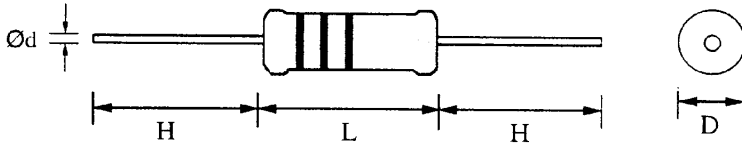


Royal Parts

Carbon Film Fixed Resistors

Dimension:



Dimension (mm)

Normal Size

Small Size

| STYLE | L Max. | D Max. | d ± 0.02 - 0.05 | STYLE | L Max. | D Max. | d+0.02 -0.05 | H ± 3 |
|------------|--------|--------|--------------------|--------------|--------|--------|-----------------|-------|
| CR - 12PS | 3.5 | 1.85 | 0.5 | CR - 25PS-S | 3.5 | 1.85 | 0.5 | 28 |
| CR - 25PS | 6.8 | 2.50 | 0.6 | CR - 50PS-S | 9.0 | 3.00 | 0.6 | 28 |
| CR - 50PS | 10.0 | 3.50 | 0.6 | CR - 50PS-SS | 6.8 | 2.50 | 0.6 | 28 |
| CR - 100PS | 16.0 | 5.50 | 0.8 | CR - 100PS-S | 12.0 | 5.00 | 0.7 | 28 |
| CR - 200PS | 17.5 | 6.50 | 0.8 | CR - 200PS-S | 16.0 | 5.50 | 0.8 | 28 |
| | | | | CR - 300PS-S | 17.5 | 6.50 | 0.8 | 28 |

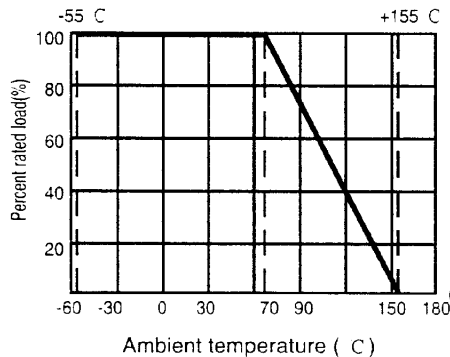
*Flame retardant type available

Rating

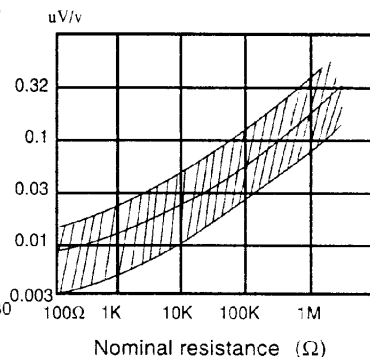
| STYLE | Rating | Max. Working Voltage | Max. Overload Voltage | Dielectric Withstanding Voltage | Resistance Range |
|---------------|--------|----------------------|-----------------------|---------------------------------|------------------|
| CR - 12/25-S | 0.125W | 200V | 400V | 400V | 1Ω - 1MΩ |
| CR - 25/50-SS | 0.25W | 250V | 500V | 500V | 1Ω - 10MΩ |
| CR - 50/-S | 0.5W | 350V | 700V | 700V | 1Ω - 10MΩ |
| CR - 100/-S | 1W | 500V | 1,000V | 1,000V | 1Ω - 10MΩ |
| CR - 200/-S | 2W | 500V | 1,000V | 1,000V | 1Ω - 10MΩ |
| CR - 300-S | 3W | 500V | 1,000V | 1,000V | 1Ω - 10MΩ |

*Too low or too high ohmic value can be supplied on a case to case basis.

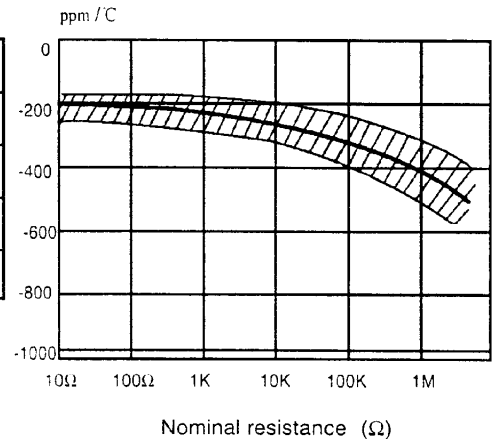
Derating Curve:



Current Noise:



Temp. Coefficient:



Royal Parts

Carbon Film Fixed Resistors

Performance Specification

| Characteristics | Test Methods | Limits | | |
|---|---|---|--------------------|--------------|
| Temperature coefficient JIS - C - 5202 5.2 | Natural resistance change per temp. degree centigrade $\frac{R_2 - R_1}{R_1} \times 10^6$ (PPM/°C) $R_1(t_2 - t_1)$ R1: Resistance value at room temperature (t ₁) R2: Resistance value at room temp. + 100°C (t ₂) Test pattern: Room temp., Room temp + 100 C | RANGE | T.C.R | |
| | | ≤ 10Ω | 0 ~ ± 350PPM/°C | |
| Dielectric withstanding voltage JIS - C - 5202 5.7 | Resistors shall be clamped in the trough of a 90° metallic V - block and shall be tested at AC potential respectively specified in the above list for 60 + 10 / -0 seconds. | 11Ω - 99K | 0 ~ ± 450PPM/°C | |
| | | 100K-1M | 0 ~ - 700PPM/°C | |
| Temperature cycling JIS - C - 5202 7.4 | Resistance change after continuous five cycles for duty cycle specified below: | 1MΩ - 10M | 0 ~ -1500PPM/°C | |
| | | Step | Temperature | Time |
| | | 1 | -55°C ± 3°C | 30 mins |
| | | 2 | Room temp. | 10~15 mins |
| | | 3 | +155°C ± 2°C | 30 mins |
| 4 | Room temp. | 10~15 mins | | |
| Resistance change rate is ± (1%+0.05Ω) Max. with no evidence of mechanical damage. | | | | |
| Short - time overload JIS - C - 5202 5.5 | Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds. | Resistance change rate is ± (1%+0.05Ω) Max. with no evidence of mechanical damage. | | |
| Load life in humidity JIS - C - 5202 7.9 | Resistance change after 1,000 hours operating at RCWV with duty cycle of 1.5 hours "ON", 0.5 hour "OFF" in a humidity test chamber controlled at 40°C ± 2°C and 90 to 95% relative humidity. | Resistance value | | Δ R/R |
| | | <i>Normal type</i> | Less than 100KΩ | ± 3% |
| | | | 100KΩ or more | ± 5% |
| | | <i>Flame retardant type</i> | Less than 100KΩ | ± 5% |
| 100KΩ or more | ± 10% | | | |
| Load life JIS - C - 5202 7.10 | Permanent resistance change after 1,000 hours operating at RCWV with duty cycle of 1.5 hours "ON", 0.5 hour "OFF" at 70°C ± 2°C ambient. | Resistance value | | Δ R/R |
| | | <i>Normal type</i> | Less than 56KΩ | ± 2% |
| | | | 56KΩ or more | ± 3% |
| | | <i>Flame retardant type</i> | Less than 100KΩ | ± 5% |
| | | | 100KΩ or more | ± 10% |
| Insulation resistance JIS - C - 5202 5.6 | Resistors shall be clamped in the trough of a 90° metallic V - block and shall be tested at DC. potential respectively specified in the above list for 60 + 10 / -0 seconds | Insulation resistance is 10,000 MΩ Min. | | |
| Terminal strength JIS - C - 5202 6.1 | Direct load: Resistance to a 2.5 kg direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads. Twist test: Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating direction for a total of 3 rotations. | No evidence of mechanical damage | | |
| Resistance to soldering heat JIS - C - 5202 6.4 | Permanent resistance change when leads immersed to 3.2 - 4.8 mm from the body in 350°C ± 10°C solder for 3 ± 0.5 seconds. | Resistance change rate is ± (1%+0.05Ω) Max. with no evidence of mechanical damage. | | |
| Solderability JIS - C - 5202 6.5 | The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Test temp. of solder: 235°C ± 5°C Dwell time in solder: 3 +0.5 / -0 seconds. | 95% coverage Min. | | |
| Resistance to solvent JIS - C - 5202 6.9 | Specimens shall be immersed in a bath of trichroethane. completely for 3 mins with ultrasonic. | No deterioration of protective coating and markings. | | |

*RCWV=Rated Continuous Working Voltage= $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$