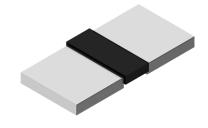


SCMM2512S5 Series, Current Sensor Resistor (Lead / Halogen Free)

Features / Applications :

- High power rating is up to 5W
- Welding construction; excellent long-term stability
- Automotive applications & Current Sensor Resistor
- Suited for mounting on DBC / IMS substrate
- RoHS compliant



Electrical Specifications:

Characteristics ¹	Feature
Power Rating ²	5 W
Resistance Value	0.3 to 2 m Ω
Temperature Coefficient of Resistance (25/125°C)	From 50 ppm/°C
Operation Temperature Range	-65°C∼ +170°C
Resistance Tolerance	± 1%
Maximum Working Voltage (V)	(P*R) ^{1/2}

- 1. For detail information refer to the table on page 3 P/N list
- 2. For resistors are operated at terminal temperature in excess of $100^{\circ}\text{C}~(0.3\text{-}2.0\text{m}\Omega)$, the maximum load shall be derated in accordance with the following curve.

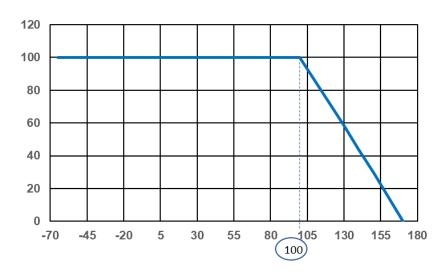


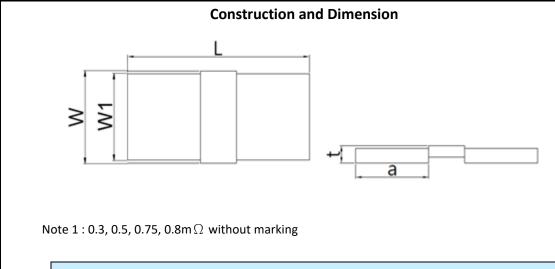
Figure 1. : Power derating curve at terminal temperature

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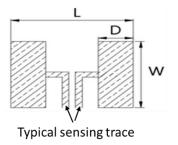


Outline Drawing:



Dimensions (mm)						
Resistance Range (mΩ)	0.3, 0.5, 0.75, 0.8	1, 2				
L	6.35 ± 0.25					
W	3.20 ± 0.25					
W1	3.05 ± 0.15					
t	0.60 ± 0.25					
а	2.55 ± 0.25 2.05 ± 0.25					

Recommended Solder Pad Dimensions



Resistance Range	Dimensions			
mΩ	W (mm) D (mm) L (mm			
0.3 to 2	3.7	3.2	7.35	

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Type Designation:

S C M M 2512 S 5 — 🗆 🗆 🗆 (1) (2) (3) (4) (5) (6)

Note:

(1) Series No.

(2) Size

(3) Terminal Type : S = Short terminal

(4) Power Rating: 5 = 5W

(5) Resistance value : $R002 = 0.002\Omega$, $OM50 = 0.0005\Omega$

(6) Tolerance : $F = \pm 1\%$, $G = \pm 2\%$, $J = \pm 5\%$

P/N list:

D/N	R value	TCR	Power Rating		Tolerance		
P/N	(mΩ)	(ppm/K)	(W)	1%	2%	5%	
SCMM2512S5-0M30*	0.3	±125	5	✓			
SCMM2512S5-0M50*	0.5	±100	5	✓			
SCMM2512S5-0M75*	0.75	±100	5	✓			
SCMM2512S5-0M80*	0.8	±100	5	✓			
SCMM2512S5-R001*	1.0	±75	5	✓			
SCMM2512S5-R002*	2.0	±75	5	✓			

^{*} Note : Other values and tolerance would be available, please contact Cyntec.

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Characteristics:

Electrical

Item	Specification and Requirement	Test Method		
Temperature Coefficient (TCR)	As follow specification	JIS-C-5201 +25°C/ +125°C.		
Short Time Overload	$\triangle R$: \pm 0.5% Without damage by flashover, spark, arcing, burning or breakdown	JIS-C-5201-1 4.13 2.5 x rated power for 5 seconds.		
ESD	$\triangle R$: \pm 1% Without damage by flashover, spark, arcing, burning or breakdown	AEC-Q200-002 Human body, 8KV.		
Insulation Resistance	Over 100 M Ω on Overcoat layer face up	JIS-C-5201-1 4.6 100V _{DC} for 60 +10/-0 seconds		
Voltage Proof	\triangle R: \pm 1% Without damage by flashover, spark, arcing, burning or breakdown	JIS-C-5201-1 4.7 400V _{AC} (rms.) for 60 +10/ -0 seconds		

Mechanical

Item	Specification and Requirement	Test Method
Solderability	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder	J-STD-002 Method B category 3 245±5°C for 5±0.5 seconds.
Resistance to Solder Heat	\triangle R: \pm 0.5% Without distinct damage in appearance	MIL-STD-202 Method 210 $260 \pm 5 ^{\circ}\text{C} \ \text{ for } 10 \pm 1 \text{ seconds}.$
Board Flex	\triangle R: \pm 1.0% Without mechanical damage such as break.	AEC-Q200-005 Bending value: 2 mm for 60 ± 1 seconds.

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		MIL-STD-202 Method 204
Vibration	△R: ± 0.5%	5G's for 20 minutes, 12 cycles each
Vibration	Without distinct damage in appearance	of 3 orientations. Test from 10-
		2000Hz.
		MIL-STD-202 Method 213
Mechanical Shock	△R: ± 0.5%	100G's peak value, 6ms,
	Without distinct damage in appearance	Half-sine waveform, 12.3ft/sec.
Terminal Strength	△R: ± 1%	AEC-Q200-006
(SMD)	Without mechanical damage such as break.	Force of 1.8Kg for 60 seconds.

Endurance

Item	Specification and Requirement	Test Method
Temperature Cycling	\triangle R: \pm 0.5% Without distinct damage in appearance	JESD22 Method JA-104 -55°C to 150°C /1000cycle 30 min maximum dwell time at each temperature.
Biased Humidity	\triangle R: \pm 0.5% Without distinct damage in appearance	MIL-STD-202 Method 103 1000 hours, 85°C/85%R.H, applied for 10% rated power.
Operational Life	$\triangle R$: \pm 1.0% Without distinct damage in appearance	MIL-STD-202 Method 108 70°C, 100% rated power 1.5 hours ON, 0.5 hours Off For total 1000 hours
High Temperature Storage	\triangle R: \pm 1.0% Without distinct damage in appearance	MIL-STD-202 Method 108 170°C for 1000 hours.
Moisture Resistance	\triangle R: \pm 0.5% Without distinct damage in appearance	MIL-STD-202 Method 106 65°C /90-100%RH, unpowered, 7b not required

Note : Measurement at 24 ± 4 hours after test conclusion for all reliability tests-parts.

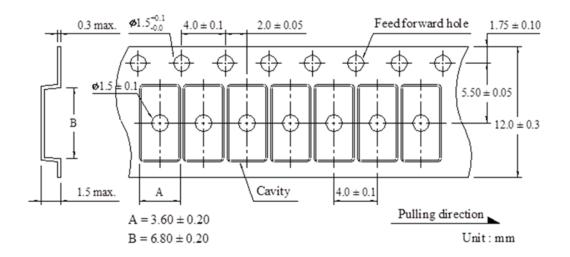
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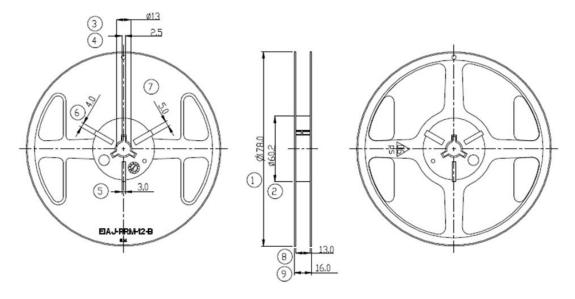


PACKAGING DESCRIPTIONS:

Dimensions:



Reel dimensions:



Unit:mm

Symbol	1	2	3	4	5	6	7	8	9
Size	178.0	60.2	13.0	2.5	3.0	4.0	5.0	13.0	16.0
3126	±1	±0.5	±0.5	+0.5/-0	+0.5/-0	+0.5/-0	+0.5/-0	±0.5	±0.15

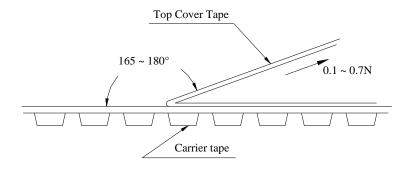
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Peel Strength of Top Cover Tape:

The peel speed shall be about 300mm/min and the peel force of top cover tape shall between 0.1 to 0.7N



Number of Taping:

2,000 pieces / reel

Label Marking:

The following items shall be marked on tray

- (1) Description
- (2) Quantity
- (3) Part No.
- (4) Tapping No.

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Care Note:

Care note for storage

- (1) Chip resistor shall be stored in a room where temperature and humidity must be controlled. (temperature 5 to 35°C, humidity < 60% RH) However, a humidity keep it low, as it is possible.
- (3) Chip resistor shall be stored as direct sunshine doesn't hit on it.
- (4) Chip resistor shall be stored with no moisture, dust, a material that will make solderability inferior, and a harmful gas (Chloridation hydrogen, sulfurous acid gas, and sulfuration hydrogen)

Care note for operating and handling

- (1) Protect the edge and coating of the sensors from mechanical stress.
- (2) Avoid bending of printing circuit board (PCB) when cutting and fixing it on support body to reduce mechanical stress on sensors.
- (3) Sensor should be used within the condition of specification.
 Note: When a voltage higher than specified value is loaded to the sensor, this may damage the sensor material due to temperature rise.
- (4) The loaded voltage should consult terminal temperature of the sensor according to the derating curve.
- (5) When applying a high current exceeding suggested specification (pulse current, shock current) to the sensor, it is necessary to re-evaluate the operating condition before using it in the system.

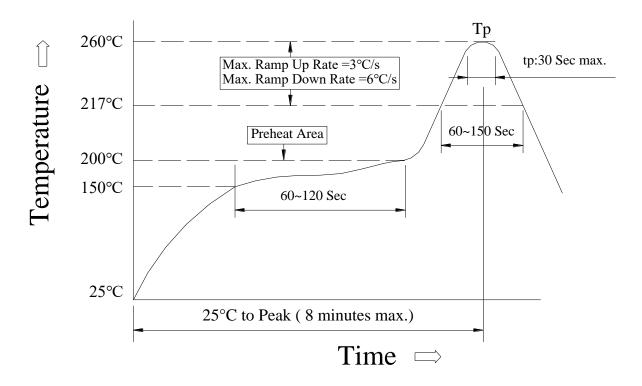
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Reflow profile:

Recommended Reflow Profile



(1) Reflow Soldering Method:

Reflow Soldering	Tp:255~260°C	Max.30 seconds (tp)
	217°C	60~150 seconds
Pre-Heat	150 ~ 200°C	60~120 seconds
Time 25°C to peak temperature	8 minutes max.	

Reference: JEDEC J-STD-020D

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