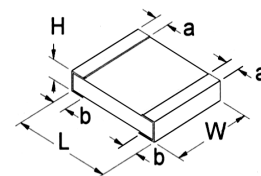


Features

- 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  $\pm 50$  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 $^{\circ}\text{C}$	Dielectric Withstanding Voltage	Resistance Temperature Coefficient	Ohmic Range and Tolerance	
					1%	5%
CSR18S	0402	0.125W	200	$\pm 200$ ppm/ $^{\circ}\text{C}$	0.10 $\Omega$ – 4.7 $\Omega$	0.10 $\Omega$ – 4.7 $\Omega$
CSR18	0603	0.125W	200	$\pm 300$ ppm/ $^{\circ}\text{C}$	0.15 $\Omega$ – 1.0 $\Omega$	0.15 $\Omega$ – 1.0 $\Omega$
CSR14	0805	0.50 W	200	$\pm 350$ ppm/ $^{\circ}\text{C}$ $\pm 200$ ppm/ $^{\circ}\text{C}$	0.01 $\Omega$ – 0.5 $\Omega$	0.01 $\Omega$ – 0.5 $\Omega$
CSR14H	0805	0.25W	200	$\pm 350$ ppm/ $^{\circ}\text{C}$ $\pm 200$ ppm/ $^{\circ}\text{C}$	0.01 $\Omega$ – 0.5 $\Omega$	0.01 $\Omega$ – 0.5 $\Omega$
CSR12H	1206	0.25W	200	$\pm 200$ ppm/ $^{\circ}\text{C}$ *	0.01 $\Omega$ – 0.5 $\Omega$	0.01 $\Omega$ – 0.5 $\Omega$
CSR12	1206	0.50W	200	$\pm 100$ ppm/ $^{\circ}\text{C}$ *	0.01 $\Omega$ – 0.5 $\Omega$	0.01 $\Omega$ – 0.5 $\Omega$
CSR01	2010	1W	200	$\pm 100$ ppm/ $^{\circ}\text{C}$ *	0.004 $\Omega$ – 0.5 $\Omega$	0.003 $\Omega$ – 0.5 $\Omega$
CSRN01	2010	1W	200	$\pm 250$ ppm/ $^{\circ}\text{C}$	0.01 $\Omega$ – 1.0 $\Omega$	0.01 $\Omega$ – 1.0 $\Omega$
CSRN02H	2512	1W	200	$\pm 100$ ppm/ $^{\circ}\text{C}$	0.01 $\Omega$ – 1.0 $\Omega$	0.01 $\Omega$ – 1.0 $\Omega$
CSR02 CSRL02 CSRF02 CSRN02	2512	2W	200	$\pm 100$ ppm/ $^{\circ}\text{C}$ $\pm 100$ ppm/ $^{\circ}\text{C}$ $\pm 50$ ppm/ $^{\circ}\text{C}$ $\pm 200$ 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	$\geq 1\text{M}\Omega$

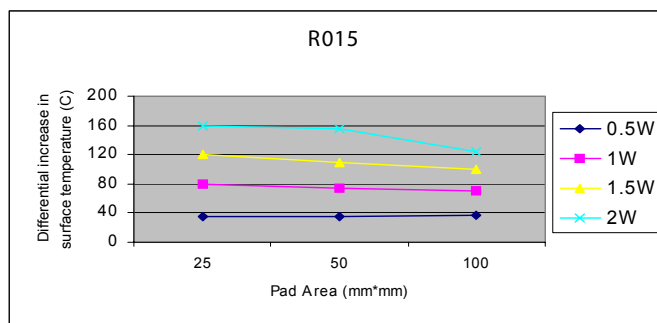
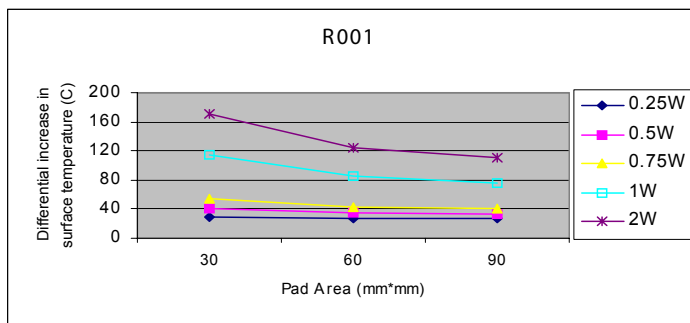
How to Order

**CSR** (Megastar Ohm)    **12** (Code)    **—** (Nominal Resistance)    **0R01** (Nominal Resistance)    **F** (Tolerance)    **T** (Packaging)

Type	Description	Code	Wattage	( Size )	Tolerance	Code	Code	Description	Pkg Qty
CSR	STD	18S	1/8 watt	(0402)	1%	F	T	7" - Paper	5,000
CSRL	Low Value	18	1/8 watt	(0603)	2%	G	T (0402 only)	7" - Paper	10,000
CSRF	Foil/Ceramic	14H	1/4 watt	(0805)	5%	J			
CSRN	Narrow Terminations	14	1/2 watt	(0805)					
		12H	1/4 watt	(1206)					
		12	1/2 watt	(1206)					
		01	1.0 watt	(2010)					
		02H	1.0 watt	(2512)					
		02	2.0 watt	(2512)					

example: CSR12-0R01FT

Mechanical Specifications						
Type	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Units
CSR18S	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
CSR18	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
CSR14H CSR14	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
CSR12H CSR12	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
CSRN12	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
CSR01	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
CSRN01	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
CSRN02H	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
CSR02(>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
CSRF02(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
CSRL02(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 02(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
CSRN02	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
CSR18S	0.049 1.25	0.025 0.63	0.015 0.38	inches mm
CSR18	0.06 1.5	0.035 0.9	0.02 0.5	inches mm
CSR14H CSR14	0.099 2.5	0.059 1.5	0.055 1.4	inches mm
CSR12H CSR12	0.158 4.0	0.079 2.0	0.071 1.8	inches mm
CSRN01	0.25 6.35	0.145 3.68	0.055 1.40	inches mm
CSR01	0.258 6.54	0.130 3.3	0.071 1.8	inches mm
CSRN02H (10 - 500m)	0.315 8.0	0.158 4.0	0.055 1.4	inches mm
CSRL02 (.001 &.002)	0.315 8.0	0.158 4.0	0.132 3.35	inches mm
CSR02 (.010 Up)	0.315 8.0	0.158 4.0	0.079 2.0	inches mm
CSRF02 (3 - 100m)	0.315 8.0	0.158 4.0	0.079 2.0	inches mm
CSRN02 (10 - 500m)	0.315 8.0	0.158 4.0	0.055 1.4	inches mm

