

WELLCOMP TECHNOLOGY CO., LTD

APPROVAL SHEET

Model Name	Long Terminal Metal Strip Current Sensing Resistor
Part Number	WMCSL Series
Customer Name	
Customer P/N	
Issued Date	

Customer		Maker		
Approved	Checked	Inspector	Checked	Prepared



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Features

- ◆ Chip size from: 0508~0612
- ◆ Resistance value from :5~30mΩ
- ◆ Lead free, RoHs compliant for global plications and halogen free

Application

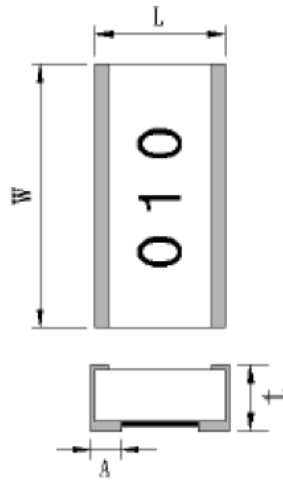
- ◆ Switching Power Supply
- ◆ Voltage Regulation Module
- ◆ DC-DC Converter, Adaptor, Battery Pack, Charger
- ◆ Pad & Cell Phone
- ◆ Power management Applications

Part Numbering System

WMCSL 0508 R005 F S I 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
- (6) Packaging: T- Embossed paper tape, 7" reel
 E-Embossed plastic tape, 7" reel
- (7) Factory Code, A=TWN Factory

Dimension



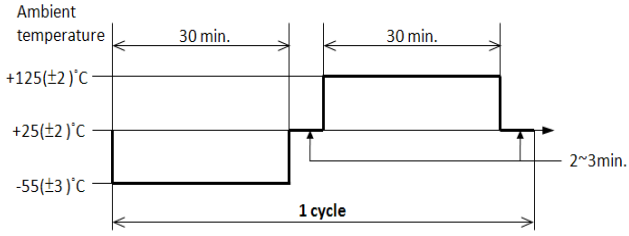
Type (inch size)	Dimensions(mm)			
	L	W	t	A
WMCSL0508	1.30±0.20	2.00±0.20	0.60±0.20	0.30±0.20
WMCSL0612	1.60±0.20	3.20±0.20	0.60±0.20	0.30±0.20

Electrical Specification

Item	Power Rating	Resistance Range(mΩ)	Operation Temp. Range	TCR (PPM/°C)
MCSL0508	0.5W	$5 \leq R \leq 30$	-55~+170°C	±75
MCSL0612	1.0W	$5 \leq R \leq 30$	-55~+170°C	±75
MCSL0612	1.0W	$2 \leq R \leq 4$	-55~+170°C	±100

Performances

Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	5 times rated power for 5 sec , (JIS-C5202-5.5)	ΔR: ±(1%+0.0005Ω)
2	Temperature Coefficient of Resistance (T.C.R.)	+25°C /+125°C. (JIS-C5202-5.2) $TCR \text{ (ppm/°C)} = \frac{\Delta R}{R \times \Delta t} \times 10^6$	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)	ΔR: ±(1%+0.0005Ω)
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)	ΔR: ±(1%+0.0005Ω)
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%+0.0005Ω)
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) 	ΔR: ±(1%+0.0005Ω)

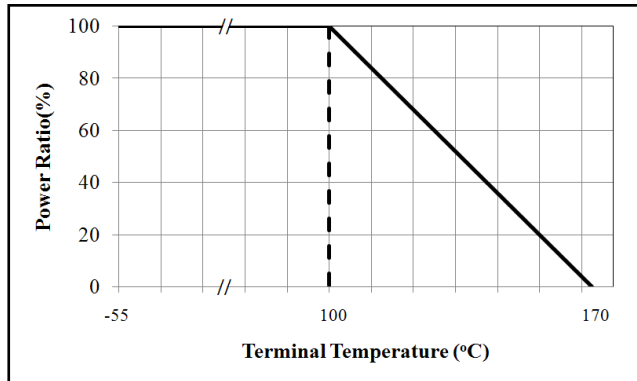
Function Performance

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) <div style="text-align: right; margin-top: 10px;">Unit: mm</div>	$\Delta R: \pm(1\%+0.0005\Omega)$
2	Solvent Resistance	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)	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°C for 10±1 sec. (MIL-STD-202, Method 210)	$\Delta R: \pm(1\%+0.0005\Omega)$
4	Solderability	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) <div style="text-align: center; margin-top: 10px;"> <p style="margin-top: 5px;">$h = 10\text{ mm}$ $H = 10\text{ mm min.}$</p> </div>	Solder shall be covered 95% or more of the electrode area.

Remark:

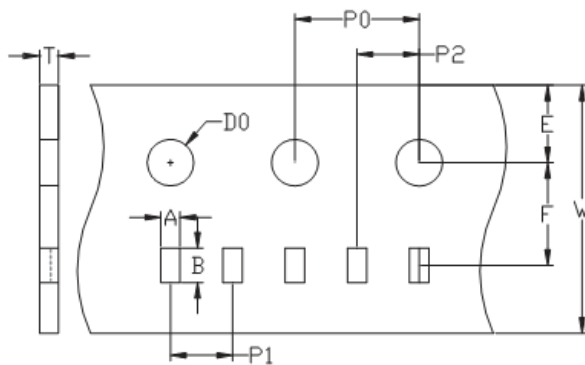
- a. The surface temperature of component should below 100°C.

Derating Curve



Tape Packaging Specifications

◆Paper Tape Specifications



Unit:mm

Type	Carrier Dimensions									
	A	B	E	F	W	P0	P1	P2	D0	T
0508	1.6±0.1	2.4±0.1	1.75±0.1	3.5±0.05	8.0±0.2	4.0±0.1	4.0±0.1	2.0±0.05	1.55±0.05	0.97±0.1
0612	2.0±0.1	3.6±0.1	1.75±0.1	3.5±0.05	8.0±0.2	4.0±0.1	4.0±0.1	2.0±0.05	1.55±0.05	0.97±0.1

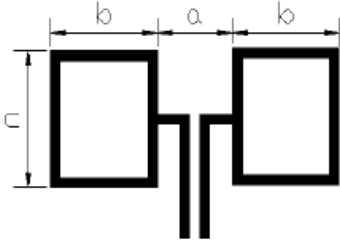
Packaging

Size EIA (EIAJ)	0508/0612
Standard Packing Quantity (pcs /reel)	5,000

Storage Conditions

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

Recommended Solder Pad Layout

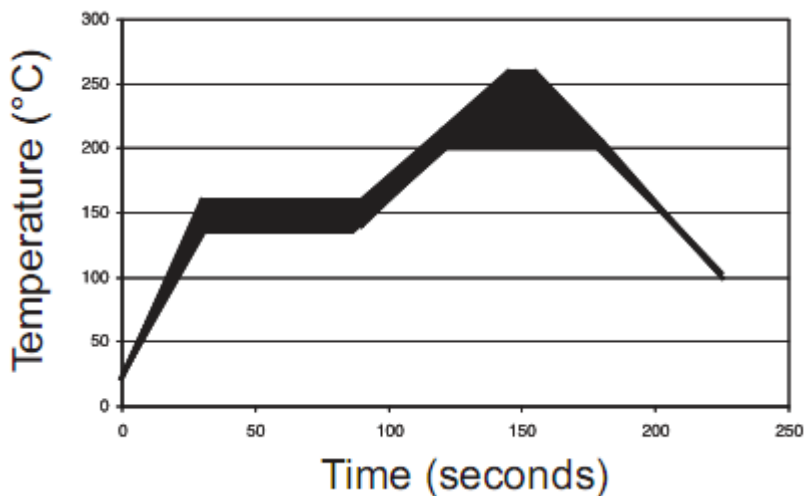


Type	Pad Layout Dimension (mm)		
	a	b	c
0508(ref)	0.5	1.30	2.60
0612(ref)	0.6	1.30	3.60

** Please contact factory if special layout.

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.

Disclaimer

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WMCSL Series

Long Terminal Metal Strip Current Sensing Resistor

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