

Data Sheet

Customer:

Product: Current Sensing Chip Resistor (Wide Terminal) – CSW Series

Size: 0508/0612/1020/1225

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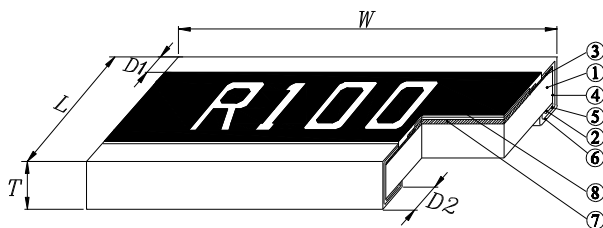
Current Sensing Chip Resistor (Wide Terminal)



■ Features

- Highly reliable multilayer electrode construction
- Reduced size of final equipment reliability
- 3 Watts power rating in 1 Watt size, 1225 package
- Resistance values from 10m to 100m ohm
- High purity alumina substrate for high power dissipation
- Long side terminations with higher power rating
- RoHS Compliance

■ Construction



■ Applications

- Power Management Applications
- Switching Power Supply
- Over Current Protection in Audio Applications
- Voltage Regulation Module (VRM)
- DC-DC Converter, Battery Pack, Charger, Adaptor
- Disk Driver

① Alumina Substrate	④ Edge Electrode	⑦ Resistor Layer
② Bottom Electrode	⑤ Barrier Layer	⑧ Overcoat
③ Top Electrode	⑥ External Electrode	

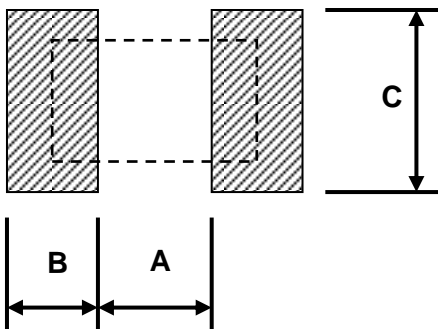
■ Dimensions

Type	Size (Inch)	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)	Weight (g) (1000pcs)
CSW08	0508	1.25±0.15	2.00±0.15	0.55±0.10	0.30±0.20	0.35±0.20	6
CSW62	0612	1.60±0.15	3.20±0.20	0.60±0.10	0.30±0.20	0.45±0.15	12
CSW20	1020	2.50±0.15	5.00±0.15	0.60±0.10	0.40±0.20	0.75±0.15	35
CSW25	1225	3.10±0.15	6.30±0.15	0.60±0.10	0.45±0.20	0.75±0.15	48

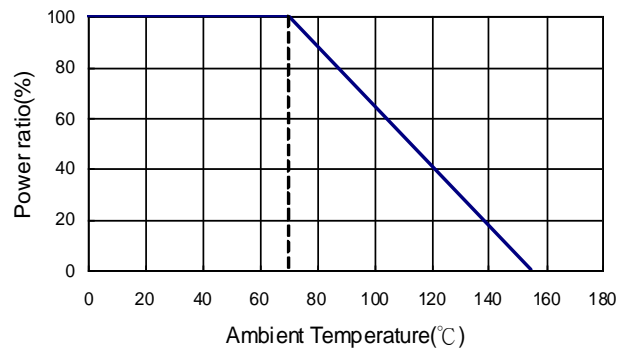
Part Numbering

CSW	25	F	T	F	R	R100	
Product Type	Dimensions (LxW)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking
	08: 0508 62: 0612 20: 1020 25: 1225	F: ±1% J: ±5%	T: Taping Reel B: Bulk	F: ±200 J: ±600	U: 1/2W Q: 3/4W T: 1W A: 1.5W S: 2W R: 3W	R010: 0.01Ω R100: 0.1Ω	N: No Marking

Recommend Land Pattern



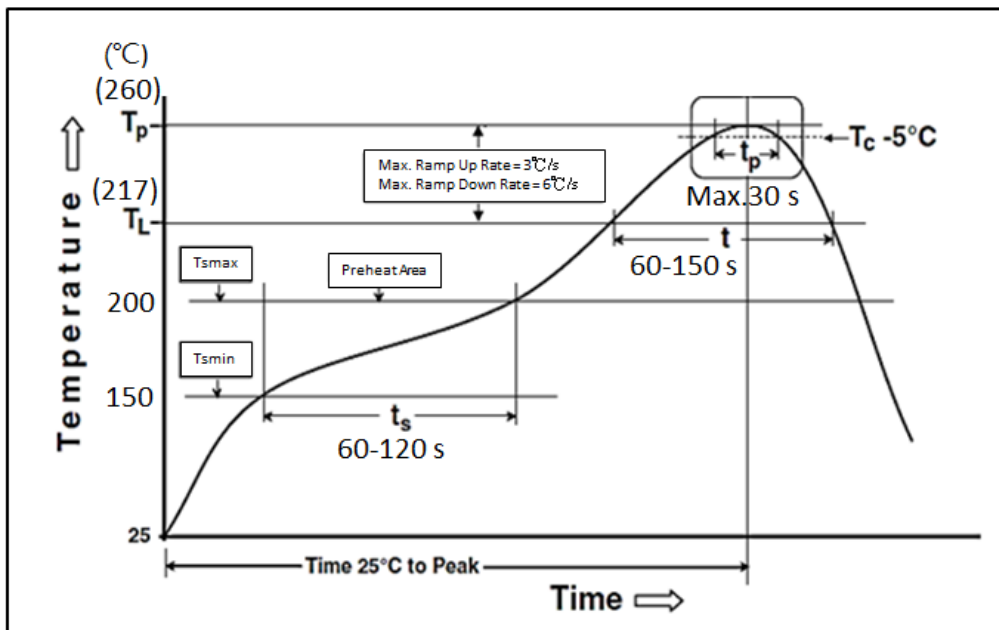
Derating Curve



Pad Layout

Type	A (mm)	B (mm)	C (mm)
CSW08	0.55	0.90	2.00
CSW62	0.70	0.80	3.20
CSW20	1.00	1.30	5.00
CSW25	1.60	1.20	6.40

Soldering Condition (IPC/JEDEC J-STD-020)



Standard Electrical Specifications

Type \ Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Current	Resistance Range (mΩ)		TCR (PPM/°C)
				±1% (E24、E96)	±5% (E24)	
CSW08 (0508)	1/2W	-55 ~ +155°C	7.07A	10-27		±600
				30-100		±200
CSW62 (0612)	3/4W		8.66A	10-27		±600
				30-100		±200
CSW20 (1020)	1W		10A	10-27		±600
				30-100		±200
CSW25 (1225)	1.5W		12.24A	10-27		±600
				30-100		±200

High Power Rating Electrical Specifications

Type \ Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Current	Resistance Range (mΩ)		TCR (PPM/°C)
				±1% (E24、E96)	±5% (E24)	
CSW62 (0612)	1.5W	-55~+155°C	12.2A	10 - 27		±600
				30 - 100		±200
CSW20 (1020)	2W		14.1A	10 - 27		±600
				30 - 100		±200
CSW25 (1225)	3W		17.3A	10 - 27		±600
				30 - 100		±200

Operating Voltage= $\sqrt{P \cdot R}$; Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$; Operating Current= $\sqrt{P/R}$

■ Viking is capable of manufacturing the optional spec based on customer's requirement.

■ Environmental Characteristics

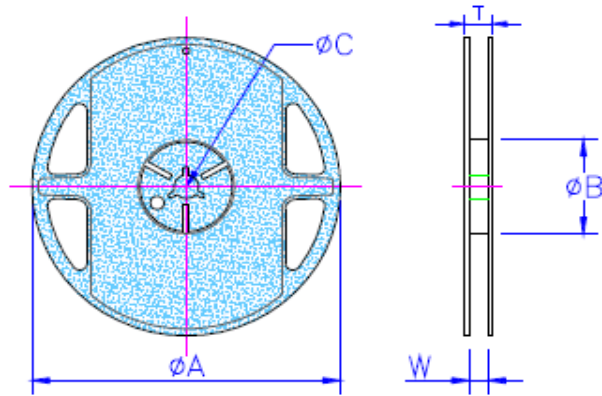
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	JIS C 5201-1 4.8 IEC 60115-1 4.8 At 25°C/-55°C and 25°C/+125°C, 25°C is the reference temperature
Short Time Overload	±2%	JIS C 5201-1 4.13 IEC 60115-1 4.13 RCWV*2 for 5 seconds
Insulation Resistance	≥ 10G	JIS C 5201-1 4.6 IEC 60115-1 4.6 Max. Overload Voltage for 1 minute
Endurance	±2%	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1 70°C±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
Damp Heat with Load	±2%	JIS-C-5201-1 4.24 IEC-60115-1 4.24 40±2°C, 90~95% R.H., RCWV for 1000hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
Dry Heat	±1%	JIS-C-5201-1 4.23 IEC-60115-1 4.23.2 at +155°C for 1000 hrs
Bending Strength	±1.0%	JIS-C-5201-1 4.33 IEC-60115-1 4.33 Bending once for 60 seconds with 3mm
Solderability	95% min. coverage	JIS C 5201-1 4.17 IEC 60115-1 4.17 245±5°C for 3 seconds
Resistance to Soldering Heat	±1%	JIS C 5201-1 4.18 IEC 60115-1 4.18 260±5°C for 10 seconds
Voltage Proof	No breakdown or flashover	JIS C 5201-1 4.7 IEC 60115-1 4.7 1.42 times Max. Operating Voltage for 1 minute CSW08:300V CSW62/20/25:400V
Leaching	Individual leaching area ≤ 5% Total leaching area ≤ 10%	JIS C 5201-1 4.18 IEC 60068-2-58 8.2.1 260±5°C for 30 seconds
Rapid Change of Temperature	±0.5%	JIS-C-5201-1 4.19 IEC-60115-1 4.19 -55°C (30 minutes) / +125°C (30 minutes) , 100 cycles

RCWV(Rated Continuous Working Voltage)=√(P*R) or Max. Operating Voltage whichever is lower.

■ Storage Temperature: 15~28°C; Humidity < 80%RH

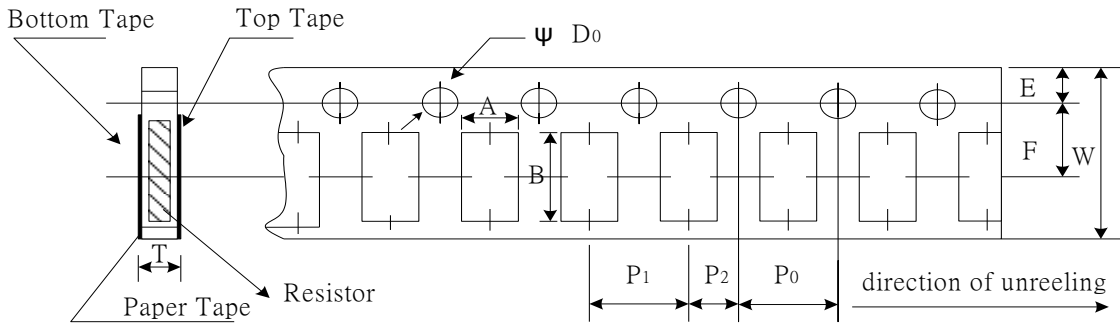
■ Packaging

Packaging Quantity & Reel Specifications



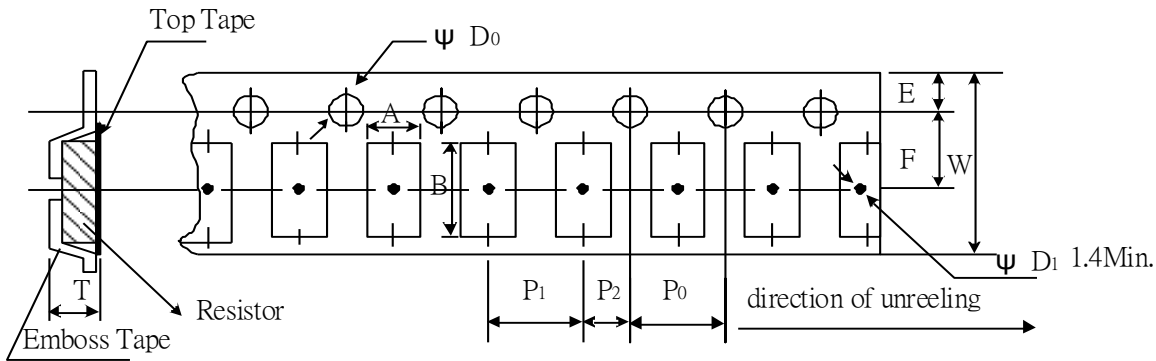
Type	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)	T (mm)	Paper Tape (EA)	Emboss Plastic Tape (EA)
CSW08	178.0±1.0	60.0+1.0	13.5±0.7	9.5±0.1	11.5±1.0	5,000	-
CSW62	178.0±1.0	60.0+1.0	13.5±0.7	9.5±0.1	11.5±1.0	5,000	-
CSW20	178.0±1.0	60.0+1.0	13.5±0.7	13.5±1.0	15.5±1.0	-	4,000
CSW25	178.0±1.0	60.0+1.0	13.5±0.7	13.5±1.0	15.5±1.0	-	4,000

Paper Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	ΦD ₀ (mm)	T (mm)
CSW08	1.60±0.10	2.40±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10
CSW62	1.90±0.10	3.50±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10

Emboss Plastic Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P ₀ (mm)	P ₁ (mm)	P ₂ (mm)	ΦD ₀ (mm)	T (mm)
CSW20	2.80±0.10	5.40±0.20	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20
CSW25	3.38±0.10	6.68±0.10	12.0±0.30	1.75±0.10	5.5±0.10	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20

■ Marking

1%, 5% for 0508/0612/1020/1225: 4 digits marking

Example:

Resistance	10mΩ	100mΩ
Marking	R010	R100