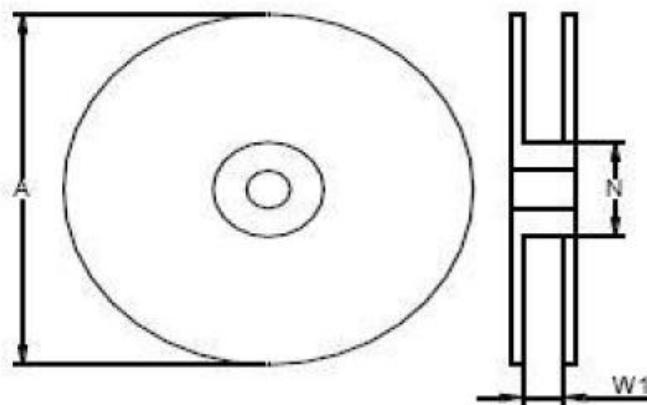
## Packaging

### 1. Tape Packaging Dimensions



Type	A0 (mm)	B0 (mm)	W (mm)	F (mm)	E (mm)	T (mm)
2512	3.40±0.20	6.75±0.20	12.00±0.30	5.50±0.10	1.75±0.10	0.20±0.10
Type	P (mm)	P0 (mm)	P2 (mm)	D0 (mm)	T1 (mm)	K0 (mm)
2512	4.00±0.10	4.00±0.10	2.00±0.10	1.55±0.10	Max. 0.10	1.0 <sup>+0.20</sup> <sub>-0.10</sub>

### 2. Reel Dimensions

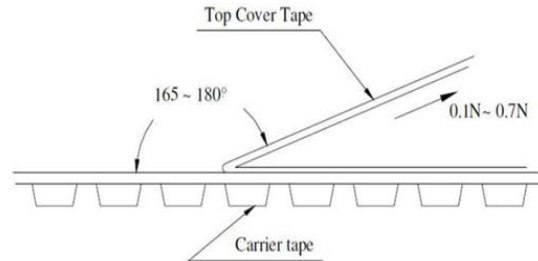


Type	A (mm)	N (mm)	W1 (mm)
2512	178.00±5.00	60.00±2.00	13.00±1.00

### 3. Quantity of Package

Type	Resistance Range(mΩ)	Quantity(pcs )
2512	0.5~50	3000

### 4.Peeling Test



### Storage

- The ambient temperature shall between 5°C~30°C.
- The relative humidity recommended for storage is 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.