

Carbon Film Resistors - CR/FCR & CR-S/FCR-S Series



FEATURES

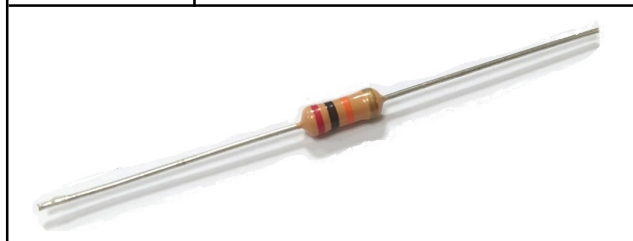
- Industry's lowest cost
- Excellent long term stability
- Used in all kinds of application
- Standard Value: 1R-10Meg in E24 series
- Standard tolerance: $\pm 5\%$ (available $\pm 2\%$)
- Body Color: yellow-brown (biege)
- Color band marking
- **Flameproof coating available (As FCR type)**
- Mini size available (As CR-S type)
- Operating Temperature : $-55^{\circ}\text{C} \sim +155^{\circ}\text{C}$

MATERIAL

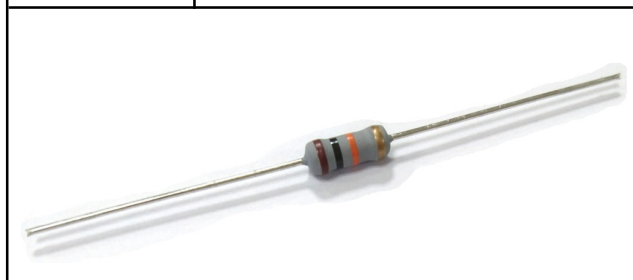
- Element: Deposited Carbon Film
- Core: High Purity Ceramic Al_2O_3
- Termination: Standard solder-plated cooper lead
- **Coating: Epoxy, (FCR is grey silicone)**



CR-series



FCR-series



GENERAL SPECIFICATION



CR-series								
WATTAGE	DIMENSION (mm)				POWER	MAXIMUM WORKING VOLTAGE★	MAXIMUM OVERLOAD VOLTAGE★★	RESISTANCE RANGE $\pm 5\%$
	L	D	H	d				
1/8W~1/4WS	3.2 ± 0.2	1.6 ± 0.2	27 ± 3.0	0.45 ± 0.05	1/8W-1/4W	200V	400V	$0\Omega \sim 10\text{M}\Omega$
1/4W~1/2WS	6.0 ± 0.5	2.3 ± 0.3	27 ± 3.0	0.55 ± 0.05	1/4W-1/2W	250V	500V	$0\Omega \sim 10\text{M}\Omega$
1/2W~1WS	9.0 ± 0.5	3.0 ± 0.5	27 ± 3.0	0.59 ± 0.05	1/2W-1W	350V	700V	$0\Omega \sim 10\text{M}\Omega$
1W~2WS	11 ± 2.0	4.0 ± 1.0	33 ± 3.0	0.8 ± 0.05	1W-2W	500V	1000V	$0\Omega \sim 10\text{M}\Omega$
2W~3WS	15 ± 2.0	5.0 ± 1.0	33 ± 3.0	0.8 ± 0.05	2W-3W	500V	1000V	$0\Omega \sim 10\text{M}\Omega$

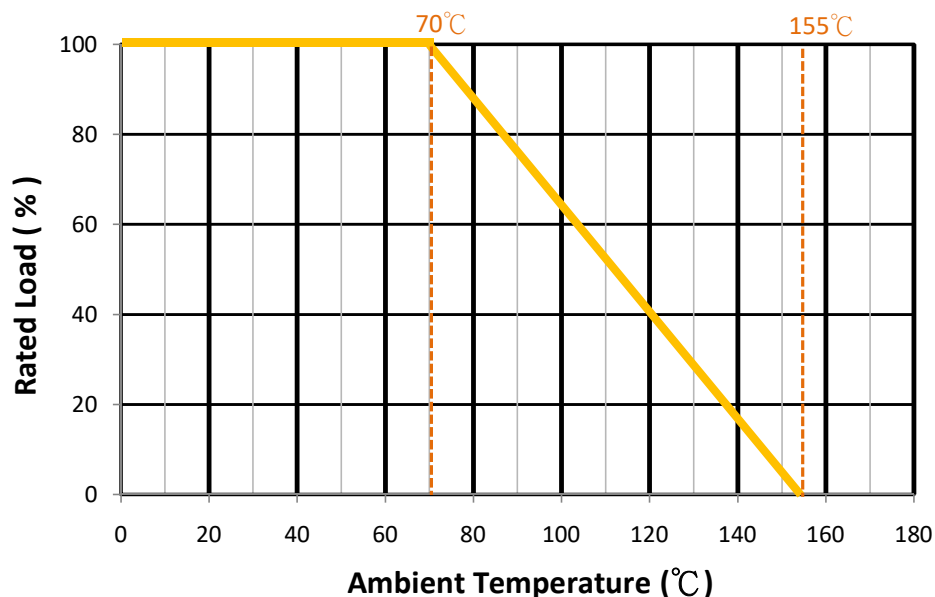
FCR-series								
WATTAGE	DIMENSION (mm)				POWER	MAXIMUM WORKING VOLTAGE★	MAXIMUM OVERLOAD VOLTAGE★★	RESISTANCE RANGE $\pm 5\%$
	L	D	H	d				
1/8W~1/4WS	3.2 ± 0.2	1.6 ± 0.2	27 ± 3.0	0.45 ± 0.05	1/8W-1/4W	200V	400V	$0\Omega \sim 10\text{M}\Omega$
1/4W~1/2WS	6.0 ± 0.5	2.3 ± 0.3	27 ± 3.0	0.55 ± 0.05	1/4W-1/2W	250V	500V	$0\Omega \sim 10\text{M}\Omega$
1/2W~1WS	9.0 ± 0.5	3.0 ± 0.5	27 ± 3.0	0.59 ± 0.05	1/2W-1W	350V	700V	$0\Omega \sim 10\text{M}\Omega$
1W~2WS	11 ± 2.0	4.0 ± 1	33 ± 3.0	0.8 ± 0.05	1W-2W	500V	1000V	$0\Omega \sim 10\text{M}\Omega$
2W~3WS	15 ± 2.0	5.0 ± 1	33 ± 3.0	0.8 ± 0.05	2W-3W	500V	1000V	$0\Omega \sim 10\text{M}\Omega$

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

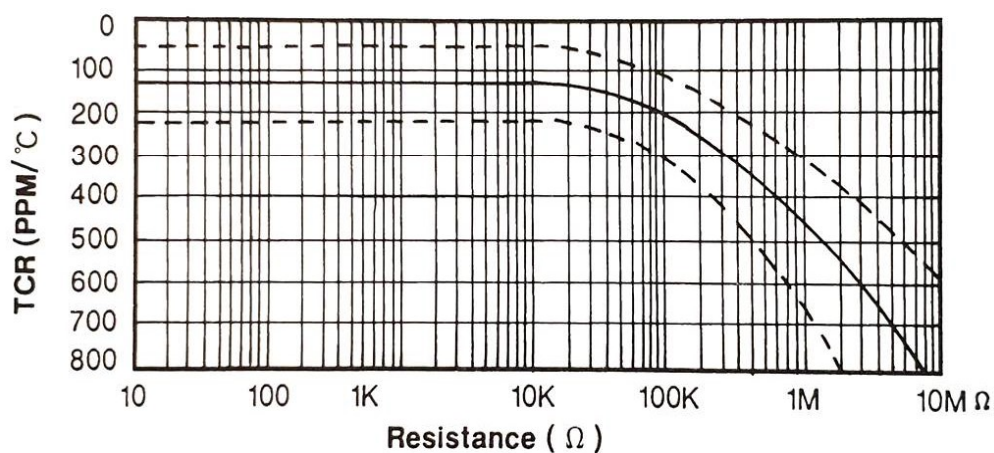
** Maximum Overload Voltage equals to $2.5 \times E$, but should not exceed value listed in column above

*** Consult factory for resistance is not included in the column

DERATING CURVE



TEMPERATURE COEFFICIENT



CHARACTERISTIC

TEST	TEST METHOD	APPRAISE
Temperature Coefficient	IEC 60115-1 4.8 -55°C~155°C	By type
Insulation Resistance	IEC 60115-1 4.6 in V-block for 60sec. , test voltage by type	1000MΩ Min.
Load Life (1000 hours)	IEC 60115-1 4.25 70±2°C at RCWV for 1000 hours (1.5 Hr. on , 0.5 Hr. off)	±5.0% +0.05Ω
Shorttime Overload	IEC 60115-1 4.13 2.5 times rated power for 5 sec.	±2.0% +0.05Ω
Temperature Cycling	IEC 60115-1 4.19 -55°C → room temp. → +155°C → room temp. (5 cycles)	±1.0% +0.05Ω
Moisture Resistance	IEC 60115-1 4.24 40±2°C , 90-95% RH for 56 days , with 0.1 times RCWV	±5.0% +0.05Ω
Effect of Soldering	IEC 60115-1 4.18 260±3°C for 10±1 sec. immersed to point 3±0.5mm from the body	±2.0% +0.05Ω

HOW TO ORDER :

SERIES	WATTAGE	RESISTANCE	TOLERANCE	PACKAGE
CR	1/8W	0R1=0.1Ω	5%	T=TAPING BOX
FCR	1/4WS	10R=10Ω		R=TAPING REEL
	:	1K=1KΩ		B=BULK
	2W			
	3WS			

PACKAGE STANDARD PACKAGE QUANTITY :

TYPE	T=TAPING BOX	R=TAPING REEL	B=BULK
1/8W-1/4WS	5000	5000	1000 pcs/bag , 10kpcs/box
1/4W-1/2WS	5000	5000	1000 pcs/bag , 10kpcs/box
1/2W-1WS	2000	2500	500 pcs/bag , 5kpcs/box
1W-2WS	1000	2000	500 pcs/bag , 2kpcs/box
2W-3WS	1000	1000	500 pcs/bag , 1kpcs/box
