



Metal Type Current Shunt Resistors

APPROVAL SHEET

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

Customer		Maker		
Approved	Checked	Inspector	Checked	Prepared



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Features

- ◆ 5W up to 129A at 0.3mΩ
- ◆ Resistance value from 0.2mΩ to 5mΩ
- ◆ Lead free, RoHS compliant for global applications and halogen free
- ◆ Excellent long term stability

Application

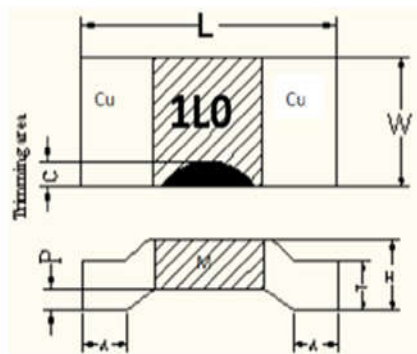
- ◆ Power modules
- ◆ Frequency converters
- ◆ Current sensor for power hybrid sources
- ◆ High current for automotive

Part Numbering System

IMCSS 3920 0R20 F I E A
 (1) (2) (3) (4) (5) (6) (7)

- (1) Series Code
- (2) Size (EIA): Length x Width
- (3) Resistance: R001=1mΩ, 0R50=0.5mΩ
- (4) Tolerance: F=+/-1%, G=+/-2%, J=+/-5%
- (5) Power Rating: S=1/2W, 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) Factory Code, A= Taiwan Factory

Dimension



Marking :
 1mR:1L0, 2mR:2L0, 3mR:3L0, 4mR:4L0, 5mR:5L0
 0.2mR:0L2, 0.3mR:0L3, 0.5mR:0L5

Type (inch size)	Resistance	Dimensions(mm)							M (material)
		L	W	H	T	A	C(Max.)	P	
IMCSS2512	0.25mΩ	6.50±0.2	3.25±0.2	1.17±0.15	0.82±0.15	0.90±0.2	0.4	0.35±0.1	MnCuSn
IMCSS2512	0.3mΩ	6.50±0.2	3.25±0.2	1.17±0.15	0.82±0.15	0.90±0.2	0.4	0.35±0.1	MnCuSn
IMCSS2512	0.5mΩ	6.50±0.2	3.25±0.2	1.07±0.15	0.72±0.15	0.90±0.2	0.4	0.35±0.1	MnCu

•All Specifications are subject to change without notice.

Type (inch size)	Resistance	Dimensions(mm)							M (material)
		L	W	H	T	A	C(Max.)	P	
IMCSS2512	0.75mΩ	6.50±0.2	3.25±0.2	1.07±0.15	0.72±0.10	0.90±0.2	0.4	0.35±0.1	MnCu
IMCSS2512	1mΩ	6.50±0.2	3.25±0.2	0.73±0.15	0.38±0.15	0.90±0.2	0.4	0.35±0.1	MnCu
IMCSS2512	2mΩ	6.50±0.2	3.25±0.2	0.96±0.15	0.61±0.15	0.90±0.2	0.4	0.35±0.1	FeCrAl
IMCSS2512	3mΩ	6.50±0.2	3.25±0.2	0.76±0.15	0.41±0.15	0.90±0.2	0.4	0.35±0.1	FeCrAl
IMCSS2512	4mΩ	6.50±0.2	3.25±0.2	0.66±0.15	0.31±0.15	0.90±0.2	0.4	0.35±0.1	FeCrAl
IMCSS2512	5mΩ	6.50±0.2	3.25±0.2	0.66±0.15	0.31±0.15	0.90±0.2	0.4	0.35±0.1	FeCrAl
IMCSS3290	0.2mΩ	10.0±0.2	5.20±0.2	1.92±0.15	1.42±0.15	1.8±0.3	0.6	0.50±0.1	MnCu
IMCSS3920	0.3mΩ	10.0±0.2	5.20±0.2	1.92±0.15	1.42±0.15	1.8±0.3	0.6	0.50±0.1	MnCu
IMCSS3920	0.5mΩ	10.0±0.2	5.20±0.2	1.36±0.15	0.86±0.15	1.8±0.3	0.6	0.50±0.1	MnCu
IMCSS3920	1mΩ	10.0±0.2	5.20±0.2	0.92±0.15	0.42±0.15	1.8±0.3	0.6	0.50±0.1	MnCu
IMCSS3920	2mΩ	10.0±0.2	5.20±0.2	1.19±0.15	0.69±0.15	1.8±0.3	0.6	0.50±0.1	FeCrAl
IMCSS3920	3mΩ	10.0±0.2	5.20±0.2	0.94±0.15	0.44±0.15	1.8±0.3	0.6	0.50±0.1	FeCrAl
IMCSS3920	4mΩ	10.0±0.2	5.20±0.2	0.85±0.15	0.35±0.15	1.8±0.3	0.6	0.50±0.1	FeCrAl
IMCSS3920	5mΩ	10.0±0.2	5.20±0.2	0.85±0.15	0.35±0.15	1.8±0.3	0.6	0.50±0.1	FeCrAl

(*) The "A" measured from the highest solder welding point to the end of electrode.

Electrical Specification

Item	Power Rating	Resistance Range(mΩ)	Operation Temp. Range	TCR (PPM/°C)
IMCSS2512	3W	0.25	-55~+170°C	±150
	3W	0.3		±150
	3W	0.5		±115
	3W	0.75		±115
	3W	1		±100
	3W	2		±50
	3W	3		±50
	3W	4		±50
	3W	5		±50
IMCSS3920	5W	0.2	-55~+170°C	±150
	5W	0.3		±150
	5W	0.5		±70
	5W	1		±50
	5W	2		±50
	5W	3		±50
	5W	4		±50
	5W	5		±50

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Note: Power Rating is guaranteed for use an aluminum substrate (MCPCB). Please check with Wellcomp before order or using.

Rated Voltage

The Rated Voltage is calculated by the following formula:

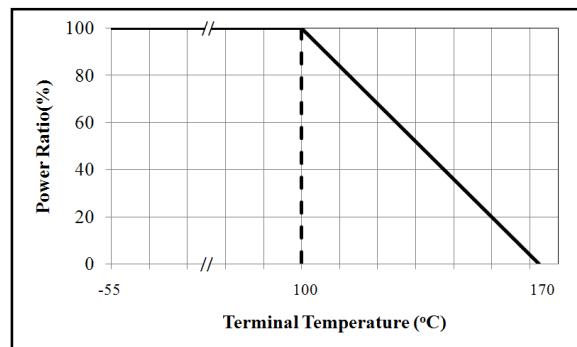
$$E = \sqrt{P * R}$$

E=Rated Voltage(V)

P=Rated Power(W)

R=Resistance Value(Ω)

Derating Curve



Performances

Environmental Performance

No.	Item	Test Condition	Specification
1	Short Time Overload	Loading 5 times rated power for 5 sec.	$\Delta R: \pm(1\%+0.0005\Omega)$
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	Moisture Resistance	The specimens shall be placed in a chamber and subjected to a relative humidity of 90~95% percent and a temperature of 25°C/65°C 10 cycles. (MIL-STD-202, Method 106)	$\Delta R: \pm(1\%+0.0005\Omega)$
4	High Temperature Exposure	The chip (mounted on board) is exposed in the heat chamber 125°C for 1000 hrs. (JIS-C5202-7.2)	$\Delta R: \pm(1\%+0.0005\Omega)$
5	Load Life	Apply rated power 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	Thermal Shock	-55°C to +155°C, 1000 cycles, 15 min at each extreme	$\Delta R: \pm(1\%+0.0005\Omega)$
7	Vibration	5 g's for 20 min., 12 cycles each of 3 orientations.	$\Delta R: \pm(0.5\%+0.0005\Omega)$

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No.	Item	Test Condition	Specification
8	Rapid change of temperature	<p>The chip (mounted on board) is exposed, $-55\pm 3^{\circ}\text{C}$ (30min.)/$+125\pm 2^{\circ}\text{C}$ (30min.) for 5 cycles. The following conditions as the following figure. (JIS-C5202-7.4)</p>	$\Delta R: \pm(1\%+0.0005\Omega)$

Function Performance

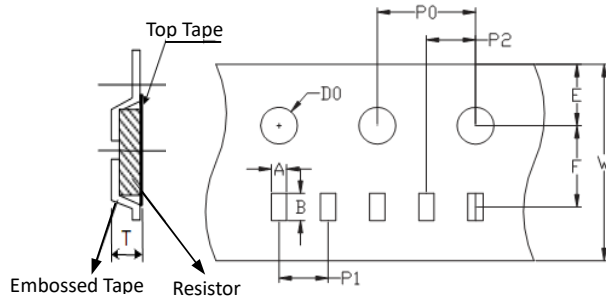
No.	Item	Test Condition	Specification
1	Bending Strength	<p>Mount the chip to test 90mm(L)*40mm(W) FR4 printed circuit board substrate. Apply pressure in direction of arrow unit band width reaches 2mm(+0.2/-0mm) illustrated in the figure below and hold for 10 ± 1 sec. (JIS-C5202-6.1)</p> <p style="text-align: center;">Unit: mm</p>	$\Delta R: \pm(1\%+0.0005\Omega)$
2	Solderability	<p>The specimen chip shall be immersed into the flux specified in the solder bath $235\pm 5^{\circ}\text{C}$ 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> <p style="text-align: center;">$h = 10\text{ mm}$ $H = 10\text{ mm min.}$</p>	Solder shall be covered 95% or more of the electrode area.

Remark;

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

Tape Packaging Specifications

◆ Embossed Plastic Tape Specifications



Unit:mm

Type	Carrier Dimensions									
	A	B	E	F	W	P0	P1	P2	D0	T
2512	3.55± 0.1	6.75± 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	1.2±0.2
3920	5.5±0.2	10.8± 0.2	1.75± 0.1	7.5± 0.05	16.0± 0.2	4.0± 0.05	8.0±0.1	2.0± 0.05	1.5±0.1	1.65± 0.2

Packaging

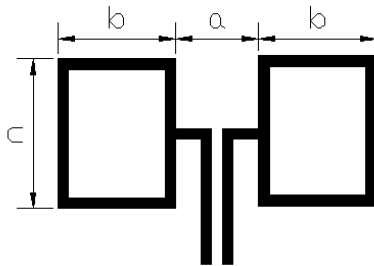
Size EIA (EIAJ)	2512	3920
Standard Packing Quantity (pcs /reel)	4,000	3,000

Storage Conditions

Temperature: 22~28°C, Humidity: 40~75%

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Recommended Solder Pad Layout

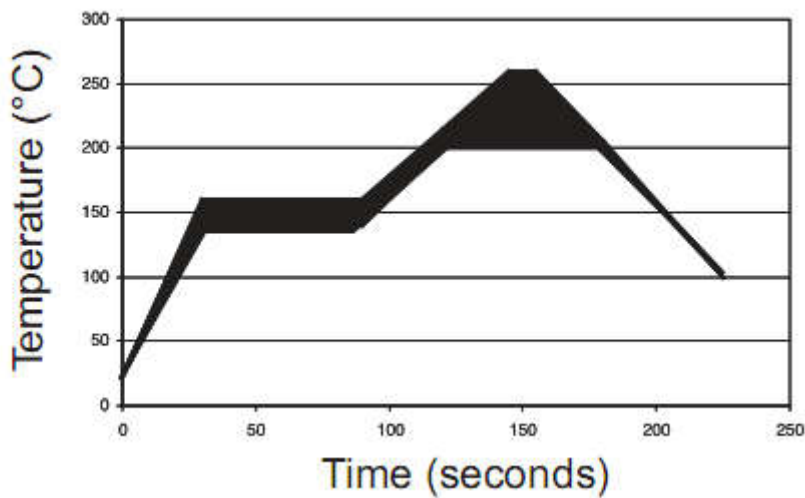


Type	Pad Layout Dimension (mm)		
	a	b	c
2512	3.80	1.80	3.40
3920	5.60	2.70	6.20

Note: Pad layout will be influence of resistance value. Please follow it.

Soldering Recommendations

- ◆ Peak reflow temperatures and durations :
 - IR Reflow Peak = 260°C max for 10 sec
 - Not suitable for wave soldering
- ◆ 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.

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单击下面可查看定价，库存，交付和生命周期等信息

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