

General

- Chip size from 1206 to 2512
- Resistance value from 1mΩ to 30mΩ
- Low thermal EMF
- Low TCR
- Lead free, RoHS compliant for global
- Applications and halogen free

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 | 2 | 1~10 | ±50 | ±1% | -55°C~+170°C |
| 2512 | 3 | 1~3 | ±50 | ±1% | -55°C~+170°C |
| 1206 | 1 | 3~30 | ±50 | ±1% | -55°C~+170°C |

Part Number information

SMR 25 M 2 F R010 I

【1】 【2】 【3】 【4】 【5】 【6】 【7】

【1】 Series Name: SART Metal Current Sensing Chip Resistors

【2】 Chip size: 12:1206 25:2512

【3】 Material Code: M:MnCu N:NiCu S:CuMnSn

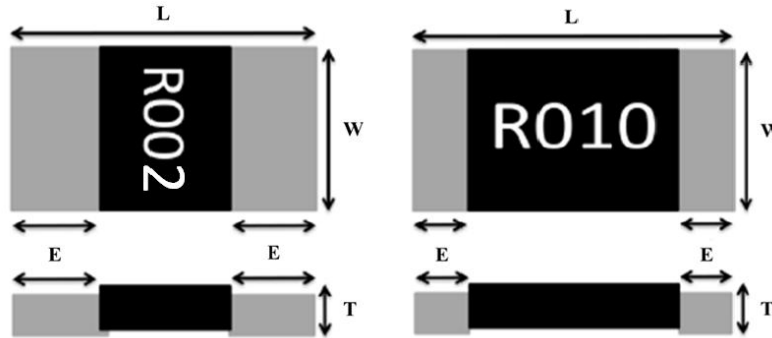
【4】 Power Code: 1:1W 2:2W 3:3W

【5】 Resistance Tolerance: F:±1%

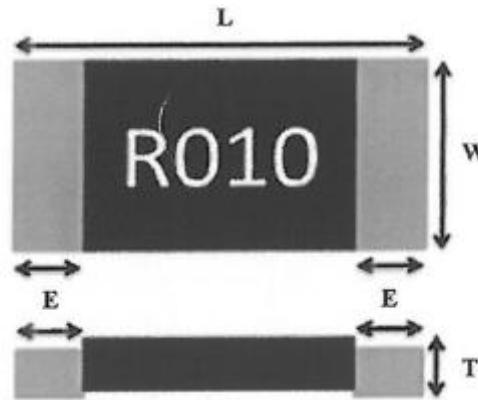
【6】 Resistance Code: R002=2mΩ R010=10 mΩ 2L50=2.5 mΩ

【7】 Packaging Code: T: Tape & Reel B: Bulk Pack

Dimensions

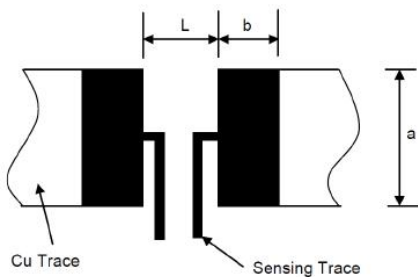


| Type | Resistance (mΩ) | L (mm) | W (mm) | T (mm) | E (mm) |
|------|--------------------|-----------------|-----------------|-----------------|-----------------|
| 2512 | $1 \leq R < 3$ | 6.40 ± 0.20 | 3.20 ± 0.20 | 0.60 ± 0.20 | 2.00 ± 0.20 |
| | $3 \leq R \leq 10$ | | | | 0.90 ± 0.20 |



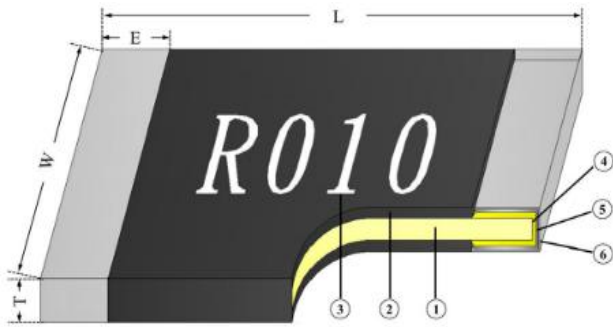
| Type | Resistance (mΩ) | L (mm) | W (mm) | T (mm) | E (mm) |
|------|--------------------|-----------------|-----------------|-----------------|-----------------|
| 1206 | $3 \leq R \leq 30$ | 3.20 ± 0.20 | 1.60 ± 0.20 | 0.60 ± 0.20 | 0.50 ± 0.30 |

Recommended Land Patterns



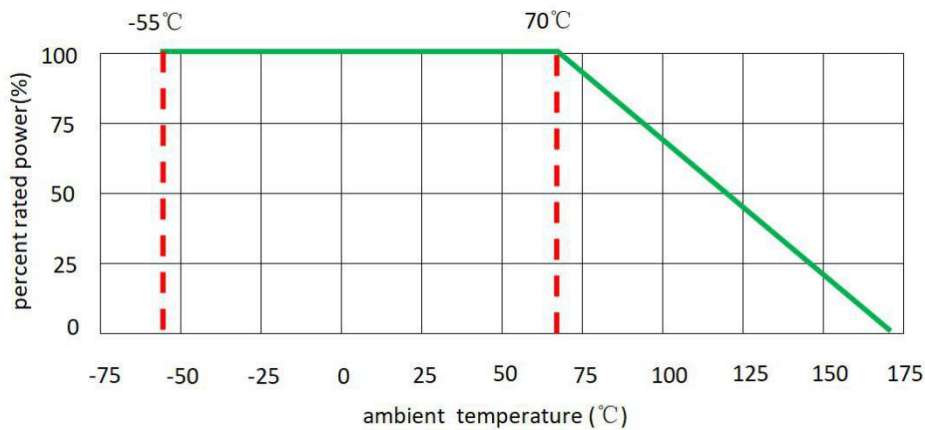
| Type | Resistance Range (mΩ) | a (mm) | b (mm) | L (mm) |
|------|-----------------------|--------|--------|--------|
| 2512 | $1 \leq R < 3$ | 4.00 | 3.10 | 1.80 |
| | $3 \leq R \leq 10$ | 4.00 | 2.10 | 4.10 |
| 1206 | $3 \leq R \leq 30$ | 1.80 | 1.70 | 1.60 |

Materials



| No. | Materials |
|-----|-------------|
| 1 | Metal Alloy |
| 2 | Epoxy |
| 3 | Epoxy |
| 4 | Cu |
| 5 | Ni |
| 6 | Sn |

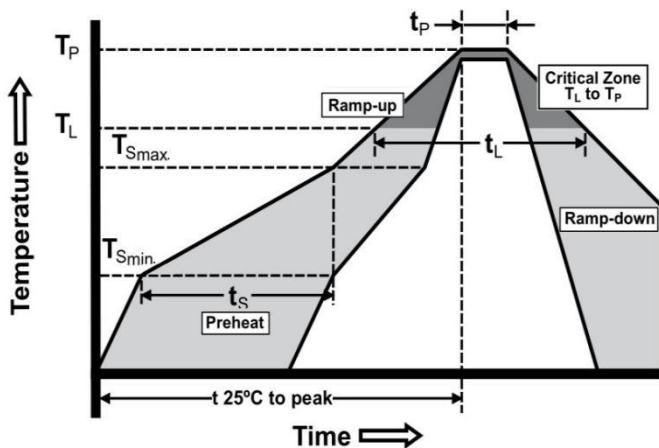
Power Derating Curve



Recommended Solder Curve

1. Infrared Reflow

- Temperature: 260°C.
- Time: 5 sec 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}) Temperature Max.(T _{Smax}) Time(T _{Smin} to T _{Smax}) | 150°C 200°C 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 | 8 min Max. |

2. Wave soldering

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

3. Hand Soldering

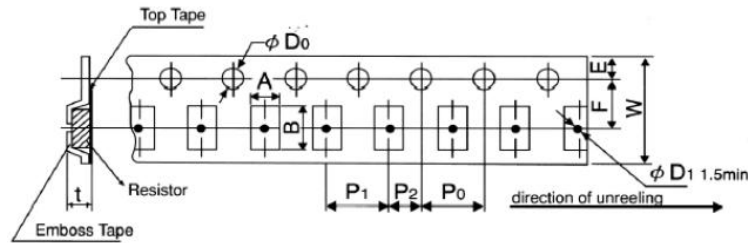
- Temperature: 350°C
- Time: 3sec Max.

Product Characteristics

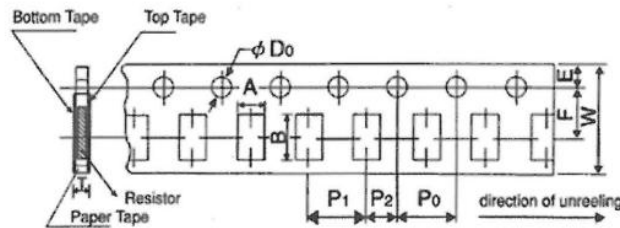
| Item | Test condition/ Methods | Performance | Standard |
|---------------------------------------|---|-----------------------------|----------------------------|
| Resistance | Measuring resistance value at room temperature 25°C ±5°C | Refer to SART Spec | IEC60115-1 4.5 |
| Temperature coefficient of resistance | $TCR = (R - R_0) / R_0 (T_2 - T_1) \times 10^6$ Test temperature: +25°C ~ +125°C | Refer to SART Spec | MIL-STD-202 Method 304 |
| Short time Overload | 5 times the rated power for 5 seconds | $ \Delta R \leq \pm 0.5\%$ | IEC 60115-1 4.13 |
| Resistance to Soldering Heat | 260°C ± 5°C, time: 10 sec ± 1 sec | $ \Delta R \leq \pm 0.5\%$ | MIL-STD-202 Method 210 |
| Thermal shock | -55°C(15min)/+125°C(15min), 300 cycles | $ \Delta R \leq \pm 0.5\%$ | MIL-STD-202 Method 107G |
| Low temperature storage | -55°C for 45 min, No power | $ \Delta R \leq \pm 0.5\%$ | IEC60115-1 4.23.4 |
| High Temperature storage | 125°C for 1000 hours, No power | $ \Delta R \leq \pm 1.0\%$ | MIL-STD-202 Method 108 |
| Temperature Humidity Bias Test | +85°C, 85% RH, 10% bias, 1000 hours | $ \Delta R \leq \pm 0.5\%$ | MIL-STD-202 Method 103 |
| Mechanical shock | 100 g's, 6 m sec, 5 pulses | $ \Delta R \leq \pm 0.5\%$ | MIL-STD-202 Method 213 |
| Vibration | The frequency varies from 10HZ to 2000HZ, 1 min, 3 directions, and 12 hours | $ \Delta R \leq \pm 0.5\%$ | MIL-STD-202 Method 204 |
| Load life | 70°C ± 2°C, 1000 hours, at rated power 1.5 hours "ON", 0.5 hours "OFF" | $ \Delta R \leq \pm 1.0\%$ | MIL-STD-202 Method 108 |
| Solderability | Dip the terminal in a flux and then dip into a soldering bath at 245 ± 5°C for 2~3 sec | Min 95% coverage | J-STD-002B Test B |
| Board Flex | Min 2 mm deflection, 60 Sec | $ \Delta R \leq \pm 0.5\%$ | AEC-Q200-005 |
| ESD test | Other: 2KV, 2 times / 1s | $ \Delta R \leq \pm 1.0\%$ | AEC-Q200-002 |

Packaging

1. Embossed Tape Dimensions

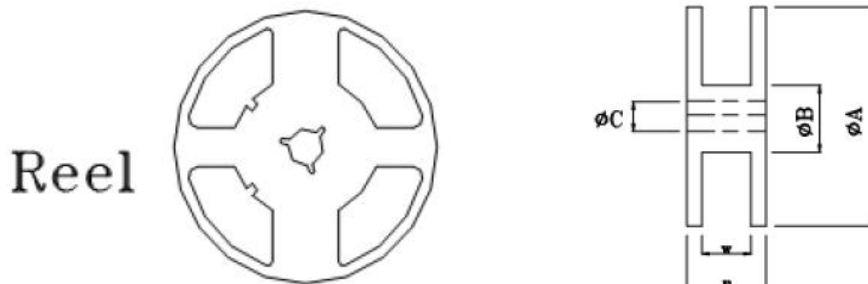


| Type | A (mm) | B (mm) | W (mm) | F (mm) | E (mm) |
|------|--------------------------|-----------------|------------------|------------------------|-----------------|
| 2512 | $3.60 \pm_{0.18}^{0.20}$ | 6.90 ± 0.20 | 12.00 ± 0.20 | 5.50 ± 0.05 | 1.75 ± 0.10 |
| Type | P1 (mm) | P2 (mm) | P0 (mm) | D0 (mm) | T (mm) |
| 2512 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.05 | $1.50 \pm_{0.0}^{0.1}$ | 1.00 ± 0.15 |



| Type | A (mm) | B (mm) | W (mm) | F (mm) | E (mm) |
|------|-----------------|-----------------|-----------------|------------------------|-----------------|
| 1206 | 2.00 ± 0.15 | 3.60 ± 0.20 | 8.00 ± 0.20 | 3.50 ± 0.05 | 1.75 ± 0.10 |
| Type | P1 (mm) | P2 (mm) | P0 (mm) | D0 (mm) | T (mm) |
| 1206 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | $1.50 \pm_{0.0}^{0.1}$ | 0.84 ± 0.10 |

2. Reel Dimensions

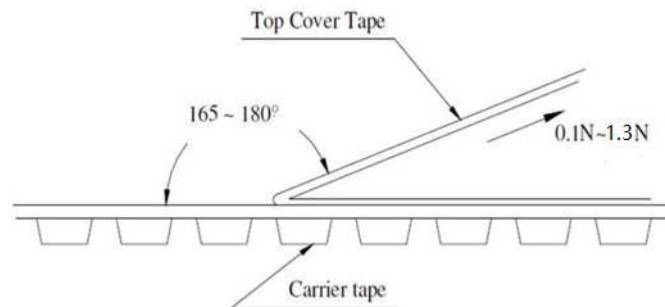


| Type | ϕA (mm) | ϕB (mm) | ϕC (mm) | F (mm) | W (mm) |
|------|-------------------|------------------|------------------|------------------|------------------|
| 2512 | 178.00 ± 2.00 | 60.00 ± 1.00 | 13.50 ± 0.50 | 15.40 ± 1.00 | 13.00 ± 0.30 |
| 1206 | 178.00 ± 2.00 | 60.00 ± 1.00 | 13.50 ± 0.50 | 11.40 ± 1.00 | 9.00 ± 0.30 |

3. Quantity of Package

| Type | 1206 | 2512 |
|---------------|------|------|
| Quantity(pcs) | 5000 | 4000 |

4. Peeling Test



Storage

- The ambient temperature shall be between 5°C~35°C.
- The relative humidity recommended for storage is between 25%RH~75%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.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Current Sense Resistors - SMD category](#):

Click to view products by [SART manufacturer](#):

Other Similar products are found below :

[CRL0603-FW-R700ELF](#) [PFS35-200RF1](#) [NPS 2-T126 5.000 OHM 1%](#) [PFS35-0R01J1](#) [PFS35-0R05J1](#) [PFS35-5RF1](#) [CD2015FC-0.10-1%](#)
[PR2512FKF7W0R004L](#) [RC1005F124CS](#) [RL73K3AR56JTDF](#) [RL7520WT-R001-F](#) [RL7520WT-R009-G](#) [RL7520WT-R020-F](#) [LRC-](#)
[LR2512LF-01-R820J](#) [WR06X104JGLJ](#) [TL2BR01F](#) [65709-330](#) [SP1R12J](#) [RL7520WT-R039-G](#) [RL7520WT-R002-F](#) [LRF2010-R003JW](#)
[KRL1632E-C-R200-F-T5](#) [KRL1632E-C-R200-F-T1](#) [Y14880R02000B9R](#) [RLP73M1ER051FTDF](#) [RLP73M2AR075FTDF](#)
[SR731ERTTP5R10F](#) [SR731ERTTP100J](#) [SR731ERTTP6R80F](#) [SR731ERTTP4R70F](#) [SR731ERTTP2R20F](#) [SR731ERTTP3R90F](#)
[SR731ERTTP1R00F](#) [SR731ERTTP10R0F](#) [SR731ERTTP2R00F](#) [SR731ERTTP8R20F](#) [SR731ERTTP3R9J](#) [SR731ERTTP8R2J](#)
[SR731ERTTP2R0J](#) [SR731ERTTP4R7J](#) [SR731ERTTP9R1J](#) [SR731ERTTP1R0J](#) [SR731ERTTP2R2J](#) [SR731ERTTP5R1J](#) [SR731ERTTP6R8J](#)
[SR731ERTTP9R10F](#) [RCWE2512R180FKEA](#) [FCSL64R007JER](#) [LRF1206-R018FW](#) [TLR2B10DR022FTDG](#)