

CARBON FILM RESISTORS CR-S/FCR-S SERIES

Feature

- Space save on PC board
- Excellent long term stability
- Cost comparable to conventional sizes
- Standard Value: 10R-10Meg in E24 series
- Standard tolerance: +/-5% (available +/-2%)
- Flameproof coating available (As FCR-S type)
- Operating Temperature : -55°C ~+125°C

Material

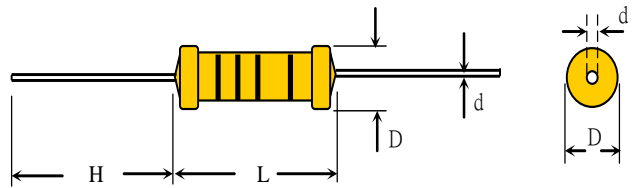
Element: Deposited Carbon Film

Core: High Purity Ceramic Al₂O₃

Termination: Standard solder-plated copper lead

Coating: Epoxy, (FCR-S is grey silicone)

Dimension



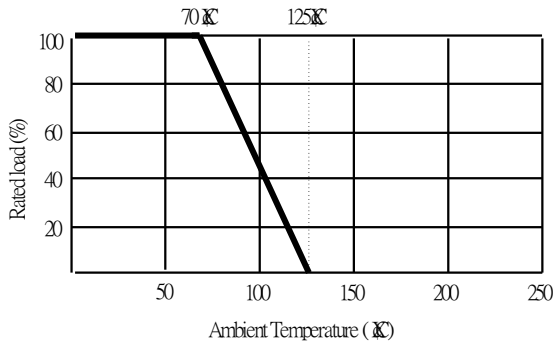
General Specification

TYPE	DIMENSION(mm)				POWER RATING	MAXIMUM WORKING VOLTAGE	MAXIMUM OVERLOAD VOLTAGE	RESISTANCE RANGE ± 5%
	L	D	H	d±0.05				
CR025S	3.2±0.2	1.6±0.2	27 +/-3.0	0.45	1/4W	250V	500V	0.47Ω -22MΩ
CR050S	6.0±0.5	2.3±0.3	27 +/-3.0	0.55	1/2W	350V	700V	0.47Ω -22MΩ

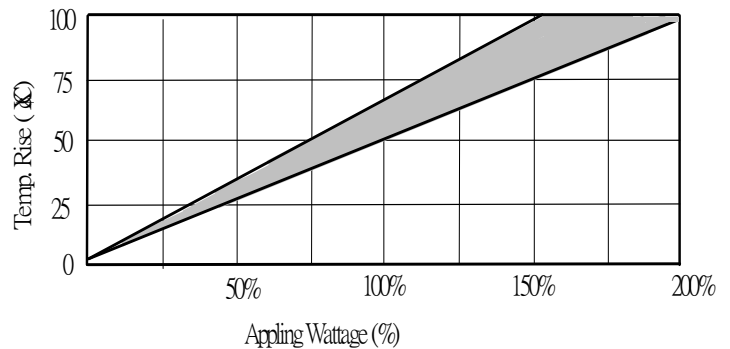
* Maximum Working Voltage determined by $E = \sqrt{P \cdot R}$, where E should not exceed value listed in column above.

**Maximum Overload Voltage equals to 2.5XE, but should not exceed value listed in column above.

Derating Curve



Temperature Rise



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Characteristics

Item	Requirement	Test Method
Short Time Overload	$\pm(0.75\%+0.05\Omega)$	JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	$> 1000M\Omega$	JIS-C-5201-1 5.6 Apply 100VDC for 1 minute
Endurance	$\pm(3\%+0.05\Omega)$	JIS-C-5201-1 7.10 70 \pm 2 $^{\circ}$ C, Max. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5hrs "OFF"
Damp Heat with Load	$\leq 100K\Omega \pm 3\%$ $\geq 100K\Omega \pm 5\%$	JIS-C-5201-1 7.9 40 \pm 2 $^{\circ}$ C, 90~95% R.H. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5hrs "OFF"
Solderability	90% min. Coverage	JIS-C-5201-1 6.5 245 \pm 5 $^{\circ}$ C for 3 seconds
Dielectric Withstanding Voltage	By Type	JIS-C-5201-1 5.7 Apply Max. Overload Voltage for 1 minute
Temperature Coefficient	$< 100K\Omega +350ppm\sim 500ppm$ $100K\Omega\sim 1M\Omega -0ppm\sim 700ppm$ $> 1 M\Omega -0ppm\sim 1500ppm$	Resistance value at room temperature and room Temperature+100 $^{\circ}$ C
Pulse Overload	$\pm(1\%+0.05\Omega)$	JIS-C-5201-1 5.8 4 times RCWV for 10000 cycles with 1 second "ON" and 25 seconds "OFF"
Resistance To Solvent	No deterioration of coatings and markings	JIS-C-5201-1 6.9 Trichroethane for 1 min. with ultrasonic
Terminal Strength	Tensile: ≥ 2.5 kg	Direct Load for 10 seconds In the direction off the terminal leads

*Storage Temperature : 25 \pm 3 $^{\circ}$ C ; Humidity < 80%RH

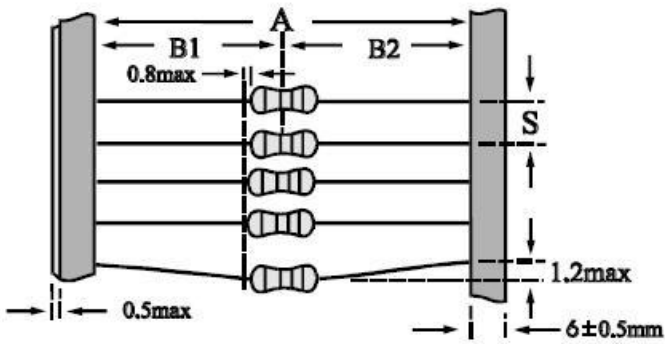
Part Numbering

<u>CR025S</u>	<u>J</u>	<u>P</u>	<u>TB</u>	<u>=</u>	<u>10R</u>
↓	↓	↓	↓	↓	↓
Type/Power	Tol.	Style	Package	ppm	Resistance
CR025S	J= \pm 5%	P=Pana-sert	B=Bulk	=Based on spec.	10R = 10 Ω
CR050S		V=Avi-sert	TB=Tape/box		1K2R = 1.2K Ω
		M=Goal-post	TR=Tape/reel		1MR= 1M Ω
		F=Lead forming			
		MB=Lead forming			
		(omit if not applicable)			

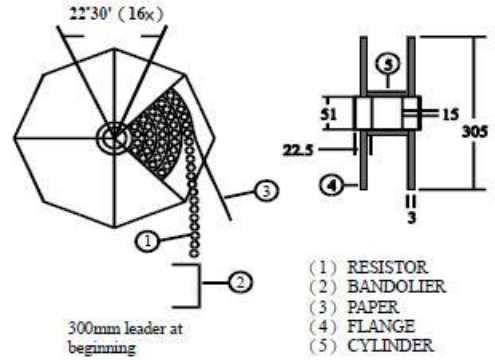
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Taping/Packing Specification

Packing Methods

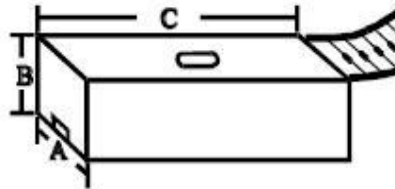


Reel Packing



TYPE	PACKING METHOD			REEL PACKING	
	A	B1-B2	S	Across Flange (A)	Q'TY
		Max			
CR025S	52+1/-0	1.2	5	72	5000
CR050S	52+1/-0	1.2	5	72	5000

Ammo Packing



	PACKING METHOD			AMMO PACKING			
	A	B1-B2	S	A	B	C	Q'TY
		Max					
CR025S	52+1/-0	1.2	5	80	68	255	5000
CR050S	52+1/-0	1.2	5	75	22	267	1000
		1.2	5	85	103	263	5000