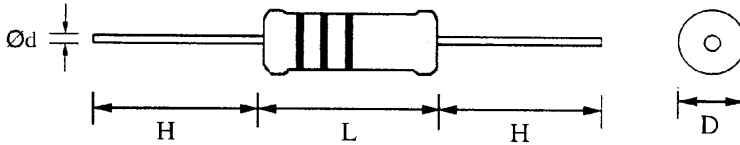


# Royal Parts

## Carbon Film Fixed Resistors

Dimension:



### Dimension (mm)

Normal Size				Small Size				
STYLE	L Max.	D Max.	$d \pm 0.02$ - 0.05	STYLE	L Max.	D Max.	$d+0.02$ -0.05	$H \pm 3$
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

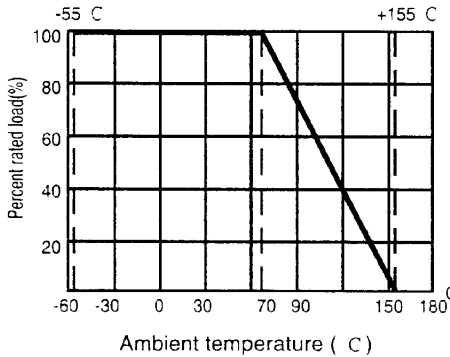
\*Flame retardant type available

### Rating

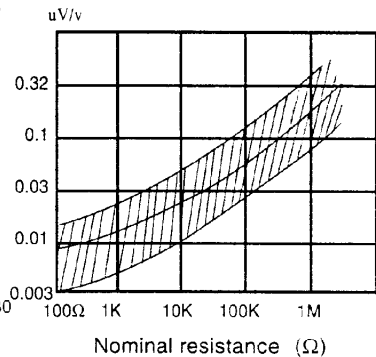
STYLE	Rating	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Resistance Range
CR - 12/25-S	0.125W	200V	400V	400V	1Ω - 1MΩ
CR - 25/50-SS	0.25W	250V	500V	500V	1Ω - 10MΩ
CR - 50/-S	0.5W	350V	700V	700V	1Ω - 10MΩ
CR - 100/-S	1W	500V	1,000V	1,000V	1Ω - 10MΩ
CR - 200/-S	2W	500V	1,000V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

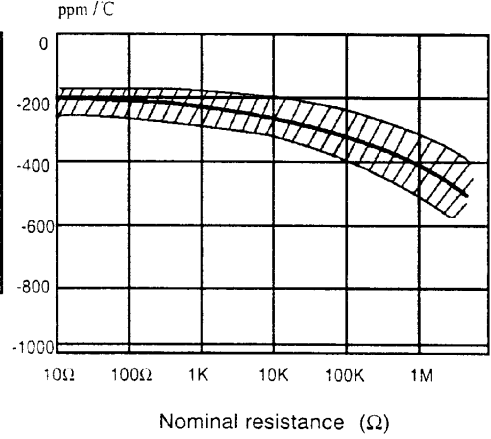
Derating Curve:



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 <sub>1</sub> ) R2: Resistance value at room temp. + 100°C (t <sub>2</sub> ) 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	
		<b>Step</b>	<b>Temperature</b>	<b>Time</b>
		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.	<b>Resistance value</b>		$\Delta$ 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.	<b>Resistance value</b>		$\Delta$ 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	<b>Direct load:</b> Resistance to a 2.5 kg direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads. <b>Twist test:</b> 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=  $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$