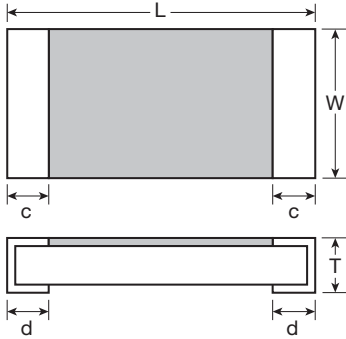


Thick Film Chip Resistors — Anti-Sulfuration

- Features**
- High stability Thick Film Chip Resistor
 - Special (patented) termination prevents sulfuration in a sulfur containing environment
 - TCR ± 100 ppm

Specifications

Unit: inches (mm)



	CRS0201	CRS0402	CRS0603	CRS0805	CRS1206	CRS1210
L	0.024 ± .002 (0.6 ± 0.05)	0.040 ± .002 (1.0 ± 0.05)	0.063 ± .008 (1.6 ± 0.2)	0.079 ± .008 (2.0 ± 0.2)	0.126 ± .008 (3.2 ± 0.2)	0.126 ± .008 (3.2 ± 0.2)
W	0.012 ± .001 (0.3 ± 0.02)	0.020 ± .002 (0.5 ± 0.05)	0.031 ± .008 (0.8 ± 0.2)	0.050 ± .008 (1.25 ± 0.02)	0.063 ± .008 (1.6 ± 0.2)	0.098 ± .006 (2.50 ± 0.15)
T	0.010 ± .002 (0.25 ± 0.05)	0.014 ± .002 (0.35 ± 0.05)	0.014 ± .004 (0.45 ± 0.10)	0.018 ± .006 (0.45 ± 0.15)	0.022 ± .006 (0.57 ± 0.15)	0.022 ± .006 (0.56 ± 0.15)
c	0.006 ± .002 (0.15 ± 0.05)	0.008 ± .004 (0.2 ± 0.01)	0.010 ± .006 (0.25 ± 0.15)	0.016 ± .008 (0.4 ± 0.2)	0.018 ± .008 (0.45 ± 0.2)	0.018 ± .008 (0.45 ± 0.2)
d	0.006 ± .002 (0.15 ± 0.05)	0.008 ± .004 (0.2 ± 0.01)	0.010 ± .006 (0.25 ± 0.15)	0.012 ± .008 (0.3 ± 0.2)	0.012 ± .008 (0.3 ± 0.2)	0.012 ± .008 (0.3 ± 0.2)

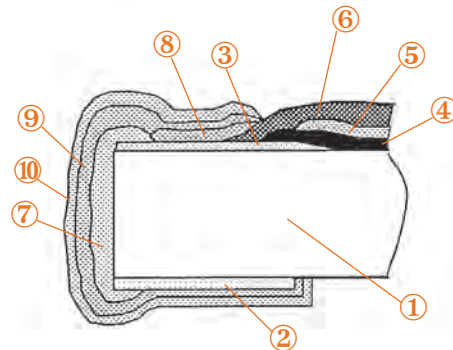
Rating

Series	Rated Power at 70°C	Maximum Working Voltage	Maximum Overload Voltage	Operating Temperature Range	Resistance Range
CRS0201-20W	0.05W	25V	50V	-55°C ~ 150°C	10Ω ~ 1MΩ
CRS0402-16W	0.063W	50V	100V	-55°C ~ 150°C	1Ω ~ 1MΩ
CRS0603-16W	0.063W	75V	150V	-55°C ~ 150°C	1Ω ~ 1MΩ
CRS0805-10W	0.10W	150V	200V	-55°C ~ 150°C	1Ω ~ 1MΩ
CRS1206-8W	0.125W	175V	300V	-55°C ~ 150°C	1Ω ~ 1MΩ
CRS1210-4W	0.25W	200V	400V	-55°C ~ 150°C	1Ω ~ 1MΩ

NOTE: Markings on Thick Film Chip Resistors may have an internal lot identification code or the E-24 (5%) or E-96 (1%) marking code. If value identification is required, please consult your sales person for availability. Values available in the E-24 Series that are crossover values (same value for 1% and 5%) will typically be marked with a 3-digit E-24 Series marking code.

Structure

No.	Description	
①	Ceramic Substrate	96% Alumina
② & ③	Inner Electrode	Silver Palladium (Ag-Pd)
④	Resistive Element	Ruthenium Oxide (RuO ₂)
⑤ & ⑥	Protective Coating	Boro-Silicate Glass
⑦	Side termination	Silver (Ag)
⑧	Resin Coating	Special (patented) anti-sulfuration coating Silver (Ag)
⑨	Middle Layer	Nickel (Ni)
⑩	Outer Layer	Tin (Sn) (100% Sn for Lead free)



How To Order

CRS1206-8W — 103 J T — 13

SERIES	TOLERANCE AT 25°C	PACKAGING
3 DIGIT (J TOL.) e.g. 2R2=2.2Ω 103=10kΩ	F: $\pm 1\%$ J: $\pm 5\%$ (No Tolerance specified for the Zero Ohm)	0603 — 1% Chip Resistors may not be marked. (For CRS Series) Please consult your salesperson if marking is required. (See the data sheet on Marking Codes) *E-24 Standard Resistance values that are available in 1%, may be marked with a 3-digit code identifier. * NOTE: 0201 and 0402 Resistors cannot be marked.
4 DIGIT (F TOL.) e.g. 10R2=10.2Ω 1002=10kΩ		
Jumper 3 zero's		

Add only if 13" Reel required

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Anti-Sulfuration Test Data

Venkel Ltd. manufacturers all Anti-Sulfuration Thick Film Chip Resistors to meet or exceed ASTM B809 testing criteria and guidelines.

Test Conditions:

Chip resistors are mounted on the test board with the power "ON" and kept in the atmosphere of 50°C, Relative Humidity of 95% and present in the atmosphere is H₂S – 3PPM.

10 pieces each of regular chip resistors and anti-sulfuration chip resistors were tested.

Hours >>	1,000	2,000	3,000	4,000	4,500	5,000	5,500	6,000	6,500	7,000	8,000	8,500	9,000
Regular chip resistors	O	O	O	O	X1	X2	X1	X1	X3	X1	X1	-	-
Anti-sulfuration chip resistors	O	O	O	O	O	O	O	O	O	O	O	O	O
O = No failure. X1 = 1 failure. X2 = 2 failures. X3 = 3 failures.													

Test Results:

Regular chip resistors start failing (open) from 4,500 hours and by 8,500 hours, all have failed (opened). anti-sulfuration chip resistors have no failures up to 9,000 hours and beyond.