

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/°C 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

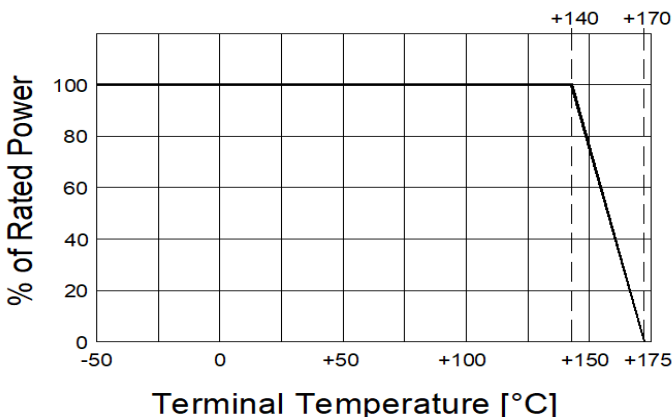
Model	*Max .Power Rating [W] (*At terminal temp.≤70°C)	*Resistance [Ω]	Max. T.C.R	Continuous current [A] at 0.1mΩ (*At terminal temp.≤110°C)	Resistance Tolerance
TCSN5216	12	0.1m	± 100ppm/°C	200	J = [±5%] G = [±2%] F = [±1%]
TCSN6016	15	0.1m	± 100ppm/°C	245	
TCSN6918	30	0.05m	± 125ppm/°C	316	
		0.1m 0.125m 0.25m	± 100ppm/°C		
TCSN8518	36	0.05m	± 125ppm/°C	350	
		0.1m 0.125m 0.25m	± 100ppm/°C		

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

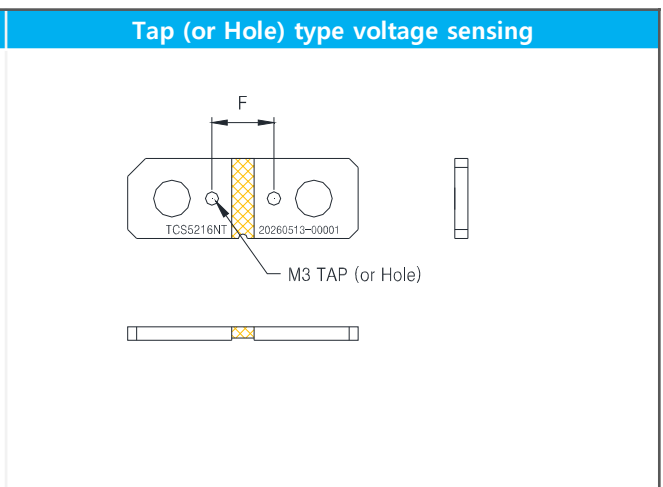
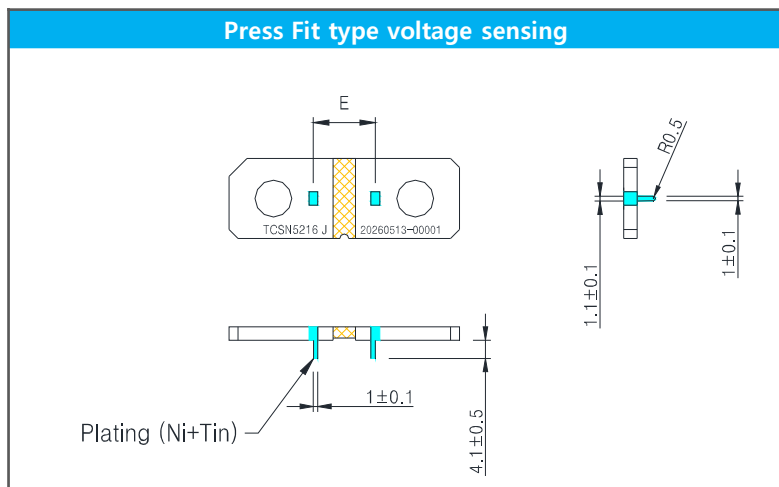
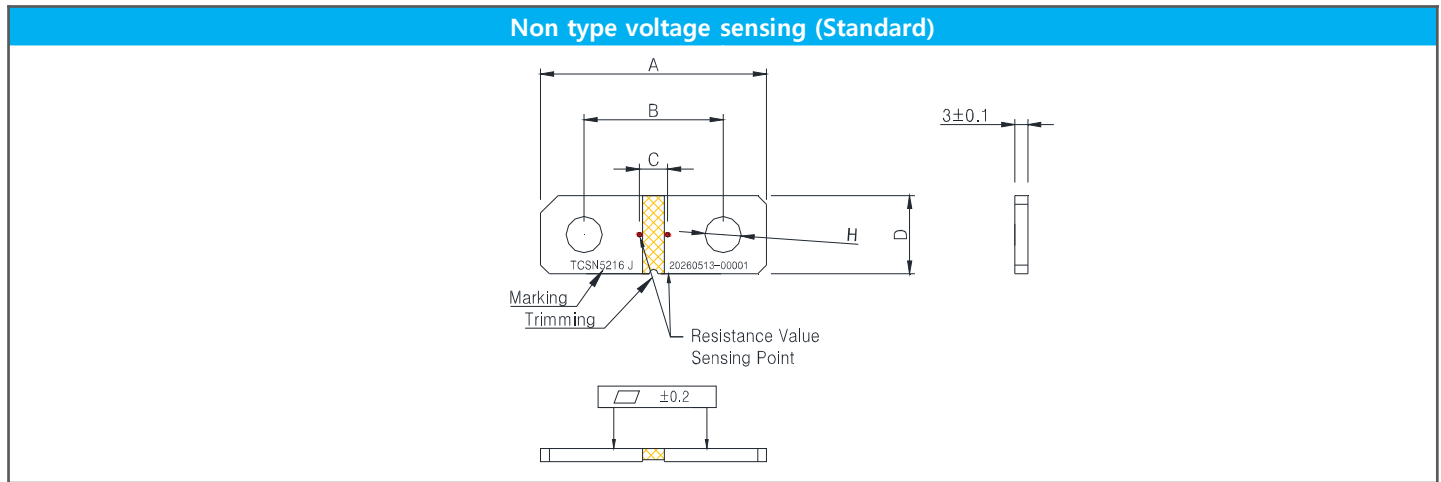
CHARACTERISTICS

Test	Condition
Operating Temperature	-55°C~+170°C
Thermal EMF (0 ~ 100°C)	1 $\mu\text{V}/\text{C}$
Inductance	< 5nH

DERATING CURVE



TCSN5216 / TCSN6016 DIMENSIONS (mm)



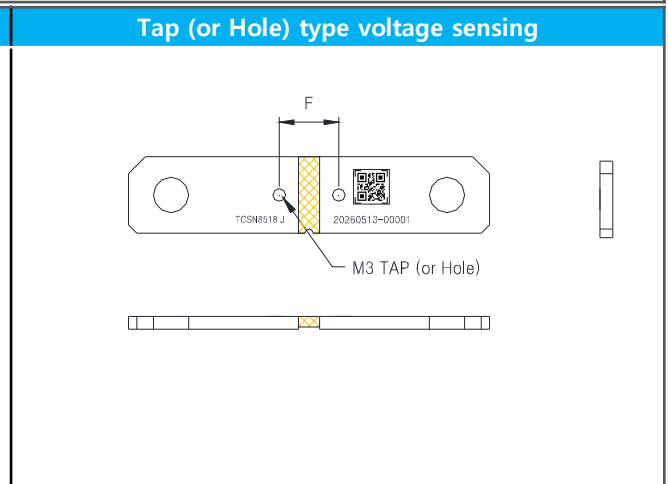
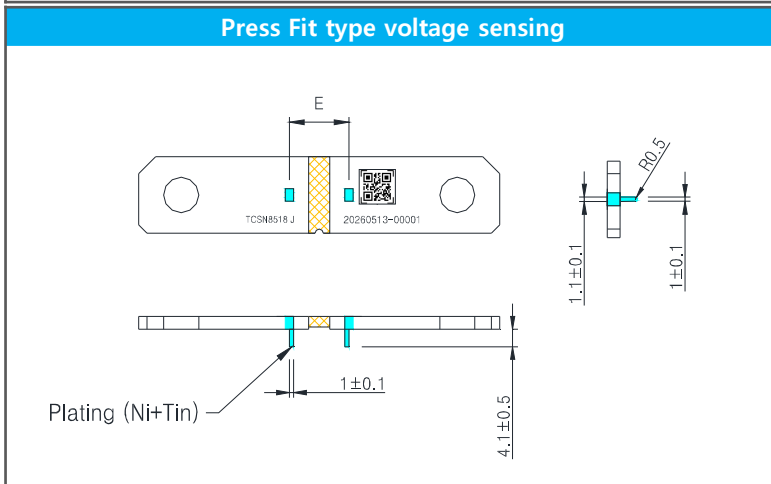
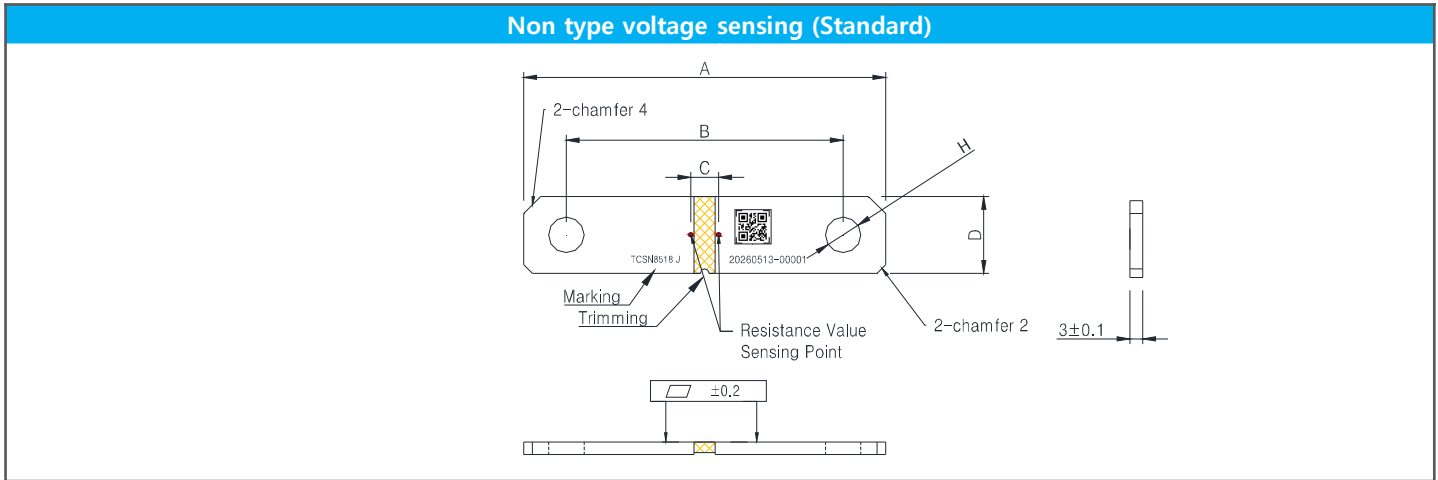
Model	Dimensions [mm]						
	A±1.0	B±0.5	C±0.5	D±0.5	E±0.5	F±0.5	H±0.3
TCSN5216	52	33.7	10	16	13.2	14.2	6.6
TCSN6016	60	43.0	10	16	14.0	15.0	6.6

Marking Example & QR Code Example

Marking Example				
TCSN5216 J 20260506 00001				
Model	Size	Tolerance	Production date	Serial No.
TCSN	5216	J	20260506	00001

• 5216 / 6016 is No QR code (5216 and 6018 dimensions are too small)

TCSN6918 & TCSN8518 DIMENSIONS (mm)



Model	Resistance [mΩ]	Dimensions [mm]						
		A±1.0	B±0.5	C±0.5	D±0.5	E±0.5	F±0.5	H±0.3
TCSN6918	0.05	69.0	52.0	6.5	18.0	7.5	9.5	7.0
	0.1			10		13.5	15.5	
	0.125			12		15.8	17.8	
	0.25			22		26.1	28.1	
TCSN8518	0.05	85.0	60.0	6	18.0	7.0	9	7.0
	0.1			10		13.5	15.5	
	0.12			12		15.8	17.8	
	0.25			22		26.1	28.1	

Marking Example & QR Code Example

Marking Example					QR Code Example			
TCSN8518 J 20260506 00001					RARA20260506-0001R99890n			
Model	Size	Tolerance	Production date	Serial No.	Supplier	Lot No.	Batch No.	R99890n
TCSN	8518	J	20260506	00001	RARA Electronics	YYYYMMDD	0001	Resistance Value(nΩ)

PERFORMANCE

Test	Condition	
TCR	Within spec	IEC60115-1 4.8, measured point -40°C ~ +140°C, reference point +25°C
Solder Heat Resistance	No visible damage ΔR±0.5% Maximum	IEC60115-1 4.18 , 260°C tin bath , 10s
Load life	No visible damage ΔR±1% Maximum	IEC60115-1 4.25.1 , 1000hours at 70°C±2°C , with rated current or component limit current (whichever is lower), 1.5h on / 0.5h of cycle
High temp. & High humidity	No visible damage ΔR±1% Maximum	MIL-STD-202 Method 103, 10 hours at 85°C and 85% RH, with 10% rated power (current) or component limit current (whichever is lower) applied.
Temperature cycle	No visible damage ΔR±1% Maximum	IEC60115-1 4.19 , -55°C@30min ~ +155°C@30min ; 1000cycles
High temp. storage	No visible damage ΔR±1% Maximum	IEC60115-1 4.25.3 , 1000hours at 170°C, without loading current and voltage
Low Temp. Load	No visible damage ΔR±0.5% Maximum	IEC60115-1 4.36 , col from rom temperature to -45°C, 1.5h no load, then apply rated power for 45min, cool for 15min, return to room temperature for testing.
Vibration Test	No visible damage ΔR±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 ΔR±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

