Leader New Energy Technology Co., Ltd.

Current Sensing Shunt Resistor with Molding Type

Current Sensing Shunt Resistor with molding typel

Document No: SRM28STD001A

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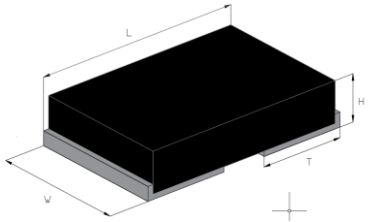
Scope

This specification of high power molding type current sensing resistor rectangular type.

Dimensions

Type (inch size)	Dimensions(mm)			
	L	W	H	T
2818	7.15±0.25	4.95±0.25	1.65±0.25	2.9±0.25



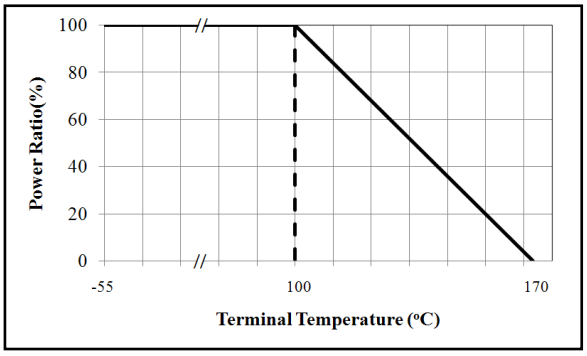
Features

- Chip size 2818
- Resistance value from 1mΩ to 50mΩ
- Lead free, RoHs compliant for global applications and halogen free

Application

- Switching Power Supply
- Voltage Regulation Module
- DC-DC Converter, Adaptor, Battery Pack, Charger
- PDA & Cell Phone
- Power management Applications

Derating Curve



Part Numbers

SRM 2818 E F L R001

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

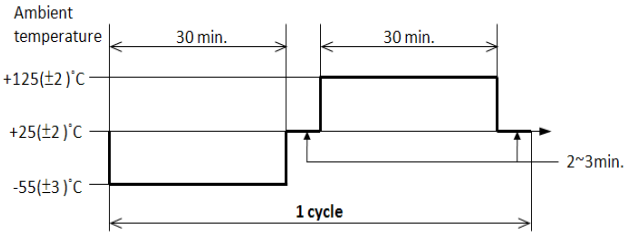
(1)Series Name: SRM (Shunt Resistor with Molding)
(2)Chip size: 2818
(3)Packaging Material: Emboss (E)
(4)Resistance Tolerance: ± 1% (F), ± 2% (G), ± 5% (J)
(5)Power rating: L=5W
(6)Resistance Code: R001 means 0.001Ω

Electrical Specification

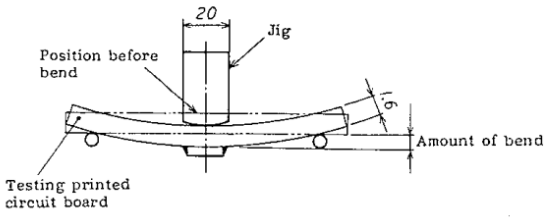
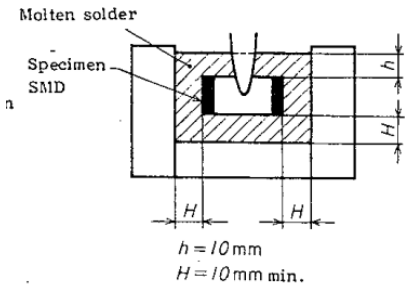
Item	Power Rating	Resistance Range(mΩ)	Operation Temp. Range	TCR (PPM/℃)	Resistance Material
2818	5.0W	R=1	-55~+170℃	±250	MnCu
		R=2		±200	MnCuSn
		3≤R≤7		±200	MnCu
		8<R≤50		±75	FeCrAl
2818-L		8<R<50		±75	NiCrAl

Performances

Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	4 times rated power for 5 sec. (JIS-C5202-5.5)	ΔR: ±1%
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	Damp Heat with Load	The specimens shall be placed in a chamber and subjected to a relative humidity of 90~95% percent and a temperature of 40° ±2°C for the period of 1000 hr with applying rated power 1.5 hours ON and 0.5 hour OFF. (MIL-STD-202, Method 103)	ΔR: ±1%
4	High Temperature Exposure	The chip (mounted on board) is exposed in the heat chamber 170±3℃ for 1000 hrs. (JIS-C5202-7.2)	ΔR: ±1%
5	Load Life	Apply rated power at 70±2°C 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, -55±3°C (30min.)/+125±2°C (30min.) for 1000 cycles. The following conditions as the following figure. (JIS-C5202-7.4) 	ΔR: ±1%

Function Performance

No.	Item	Test Condition	Specification
1	Bending Strength	Mount the chip to test 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%
2	Solvent Resistance	The chip is completed immersion of the specimens in the isopropyl alcohol for 3 (+5, -0) min. at 25°C ±5°C. ((MIL-STD-202, Method 215)	Verify marking permanency. (Nor required for laser etched parts or parts with no marking)
3	Resistance to solder Heat	The specimen chip shall be immersed into the flux specified in the solder bath 260±5℃ for 10±1 sec. (MIL-STD-202, Method 210)	ΔR: ±1%
4	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. All Reliability test should follow De-rating curve , terminal temperature of component should be below100℃.

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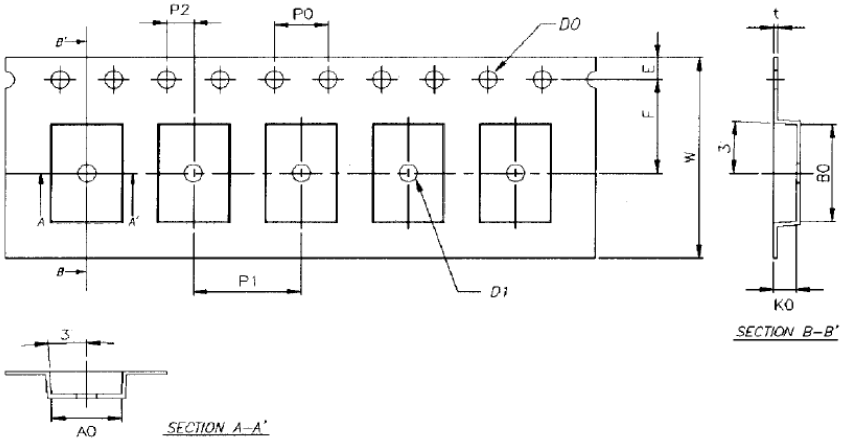
Tape Packaging Specifications

◆Embossed Plastic Tape Specifications



Type	Carrier Dimensions (mm)										
	A	B	E	F	W	P0	P1	P2	D0	D1	T1
2818	5.21±0.1	7.69±0.1	1.75±0.1	7.50±0.1	16±0.3	4.0±0.1	8.0±0.1	2.0±0.1	1.5+0.1,-0	1.50+0.1,-0	0.30±0.05

Packaging

Size EIA (EIAJ)	2818
Standard Packing Quantity (pcs /reel)	3,500

Storage Conditions

Temperature：5~35℃, Humidity：40~75%

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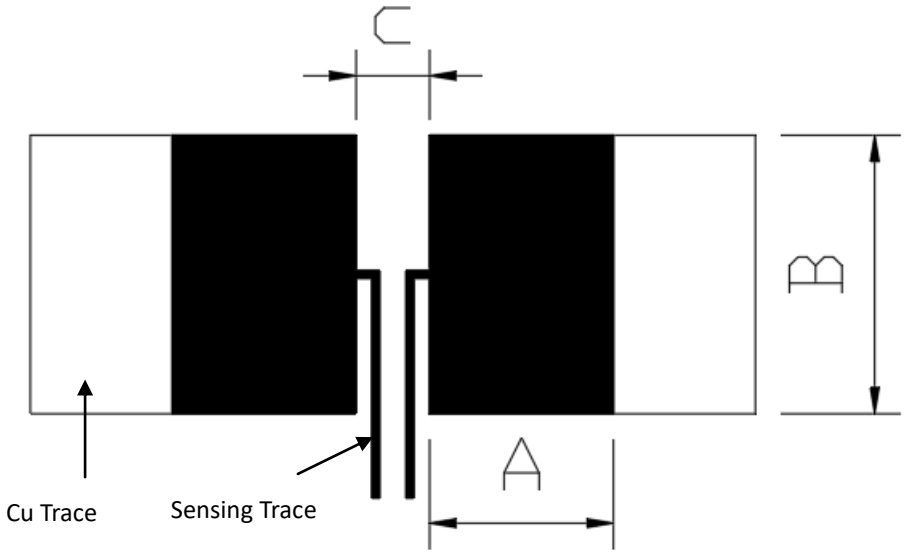
Recommended Pad Layout



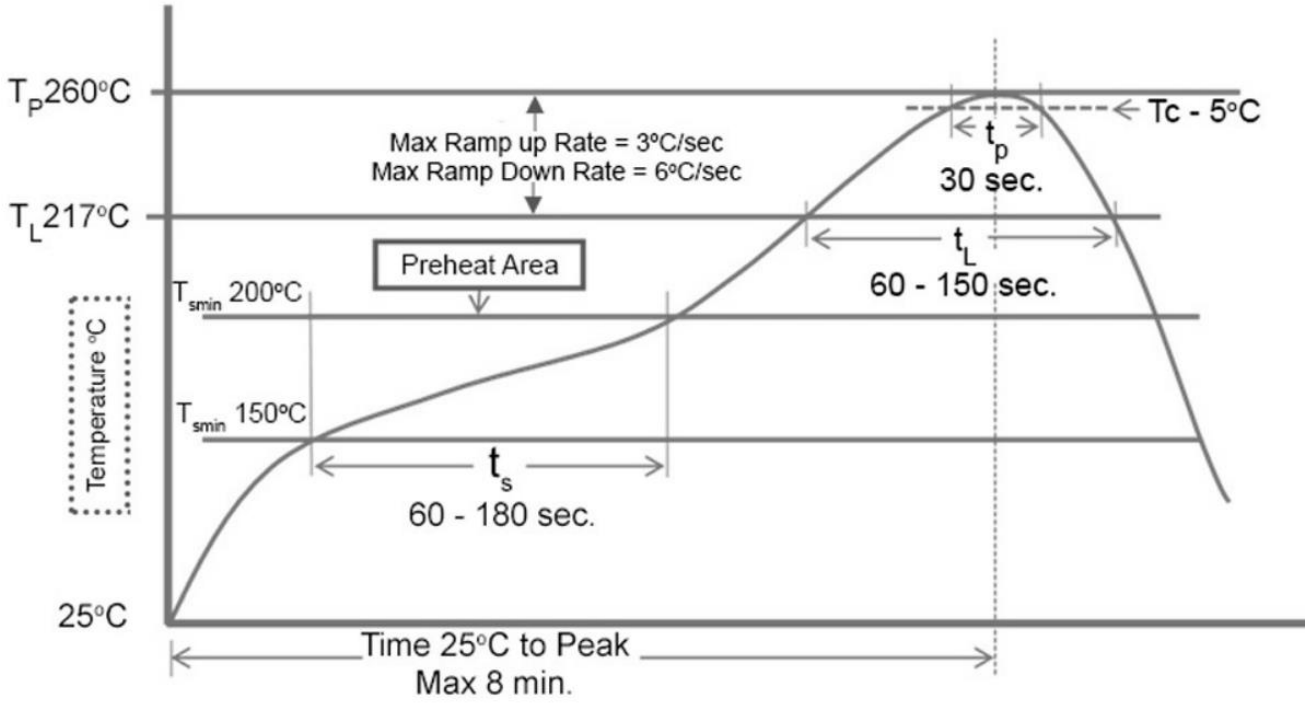
Type	Pad Layout Dimension (mm)		
	A	B	C
2818	3.5	5.3	1.4

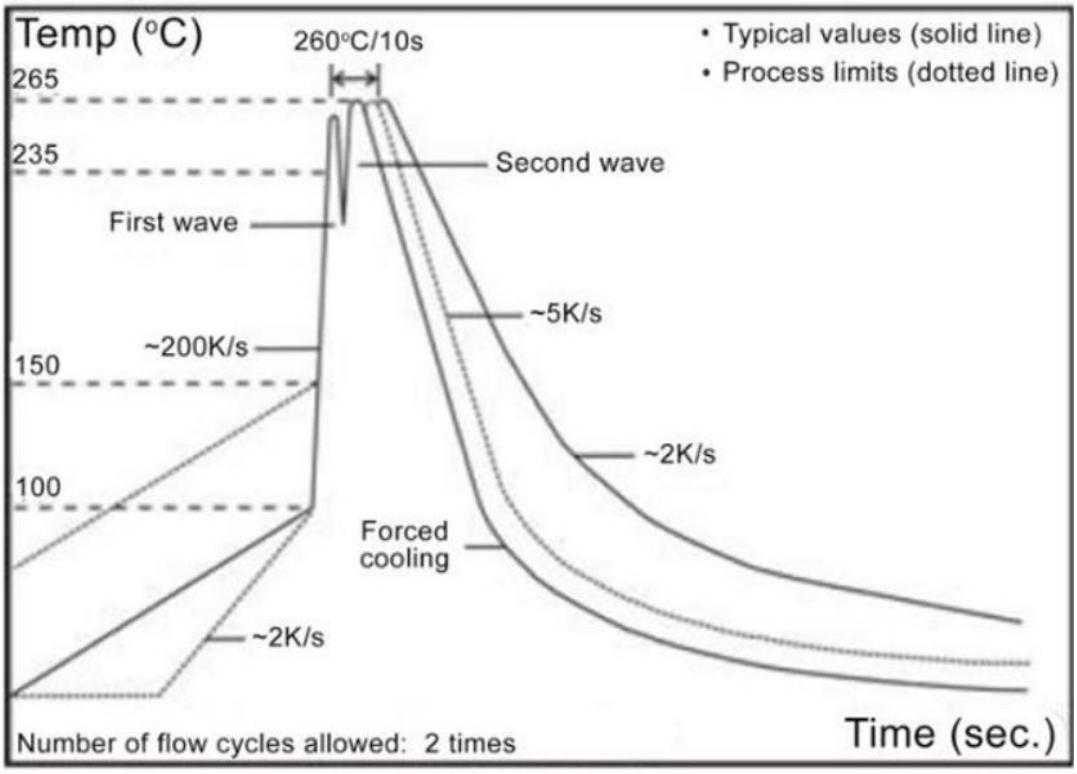
Soldering Recommendations

◆ Peak reflow temperatures and durations：
- IR Reflow Peak = 260℃ max for 10 sec
- Wave Solder = 260℃ max for 10 sec

◆ Compatible with lead and lead-free solder reflow processes

◆ Recommended IR Reflow Profile：





Wave Soldering (Flow Soldering)

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.