

INDIVIDUAL SPECIFICATION SHEET

Product Name: Current Sensing Resistors

Part Number:SMA Series

Revision: A



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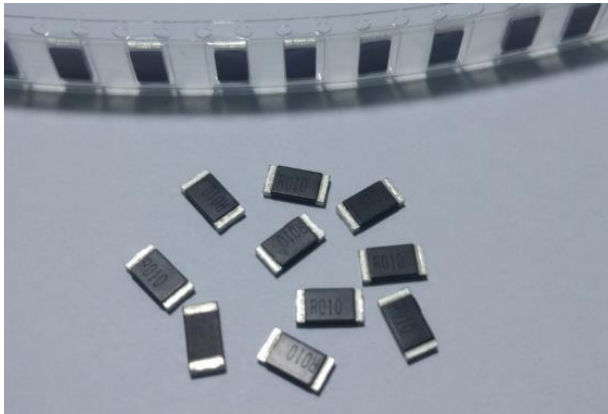
Rev.	Effective Date	Changed Contents
A	2020-5-11	New release

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General

Chip size 2512

1. Resistance value from 1mΩ to 10mΩ
2. High power rating
3. Low inductance 0.5nH to 5nH
4. Low TCR
5. Compatible with RoHS & Halogen free

Application

1. Switching model power supply
2. Battery pack
3. Notebook, personal computer
4. Test Instrument
5. 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	1	±100	±1%(F)	-55°C~+170°C
		2~10	±50		

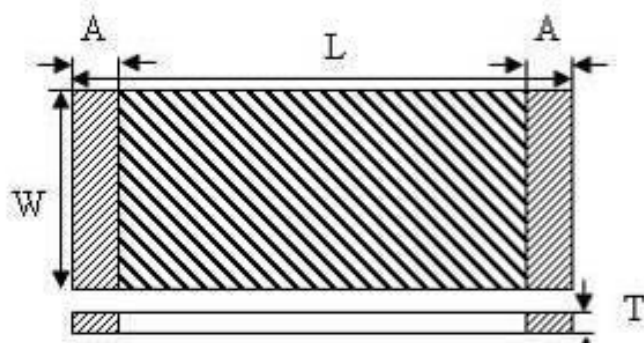
Part Number information

SMA 25 A 3 F R001 I
【1】 **【2】** **【3】** **【4】** **【5】** **【6】** **【7】**

- 【1】** Series Name: SART Metal Strip Type
- 【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
- 【7】** Packaging Code: T:Tape& Reel

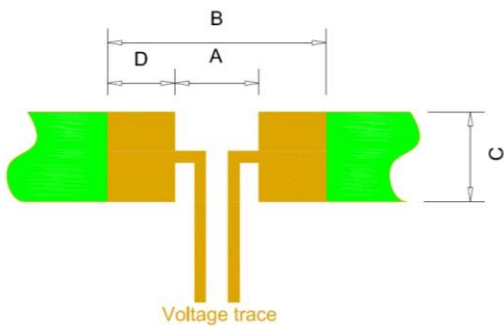
B: Bulk Pack

Dimensions



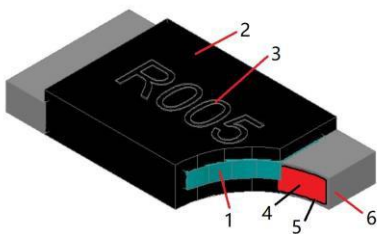
Type	L (mm)	W (mm)	T (mm)	A (mm)
2512	6.40±0.30	3.20±0.30	1.10±0.20	0.80±0.25

Recommended Land Patterns



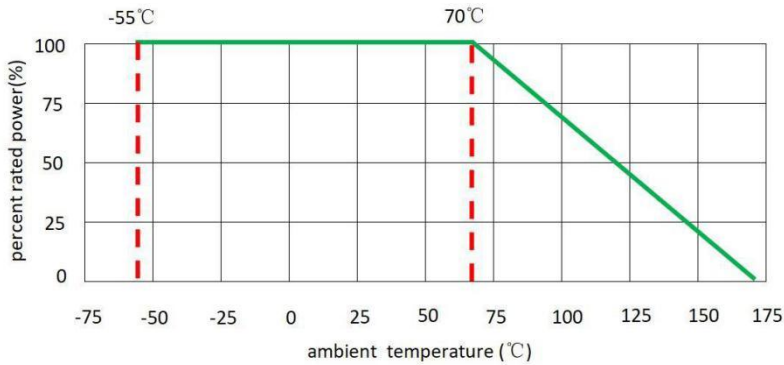
Type	A (mm)	B (mm)	C (mm)	D (mm)
2512	3.18	7.40	3.57	2.11

Materials



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

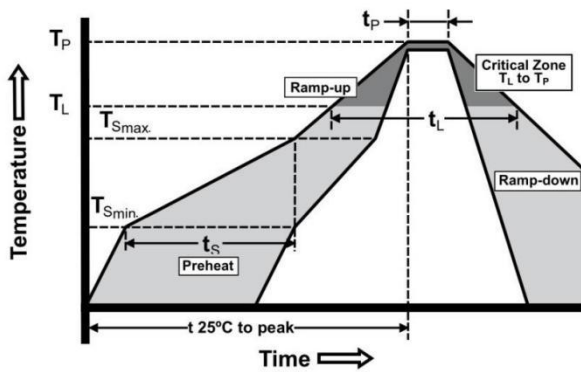
Power Derating Curve



Recommended Solder Curve

1. Infrared Reflow

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



Profile Feature	Pb-Free Assembly
Average Ramp-up Rate (Tsmax to Tp)	3°C/sec Max.
Preheat Temperature Min.(T _{Smin})	150°C
Preheat Temperature Max.(Tsmax)	200°C
Preheat Time(T _{Smin} to Tsmax)	60sec~120sec
Peak Temperature(Tp)	260°C
Time within 5°C of actual Peak Temperature(Tp)	5sec
Melting tin time(T _L)	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.

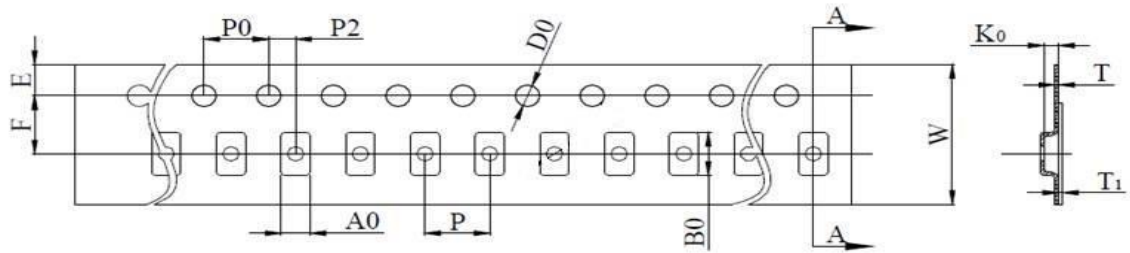
Product Characteristics

Item	Test condition / Methods	Performance	Standard
Short Time Overload	$P = 4P_r$; $T = 25^\circ\text{C} \pm 2^\circ\text{C}$, $t = 5\text{sec}$	$ \Delta R \leq \pm(1\% + 0.5 \text{ m}\Omega)$	IEC 60115-1 4.13
Temperature Coefficient of Resistance (TCR)	$\text{TCR} = \frac{(R - R_0)}{R_0} \frac{(T_2 - T_1)}{T_1 T_2} \times 10^6$ Test temperature: $+25^\circ\text{C} \sim +125^\circ\text{C}$	Refer to SART Spec	IEC 60115-1 4.8

Thermal Shock	-55°C(30min)/+150°C(30 min),100 cycles	$ \Delta R \leq \pm(1\%+0.5 \text{ m}\Omega)$	IEC 60115-1 4.19
Resistance to Solder Heat	265°C±5°C, 20sec±1sec	$ \Delta R \leq \pm(1\%+0.5\text{m}\Omega)$	IEC 60115-1 4.18
Solderability	245°C±5°C, 3sec±0.5sec	95% coverage Min.	IEC 60115-1 4.17
Load Life	1000 hours at rated power, 70°C±2°C, 1.5hours “ON”, 0.5hours “OFF”	$ \Delta R \leq \pm(2\% +0.5 \text{ m}\Omega)$	IEC 60115-1 4.25.1
Moisture Load Life (60°C、95%RH)	T=60°C±2°C ; RH=95% ;V _{test} = V _{max} ; t= 1.5hours “ON”, 0.5hours “OFF” , 1000hours	$ \Delta R \leq \pm(2\%+0.5 \text{ m}\Omega)$	IEC 60115-1 4.24
Bending test	Bending width 2mm, Epoxy thickness 1.6mm, Fulcrums distance 90mm	$ \Delta R \leq \pm(1\%+0.5 \text{ m}\Omega)$	IEC 60115-1 4.33
High Temp. Exposure	T = +170°C±2°C ; t = 1000hours	$ \Delta R \leq \pm(1\%+0.5 \text{ m}\Omega)$	IEC60115-1 4.25
Low Temp. Storage	T = -55°C±2°C ; t = 1000hours	$ \Delta R \leq \pm(1\%+0.5 \text{ m}\Omega)$	IEC60115-1 4.25
Mechanical Shock	a =100G , t =11ms, 5 times shock	$ \Delta R \leq \pm(1\%+0.5 \text{ m}\Omega)$	IEC60115-1 4.21

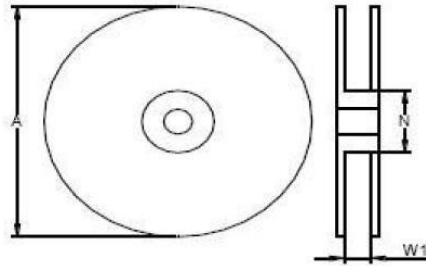
Packaging

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	1.3 ^{+0.20} _{-0.10}

2.Reel Dimensions

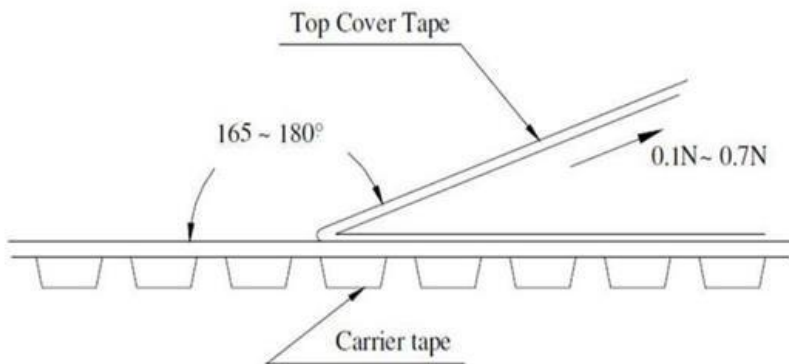


Type	A (mm)	N (mm)	W1 (mm)
2512	178.00±5.00	60.00±2.00	13.00±1.00

3.Quantity of Package

Type	2512
Quantity(PCS)	3000

4.Peeling Test



Storage

- The ambient temperature shall be 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.