

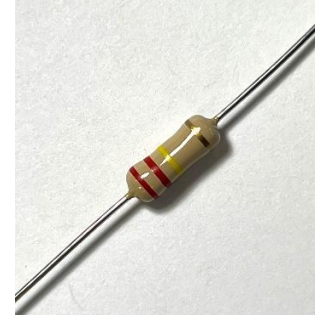
Lumimax Optoelectronic Technology

CF Series

Carbon Film Fixed Resistors

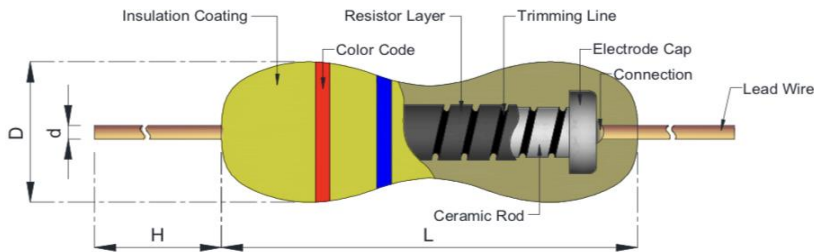
Product Features

- Excellent long-term stability
- Wide Resistance range 0.1Ω ~ 10MΩ
- Power ratings from 1/8W to 3Ws
- Products with lead-free terminations meet EU RoHS and China RoHS requirements
- All general purpose and Power applications
- AECQ-200 Qualified



**Pb-Free and
RoHS Compliant**

Power rating and Dimensions



Style	Dimensions (mm)			
	L	D	H	d
CF-1/8W	3.3 + 0.4 ~ -0.2	1.8 ± 0.3	29 ± 2.0	0.45 ± 0.03
CF-1/4W	6.3 ± 0.5	2.3 ± 0.3	28 ± 2.0	0.55 ± 0.03
CF-1/2W	9.0 ± 0.5	3.2 ± 0.5	26 ± 2.0	0.65 ± 0.03
CF-1W	11.5 ± 1.0	4.5 ± 0.5	35 ± 2.0	0.78 ± 0.03
CF-2W	15.5 ± 1.0	5.0 ± 0.5	32 ± 2.0	0.78 ± 0.03

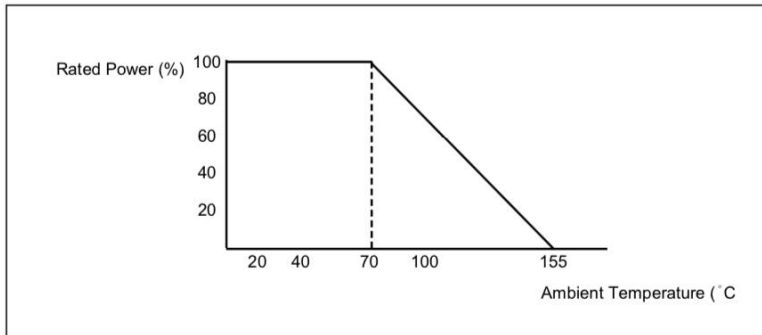
Electrical Characteristics

Power rating at 70°C	1/8W	1/4W	1/2W	1W	2W
Body Size (D x L mm)	1.8 x 3.3	2.3 x 6.3	3.2 x 9.0	4.5 x 11.5	5.0 x 15.5
(D x L inch)	0.071 x 0.13	0.091 x 0.248	0.126 x 0.354	0.177 x 0.453	0.197 x 0.61
Operating temp. range	-55°C + 155°C				
Max. working voltage	150V	250V	350V	450V	500V
Max. overload voltage	300V	500V	700V	1000V	1000V
Dielectric withstanding voltage	300V	500V	700V	1000V	1000V
Value range ± 5%	E6 series 0.1Ω ~ 0.68Ω ; E24 series 1Ω ~ 22MΩ				

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Derating Curve



Temperature Coefficient (T.C.R.)

CF series	Max. Value of Temp. Coefficient ppm/°C			
	Under 1Ω	1Ω to 100KΩ	100KΩ to 1MΩ	1MΩ to 10MΩ
1W, 2W	± 1500	± 350	-500~0	-1500 ~ 0
1/8W, 1/4W, 1/2W	± 1500	-500 ~ 350	-700~0	-1500 ~ 0

Test and Requirements

Performance test	Test Method	Appraise
Short time overload	JIS-C-5202 5.5 2.5 times RCWV for 5 seconds	±(0.75%+0.05Ω)
Temperature Coefficient (TCR)	Resistance value at room temperature and room temperature +100°C	page
Dielectric withstanding voltage	JIS-C5202 5.7 In V-Block for 60 seconds	By type
Pulse overload	JIS-C5202 5.8 4 times RCWV for 10000 cycles (1 sec. on, 25 secs. Off)	± (1% +0.05Ω)
Insulation resistance	JIS-C5202 5.6 In V-Block	>10000MΩ
Load life	JIS-C5202 7.10 70°C at RCWV for 1000 hours (1.5 hrs on, 0.5 hrs. off)	± (3%+0.05Ω)
Load life in humidity	JIS-C5202 7.9 40°C± 2°C 90~95% RH at RCWV for 1000 hours (1.5 hrs on, 0.5 hrs. off)	Less than 100KΩ± 3%. 100KΩ or more ± 5%.
Soler ability	JIS-C5202 6.5 260°C± 5°C for 2±0.5 seconds	95% min. coverage

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Resistance to solvent	JIS-C5202 6.9 Specimens shall be immersed in a bath of alcohol completely for 3 mins. Using ultrasonic test equipment.	No deterioration of coatings and markings.
Terminal strength	Direct load for 10 sec. in the direction off the terminal leads.	Tensile: $\geq 2.5\text{kg}$

Note: RCWV: Rated Continuous Working Voltage = $\sqrt{\text{Power rating} \times \text{Resistance value}}$

Resistor body color

Normal size 1/8W to 2W: Khaki color

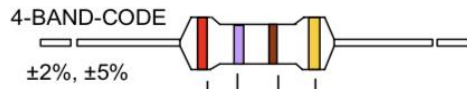
Part Number

CF	1W	2K	J	T
Type	Power rating	Resistance	Tolerance	Packaging
CF – Carbon film	1/8W	1R = 1 Ω	J = $\pm 5\%$	TB = Taping in box
	1/4W	10R = 10 Ω	G = $\pm 2\%$	TR = Taping in reel
	1/2W	2K = 2K Ω		BU = Bulk
	1W	3K3 = 3.3K Ω	T = Cut Taped	
	2W	10M = 10M Ω		

Tape on box packing

1/2W, 1W and 2W Resistor	Quantity per box: 1000pcs
1/4W and 1/8W Resistor	Quantity per box: 5000pcs

MARKING



COLOR	1st BAND	2nd BAND	3rd BAND	MULTIPLIER	TOLERANCE
BLACK	0	0	0	1Ω	
BROWN	1	1	1	10Ω	
RED	2	2	2	100Ω	± 2% (G)
ORANGE	3	3	3	1KΩ	
YELLOW	4	4	4	10KΩ	
GREEN	5	5	5	100K	
BLUE	6	6	6	1MΩ	
VIOLET	7	7	7	10MΩ	
GREY	8	8	8	0.001Ω	
WHITE	9	9	9	0.0001Ω	
GOLD				0.1Ω	± 5% (J)
SILVER				0.01Ω	