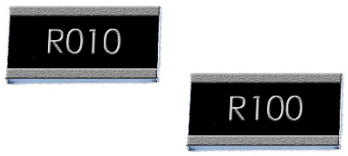
CSRW Series

Thick Film Long Side Termination Current Sensing Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions

Features:

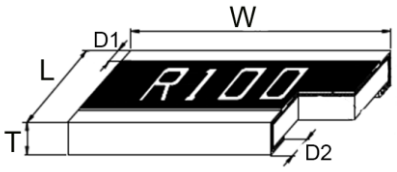
- Power ratings to 3 W
- Long side terminations with higher power rating
- RoHS compliant, REACH compliant, lead free and halogen free



Electrical Specifications

Type/Code	Power Rating (W) @ 70°C	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance 1% & 5%
CSRW0508	0.5	± 600	0.01 - 0.027
		± 200	0.03 - 0.51
CSRW0508-HP	1	± 600	0.01 - 0.027
		± 200	0.03 - 0.091
		± 100	0.1 - 0.51
CSRW0612	0.75	± 600	0.01 - 0.027
		± 200	0.03 - 0.51
CSRW0612-HP	1.5	± 600	0.01 - 0.027
		± 100	0.03 - 0.51
CSRW1225	1.5	± 600	0.01 - 0.027
		± 200	0.03 - 0.75
CSRW1225-HP	3	± 600	0.01 - 0.027
		± 100	0.03 - 0.75

Mechanical Specifications



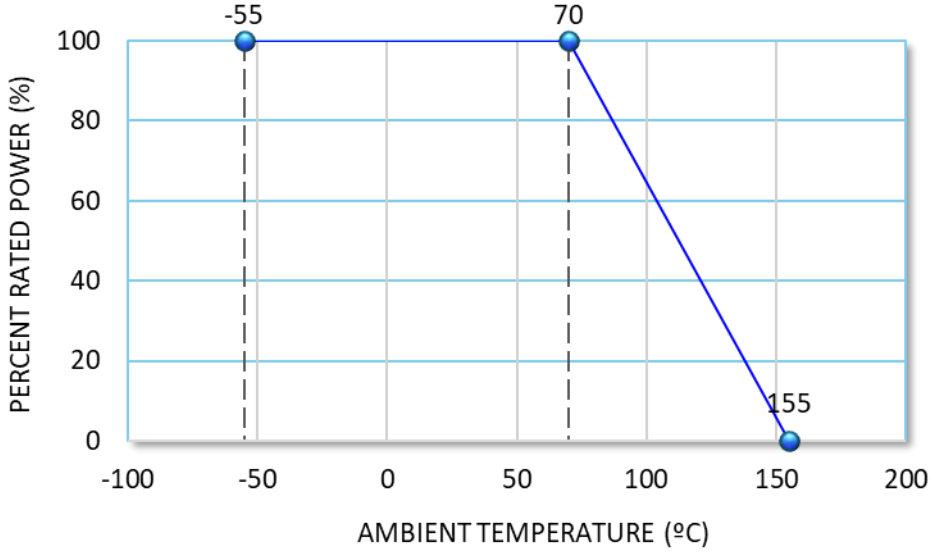
Type/Code	Weight (mg)	L Body Length	W Body Width	T Body Height	D1 Top Termination	D2 Bottom Termination	Unit
CSRW0508	6.0	0.049 ± 0.006 1.25 ± 0.15	0.079 ± 0.006 2.00 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.014 ± 0.006 0.35 ± 0.15	inches mm
CSRW0612	12.0	0.063 ± 0.006 1.60 ± 0.15	0.126 ± 0.006 3.20 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.018 ± 0.006 0.45 ± 0.15	inches mm
CSRW1225	48.0	0.122 ± 0.006 3.10 ± 0.15	0.248 ± 0.006 6.30 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.018 ± 0.008 0.45 ± 0.20	0.030 ± 0.006 0.75 ± 0.15	inches mm

This specification may be changed at any time without prior notice.
Please confirm technical specifications before use.

Performance Characteristics			
Test	Test Method	Test Specification	Test Condition
Temperature Coefficient of Resistance (TCR)	JIS-C-5201-1 4.8 IEC 60115-1 4.8	As per specification	At 25°C / -55°C and 25°C / +125°C, 25°C is the reference temperature
Short Time Overload	JIS-C-5201-1 4.13 IEC 60115-1 4.13	ΔR ±(2% + 0.05Ω)	RCWV*2 for 5 seconds
Insulation Resistance	JIS-C 5201-1 4.6 IEC 60115-1 4.6	ΔR ≥10G	Max. overload voltage for 1 minute
Endurance	JIS-C 5201-1 4.25 IEC 60115-1 4.25.1	ΔR ±(2% + 0.05Ω)	70 ± 2°C, RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	ΔR ±(2% + 0.05Ω)	40 ± 2°C, 90~95% R.H., RCWV for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"
Dry Heat	JIS-C-5201-1 4.23 IEC-60115-1 4.23.2	ΔR ±(1% + 0.05Ω)	at +155°C for 1000 hours
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	ΔR ±(1% + 0.05Ω)	Bending once for 60 seconds with 3mm
Solderability	JIS-C-5201-1 4.17 IEC-60115-1 4.17	95% min. coverage	245 ± 5°C for 3 seconds
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	ΔR ±(1% + 0.05Ω)	260 ± 5°C for 10 seconds
Voltage Proof	JIS-C-5201-1 4.7 IEC-60115-1 4.7	No breakdown or flashover	1.42 times Max. operating voltage for 1 minute CSRW0508: 300V and CSRW0612/1225: 400 V
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	Individual leaching area ≤ 5% Total leaching area ≤ 10%	260 ± 5°C for 30 seconds
Rapid Change of Temperature	JIS-C-5201-1 4.19 IEC-60115-1 4.19	ΔR ±(0.5% + 0.05Ω)	-55°C (30 minutes)/ +125°C (30 minutes), 5 cycles

Operating temperature range is -55 to +155ºC

Power Derating Curve:



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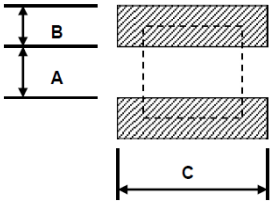
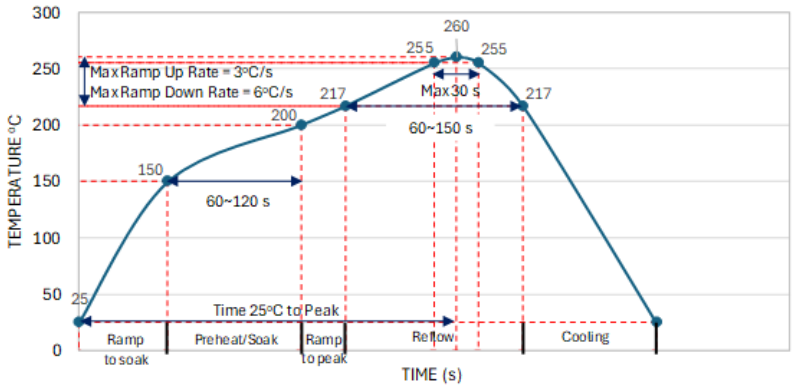
Recommended Solder Pad

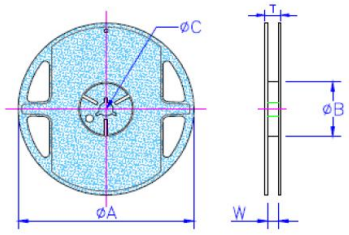


Type/Code	a	b	c	Unit
CSRW0508	0.022 0.55	0.035 0.90	0.079 2.00	inches mm
CSRW0612	0.028 0.70	0.031 0.80	0.126 3.20	inches mm
CSRW1225	0.063 1.60	0.047 1.20	0.252 6.40	inches mm

Recommended Resistor Reflow Profile



Reel Specifications



Type/Code	A	B	C	W	T	Unit
CSRW0508	7.008 ± 0.039 178.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	0.531 ± 0.028 13.50 ± 0.70	0.374 ± 0.004 9.50 ± 0.10	0.453 ± 0.039 11.50 ± 1.00	inches mm
CSRW0612	7.008 ± 0.039 178.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	0.531 ± 0.028 13.50 ± 0.70	0.374 ± 0.004 9.50 ± 0.10	0.453 ± 0.039 11.50 ± 1.00	inches mm
CSRW1225	7.008 ± 0.039 178.00 ± 1.00	2.362 ± 0.039 60.00 ± 1.00	0.531 ± 0.028 13.50 ± 0.70	0.531 ± 0.004 13.50 ± 0.10	0.610 ± 0.039 15.50 ± 1.00	inches mm

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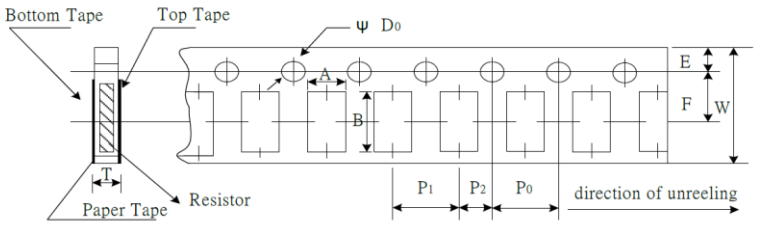
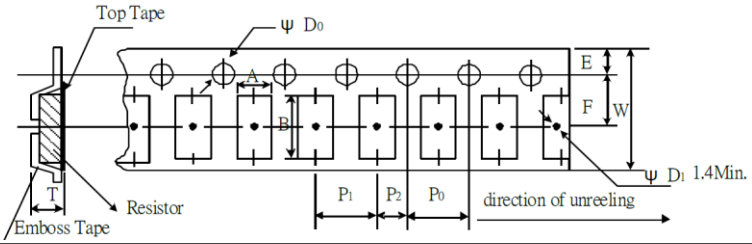
Taping Specifications - Paper Tape



Size	A	B	W	E	F	Unit
CSRW0508	0.063 ± 0.004 1.60 ± 0.10	0.094 ± 0.008 2.40 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
CSRW0612	0.075 ± 0.004 1.90 ± 0.10	0.138 ± 0.008 3.50 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	inches mm
Size	P0	P1	P2	D0	T	Unit
CSRW0508	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 + 0.004/-0 1.50 + 0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm
CSRW0612	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 + 0.004/-0 1.50 + 0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm

Taping Specifications - Plastic Tape



Size	A	B	W	E	F	Unit
CSRW1225	0.133 ± 0.004 3.38 ± 0.10	0.263 ± 0.004 6.68 ± 0.10	0.472 ± 0.012 12.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.004 5.50 ± 0.10	inches mm
	P0	P1	P2	D0	T	Unit
	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 ± 0.004 1.50 ± 0.10	0.039 ± 0.008 1.00 ± 0.20	inches mm

Part Marking Specifications

E96 and E24 Values

The nominal resistance is marked on the surface of the overcoating with the use of **four character markings**. "R" will be used as a decimal holder.



0.01Ω

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RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
CSRW	Thick Film Long Side Termination Current Sensing Resistor	SMD	YES	100% Matte Sn over Ni	Always	Always

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

C	S	R	W	0	6	1	2	F	T	3	0	L	0	-	H	P

Product Series

Code
CSRW

Size

Code
0508
0612
1225

Tolerance

Code	Tol
F	1%
J	5%

Packaging

Code	Description	Size	Quantity
T	7" Reel - Paper Tape	0508, 0612	5000
	7" Reel - Plastic Tape	1225	4000

Resistance Value

Four characters with the multiplier used as the decimal holder. "L" used as multiplier of 10^{-3} for any value under 0.1 ohm

0.051 ohm = 51L0
0.35 ohm = R350
1 ohm = 1R00

Special

Code	Description
(blank)	Standard
-HP	High Power

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