Leader New Energy Technology Co., Ltd.

High Power Shunt Resistor

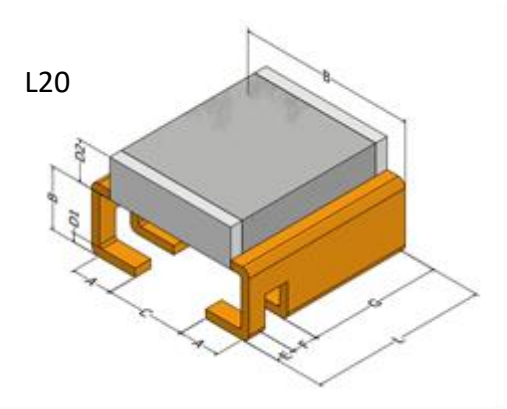
Current Sensing Shunt Resistor

Scope

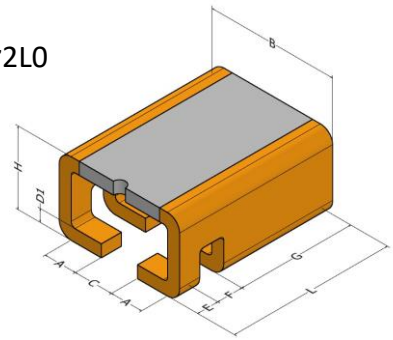
This specification applies for metal type current shunt resistor.

Dim

L20



L50~2L0



Type	Dimensions(mm)								
(inch size)	L	B	H	E	F	G(Ref)	A	D1/D2	C
SR1216 L20	3.81±0.30	3.00±0.15	2.2±0.15	0.50±0.15	0.60±0.15	2.70	1.05	0.30/0.70	0.95±0.15
SR1216 L50	3.81±0.30	3.00±0.15	1.80±0.15	0.50±0.15	0.60±0.15	2.70	1.05	0.30	0.95±0.15
SR1216 1L0	3.81±0.30	3.00±0.15	1.80±0.15	0.50±0.15	0.60±0.15	2.70	1.05	0.30	0.95±0.15
SR1216 2L0	3.81±0.30	3.00±0.15	1.80±0.15	0.50±0.15	0.60±0.15	2.70	1.05	0.30	0.95±0.15

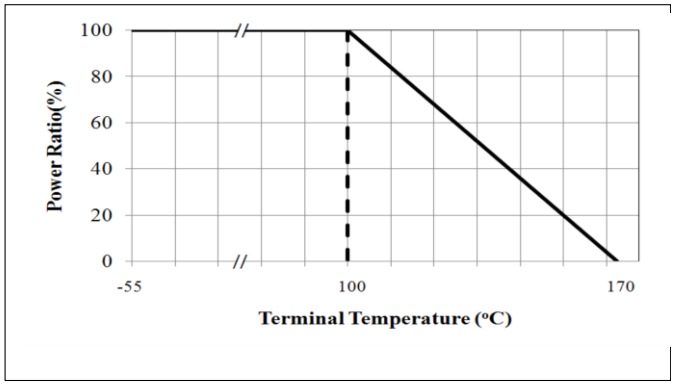
Features

- 3W~5W permanent power, Inductance<3nH
- Internal heat resistance <15K/W
- Lead free, RoHs compliant for global applications and halogen free

Application

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

Derating Curve



Current Sensing Shunt Resistor

Part Numbers

SR 1216 E F H 1L00

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

(1)Series Name: SR (Shunt Resistor)
(2) Chip size: 1216(inch)
(3)Packaging Material: Emboss
(4)Resistance Tolerance: ±1% (F), ± 5% (J)
(5)Power rating: L=5W, H=3W
(6)Resistance Code: EX: 1L0 means 1.0mΩ, etc.

Electrical Specification

Item	Power Rating	Resistance Range(mΩ)	Operation Temp. Range	TCR (PPM/℃)	Resistance Material
SR1216	5W	0.2	-55~+170℃	±150	MnCuSn
SR1216	5W	0.5	-55~+170℃	±50	MnCuSn
SR1216	3W	1.0	-55~+170℃	±50	MnCu
SR1216	2W	2.0	-55~+170℃	±50	MnCuNi

Performances

Environmental Performance

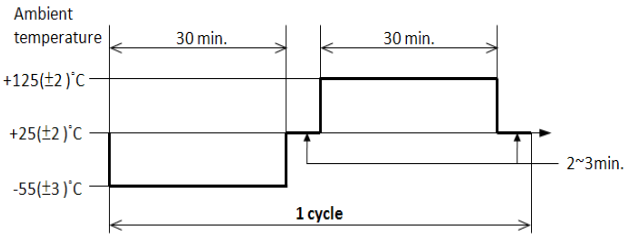
No.	Item	Test Condition	Specification
1	Short Time Overload	Loading 5 times rate power 5sec	ΔR: ±1%
2	Temperature Coefficient of Resistance (T.C.R.)	-20°C /+125°C. (JIS-C5202-5.2) $TCR\ (\text{ppm}/℃) = \frac{\Delta R}{R \times \Delta t} \times 10^6$	Refer to electrical specification.
3	Moisture Resistance	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%

Current Sensing Shunt Resistor

4	High Temperature Exposure	The ship (mounted on board) is exposed in the heat chamber 170℃ for 1000 hrs. (JIS-C5202-7.2)	ΔR: ±1%

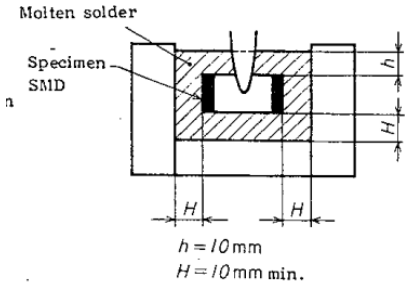
Performances

Environmental Performance

No.	Item	Test Condition	Specification
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%
6	Rapid change of temperature	The chip (mounted on board) is exposed, -20±3°C (30min.)/+125±2°C (30min.) for 1000 cycles. The following conditions as the following figure. (JIS-C5202-7.4) 	ΔR: ±1%

Remark:
All Reliability test should follow De-rating curve , terminal temperature of component should be below100℃.

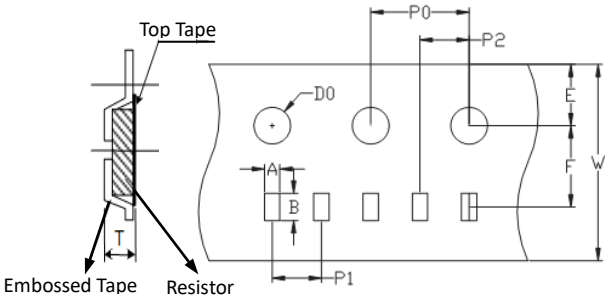
Function Performance

No.	Item	Test Condition	Specification
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.

Current Sensing Shunt Resistor

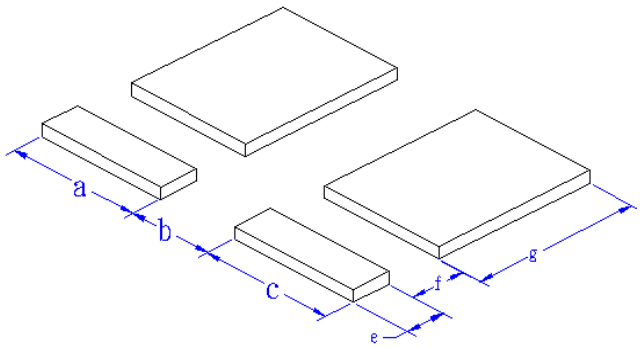
Tape Packaging Specifications

◆Embossed Plastic Tape Specifications



Type	Carrier Dimensions (mm)									
	A	B	E	F	W	P0	P1	P2	D0	T
SR1216	3.3±0.1	4.2±0.1	2.64±0.1	5.5±0.1	12.0±0.2	4.0±0.1	8.0±0.1	2.0±0.05	1.5±0.1	2.1±0.1

Recommended Pad Layout



Type (inch size)	Dimensions(mm)					
	a	b	c	e	f	g
SR1216	1.50±0.10	0.60±0.10	1.50±0.10	0.70±0.10	0.50±0.10	2.95±0.10

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.

Current Sensing Shunt Resistor

Packaging

Size EIA (EIAJ)	1216
Standard Packing Quantity (pcs /Reel)	3,000

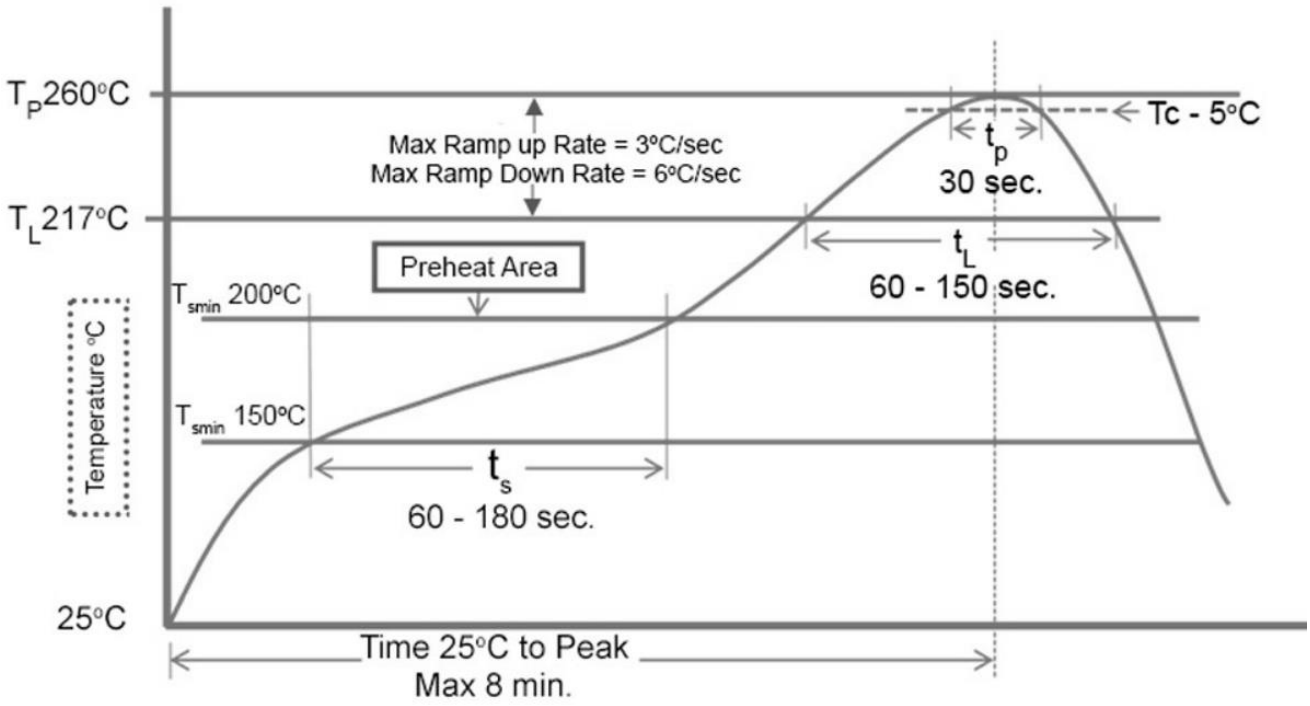
Storage Conditions

Temperature：22~28℃, Humidity：40~75%

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.