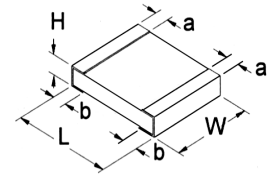


Features

- These current sensing, low ohmic resistors provide a precise measurement of output current in power sensing and control applications.
- Precision tolerances to  $\pm 1\%$
- TCR down to  $\pm 50 \text{ ppm}/^\circ\text{C}$
- Leach-resistant, solder plated, wrap-around termination
- Low inductance - less than 0.2nH typically
- Non-standard resistance values available
- 2512 size values  $> 10\text{m}\Omega$  are film
- 2512 size values 3-9m $\Omega$  are metal foil on ceramic carrier (CSRF)
- 2512 size values  $< 3\text{m}\Omega$  are metal foil (CSRL)
- 2010 and 2512 sizes available with narrow terminations (CSRN)

Applications

- Battery charging circuits
- Disk drives
- Automotive (lamp indicators)
- Audio (over current protection)
- Power supplies
- AC/DC conversions
- Portable medical equipment



Electrical Specifications

Type	Package Type	Power Rating (Watts) @ 70°C	Dielectric Withstanding Voltage	Resistance Temperature Coefficient	Ohmic Range and Tolerance	
					1%	5%
CSR 1/8S	0402	0.125W	200	$\pm 200 \text{ ppm}/^\circ\text{C}$	0.10 $\Omega$ – 4.7 $\Omega$	0.10 $\Omega$ – 4.7 $\Omega$
CSR 1/8	0603	0.125W	200	$\pm 300 \text{ ppm}/^\circ\text{C}$	0.15 $\Omega$ – 1.0 $\Omega$	0.15 $\Omega$ – 1.0 $\Omega$
CSR 1/4	0805	0.25W	200	$\pm 350 \text{ ppm}/^\circ\text{C}$ $\pm 200 \text{ ppm}/^\circ\text{C}$	0.10 $\Omega$ – 4.7 $\Omega$	0.022 $\Omega$ – 0.082 $\Omega$
CSR 1/2	1206	0.5W	200	$\pm 100 \text{ ppm}/^\circ\text{C} *$	0.01 $\Omega$ – 0.5 $\Omega$	0.01 $\Omega$ – 0.5 $\Omega$
CSR 1	2010	1W	200	$\pm 100 \text{ ppm}/^\circ\text{C} *$	0.004 $\Omega$ – 0.5 $\Omega$	0.003 $\Omega$ – 0.5 $\Omega$
CSRN 1	2010	1W	200	$\pm 250 \text{ ppm}/^\circ\text{C}$	0.01 $\Omega$ – 1.0 $\Omega$	0.01 $\Omega$ – 1.0 $\Omega$
CSR 2 CSRL 2 CSRF 2 CSRN 2	2512	2W	200	$\pm 100 \text{ ppm}/^\circ\text{C}$ $\pm 100 \text{ ppm}/^\circ\text{C}$ $\pm 50 \text{ ppm}/^\circ\text{C}$ $\pm 200 \text{ ppm}/^\circ\text{C}$	0.01 $\Omega$ – 0.5 $\Omega$ 0.001 $\Omega$ – 0.002 $\Omega$ 0.003 $\Omega$ – 0.05 $\Omega$ 0.01 $\Omega$ – 1.0 $\Omega$	0.01 $\Omega$ – 0.5 $\Omega$ 0.001 $\Omega$ – 0.002 $\Omega$ 0.003 $\Omega$ – 0.05 $\Omega$ 0.01 $\Omega$ – 1.0 $\Omega$

\* Contact factory for TCR on values below 0.05 OHMS

Performance Characteristics

Test	Test Specification	Typical
Moisture Resistance	$\pm 0.5\%$	$\leq 0.5\%$
Load Life	$\pm 0.5\%$	$\leq 0.5\%$
Leach Resistance	90 seconds min	$> 90$ seconds
Resistance to Soldering Heat	$\pm 0.5\%$	$\leq 0.25\%$
Solderability	min 95% coverage	$\geq 95\%$
Temperature Cycling	$\pm 0.5\%$	$\leq 0.5\%$
Thermal Shock	$\pm 0.5\%$	$\leq 0.5\%$
Short Time Overload	$\pm 0.5\%$	$\leq 0.5\%$
Insulation Resistance	1M $\Omega$ minimum	$\geq 1\text{M}\Omega$

How to Order

CSR
12
—
0R01
F
T

Megastar Ohm
Code
Nominal Resistance
Tolerance
Packaging

Type	Description
CSR	STD
CSRL	Low Value
CSRF	Foil/Ceramic
CSRN	Narrow Terminations

Code	Wattage	( Size )
18S	1/8 watt	(0402)
18	1/8 watt	(0603)
14	1/4 watt	(0805)
12	1/2 watt	(1206)
01	1.0 watt	(2010)
02	2.0 watt	(2512)

Tolerance	Code
1%	F
2%	G
5%	J

Code	Description	Pkg Qty
T	7" - Paper	5,000
T (0402 only)	7" - Paper	10,000

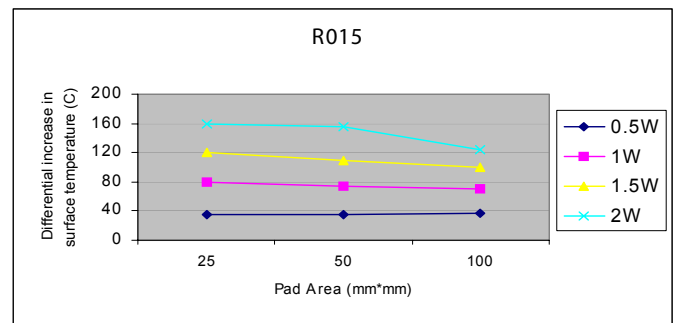
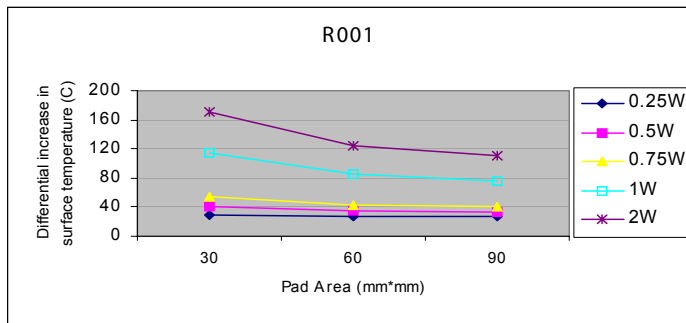
example: CSR12-0R01FT



LEADFREE  
RoHS Compliant

Mechanical Specifications

Type	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Units
CSR 1/8S	0.039 ± 0.004 1.0 ± 0.1	0.020 ± 0.004 0.5 ± 0.1	0.014 ± 0.004 0.35 ± 0.1	0.006 ± 0.004 0.15 ± 0.1	0.006 ± 0.004 0.15 ± 0.1	inches mm
CSR 1/8	0.063 ± 0.004 1.6 ± 0.1	0.032 ± 0.004 0.8 ± 0.1	0.018 ± 0.004 0.45 ± 0.1	0.012 ± 0.008 0.3 ± 0.2	0.012 ± 0.008 0.3 ± 0.2	inches mm
CSR 1/4	0.079 ± 0.008 2.0 ± 0.2	0.049 ± 0.008 1.25 ± 0.2	0.016 ± 0.004 0.4 ± 0.1	0.016 ± 0.008 0.4 ± 0.2	0.016 ± 0.008 0.4 ± 0.2	inches mm
CSR 1/2	0.126 ± 0.008 3.20 ± 0.2	0.063 ± 0.008 1.6 ± 0.2	0.020 ± 0.006 0.50 ± 0.15	0.039 ± 0.006 1.0 ± 0.15	0.039 ± 0.006 1.0 ± 0.15	inches mm
CSRN 1/2	0.121 ± 0.006 3.1 ± 0.15	0.061 ± 0.006 1.55 ± 0.15	0.024 ± 0.1 0.6 ± 0.1	0.02 ± 0.012 0.5 ± 0.3	0.016 ± 0.008 0.4 ± 0.2	inches mm
CSR 1	0.197 ± 0.008 5.0 ± 0.2	0.100 ± 0.008 2.5 ± 0.2	0.020 ± 0.006 0.5 ± 0.15	0.067 ± 0.006 1.7 ± 0.15	0.067 ± 0.006 1.7 ± 0.15	inches mm
CSRN 1	0.197 ± 0.006 5.0 ± 0.15	0.100 ± 0.006 2.5 ± 0.15	0.024 ± 0.004 0.6 ± 0.1	0.024 ± 0.012 0.6 ± 0.3	0.020 ± 0.010 0.5 ± 0.25	inches mm
CSR 2(>10mΩ)	0.252 ± 0.008 6.4 ± 0.2	0.126 ± 0.008 3.2 ± 0.2	0.020 ± 0.006 0.5 ± 0.15	0.075 ± 0.006 1.9 ± 0.15	0.075 ± 0.006 1.9 ± 0.15	inches mm
CSRF 2(3-50mΩ)	0.256 ± 0.013 6.5 ± 0.33	0.126 ± 0.008 3.2 ± 0.2	0.032 ± 0.006 0.8 ± 0.15	0.075 ± 0.006 1.9 ± 0.15	0.075 ± 0.006 1.9 ± 0.15	inches mm
CSRL 2(2mΩ)	0.256 ± 0.013 6.5 ± 0.33	0.126 ± 0.008 3.2 ± 0.2	0.028 ± 0.006 0.7 ± 0.15	0.075 ± 0.006 1.9 ± 0.15	0.075 ± 0.006 1.9 ± 0.15	inches mm
CSRL 2(1mΩ)	0.256 ± 0.013 6.5 ± 0.33	0.126 ± 0.008 3.2 ± 0.2	0.032 ± 0.006 0.8 ± 0.15	0.098 ± 0.006 2.5 ± 0.15	0.098 ± 0.006 2.5 ± 0.15	inches mm
CSRN 2	0.246 ± .006 6.3 ± 0.15	0.121 ± .006 3.1 ± 0.15	0.023 ± .004 0.6 ± 0.10	0.023 ± .012 0.6 ± 0.3	0.020 ± .010 0.5 ± 0.25	inches mm



Solder Pad Dimensions

Type	L Total Length	W Total Length	D Pad Depth	Units
CSR 1/8S	0.049 1.25	0.025 0.63	0.015 0.38	inches mm
CSR 1/8	0.06 1.5	0.035 0.9	0.02 0.5	inches mm
CSR 1/4	0.099 2.5	0.059 1.5	0.055 1.4	inches mm
CSR 1/2	0.158 4.0	0.079 2.0	0.071 1.8	inches mm
CSRN 1	0.25 6.35	0.145 3.68	0.055 1.40	inches mm
CSR 1	0.258 6.54	0.130 3.3	0.071 1.8	inches mm
CSRL 2 (.001 & .002)	0.315 8.0	0.158 4.0	0.132 3.35	inches mm
CSR 2 (.010 Up)	0.315 8.0	0.158 4.0	0.079 2.0	inches mm
CSRF 2 (3 - 100m)	0.315 8.0	0.158 4.0	0.079 2.0	inches mm
CSRN 2 (10 - 500m)	0.315 8.0	0.158 4.0	0.055 1.4	inches mm

