



MCSM2512 Series

Metal Strip Current Sensing Resistors

Document No:2W04

Issued Date:2018/02

Version : A004

APPROVAL SHEET

Model Name	Metal Strip Current Sensing Resistor
Part Number	IMCSM2512R002FEEA
Customer Name	
Customer P/N	
Issued Date	

Customer		Maker		
Approved	Checked	Inspector	Checked	Prepared
		<i>Cody Liu</i>	<i>Cody Liu</i>	<i>Cody Liu</i>

•All Specifications are subject to change without notice.

Features

- ◆ Able to withstand high temperature and high current
- ◆ Ultra Low sensing resistance
- ◆ Excellent frequency response
- ◆ Chip size: 2512
- ◆ Lead free, RoHS compliant for global applications halogen free

Application

- ◆ Mobile electronic equipment-Cellular phone, NB Tablet PC, GPS, DSC, HDD
- ◆ DC-DC converter, Adapter, Battery pack and charger
- ◆ Switching power supply
- ◆ Voltage Regulation module and
- ◆ Power management applications

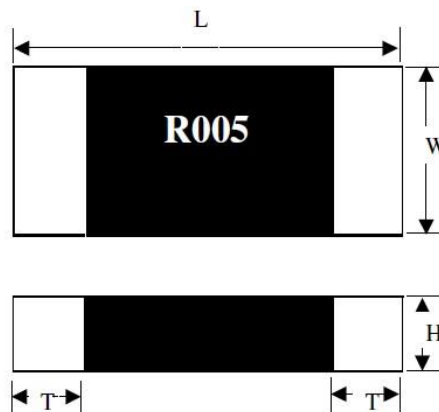
Part Numbering System

IMCSM 2512 R002 F E E A

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

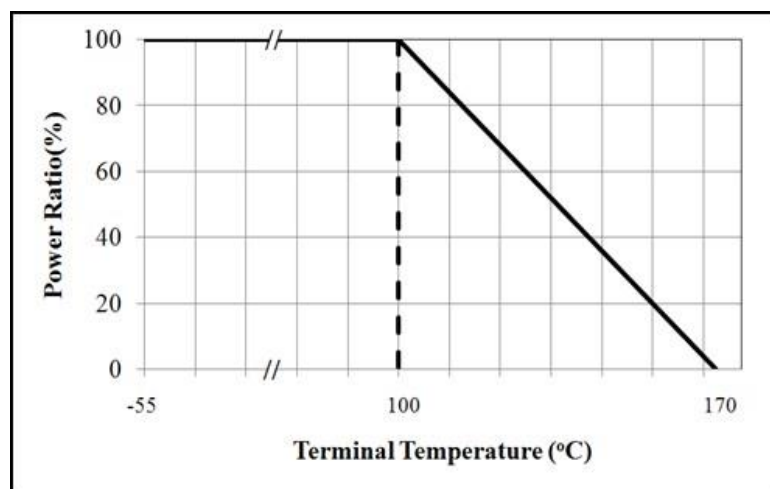
- (1) Series Code
- (2) Size (EIA): Length x Width
- (3) Resistance: R002=2mΩ, R010=10mΩ, R050=50mΩ
- (4) Tolerance: F=+/-1%, G=+/-2%, J=+/-5%
- (5) Power Rating: S=0.5W, C=1W, D=1.5W, E=2W, H=3W, P=4W, I=5W
- (6) Packaging: T- Embossed paper tape, 7" reel
E-Embossed plastic tape, 7" reel
- (7) Special: A=Stander M=Low EMF

Dimension

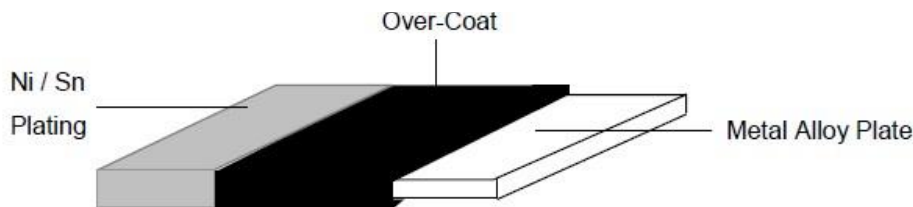


TYPE	Resistance Range (Ω)	T.C.R (ppm/ $^{\circ}$ C) Max. & Material	Power Rating (watts)	Dimensions-mm(inches)			
				L	W	H	T
0805	0.001~0.05	MnCu \pm 75 $R \leq 20m\Omega$ FeCrAi \pm 100 $R \geq 21m\Omega$	0.25-0.5	2 \pm 0.25 (0.08 \pm 0.01)	1.25 \pm 0.25 (0.05 \pm 0.01)	0.65 \pm 0.25 (0.03 \pm 0.01)	0.5 \pm 0.25 (0.02 \pm 0.01)
1206	0.001~0.12	MnCu \pm 75 $R \leq 15m\Omega$ FeCrAi \pm 100 $R \geq 16m\Omega$	0.5-1.0	3.1 \pm 0.25 (0.12 \pm 0.01)	1.6 \pm 0.25 (0.06 \pm 0.01)	0.75 \pm 0.25 (0.03 \pm 0.01)	0.7 \pm 0.25 (0.03 \pm 0.01)
2010	0.0005-0.029	MnCu \pm 75 $R \leq 15m\Omega$ FeCrAi \pm 100 $R \geq 16m\Omega$	1W-2W	5.1 \pm 0.25 (0.2 \pm 0.01)	2.65 \pm 0.25 (0.1 \pm 0.01)	0.85 \pm 0.25 (0.03 \pm 0.01)	1.3 \pm 0.25 (0.05 \pm 0.01)
	0.03-0.1						0.7 \pm 0.25 (0.05 \pm 0.01)
2512	0.0005-0.03	CuNi \pm 50 $R \leq 1m\Omega$ MnCu \pm 75 $R \leq 20m\Omega$ FeCrAi \pm 100 $R \geq 21m\Omega$	2W-3W	6.3 \pm 0.25 (0.3 \pm 0.01)	3.2 \pm 0.25 (0.13 \pm 0.01)	0.85 \pm 0.25 (0.03 \pm 0.01)	1.9 \pm 0.25 (0.074 \pm 0.01)
	0.004-0.059		2W-3W				1.15 \pm 0.25 (0.05 \pm 0.01)
	0.06-0.1		1.5W-3W				0.8 \pm 0.25 (0.03 \pm 0.01)
	0.11-0.2		1.5W				
2725	0.0005-0.079	MnCu \pm 75 $R \leq 10m\Omega$ FeCrAi \pm 100 $R \geq 50m\Omega$	3W-4W	7.1 \pm 0.25 (0.3 \pm 0.01)	6.3 \pm 0.25 (0.3 \pm 0.01)	0.85 \pm 0.25 (0.03 \pm 0.01)	1.9 \pm 0.25 (0.07 \pm 0.01)
	0.08-0.1						1.15 \pm 0.25 (0.05 \pm 0.01)
							0.8 \pm 0.25 (0.03 \pm 0.01)

Derating Curve



Construction



Performances

Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	Voltage equal to 4 time rated power for 5 sec , (JIS-C5202-5.5)	R: $\pm(1\%+0.0005)$)
2	Temperature Coefficient of Resistance (T.C.R.)	$TCR \text{ (ppm/}^\circ\text{C)} = \frac{\Delta R}{R \times \Delta t} \times 10^6$ +25°C /+125°C. (JIS-C5202-5.2)	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 hrs. (MIL-STD-202, Method 103)	R: $\pm(1\%+0.0005)$)
4	High Temperature Exposure	The ship (mounted on board) is exposed in the heat chamber 125±3°C for 1000 hrs. (JIS-C5202-7.2)	R: $\pm(1\%+0.0005)$)
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)	R: $\pm(1\%+0.0005)$)
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)	R: $\pm(1\%+0.0005)$)

Function Performance

No.	Item	Test Condition	Specification
1	Bending Strength	<p>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)</p> <p style="text-align: right;">Unit: mm</p>	R: ±(1%+0.0005)
2	Solvent Resistance	<p>The chip is completed immersion of the specimens in the isopropyl alcohol for 3 *+5, -0) min., 25°C ±5°C. ((MIL-STD-202, Method 215)</p>	Verify marking permanency. (Nor required for laser etched parts or parts with no marking)
3	Resistance to solder Heat	<p>The specimen chip shall be immersed into the flux specified in the solder bath 260±5°C for 10±1 sec. (MIL-STD-202, Method 210)</p>	R: ±(1%+0.0005)
4	Solderability	<p>The specimen chip shall be immersed into the flux specified in the solder bath 235±5°C 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)</p>	Solder shall be covered 95% or more of the electrode area.

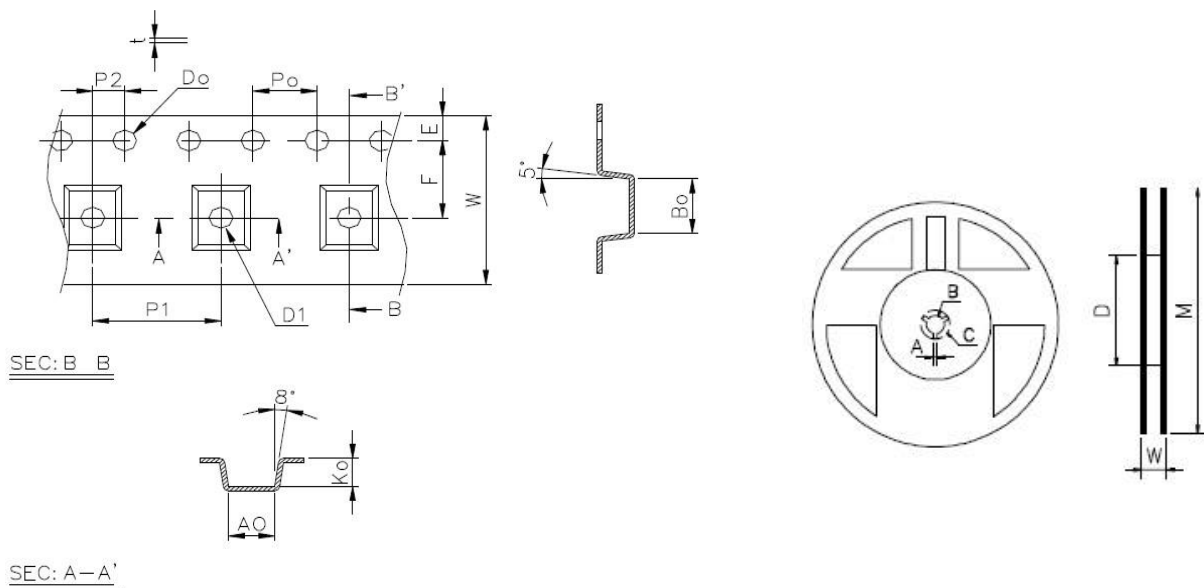
.Remark:

a. 3W with total solder pad trace size of 300mm² . The surface temperature of component should below 100°C .

•All Specifications are subject to change without notice.

Tape Packaging Specifications ♦Paper Tape Specifications

Item	W	P1	E	F	Do	D1	P0	P2	Ao	Bo	Ko	t
0805	8.00	4.00	1.75	3.50	1.55	1.00	4.00	2.00	1.45	2.25	0.90	0.25
1206	8.00	4.00	1.75	3.50	1.55	1.00	4.00	2.00	1.83	3.50	0.90	0.20
2010	12.00	4.00	1.75	5.50	1.50	1.50	4.00	2.00	2.90	5.45	1.10	0.23
2512	12.00	8.00	1.75	5.50	1.55	1.50	4.00	2.00	3.90	6.74	1.08	0.24
2725	16.00	12.00	1.75	7.50	1.50	---	4.00	2.00	6.5	7.25	1.200	0.30
Tolerance	±0.30	±0.10	±0.10	±0.05	±0.05	MIN	±0.10	±0.05	±0.10	±0.10	±0.10	±0.10



Unit : mm

•All Specifications are subject to change without notice.

Model	Reel			
	Tape Width	Diameter	Pieces/Reel	Code
0805	8mm/Embossd Plastic	178mm/7"	5,000	1
1206	8mm/Embossd Plastic	178mm/7"	2,000	1
2010	12mm/Embossd Plastic	178mm/7"	2,000	1
2512	12mm/Embossd Plastic	178mm/7"	2,000	1
2725	16mm/Embossd Plastic	178mm/7"	1000	1

Soldering Recommendations

◆ Peak reflow temperatures and durations :

- IR Reflow Peak = 260°C max for 10 sec

- Wave Solder = 260°C max for 10 sec

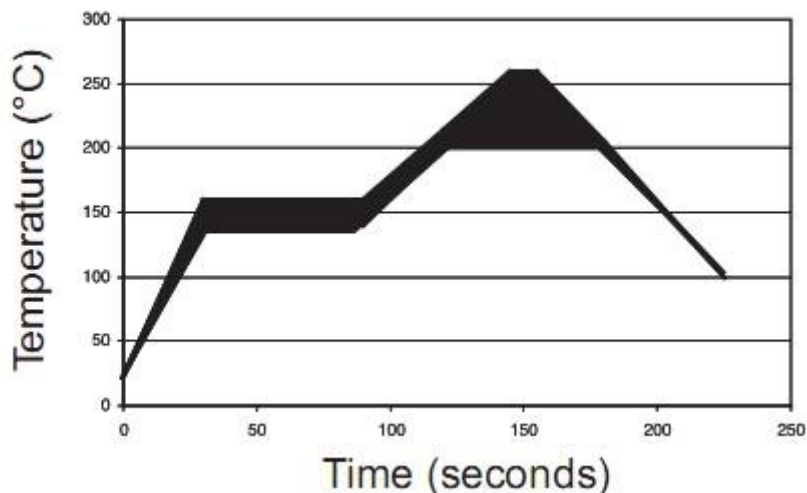
◆ Compatible with lead and lead-free solder reflow processes ◆

Recommended IR Reflow Profile :

Storage

Humidity :

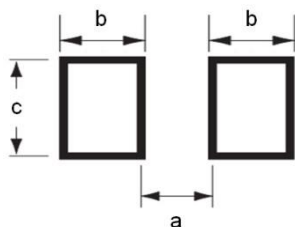
Solder Pad



Conditions

Temperature : 5~35°C,
40~75%

Recommended
Layout



Type	Resistance Range (Ω)	Power Rating (watts)	Dimensions-mm (inches)		
			a	b	i
0805	0.001~0.05	0.25W~0.5W (V)~(U)	0.9(0.035)	1.5(0.059)	0.8(0.031)
1206	0.001~0.12	0.5W~1W (U)~(T)	1.5(0.059)	1.95(0.077)	0.8(0.031)
2010	0.0005~0.029	1W~2W (T)~(S)	2.25(0.089)	2.9(0.114)	1.5(0.059)
	0.03~0.1		1.6(0.063)	2.9(0.114)	3.14(0.124)
2512	0.0005~0.0049	1W~1.5W (T)~(A)	3(0.118)	3.65(0.144)	1.5(0.059)
	0.0001~0.079		2.2(0.087)	3.65(0.144)	3.14(0.124)
	0.08~0.2		1.9(0.075)	3.65(0.144)	3.6(0.141)
	0.0005~0.0049	2W (S)	3(0.118)	3.65(0.144)	1.5(0.059)
	0.0005~0.079		2.2(0.087)	3.65(0.144)	3.14(0.124)
	0.001~0.003	3W (R)	3(0.118)	3.65(0.144)	1.5(0.059)
2725	0.0005~0.001	4W (E)	3(0.118)	7(0.27)	1.5(0.059)
	0.002~0.05	4W (E)	2.2(0.087)		3.14(0.124)
	0.051~0.1	3W (R)	1.9(0.075)		3.6(0.141)



MCSM2512 Series

Metal Strip Current Sensing Resistors

Document No:2W04

Issued Date:2018/02

Version : A004

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.

单击下面可查看定价，库存，交付和生命周期等信息

[>>ISND\(华信安\)](#)