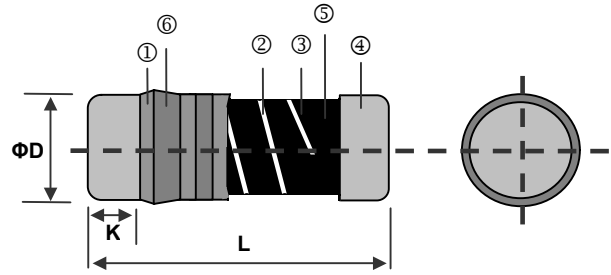


# Metal Film Precision Resistor – CSR Series

## Construction



① Insulation Coating	④ Electrode Cap
② Trimming Line	⑤ Resistor Layer
③ Ceramic Rod	⑥ Marking

## Features

- Excellent overall stability
- Tight tolerance down to  $\pm 0.1\%$
- Extremely low TCR down to  $\pm 10 \text{ PPM}/^\circ\text{C}$
- High power rating up to 1 Watts

## Dimensions

Unit: mm

Type	L	ΦD	K min.	Weight (g) (1000pcs)	Packaging
					180mm (7")
CSR0204	3.50±0.20	1.40±0.15	0.5	18.7	3,000EA
CSR0207	5.90±0.20	2.20±0.20	0.5	80.9	2,000EA

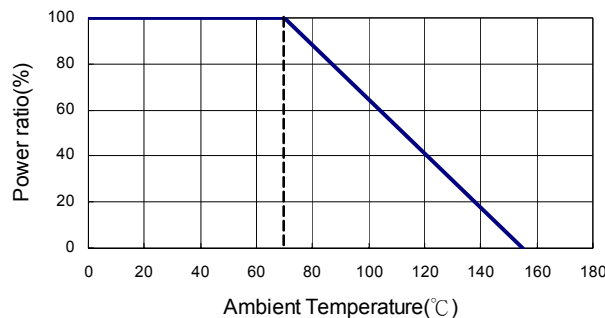
## Applications

- Automotive
- Telecommunication
- Medical Equipment
- Measurement/Testing Equipment

## Part Numbering

CSR	0204	D	T	D	V	1000
Product Type	Dimensions (L×ΦD)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance
	0204: 3.5x1.4 0207: 5.9x2.2	B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$ F: $\pm 1\%$ J: $\pm 5\%$	T: Taping Reel B: Bulk	B: $\pm 10$ N: $\pm 15$ C: $\pm 25$ D: $\pm 50$ E: $\pm 100$ - : No Specified	T: 1W U: 1/2W V: 1/4W	0100: 10Ω 1000: 100Ω 2201: 2200Ω 1001: 1KΩ 1004: 1MΩ R0R0: 0Ω R050: 0.05Ω R100: 0.1Ω

## Derating Curve



## Standard Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range					TCR (PPM/°C)
					±0.1%	±0.25%	±0.5%	±1%	±5%	
0204	1/4W	-55 ~ +155°C	200V	400V	49.9Ω-20KΩ					±10
					49.9Ω-300KΩ					±15
					10Ω-1MΩ			10Ω-4.7MΩ		±25
					10Ω-1MΩ	1Ω-1MΩ		1Ω-10MΩ		±50
					-			0.1Ω-10MΩ		±100
	Jumper: 2A	0Ω(<15mΩ)					-			
0207	1/2W	-55 ~ +155°C	300V	500V	49.9Ω-20KΩ					±10
					49.9Ω-300KΩ					±15
					10Ω-1MΩ			10Ω-4.7MΩ		±25
					10Ω-1MΩ	1Ω-1MΩ		1Ω-10MΩ		±50
					-			0.1Ω-10MΩ		±100
	Jumper: 4A	0Ω(<15mΩ)					-			

## High Power Rating Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range					TCR (PPM/°C)
					±0.1%	±0.25%	±0.5%	±1%	±5%	
0207	1W	-55 ~ +155°C	350V	700V	49.9Ω-100KΩ					±15
					10Ω - 1MΩ					±25
					10Ω-1MΩ	1Ω - 1MΩ		1Ω - 10MΩ		±50
					-			0.1Ω - 10MΩ		±100

## Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	-55°C~+125°C, 25°C is the reference temperature
Short Time Overload	±(0.15%+0.05Ω)	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	≥10G	Max. overload voltage for 1 minute
Endurance	±(0.5%+0.05Ω)	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(1.0%+0.05Ω)	40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	±(1.0%+0.05Ω)	at +155°C for 1000 hrs
Bending Strength	±(0.5%+0.05Ω)	Bending once for 5 seconds with 2mm
Solderability	95% min. coverage	245±5°C for 3 seconds
Resistance to Soldering Heat	±(0.5%+0.05Ω)	260±5°C for 10 seconds
Voltage Proof	No breakdown or flashover	1.42 times RCWV (RMS) for 1 minute
Leaching	Individual leaching area ≤ 5% Total leaching area ≤ 10%	260±5°C for 30 seconds
Rapid Change of Temperature	±(0.5%+0.05Ω)	-55°C to +125°C, 5 cycles

■ Reference Standards: IEC 60115-1 ; JIS-C 5201-1

■ Storage Temperature: 25±3°C; Humidity < 80%RH