



Leader New Energy Technology Co., Ltd.

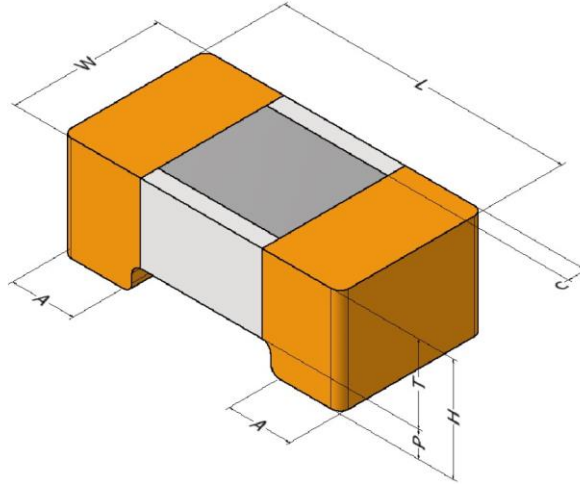
Shunt Resistor Specification

Current Sensing Shunt Resistor

Scope

This specification applies of metal foil current shunt resistor rectangular type.

Dimensions



Type (inch size)	Dimensions(mm)				M(material)
	L	W	H	A	
SR1206 L30	3.2±0.2	1.65±0.2	1.20±0.15	0.80±0.2	MnCuSn
SR1206 L50	3.2±0.2	1.65±0.2	0.90±0.15	0.80±0.2	MnCuSn
SR1206 1L0	3.2±0.2	1.65±0.2	0.90±0.15	0.80±0.2	MnCu

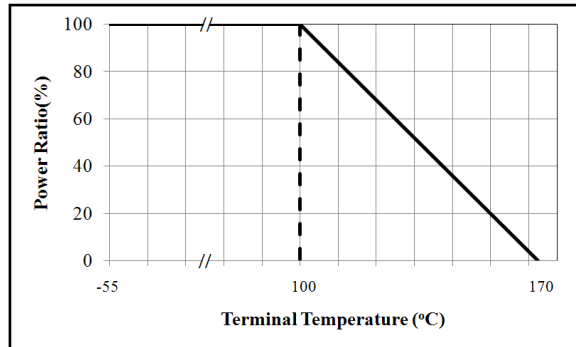
Features

- ◆ 2W up to 81A at 0.3 mΩ
- ◆ Lead free, RoHs compliant for global applications and halogen free
- ◆ Excellent long term stability

Application

- ◆ Power modules
- ◆ Current sensor for power hybrid sources
- ◆ Frequency converters
- ◆ Current sensor for power hybrid sources
- ◆ High current for automotive

Derating Curve



Part Numbers

SR 1206 E F F 0L30

(1) (2) (3) (4) (5) (6)

(1) Series Name: SR (Shunt Resistor)

(2) Chip size: 1206

(3) Packaging Material: Emboss (E)

(4) Resistance Tolerance: $\pm 1\%$ (F), $\pm 2\%$ (G), $\pm 5\%$ (J)

(5) Power rating: F=2.0W

(6) Resistance Code: Ex: 0L30 means 0.3m Ω , etc.

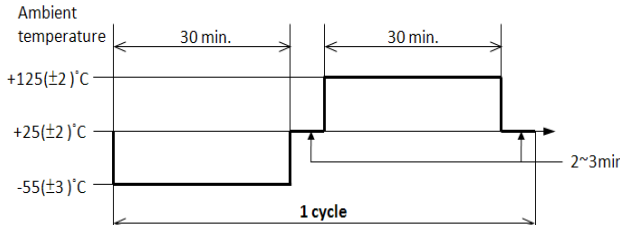
Electrical Specification

Item	Power Rating	Resistance Range(m Ω)	Operation Temp. Range	TCR (PPM/ $^{\circ}$ C)
SR1206	2W	0.3	-55~+170 $^{\circ}$ C	± 300
		0.5		± 200
		1.0		± 150

Current Sensing Shunt Resistor

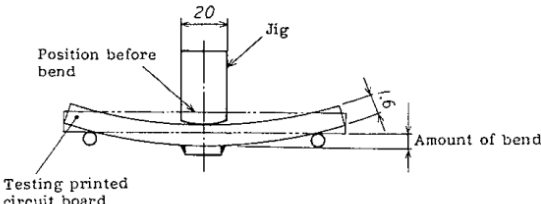
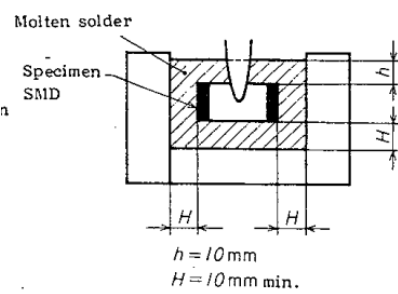
Performances

Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	Loading 5 times rate power 5sec	$\Delta R: \pm 1\%$
2	Temperature Coefficient of Resistance (T.C.R.)	+25°C / +125°C. (JIS-C5202-5.2) $TCR \text{ (ppm/}^\circ\text{C)} = \frac{\Delta R}{R \times \Delta t} \times 10^6$	Refer to electrical specification.
3	Moisture Resistance	The specimens shall be placed in a chamber and subjected to a relative humidity of 90~98% percent and a temperature of 25°C / 65°C 10 cycles (MIL-STD-202, Method 106)	$\Delta R: \pm 1\%$
4	High Temperature Exposure	The ship (mounted on board) is exposed in the heat chamber 170°C for 1000 hrs. (JIS-C5202-7.2)	$\Delta R: \pm 1\%$
5	Load Life	Apply rated power for 1000 hours with 1.5 hours ON and 0.5 hour OFF. (JIS-C5202-7.10)	$\Delta R: \pm 1\%$
6	Rapid change of temperature	The chip (mounted on board) is exposed, -55±3°C (30min.)/+125±2°C (30min.) for 1000 cycles. The following conditions as the following figure. (JIS-C5202-7.4) 	$\Delta R: \pm 1\%$

Current Sensing Shunt Resistor

Function Performance

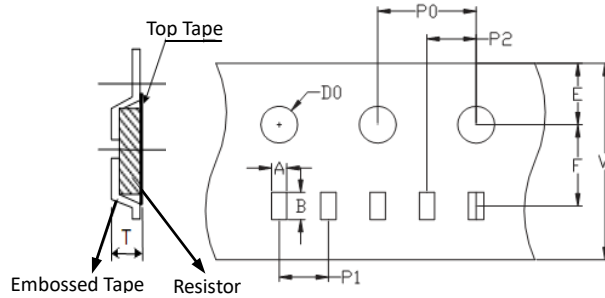
No.	Item	Test Condition	Specification
1	Bending Strength	<p>Mount the chip to test 90mm(L)*40mm(W) FR4 printed circuit board substrate. Apply pressure in direction of arrow unit band width reaches 2mm(+0.2/-0mm) illustrated in the figure below and hold for 10±1 sec. (JIS-C5202-6.1)</p> <p style="text-align: right;">Unit: mm</p> 	ΔR: ±1%
2	Solderability	<p>The specimen chip shall be immersed into the flux specified in the solder bath 235±5°C for 2±0.5 sec. It shall be immersed to a point 10mm from its root. (Sn96.5/Ag3.0/Cu0.5) (JIS-C5 202-6.11)</p>  <p style="text-align: center;">h = 10 mm H = 10 mm min.</p>	Solder shall be covered 95% or more of the electrode area.

Remark:

All Reliability test should follow De-rating curve , terminal temperature of component should be below100°C .

Tape Packaging Specifications

◆Embossed Plastic Tape Specifications



Type	Carrier Dimensions (mm)									
	A	B	E	F	W	P0	P1	P2	D0	T
1206	1.88±0.1	3.56±0.1	1.75±0.1	3.50±0.05	8.00±0.1	4.00±0.1	4.00±0.1	2.00±0.05	1.55±0.05	1.40±0.1

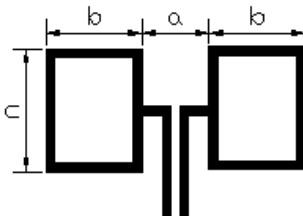
Packaging

Size EIA (EIAJ)	1206
Standard Packing Quantity (pcs /reel)	2,000

Storage Conditions

Temperature : 22~28°C, Humidity : 40~75%

Recommended Pad Layout

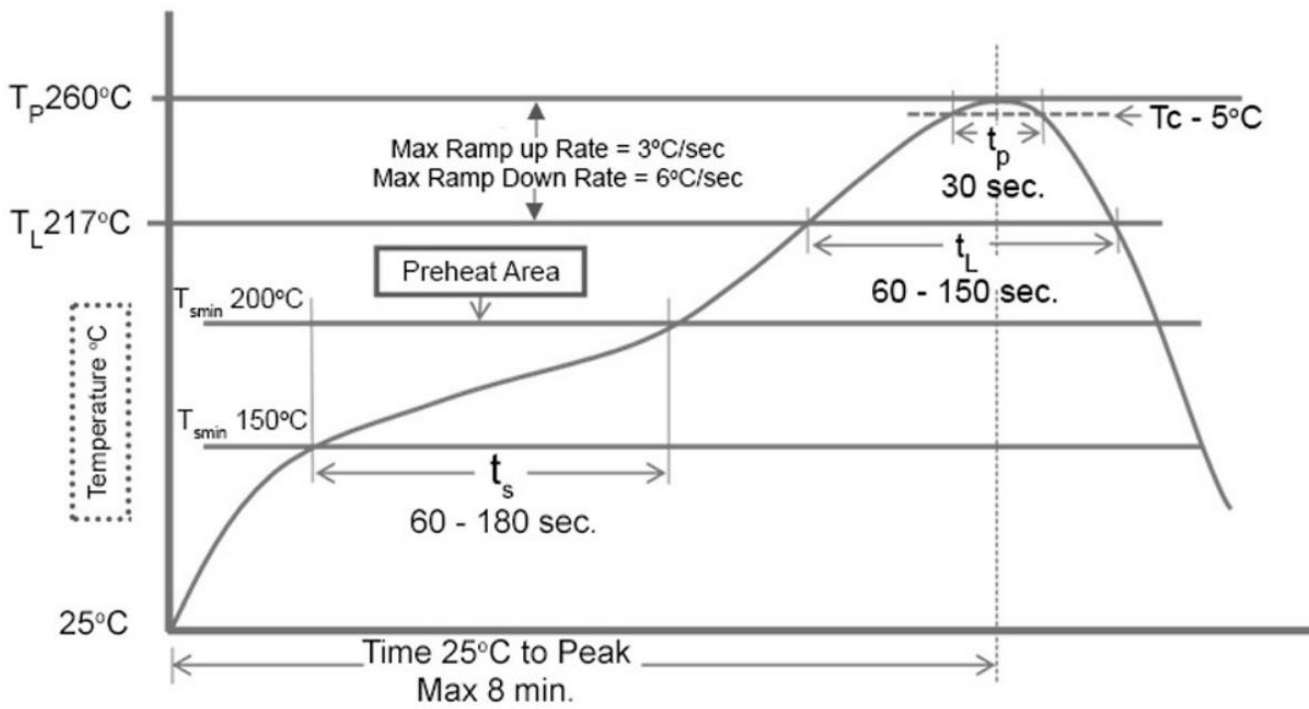


Type	Pad Layout Dimension (mm)		
	a	b	c
1206	1.4	1.7	1.8

Note. pad size, solder insufficient, excessive solder, solder void and component shifted will affect the resistance accuracy after IR reflow. Circuit calibration is a must to be done by functional test.

Soldering Recommendations

- ◆ Peak reflow temperatures and durations :
 - IR Reflow Peak = 260°C max for 10 sec
 - Not suitable for wave soldering
- ◆ Recommended IR Reflow Profile :



ECN

Engineering Change Notice : The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.