

# WELLCOMP TECHNOLOGY CO., LTD

---

## APPROVAL SHEET

<b>Model Name</b>	<b>Metal Strip Current Sensing Resistor -High Power</b>
<b>Part Number</b>	<b>WMCSH2512 Series</b>
<b>Customer Name</b>	
<b>Customer P/N</b>	
<b>Issued Date</b>	

Customer		Maker		
Approved	Checked	Inspector	Checked	Prepared

元璽科技股份有限公司



WELLCOMP TECHNOLOGY CO., LTD.

桃園縣龜山鄉南上路 526 號

NO. 526, NangShang RD., Guishan Township

Taoyuan Country 333, Taiwan

Tel: +886-3-2220730, 2220731

Fax: +886-3-2222820

### 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 and 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
- ◆ Power management applications

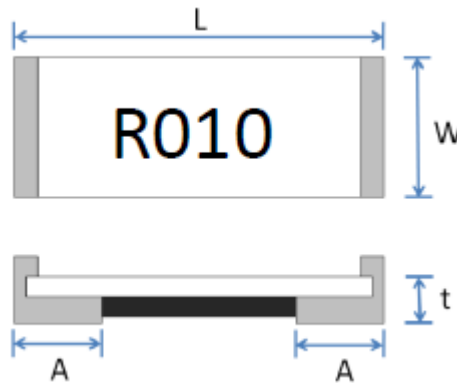
### Part Numbering System

**WMCSH 2512 R050 F H E A**

(1) (2) (3) (4) (5) (6) (7)

- (1) Series Code
- (2) Size (EIA): Length x Width
- (3) Resistance: R002=2mΩ, R010=10mΩ
- (4) Tolerance: F=+/-1%, G=+/-2%, J=+/-5%
- (5) Power Rating: S=1/2W, C=1W, D=1.5W, E=2W, H=3W
- (6) Packaging: E-Embossed plastic tape, 7" reel
- (7) Factory Code, A=TWN Factory

### Dimension

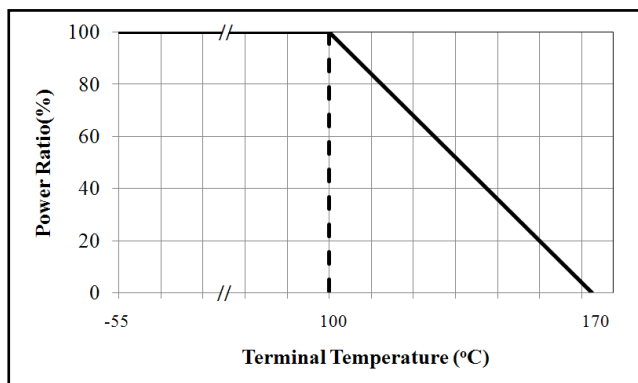


Type (inch size)	Dimensions(mm)			
	L	W	t	A
WMCSH2512	6.45±0.20	3.25±0.20	0.80±0.15	1.10±0.25

### Electrical Specification

Item	Power Rating	Resistance Range(mΩ)	Operation Temp. Range	TCR (PPM/°C)
WMCSH2512	3W	$10 \leq R \leq 600$	-55~+170°C	±50
		$4 \leq R < 10$		±100

### Derating Curve



### Performances

#### Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	Loading 3 time rated power for 5 sec , (JIS-C5202-5.5)	$\Delta R: \pm(1\%+0.0005\Omega)$
2	Temperature Coefficient of Resistance (T.C.R.)	+25°C /+125°C. (JIS-C5202-5.2) $TCR (ppm/^{\circ}C) = \frac{\Delta R}{R \times \Delta t} \times 10^6$	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 hrs. (MIL-STD-202, Method 103)	$\Delta R: \pm(1\%+0.0005\Omega)$
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)	$\Delta R: \pm(1\%+0.0005\Omega)$
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)	$\Delta R: \pm(1\%+0.0005\Omega)$

6	Rapid change of temperature	<p>The chip (mounted on board) is exposed, <math>-55\pm 3^{\circ}\text{C}</math> (30min.)/<math>+125\pm 2^{\circ}\text{C}</math> (30min.) for 5 cycles.</p> <p>The following conditions as the following figure. (JIS-C5202-7.4)</p>	$\Delta R: \pm(1\%+0.0005\Omega)$
---	-----------------------------	--	-----------------------------------

### Function Performance

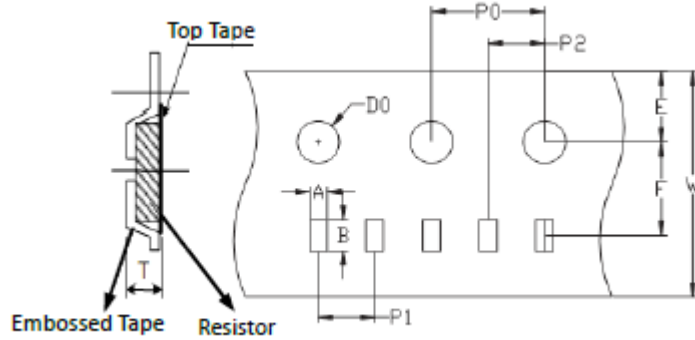
No.	Item	Test Condition	Specification
1	Bending Strength	<p>Mount the chip to test substrate. Apply pressure in direction of arrow unit band width reaches <math>2\text{mm}(+0.2/-0\text{mm})</math> illustrated in the figure below and hold for <math>10\pm 1</math> sec. (JIS-C5202-6.1)</p> <p style="text-align: right;">Unit: mm</p>	$\Delta R: \pm(1\%+0.0005\Omega)$
5	Solvent Resistance	<p>The chip is completed immersion of the specimens in the isopropyl alcohol for <math>3 \pm 5, -0</math> min., <math>25^{\circ}\text{C} \pm 5^{\circ}\text{C}</math>. (MIL-STD-202, Method 215)</p>	<p>Verify marking permanency. (Nor required for laser etched parts or parts with no marking)</p>
6	Resistance to solder Heat	<p>The specimen chip shall be immersed into the flux specified in the solder bath <math>260\pm 5^{\circ}\text{C}</math> for <math>10\pm 1</math> sec. (MIL-STD-202, Method 210)</p>	$\Delta R: \pm(1\%+0.0005\Omega)$
7	Solderability	<p>The specimen chip shall be immersed into the flux specified in the solder bath <math>235\pm 5^{\circ}\text{C}</math> for <math>2\pm 0.5</math> sec. It shall be immersed to a point 10mm from its root. (Sn96.5/Ag3.0/Cu0.5) (JIS-C5 202-6.11)</p>	<p>Solder shall be covered 95% or more of the electrode area.</p>

**Remark:**

a. 3 W with total solder pad trace size of 300 mm<sup>2</sup>. The surface temperature of component should below 100°C.

**Tape Packaging Specifications**

◆Paper Tape Specifications



Unit:mm

Type	Carrier Dimensions									
	A	B	E	F	W	P0	P1	P2	D0	T
2512	3.5±0.1	6.8±0.1	1.75±0.1	5.5±0.05	12.0±0.2	4.0±0.05	4.0±0.1	2.0±0.05	1.5±0.1	1.0±0.2

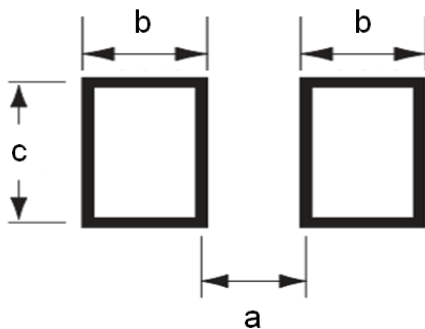
**Packaging**

Size EIA (EIAJ)	2512
Standard Packing Quantity (pcs /reel)	4,000

**Storage Conditions**

Temperature : 5~35°C, Humidity : 40~75%

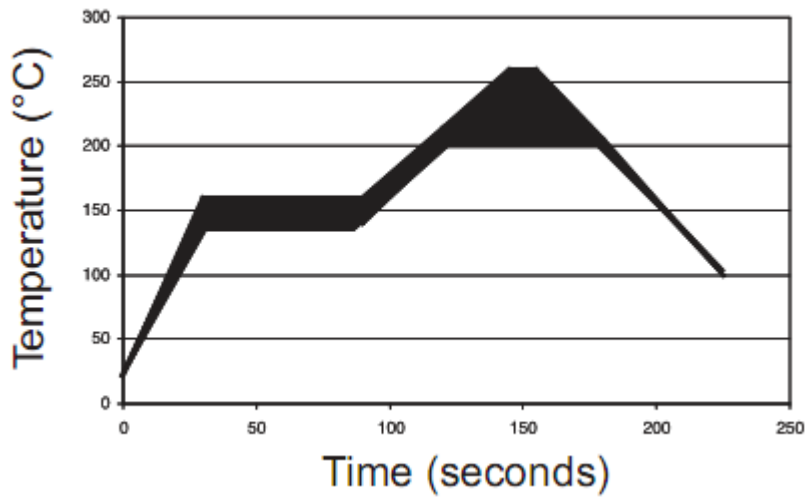
**Recommended Solder Pad Layout**



Type	Pad Layout Dimension (mm)		
	a	b	c
2512	3.80	2.10	3.40

### 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 :



### 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.