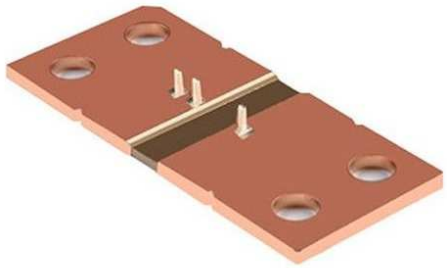
TCSN series Current Sensing Resistors

These components are four-terminal, bus-bar, metal strip current shunts. Assembled using electron beam welding. Also they can absorb a high pulse power rating and have very low inductance. They also feature excellent long term stability, less than 100ppm/℃ TCR, and have excellent frequency characteristics. Applications include : Battery charging current control of automotive electronics, current detection in precise power sources, constant current sources, industrial power conversion circuits, HEVs, fuel cells and constant electronic loads.



GENERAL SPECIFICATIONS

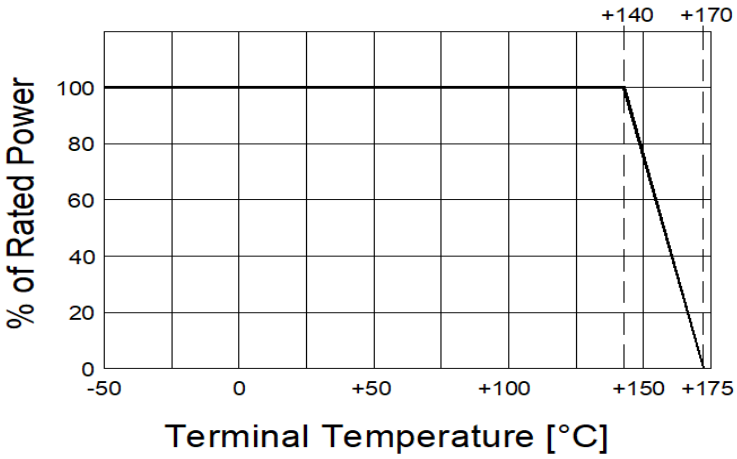
Model	*Max Power Rating [W] (*At terminal temp.≤140℃)	*Resistance [Ω]	Max. T.C.R	Continuous current [A] at 0.025mΩ (*At terminal temp.≤140℃)	Resistance Tolerance
TCSN8536	Max 50	0.025m	± 150ppm/℃	1200	D [±0.5%]
		0.05m	± 100ppm/℃		F [±1%]
		0.1m	± 100ppm/℃		J [±5%]

* Referred to power derating curve
* Also available in extended ohmic detail info. Contact RARA

CHARACTERISTICS

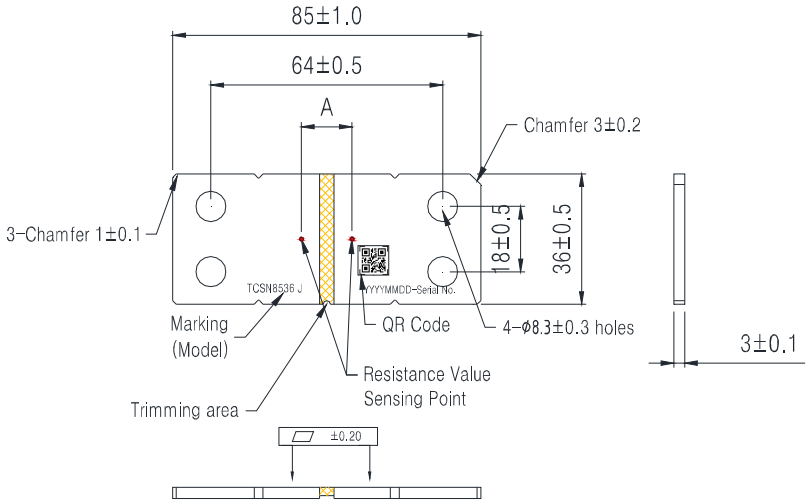
Test	Condition
Operating Temperature	-55℃~+170℃
Thermal Resistance (Rthi)	2K / W
Thermal EMF (0-100℃)	<1μV/℃
Inductance	<5nH

DERATING CURVE

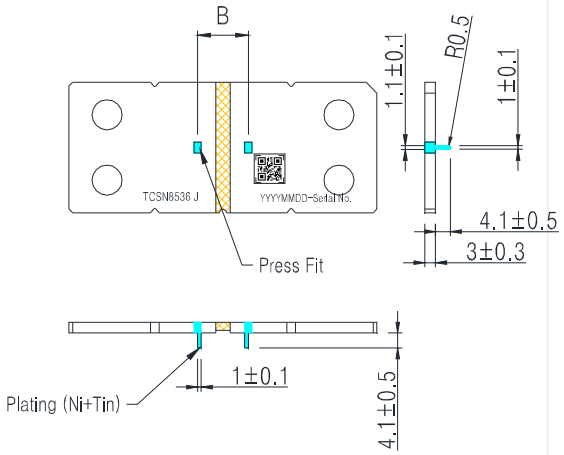


DIMENSIONS (mm)

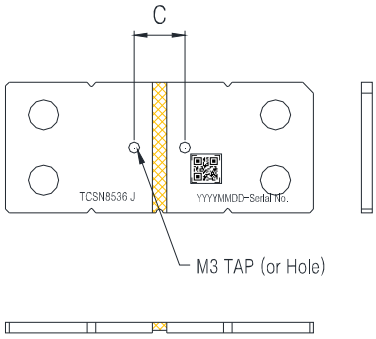
Non type voltage sensing (Standard)



Press Fit type voltage sensing



Tap (or Hole) type voltage sensing



Model	Resistance [mΩ]	Dimensions [mm]		
		A±0.5	B±0.5	C±0.5
TCSN8536	0.025	7	9	10
	0.05	10	13	14
	0.1	18	19	22

Marking Example & QR Code Example

Marking Example
TCSN8536 J 20260506 00001

Model	Size	Tolrence	Production date	Serial No.
TCSN	8536	J	20260506	00001

QR Code Example
RARA20260506-0001R49890n

Supplier	Lot No.	Batch No.	R49890n
RARA Electronics	YYYYMMDD	0001	Resistance Value(nΩ)

PERFORMANCE

Test	Condition	
TCR	Within spec	IEC60115-1 4.8, measured point -40℃ ~ +140℃, reference point +25℃
Solder Heat Resistance	No visible damage △R±0.5% Maximum	IEC60115-1 4.18 , 260°C tin bath , 10s
Load life	No visible damage △R±1% Maximum	IEC60115-1 4.25.1 , 1000hours at 70℃±2℃ , with rated current or component limit current (whichever is lower), 1.5h on / 0.5h of cycle
High temp. & High humidity	No visible damage △R±1% Maximum	MIL-STD-202 Method 103, 10 hours at 85℃ and 85% RH, with 10% rated power (current) or component limit current (whichever is lower) applied.
Temperature cycle	No visible damage △R±1% Maximum	IEC60115-1 4.19 , -55°C@30min ~ +155°C@30min ; 1000cycles
High temp. storage	No visible damage △R±1% Maximum	IEC60115-1 4.25.3 , 1000hours at 170°C, without loading current and voltage
Low Temp. Load	No visible damage △R±0.5% Maximum	IEC60115-1 4.36 , col from rom temperature to -45℃, 1.5h no load, then apply rated power for 45min, col for 15min, return to room temperature for testing.
Vibration Test	No visible damage △R±0.5% Maximum	MIL-STD-202 Method 204 Peak acceleration: 5g (gravitational acceleration) Frequency range: (10~2000Hz) Test directions: X, Y Z axes, 12 cycles per axis, 20min per cycle, total ~12h
Shock Test	No visible damage △R±0.5% Maximum	MIL-STD-202 Method 213 Shock acceleration : 100g (gravitational acceleration) Pulse width : 6ms Waveform: half-sine wave Shock directions: ±X, ±Y, ±Z axes, 3 times per direction

ORDERING PROCEDURE EXAMPLE

TCSN8536	H	P	R00005	J
Model #	Voltage sensing Ex) Non : Standard H : Hole type T : Tap type F : Press Fit type	Plating (Option) Ex) Non: Standard P : Terminal Plating (Ni-Tin)	Resistance Value Ex) R00005 = 50μΩ	Tolerance Ex) J = [±5%] G = [±2%] F = [±1%]