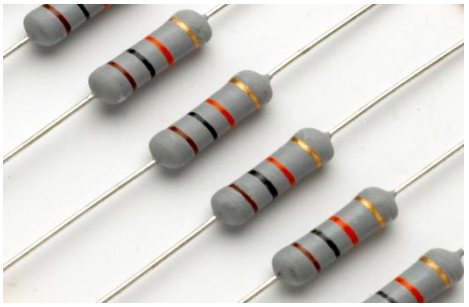
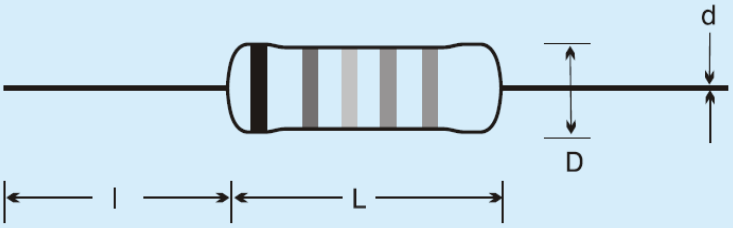
METAL OXIDE FILM RESISTORS
(CSN & CMSN/CSMSN Series)

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.
- Color Code Marking for Easy Identification.
- Standard Tolerance 1%, 2%, 5% available.
- ERTL Tested.
- Conforming to JSS 50401.

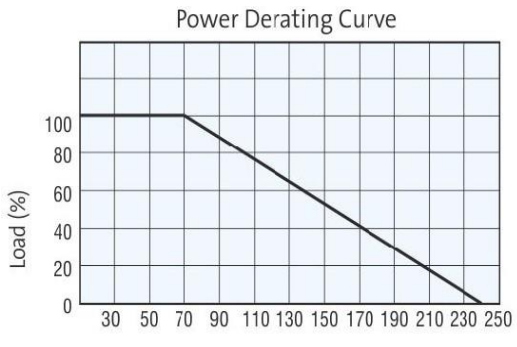


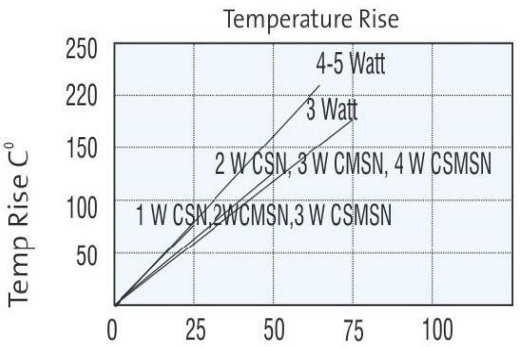


Type	Watt	L ±1.0	D ±1.0	d ±0.05	l ±2.0	Max Working Voltage (Dc / Rms)	Max Overload Voltage (Dc / Rms)	Resistance Range
CSN 050	0.50	9.00	3.50	0.50	26	300	600	0.2 E – 1 M
CSN 100	1.0	12.00	4.50	0.66	32	300	600	0.2 E – 1 M
CSN 200	2.0	16.00	5.50	0.66	30	350	700	0.2 E – 1 M
CSN 300	3.0	18.00	6.50	0.78	29	350	700	0.2 E – 1 M
CSN 400	4.0	22.00	7.50	0.78	38	500	1000	0.2 E – 1 M
CSN 500	5.0	25.00	8.50	0.78	38	500	1000	0.2 E – 1 M
CMSN - 100	1.0	9.0	3.50	0.50	26	300	600	0.2 E – 1 M
CMSN - 200	2.0	12.00	4.50	0.66	32	350	700	0.2 E – 1 M
CMSN - 300	3.0	16.00	5.50	0.66	30	350	700	0.2 E – 1 M

Note: Subminiature sizes are also available on request.

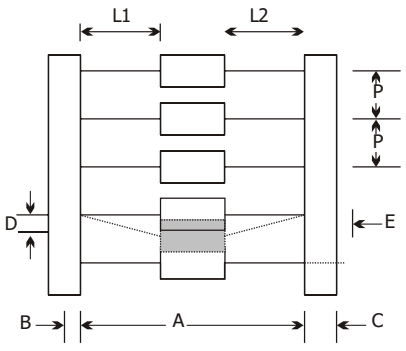
- Rated continuous Working Voltage: $\sqrt{(P \times R)}$ or Maximum Working Voltage whichever is low.
- Maximum Overload Voltage: RCWV x 2.5 for 5 or Maximum Overload Voltage whichever is low.





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 Max overload voltage (Whichever is low) For duration of 5 secs.	ΔR%= ± 1.0% (+ 0.05 Ω)
Temp-Coefficient	The Resistors value shall be checked at 2 temps. i.e. one at Ambient & the final at Amb. + 100 0 C. The TCR is then Calculated as: $\frac{R2-R1}{R1} \times \frac{1}{t2-t1} \times 10^6$ =ppm/°C	450 PPM/°C (Lower ppm on request)
Rated Load	A Rated Continuous Working Voltage or Maximum Working Voltage whichever less shall be applied to the resistors for a duration of 2 Hrs.	Δ R % = ± 1 % Max
Solderability	A Solder bath is maintained at 230°c. The specimen leads are immersed in bath & withdrawn within 3 sec. A suitable Flux is used during this 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 bath for duration of 10 sec.	Δ R % = ± 1 % Max
Resistance to solvents	The specimen shall be subjected to IPA for duration of 1 min. 10 Strokes of hard brush shall be applied. The test shall be conducted 3 times.	The color code marking shall remain legible.
Dielectric strength	A foil is wrapped around the specimen body. A voltage of 300V @0.5 ma shall be applied between both the terminals of the specimen for a duration of 1 min.	There shall be no flash over or break down.
Terminal Strength	Pull Test: The Resistor Leads shall be pulled using 5N Force. Bend Test: The resistors leads are bend through 180° three times	No evidence of mechanical damage.
Load Life	The specimen shall be subjected to an ambient of 70°c for duration of 1000 Hrs. The specimen shall also be Loaded for full power dissipation. The duty cycle shall be 1½ Hr. On & ½ Hr. Off.	Δ R % = ± 5 % 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 rated power.	Δ R % = ± 5 % Max



Taping Details:

Type	A±1.0	B±1.0	C±0.5	D	E	P±0.3	L1-L2
CMSN - 1	52	4	6	1 MAX	0.00	5	1 MAX
CMSN - 2	63	4	6	1 MAX	0.00	5	1 MAX
CMSN - 3	63	4	6	1 MAX	0.00	5	1 MAX
CSN - 1 & 2	63	4	6	1 MAX	0.00	5	1 MAX
CSMSN - 2	52	4	6	1 MAX	0.00	5	1 MAX
CSMSN - 3/4	63	4	6	1 MAX	0.00	5	1 MAX

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