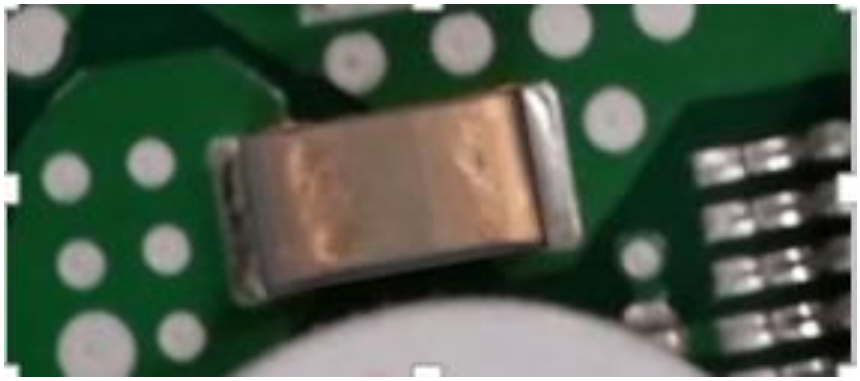
Shunt Resistor

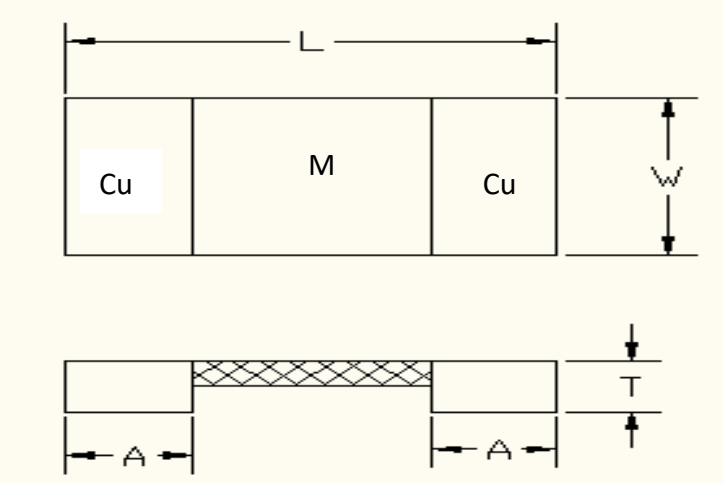
Specification



Scope

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

Dimensions



Type (inch size)	Dimensions(mm)				M(material)
	L	W	T	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

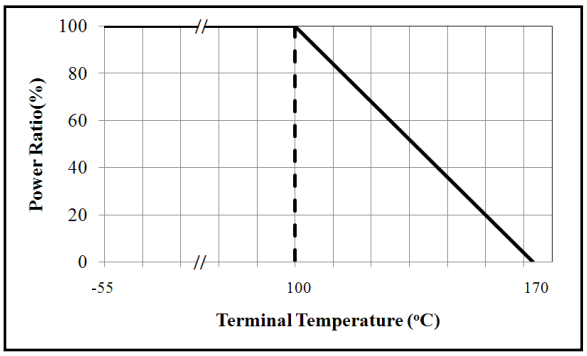
Features

- 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: ± 1% (F), ± 2% (G), ± 5% (J)
(5)Power rating: F=2.0W
(6)Resistance Code: Ex: 0L30 means 0.3mΩ, etc.

Electrical Specification

Item	Power Rating	Resistance Range(mΩ)	Operation Temp. Range	TCR (PPM/℃)
SR1206	2W	0.3	-55~+170 ℃	±300
		0.5		±200
		1.0		±150

Note: Power rating is guaranteed for use an aluminum substrate (MCPCB).Please check with ICP before order or using.

Rated Voltage:

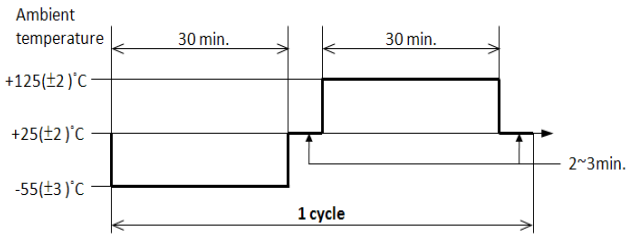
The rated voltage is calculated by the following formula:

$E = \sqrt{P * R}$

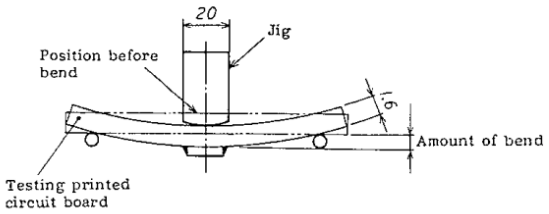
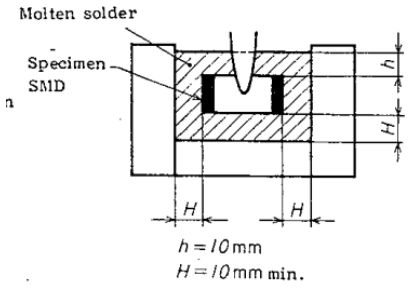
E=Rated Voltage(V)
P=Rated Power(W)
R=Resistance Value(Ω)

Performances

Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	Loading 5 times rate power 5sec	ΔR: ±(1%+0.0005Ω)
2	Temperature Coefficient of Resistance (T.C.R.)	+25°C /+125°C. (JIS-C5202-5.2) $TCR\ (\text{ppm}/℃) = \frac{\Delta R}{R \times \Delta t} \times 10^6$	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)	ΔR: ±(1%+0.0005Ω)
4	High Temperature Exposure	The ship (mounted on board) is exposed in the heat chamber 125℃ for 1000 hrs. (JIS-C5202-7.2)	ΔR: ±(1%+0.0005Ω)
5	Load Life	Apply rated power for 1000 hours with 1.5 hours ON and 0.5 hour OFF. (JIS-C5202-7.10)	ΔR: ±(1%+0.0005Ω)
6	Rapid change of temperature	The chip (mounted on board) is exposed, -55±3°C (30min.)/+125±2°C (30min.) for 5 cycles. The following conditions as the following figure. (JIS-C5202-7.4) 	ΔR: ±(1%+0.0005Ω)

Function Performance

No.	Item	Test Condition	Specification
1	Bending Strength	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) Unit: mm 	ΔR: ±(1%+0.0005Ω)
2	Solderability	The specimen chip shall be immersed into the flux specified in the solder bath 235±5℃ 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) 	Solder shall be covered 95% or more of the electrode area.

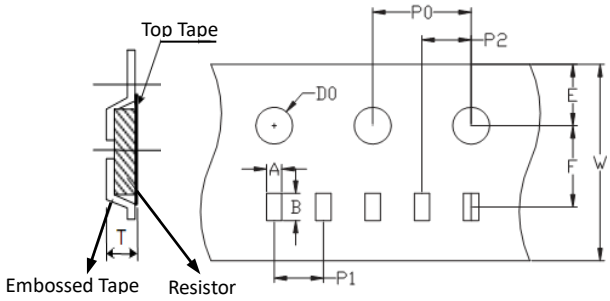
Remark:

a. The terminal electron temperature of component should below 100°C.

b. Solder paste will affect the resistance accuracy after IR reflow. Calibration is a must to be done during functional test.

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

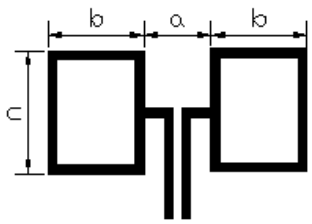
Packaging

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

Storage Conditions

Temperature：22~28℃, Humidity：40~75%

Recommended Pad Layout



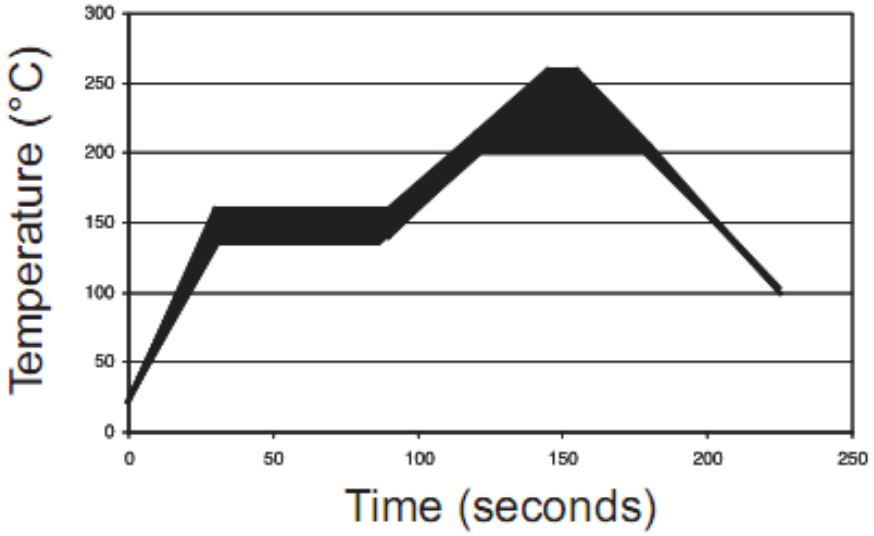
Type	Pad Layout Dimension (mm)		
	a	b	c
1206	1.4	2.1	1.8

Note: Pad layout is will be influence of resistance value. Please follow it.

Soldering Recommendations

◆ Peak reflow temperatures and durations：
- IR Reflow Peak = 260℃ 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.