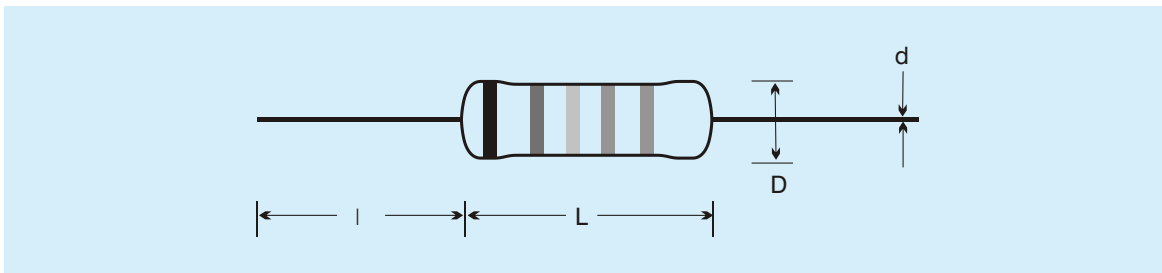
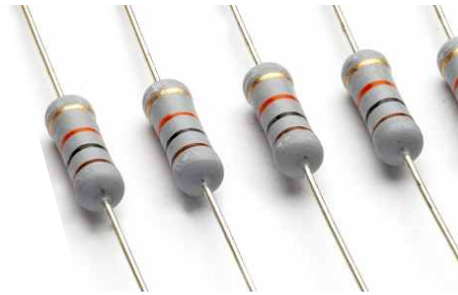


METAL OXIDE FILM RESISTORS (CSN & CMSN Series)

CERMET RESISTRONICS PVT. LTD



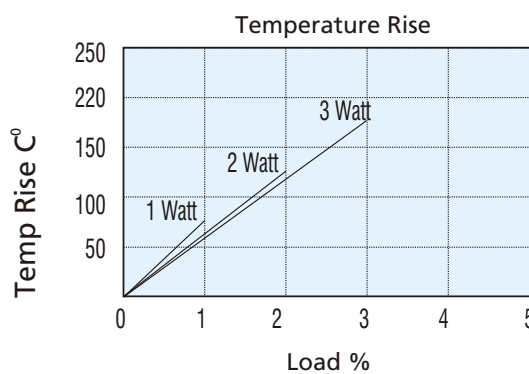
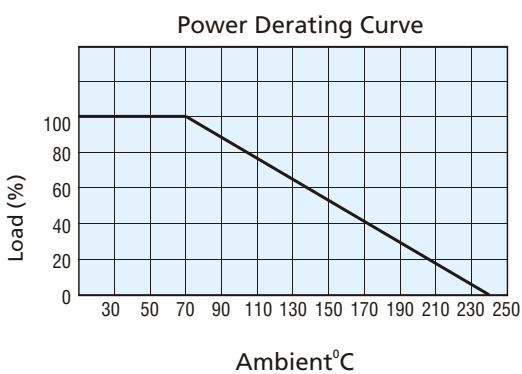
- Small Sized High Performance Type Resistors
- Special Types i.e. Non Inductive Available
- Tin Plated Copper Wire Ensures Excellent Solderability
- Highest Electrical & Mechanical Performance
- Flame-proof, Solvent Proof Silicon Coated
- Colour Code Marking For Easy Identification
- Standard Tolerance as 1% , 2% & 5%
- ERTL Tested



Dimensions (in mm)								
Type	Watt	L	D	d	l	Maximum Working Voltage*	Maximum Overload Voltage**	Resistance Range
		±0.50	±0.20	±0.02	±2.0			
CMSN - 1	1.0	9.00	3.50	0.52	28.00	300 DC/rms	600 DC/rms	0.2 E – 1 M
CMSN - 2	2.0	12.00	4.50	0.76	28.00	350 DC/rms	700 DC/rms	0.2 E – 1 M
CMSN - 3	3.0	16.00	5.50	0.76	28.00	350 DC/rms	700 DC/rms	0.2 E – 1 M
CSN 05	0.50	9.00	3.50	0.52	28.00	300 DC/rms	600 DC/rms	0.2 E – 1 M
CSN 1	1.0	12.00	4.50	0.76	28.00	300 DC/rms	600 DC/rms	0.2 E – 1 M
CSN 2	2.0	16.00	5.50	0.76	28.00	350 DC/rms	700 DC/rms	0.2 E – 1 M

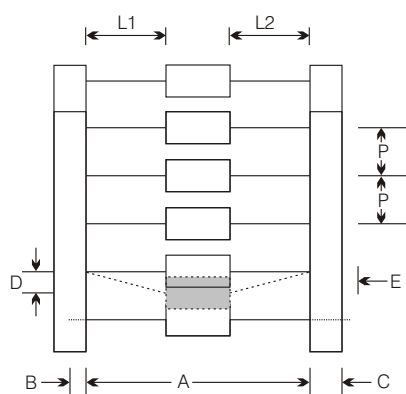
* (Rated continuous Working Voltage): $P \times R$ or Maximum Working Voltage which ever is low.

** Maximum Overload Voltage : RCWW x 2.5 for 5 sec or Maximum overload voltage whichever is low.



Note: Customised variations available on request.

Characteristics	Test Methods	Limits
D C Resistance	Resistors are tested with standard specified voltages for its Ohmic values to check the specified tolerance.	The Resistors shall be within specified tolerance limits.
Short Time Overload	The Resistors shall be subjected to 2.5 times the Rated Voltage or Maximum overload voltage (Which ever is low) For a duration of 5 secs.	$\Delta R \% = \pm 1.0\%$ (+ 0.05 Ω)
Temp-Coefficient	The Resistors value shall be checked at 2 temp. i.e.one At Ambient & the final at Amb + 100° C. The TCR is then Calculated as : $\frac{R_2 - R_1}{R_1} \times \frac{1}{t_2 - t_1} \times 10^6 = \text{ppm}/^\circ\text{C}$	PPM
		450 PPM Lower ppm on request
Rated Load	A Rated Continuous Working Voltage or Maximum Wkg. Voltage whichever less shall be applied to the resistors for a duration of 2 Hrs.	$\Delta R \% = \pm 1 \% \text{ Max}$
Solderability	A solder bath is maintained at 230°C. The specimen leads are immersed in the bath & withdrawn within 3 secs. A suitable flux is used during the test.	A fresh solder shall cover the specimen leads by Min. 95% coverage.
Resistance to Solder Heat	A solder bath is Maintained at 350°C. The specimen leads are subjected to the bath for a duration of 10 secs.	$\Delta R \% = \pm 1 \% \text{ Max}$
Resistance to Solvents	The specimen shall be subjected to IPA for a duration of 1 min. 10 strokes of hard brush shall be applied. The test shall be conducted 3 times.	The colour code marking shall remain legible.
Die-electric Strength	A foil is wrapped around the specimen body. A voltage of 300 V. @ 0.5 ma shall be applied between both the terminals of the specimen for a duration of 1min.	There shall be no flash over Or break down.
Terminal Strength	Pull Test: The resistor leads shall be pulled using 5 N force Bend Test: The resistor leads are bend through 180° three times.	There shall be no damage.
Load Life	The specimen shall be subjected to an ambient of 70°C for a duration of 1000 Hrs. The specimen shall also be loaded for full power dissipation. The duty cycle shall be 1 ½ Hr. On & ½ Hr. Off.	$\Delta R \% = \pm 5 \% \text{ Max}$
Steady State Humidity	The shall be subjected to an amb. Of 40°c with RH as 95%, for a duration of 56 days. A small DC voltage shall be so applied that the specimen shall dissipate 1% of the rated power.	$\Delta R \% = \pm 5 \% \text{ Max}$



Taping Details

Type	A	B	C	D	E	P	L ₁ - L ₂
CMSN-1	52 ± 1.00	4 ± 1.00	6 ± 0.50	1 Max	0.00	5 ± 0.30	1.0 Max
CMSN-2	52 ± 1.00	4 ± 1.00	6 ± 0.50	1 Max	0.00	10 ± 0.30	1.0 Max
CMSN-3	52 ± 1.00	4 ± 1.00	6 ± 0.50	1 Max	0.00	10 ± 0.30	1.0 Max
CSN-1&2	63 ± 1.00	4 ± 1.00	6 ± 0.50	1 Max	0.00	10 ± 0.30	1.0 Max