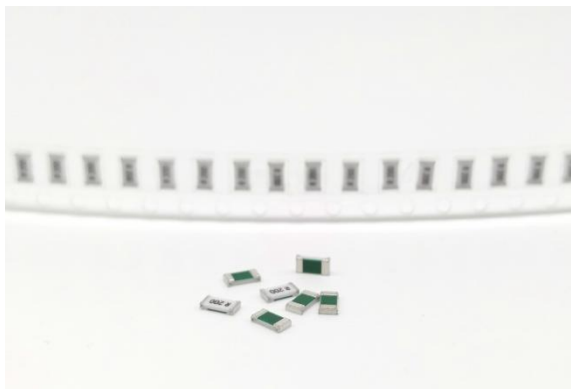




General

- Chip size from 0805 to 2817
- Resistance value from 2mΩ to 700mΩ
- High power rating
- Low inductance 0.5nH to 5nH
- Low TCR
- Compatible with RoHS & Halogen free

Application

- Switching model power supply
- Battery pack
- Notebook, personal computer
- Test Instrument
- Power Amplifier
- AEC-Q200 qualified⁽¹⁾

Electrical Specifications

Type	Power Rating at 125°C(W)	Resistance Range (mΩ)	TCR +25°C~+125°C (ppm/°C)	Resistance tolerance	Operating Temperature
0805	0.75	3	±75	±1%(F),±1.5%(E),±2%(G)	-55°C~+170°C
		4~500	±50	±1%(F)	
1206	0.5 1.0	3	±75	±1%(F),±1.5%(E),±2%(G)	
		4~700	±50	±1%(F)	
2512	2.0	2~3	±75	±1%(F),±1.5%(E),±2%(G)	
		4~500	±50	±1%(F)	
2817	5.0	2	±50	±1%(F)	
		3~100	±30	±1%(F)	

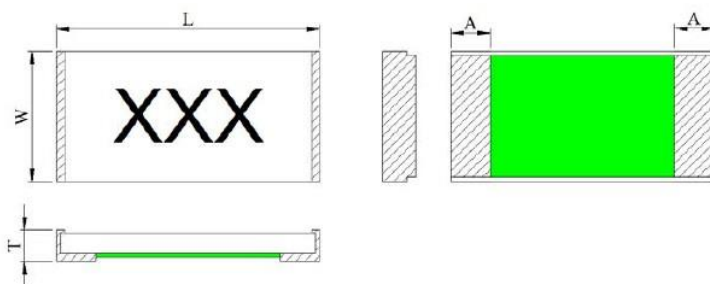
(1) Flame retardance test may not be applicable to some resistor technologies.

Part Number Information

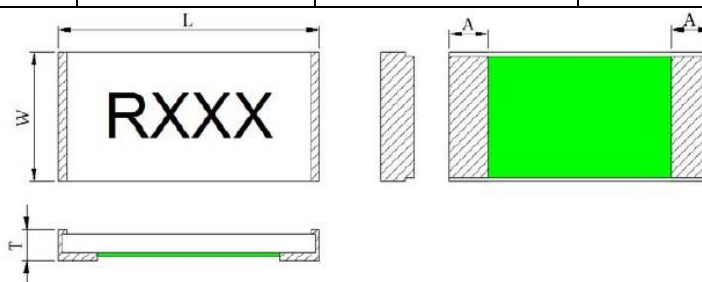
SMDA 25 A 2 E R003 I
【1】 【2】 【3】 【4】 【5】 【6】 【7】

- 【1】 Series Name: SART Metal Foil Type, Automotive grade
- 【2】 Chip size: 08: 0805 12: 1206 25: 2512 28: 2817
- 【3】 Material Code: A: Alloy
- 【4】 Power Code: A: 0.5W C: 0.75W 1: 1W 2: 2W 5: 5W
- 【5】 Resistance Tolerance: F: $\pm 1\%$ E: $\pm 1.5\%$ G: $\pm 2\%$
- 【6】 Resistance Code: R002 = 2 m Ω R020 = 20m Ω
- 【7】 Packaging Code: T: Tape& Reel B: Bulk Pack

Dimensions

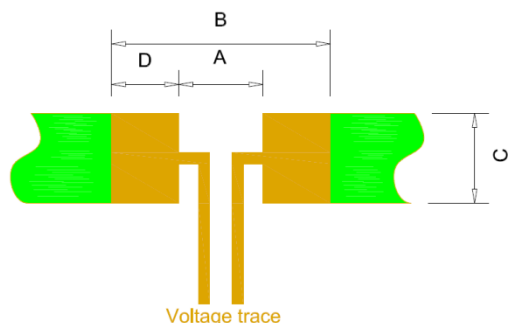


Type	Resistance Range (m Ω)	L (mm)	W (mm)	T (mm)	A (mm)
0805	3	2.10 $\pm$ 0.20	1.35 $\pm$ 0.20	0.65 $\pm$ 0.20	0.65 $\pm$ 0.20
	4~500	2.10 $\pm$ 0.20	1.35 $\pm$ 0.20	0.65 $\pm$ 0.20	0.50 $\pm$ 0.20



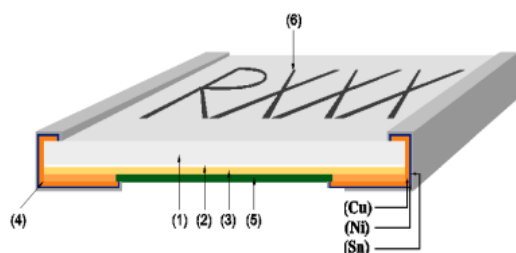
Type	Resistance Range (m Ω)	L (mm)	W (mm)	T (mm)	A (mm)
1206	3~700	3.30 $\pm$ 0.20	1.70 $\pm$ 0.20	0.65 $\pm$ 0.20	0.68 $\pm$ 0.30
2512	2	6.40 $\pm$ 0.30	3.20 $\pm$ 0.30	0.65 $\pm$ 0.20	2.80 $\pm$ 0.30
	3	6.40 $\pm$ 0.30	3.20 $\pm$ 0.30	0.65 $\pm$ 0.20	2.60 $\pm$ 0.30
	4~500	6.40 $\pm$ 0.30	3.20 $\pm$ 0.30	0.65 $\pm$ 0.20	1.05 $\pm$ 0.30
2817	2~3	7.10 $\pm$ 0.30	4.30 $\pm$ 0.30	0.80 $\pm$ 0.20	2.50 $\pm$ 0.30
	4~100	7.10 $\pm$ 0.30	4.30 $\pm$ 0.30	0.80 $\pm$ 0.20	1.00 $\pm$ 0.30

Recommended Land Patterns



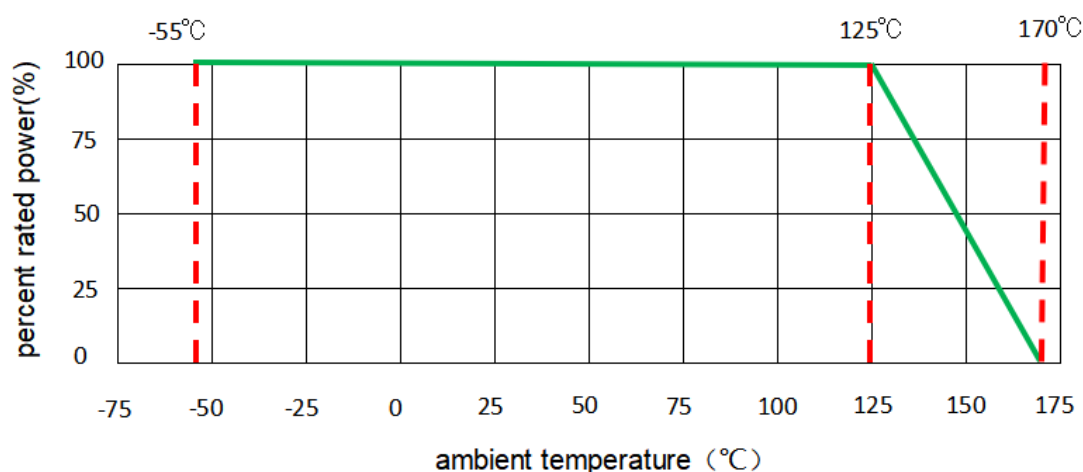
Type	Resistance Range (mΩ)	A (mm)	B (mm)	C (mm)	D (mm)
0805	3	0.50	3.60	1.44	1.55
	4~500	0.80	3.60	1.44	1.40
1206	3~700	1.20	4.80	1.84	1.80
2512	2	0.60	9.30	3.57	4.35
	3	0.90	9.30	3.57	4.20
	4~500	3.10	9.30	3.57	3.10
2817	2~3	1.50	9.10	4.80	3.80
	4~100	4.50	9.10	4.80	2.30

Materials



No.	Materials	No.	Materials
1	Ceramic	4	Terminal electrode
2	Epoxy	5	Coating
3	Cu-Alloy	6	Marking

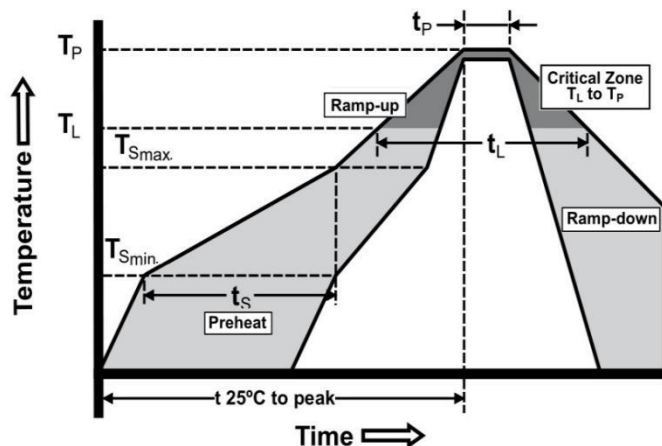
Temperature Derating Curve



Recommended Solder Curve

1. Infrared Reflow

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



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

2. Wave soldering

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

3. Hand Soldering

- Temperature: 350°C
- Time: 5s Max.

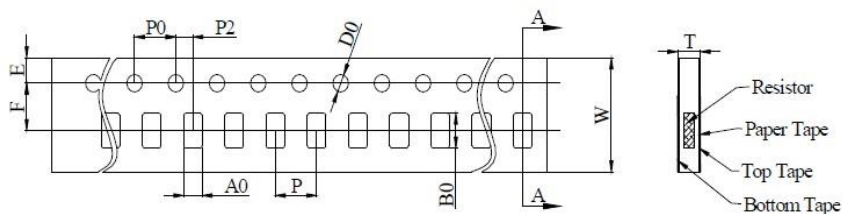
Product Characteristics

Item	Test condition / Methods	Performance	Standard
Short Time Overload	0805/1206/2512 $R \leq 10m\Omega$; $P = 5*Pr$; $T = 25^\circ C \pm 2^\circ C$, $t = 5s$ Rest specifications: $P = 2.5*Pr$; $T = 25^\circ C \pm 2^\circ C$, $t = 5s$	$ \Delta R \leq \pm(1\% + 0.5m\Omega)$	IEC 60115-1 4.13
Temperature Coefficient of Resistance (TCR)	$TCR = \frac{R - R_0}{R_0(T_2 - T_1)} \times 10^6$ 2817 test temperature: $+25^\circ C \sim +85^\circ C$ $+25^\circ C \sim +125^\circ C$ Rest test temperature: $+25^\circ C \sim +125^\circ C$	Refer to SART Spec	MIL-STD-202 Method 304
Physical Dimension	Verify physical dimensions to the applicable device detail specification. Electrical test not required.	Refer to SART Spec	JESD22 Method JB-100
Thermal Shock	$-55^\circ C$ (15min)/ $+150^\circ C$ (15min), 1000 cycles	$ \Delta R \leq \pm(1\% + 0.5m\Omega)$	JESD22 Method JA-104
Resistance to Solder Heat	$260^\circ C \pm 5^\circ C$, 10s $\pm$ 1s	$ \Delta R \leq \pm(1\% + 0.5m\Omega)$	MIL-STD-202 Method 210

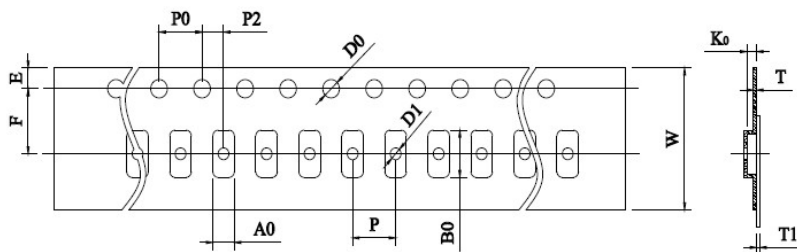
Solderability	245℃±5℃, 3.0s±0.5s	95% coverage Min.	J-STD-002 IEC 60115-1 4.17
Load Life	125℃±2℃ for 1000 hours, Rated power	$ \Delta R \leq \pm(2\% + 0.5\text{m}\Omega)$	MIL-STD-202 Method 108
Moisture Load Life (85℃、85%RH)	T=85℃±2℃; RH=85%; 10% of rated power, 1.5hours "ON", 0.5hours "OFF", 1000hours	$ \Delta R \leq \pm(2\% + 0.5\text{m}\Omega)$	MIL-STD-202 Method 103
Bending test	Bending width 2mm, Epoxy thickness 1.6mm, Fulcrums distance 90mm	$ \Delta R \leq \pm(1\% + 0.5\text{m}\Omega)$	AEC-Q200-005
High Temp. Exposure	T = +170℃±2℃; t = 1000 hours, Unpowered	$ \Delta R \leq \pm(1\% + 0.5\text{m}\Omega)$	MIL-STD-202 Method 108
Operation at Low Temperature	Rating power at -65℃ for 45 min	$ \Delta R \leq \pm(1\% + 0.5\text{m}\Omega)$	IEC 60115-1 4.36
Mechanical Shock	a = 100G, t = 6 ms, 5 times shock	$ \Delta R \leq \pm(1\% + 0.5\text{m}\Omega)$	MIL-STD-202 Method 213
Component Solvent Resistance	Immersed in three solvents after 3min ~3.5min immersion, brush wipe 10 times, a total of 3 times, washing with washing and cleaning agent, room temperature on the surface of the ventilation drying.	Clearly marked No mechanical damage	MIL-STD-202 Method 215
Vibration	Frequency: 10Hz~2000Hz acceleration: 5g's for 20 min, 12 cycles each of 3 orientations	$ \Delta R \leq \pm(1\% + 0.5\text{m}\Omega)$	MIL-STD-202 Method 204
Flammability	V-0 or V-1 are acceptable. Electrical test not required	-	UL-94
Terminal Strength	Applying force 17.7N for 60s	$ \Delta R \leq \pm(1\% + 0.5\text{m}\Omega)$	AEC-Q200-006

Packaging

1. Tape Packaging Dimensions

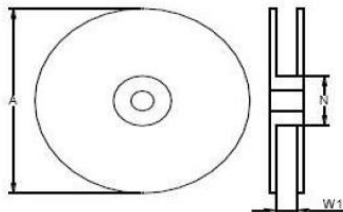


Type	A0 (mm)	B0 (mm)	W (mm)	F (mm)	E (mm)	T (mm)
0805	1.55±0.10	2.30±0.10	8.00±0.30	3.50±0.10	1.75±0.10	0.87±0.10
1206	2.05±0.20	3.65±0.20	8.00±0.30	3.50±0.10	1.75±0.10	0.87±0.10
Type	P (mm)	P0 (mm)	P2 (mm)	D0 (mm)	/	/
0805	4.00±0.10	4.00±0.10	2.00±0.10	1.50±0.10	/	/
1206	4.00±0.10	4.00±0.10	2.00±0.10	1.50±0.10	/	/



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	0.25±0.10
2817	4.60±0.20	7.50±0.20	12.00±0.30	5.50±0.10	1.75±0.10	0.25±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	1.50±0.10	0.1 Max.	1.00±0.20
2817	8.00±0.10	4.00±0.10	2.00±0.10	1.50±0.10	0.1 Max.	1.00±0.20

2. Reel Dimensions

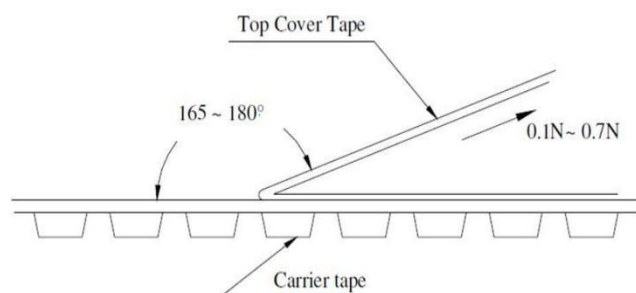


Type	A (mm)	N (mm)	W1 (mm)
0805	178.00±5.00	60.00±2.00	9.00±1.00
1206	178.00±5.00	60.00±2.00	9.00±1.00
2512	178.00±5.00	60.00±2.00	13.00±1.00
2817	178.00±5.00	60.00±2.00	13.00±1.00

Quantity of Package

Type	Quantities (PCS)
0805/1206	5000
2512	4000
2817	2000

Peeling Test



Storage

- The ambient temperature shall between 5℃~30℃.
- 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.