

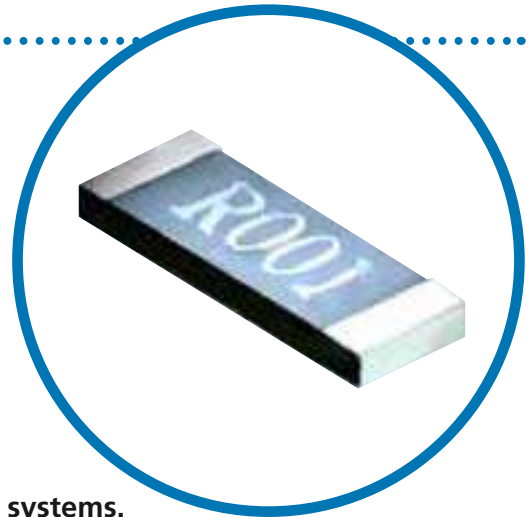
# 8W Current Sense Chip Resistors

## BCS 8 Series

- **Non inductive design.**
- **Low TCR, typically less than 100ppm/°C.**
- **Low profile surface mount package.**
- **Excellent pulse/surge performance.**
- **8W power rating.**

## Applications

- **Current sense applications**
- **Over current protection in Battery chargers.**
- **Servo motor control circuits.**
- **DC-DC, DC-AC and intelligent power modules.**
- **Industrial PC modules (IPM) and precision measurement systems.**
- **Current detection circuits in high-speed CPU peripherals.**



## Dimensions

Type	BCS8 (mm)		Marking
A	12.8+/-0.5		Marking is done by 3 digits resistance value notation and tolerance code F (1%).  
B	7.8max		
C	2.5max		
D	1.4max		

## Electrical

	BCS8	Remarks
Resistance values	0.5m, 1m, 2m, 3m, 4m, 5m, 7m, 10mΩ	
TCR	0 to +100 ppm/°C (A)	-55 to +125 °C
Tolerance	+/-1.0% (F), +/-5.0% (J)	
Power Rating	8W	Attached to 70 micron PCB
Current Rating	90A	At 1m Ω
Maximum Current	126A	2.5 seconds one time
Series Inductance	5nH	
Operating Temp.	-55 C to 175 °C	
Storage Temp.	-55 C to 175 °C	

## Environmental

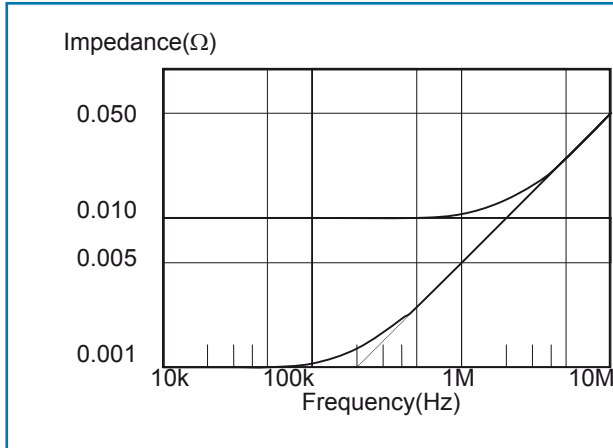
	Specifications	Conditions
Short Time Overload	$\Delta R \pm (0.5\% + 0.5m\Omega)$	maximum current, 2.5seconds.
Low Temperature Storage	$\Delta R \pm (0.5\% + 0.5m\Omega)$	-55C, 24hours
High Temperature Storage	$\Delta R \pm (1.0\% + 0.5m\Omega)$	+175C, 1000hours
Heat Shock	$\Delta R \pm (0.5\% + 0.5m\Omega)$	-55C to +125C, 20min. interval, 5min. 5cycles
Vibration	$\Delta R \pm (0.5\% + 0.5m\Omega)$	10-2000Hz, 1.5mm/20gr, 2hours
Soldering Heat	$\Delta R \pm (0.25\% + 0.5m\Omega)$	260°C +/- 5°C, 10 +/- 1 seconds.
Solderability	90%/terminal surface	
Humidity	$\Delta R \pm (0.5\% + 0.1m\Omega)$	85°C, 85%RH, dc 0.1W, 1000 hours
Load Life	$\Delta R \pm (0.5\% + 0.1m\Omega)$	25°C, dc rated power, 90min ON, 30min OFF, 1000hours

Specifications subject to change without notice.

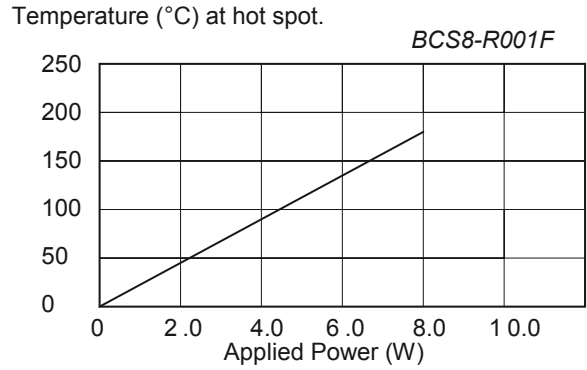
### General Note

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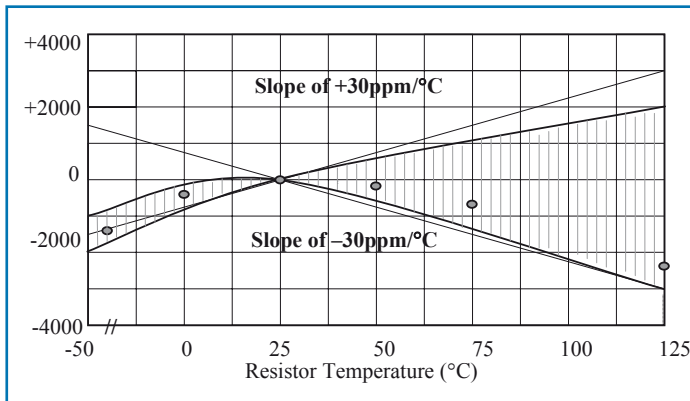
## Frequency Characteristics



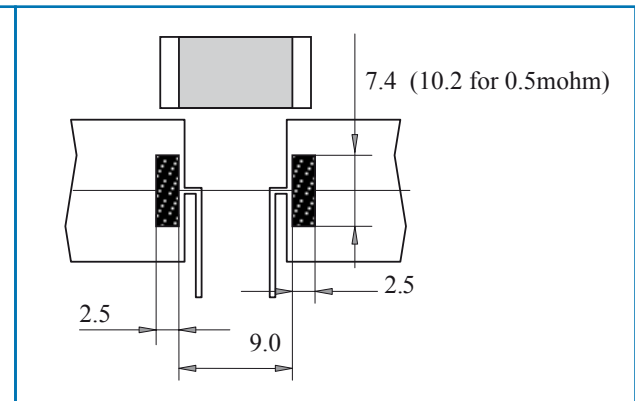
## Temperature Rise



## TCR Curves (Dotted line: typical measurement)

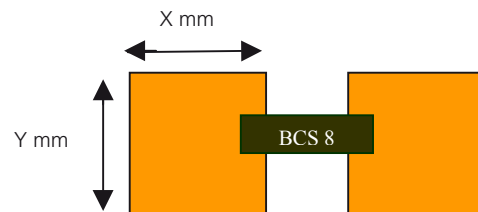


## Recommended Foot Print (mm)



## FR4 Thermal PCB Characterisation

Pad Dimensions (x,y mm)	$P_{90^{\circ}\text{C}, 70\mu\text{m}}$ (W)	$P_{90^{\circ}\text{C}, 35\mu\text{m}}$ (W)
60, 45	5.8	4.6
50, 45	5.4	4.3
40, 40	4.2	4.1
30, 30	3.5	2.8
20, 20	2.9	2.7
10, 10	2.4	2.5



Notes: Characterisation carried out using 70 $\mu\text{m}$  and 35 $\mu\text{m}$  PCB copper pad weights, with the temperature of 90 $^{\circ}\text{C}$  used as a maximum reference on the PCB.

## Soldering Recommendation

Due to the enhanced heat dissipation properties of the BCS8, the temperature profile during reflow soldering will need to be increased by: 10 to 20 $^{\circ}\text{C}$ .

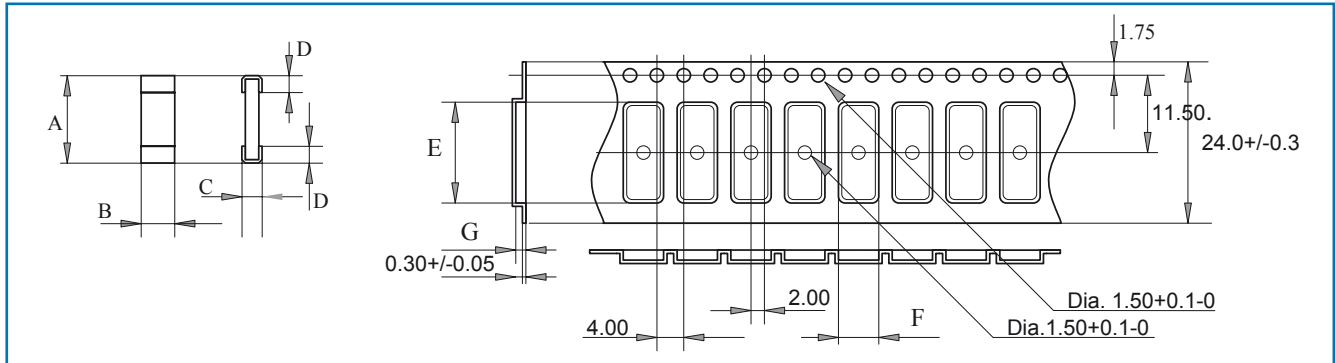
## Custom designs

Alternative widths and lengths are available, please contact factory for details.

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## Dimensions and Taping specification



P/N	A	B	C	D	E	F	G	Reel Diameter	Quantity per Reel
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		
WSL8A0.5milliohmJ(5%)/F(1%)	12.8+/-0.5	7.8+/-0.5	2.5 max	1.3	13.9	8.7	3.75	254	1000
WSL8A 1milliohmJ(5%)/F(1%)	12.8+/-0.5	4.5+/-0.5	1.5 max	1.4	13.5	5.0	1.70	254	2000
WSL8A 2milliohmJ(5%)/F(1%)	12.8+/-0.5	4.5+/-0.5	1.5 max	1.4	13.5	5.0	1.70	254	2000
WSL8A 3milliohmJ(5%)/F(1%)	12.8+/-0.5	4.5+/-0.5	1.5 max	1.4	13.5	5.0	1.70	254	2000
WSL8A 4milliohmJ(5%)/F(1%)	12.8+/-0.5	5.5+/-0.5	1.5 max	1.4	13.9	8.7	3.75	254	1000
WSL8A 5milliohmJ(5%)/F(1%)	12.8+/-0.5	4.5+/-0.5	1.5 max	1.4	13.5	5.0	1.70	254	2000
WSL8A 7milliohmJ(5%)/F(1%)	12.8+/-0.5	5.2+/-0.5	0.6 max	1.3	13.9	8.7	3.75	254	1000
WSL8A 10milliohmJ(5%)/F(1%)	12.8+/-0.5	4.2+/-0.5	0.6 max	1.3	13.5	5.0	1.70	254	2000

Note : Above dimensions are approximate.

Resistor Contact Probe

Current Voltage

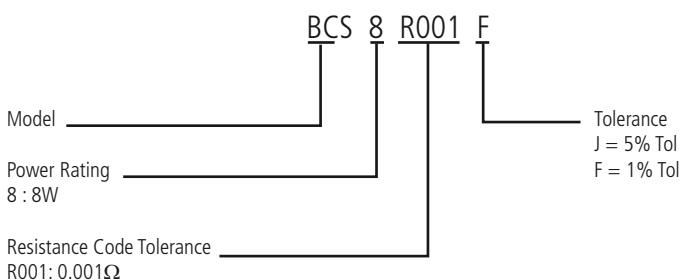
Ohm Meter

Resistance testing the BCS resistors is done at the side positions of resistor terminals (see figure) using a 4 - port measuring system.

For a stated resistance tolerance of +/-1.0%, the measured values should be within the +/-0.8% factory tested values.

When surface mount resistor is attached on circuit board, small resistance changes will occur. Custom designs are available, please call the factory.

## Ordering Information



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