KOA SPEER ELECTRONICS, INC.

CSR

four-terminal current sense resistor

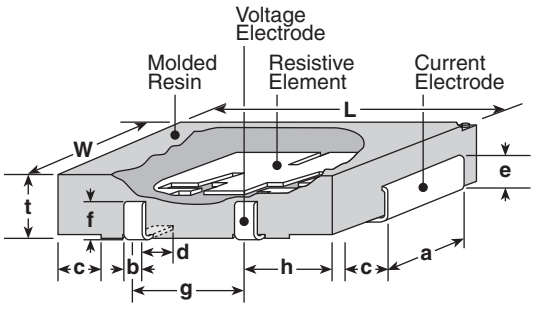
EU RoHS COMPLIANT

features

- Extremely low resistance and high precision tolerance
- Low T.C.R. achieved (±50ppm/°C)
- Flameproof UL94V0
- Marking: Black body color with white marking
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

dimensions and construction

Size Code	Dimensions inches (mm)										
	L	W	t	a	b	c	d	e	f	g	h
CSR1	.425±.02 (10.8±0.5)	.244±.012 (6.2±0.3)	.083±.008 (2.1±0.2)	.118±.012 (3.0±0.3)	.031±.008 (0.8±0.2)	.055±.02 (1.4±0.5)	.047±.02 (1.2±0.5)	.051±.012 (1.3±0.3)	.051±.012 (1.3±0.3)	.197±.004 (5.0±0.1)	.098±.004 (2.5±0.1)
CSR2	.504±.02 (12.8±0.5)	.323±.012 (8.2±0.3)	.122±.008 (3.1±0.2)	.197±.012 (5.0±0.3)	.039±.008 (1.0±0.2)	.079±.02 (2.0±0.5)	.079±.02 (2.0±0.5)	.087±.012 (2.2±0.3)	.087±.012 (2.2±0.3)	.236±.004 (6.0±0.1)	.118±.004 (3.0±0.1)



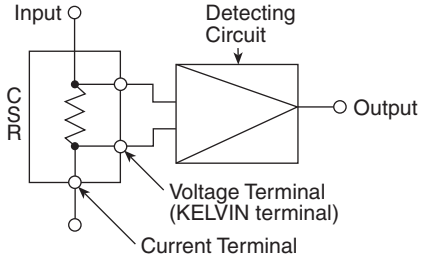
ordering information

New Part #

CSR	1	T	TE	10L0	F
Type	Power Rating	Termination Material	Packaging	Nominal Resistance	Tolerance
	1: 1W 2: 2W	T: Sn (Other termination styles may be available, please contact factory for options)	CSR1- TED: 10" embossed tape CSR2- TEB: 13" embossed plastic (CSR1: 10" 12mm pitch) (all sizes -1,000 pieces/reel)	In milliohms: 3 significant figures "L" indicates decimal point	D: ±0.5% F: ±1%

For further information on packaging, please refer to Appendix A.

typical circuit schematic

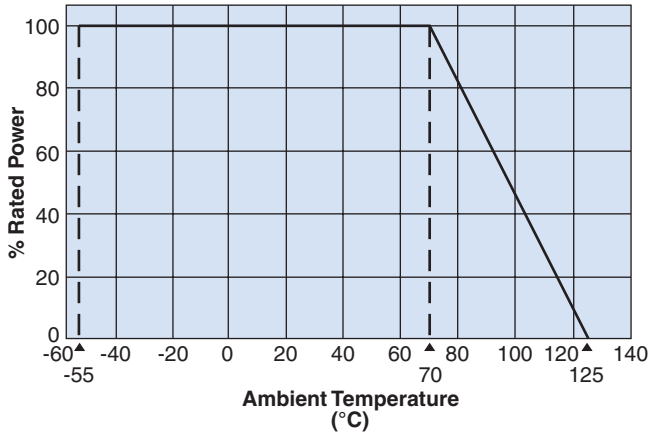


applications and ratings

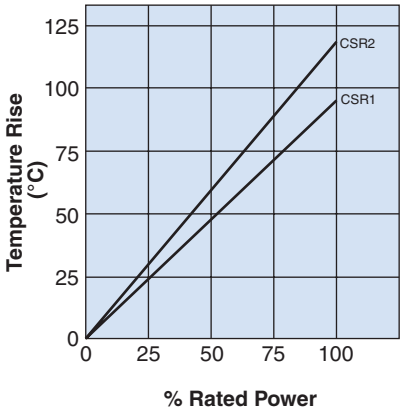
Part Designation	Power Rating	T.C.R. (ppm/°C) Max.	Resistance Range E-12	Resistance Tolerance	Dielectric Withstanding Voltage	Rated Ambient Temperature	Operating Temperature Range
CSR1	1W	±50	5mΩ - 50mΩ	D: ±0.5%,F: ±1%	500V	+70°C	-55°C to +125°C
CSR2	2W			F: ±1%			

environmental applications

Derating Curve



Surface Temperature Rise



Performance Characteristics

Parameter	Requirement ΔR Limit	Requirement ΔR Typical	Test Method
Resistance	Within regulated tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+125°C
Overload	±1.0%	±1.0%	Rated power x 5 for 5 seconds
Resistance to Solder Heat	±1.0%	±1.0%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	±1.0%	±0.5%	-55°C (30 minutes), +125°C (30 minutes), 500 cycles
Moisture Resistance	±2.0%	±0.5%	40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	±1.0%	±0.5%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Low Temperature Operation	±0.5%	±0.25%	-55°C, 1 hour
High Temperature Exposure	±0.5%	±0.25%	+125°C, 100 hours

12/16/08