

ALTERNATION HISTORY RECORDS 变更记录

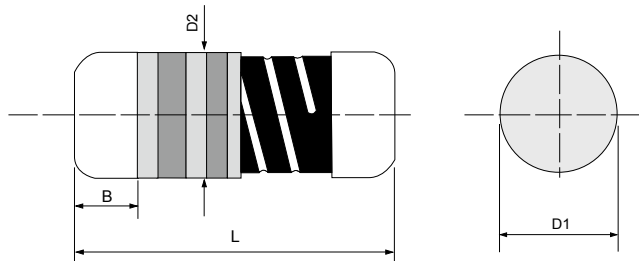
Date 日期	Version 版本	Mark 标记	Page 页码	Description 描述	Drafter 制定者	Approver 审批者
2019-5-25	A	/	5	首次发行	常斯琴	彭旭

RCSM Series

Current Sense MELF Resistor

1. Specifications Per

• IEC 60115-1



2. Features

- Low ohmic value
- High power handling with superior reliability and stability
- Conformal multi-layer coating against humidity
- SMD enabled structure with excellent solderability
- HeatSinker™ technology for better heat dissipation
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

■ DIMENSIONS

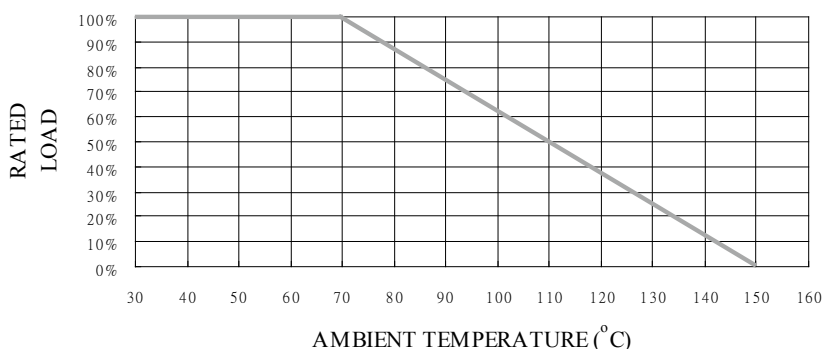
Type	Body Length (L, mm)	Cap Diameter (D1, mm)	Body Diameter (D2, mm)	Soldering Spot (B, mm)	Net Weight Per 1000 pcs
RCSM204	3.52 ± 0.15	1.35 ± 0.1	D1+0.02/ -0.15	0.6 Min.	17 grams
RCSM52	5.90 ± 0.20	2.20 ± 0.1	D1+0.02/ -0.2	1.0 Min.	66 grams
RCSM101	5.90 ± 0.20	2.20 ± 0.1	D1+0.02/ -0.2	1.0 Min.	66 grams
RCSM201	8.50 ± 0.50	3.00 ± 0.2	D1+0.05/ -0.35	1.3 Min.	186 grams
RCSM301	10.5 ± 0.50	4.00 ± 0.5	D1+0.05/ -0.45	1.6 Min.	446 grams

■ GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Overload Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
RCSM204	1/4W	200V	400V	10mΩ	510mΩ	±1%~5%	E-24 / E-96
RCSM52	1/2W	250V	500V	10mΩ	510mΩ	±1%~5%	E-24 / E-96
RCSM101	1W	250V	500V	10mΩ	510mΩ	±1%~5%	E-24 / E-96
RCSM201	2W	300V	600V	10mΩ	510mΩ	±1%~5%	E-24 / E-96
RCSM301	3W	350V	700V	10mΩ	510mΩ	±1%~5%	E-24 / E-96

Special sizes, values, and specifications not listed available on special order

■ POWER DERATING CURVE



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TECHNICAL SUMMARY

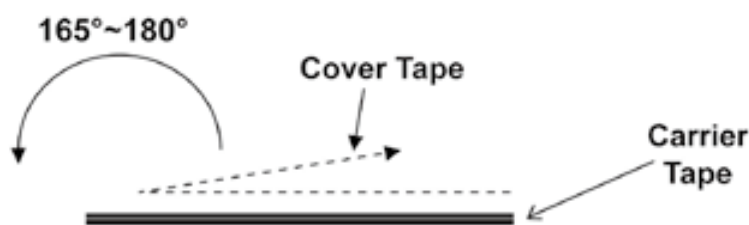
Characteristics	Limits
Dielectric Withstanding Voltage, VAC or VDC	RCSM204: 200 RCSM52, RCSM101: 500 RCSM201, RCSM301: 700
Temperature Coefficient, PPM / °C	±50, ±100, ±200, ±300, ±600
Operating Temperature Range, °C	-55 ~ +150
Insulation Resistance, MΩ	>10 ⁴
Tin Whisker (JESD201 Temperature Cycling & High Temp. /Humidity Storage), μm	<5

* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

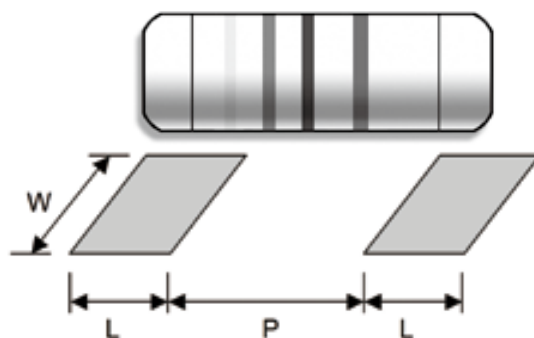
COVER TAPE PEELING SPECIFICATION

Recommended peeling force:

RCSM204, RCSM52, RCSM101: 50±5gf RCSM201, RCSM301: 70±10gf



SUGGESTED PAD LAYOUT



Type	Soldering Mode	Pad Length (L, mm, Min.)	Pad Spacing (P, mm)	Pad Width (W, mm, Min.)
RCSM204	Reflow	1.3	1.6 ± 0.1	1.6
	Wave	1.5	1.5 ± 0.1	1.8
RCSM52	Reflow	2.0	3.0 ± 0.1	3.0
	Wave	2.5	3.0 ± 0.1	3.0
RCSM101	Reflow	2.0	3.0 ± 0.1	3.0
	Wave	2.5	3.0 ± 0.1	3.0
RCSM201	Reflow	3.0	4.9 ± 0.3	3.7
	Wave	3.5	4.8 ± 0.3	4.0
RCSM301	Reflow	4.0	6.2 ± 0.4	5.0
	Wave	4.5	6.0 ± 0.4	5.0

For better heat dissipation / lower heat resistance, increase W & L.

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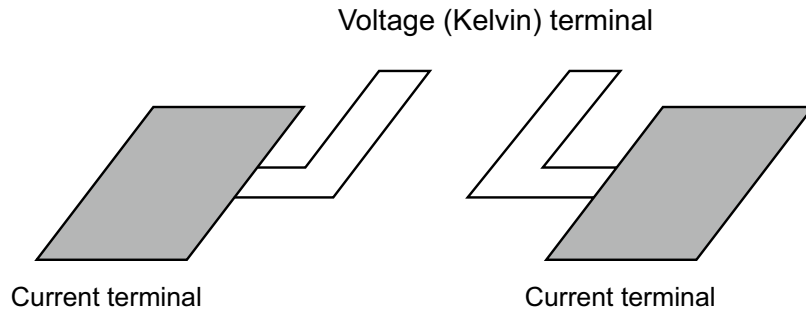
■ PERFORMANCE SPECIFICATIONS

Characteristics	Test Conditions	Limits
Short Time Overload	IEC 60115-1 4.13 2 seconds 2.5x rated voltage (not over max. overload voltage)	±1%, 2%: ±0.75% ±5%: ±2%
Load Life	IEC 60115-1 4.25.1 Rated load (not over max. working voltage) 1,000 hours with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±3%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over max. working voltage) at 40°C and (93±3)% relative humidity	±3%
Periodic Electric Overload	IEC 60115-1 4.39 3.9x rated voltage (not over max. overload voltage) with 0.1s ON, 2.5s OFF for 1,000 cycles	±5%
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Dip the resistor into a solder bath measured (260±5)°C and hold it for 10±1 seconds	±1%
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C/(2±0.2) seconds with flux applied	95% min.coverage
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 150°C without load	±1%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +150°C 30minutes, 5 cycles	±2%
Single pulse high voltage overload	IEC 60115-1 4.27 10 pulses of 10/700µs at 10x rated voltage (not over max. overload voltage) with interval of 60 sec.	± 2%
Electrostatic discharge (Human body model)	IEC 60115-1 4.38 3 positive & 3 negative discharges with 2KV for CSM204 or 4KV for CSM52, CSM101, CSM201, CSM301 (For continuous surge application please see Surge Performance paragraph)	± 5%
Climatic test	IEC 60115-1 4.23 4.23.2 - dry heat: 16 hours 150°C 4.23.3 - damp heat: 24 hours 55°C with 95% relative humidity 4.23.4 - cold: 2 hours -55°C 4.23.5 - negative air pressure: 2 hour 8.5KPa at (25±10)°C 4.23.6 - damp heat cyclic: 5 days 55°C with 95% relative humidity 4.23.7 - DC load: rated voltage at -55°C and 150°C each 1 Min.	± 2%
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 1.52mm and 10 to 2,000 Hz.	±1%
Bending test	IEC 60115-1 4.33 Pressing depth 2mm, 3 times	± 0.5%
Flammability	IEC 60115-1 4.35 Needle flame test 10s	No burning after 30s

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■ SUGGESTED PAD LAYOUT FOR KELVIN (4-WIRE) SENSING



■ PART NUMBER

Example: **RCSM2041/4WR022K50ppmNIL**

RCSM204	1/4W	R022	K	50ppm	NIL
Type	Power	Resistance	Tolerance	TCR	Packaging
	1/4W	R022=22mΩ R510=0.51mΩ R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	J (5%) K (10%) M (20%)	3-7-character code TYL=Typical TCR=±50ppm=50ppm	Nil = Bulk T/R = Tape and Reel T/B = Tape and Box