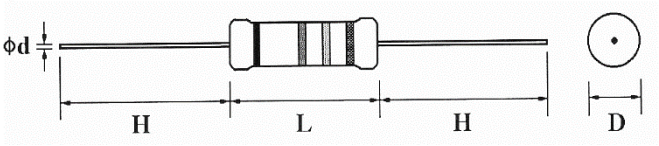
CARBON FILM FIXED RESISTORS

Features

- Automatically insertable
- High quality performance
- Non-Flame type available
- Cost effective and commonly used
- Too low or too high values can be supplied on a case to case basis



Normal Size

Part No	Style	Power Rating at 70℃	Dimension (mm)					Resistance Range	Max. Working Voltage	Max. Overload Voltage	Dielectric With-Standing Voltage	Std Packing Qty
			D Max.	L Max.	H ±3	d ± 0.05	PT					
CFR0WB	CFR-125	1/8W (0.125W)	1.85	3.5	28	0.45	52	1Ω~1MΩ	200V	400V	400V	5,000
CFR0W4	CFR-25	1/4W (0.25W)	2.5	6.8	28	0.54(1)	52	1Ω~10MΩ	250V	500V	500V	5,000
CFR0W2	CFR-50	1/2W (0.5W)	3.5	10.0	28	0.54	52	1Ω~10MΩ	350V	700V	700V	1,000
CFR01W	CFR-100	1W	5.5	16.0	28	0.70	64	1Ω~10MΩ	500V	1000V	1000V	1,000
CFR02W	CFR-200	2W	6.5	17.5	28	0.75	64	1Ω~10MΩ	500V	1000V	1000V	500

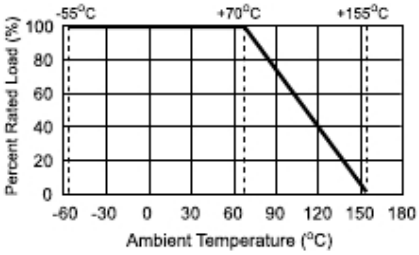
Small Size

Part No	Style	Power Rating at 70℃	Dimension (mm)					Resistance Range	Max. Working Voltage	Max. Overload Voltage	Dielectric With-Standing Voltage	Std Packing Qty
			D Max.	L Max.	H ±3	d ± 0.05	PT					
CFR0S4	CFR-25-S	1/8W (0.125W)	1.85	3.5	28	0.45	52	1Ω~1MΩ	200V	400V	400V	5,000
CFRFU2	CFR-50-SS	1/4W (0.25W)	2.5	6.8	28	0.54(1)	52	1Ω~10MΩ	250V	500V	500V	5,000
CFR0S2	CFR-50-S	1/2W (0.5W)	3.0	9.0	28	0.54	52	1Ω~10MΩ	350V	700V	700V	4,000
CFR01S	CFR-100-S	1W	5.0	12.0	28	0.70	52	1Ω~10MΩ	500V	1000V	1000V	1,000
CFR02S	CFR-200-S	2W	5.5	16.5	28	0.70	64	1Ω~10MΩ	500V	1000V	1000V	1,000
CFR03S	CFR-300-S	3W	6.5	17.5	28	0.75	64	1Ω~10MΩ	500V	1000V	1000V	500

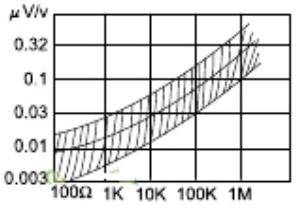
Note : • Standard E-24 series values in ±5% tolerance

- Standard beige base color ; Light brown base color for CFR01S, CFR02S & CFR03S
- Standard grayish-green base color (Non-flammable coating) for CFRFU2
- (1) Lead diameter of CFR0W4 & CFRFU2 can be provided in 0.50mm, 0.54mm & 0.60mm
- For any special inquiry which includes too low or high ohmic values are available on a case to case basis

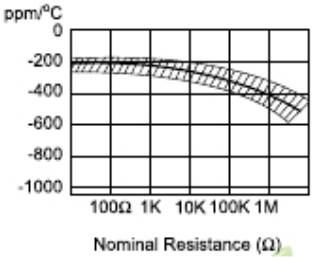
Derating Curve



Current Noise



Temp. Coefficient



CARBON FILM FIXED RESISTORS

Performance Specifications

Temperature Coefficient	≤ 10Ω : ±350PPM/℃ 11Ω ~ 99KΩ : 0 ~ -450PPM/℃ 100KΩ ~ 1MΩ : 0 ~ -700PPM/℃ 1.1MΩ ~ 10MΩ : 0 ~ -1500PPM/℃
Short Time Overload	±(1.0% + 0.05Ω)Max, with no evidence of mechanical damage.
Insulation Resistance	Min. 10,000 Mega Ohm
Dielectric Withstanding Voltage	No evidence of flashover, mechanical damage, arcing or insulation breakdown.
Terminal Strength	No evidence of mechanical damage.
Resistance go Soldering Heat	±(1.0% + 0.05Ω)Max, with no evidence of mechanical damage.
Solderability	Min. 95% coverage.
Resistance to Solvent	No deterioration of protective coating and markings.
Temperature Cycling	±(1.0% + 0.05Ω)Max, with no evidence of mechanical damage.
Load Life in Humidity	Normal type: < 100KΩ: ±(3.0% + 0.05Ω)Max ≥ 100KΩ: ±(5.0% + 0.05Ω)Max Non-Flame type: < 100KΩ: ±(5.0% + 0.05Ω)Max ≥ 100KΩ: ±(10.0% + 0.05Ω)Max
Load Life	Normal type: < 56KΩ: ±(2.0% + 0.05Ω)Max ≥ 56KΩ: ±(3.0% + 0.05Ω)Max Non-Flame type: < 100KΩ: ±(5.0% + 0.05Ω)Max ≥ 100KΩ: ±(10.0% + 0.05Ω)Max

Ordering Procedure : (Ex : CFR 1/4W, ±5%, 10KΩ, T/B-5000)

C F R 0 W 4 J 0 1 0 3 A 5 0

Resistor Type:
CFR = Carbon Film Fixed Resistor

Special Feature:
0 = Standard Product
F = Non-Flame
I = Non-Inductive

Wattage:
Normal size: W8=1/8W, W6=1/6W, W4=1/4W, W2=1/2W, 1W=1W, 2W=2W, 3W=3W

Small size: S4=1/4W-S, S3=1/3W-S, S2=1/2W-S, 1S=1W-S, 2S=2W-S, 3S=3W-S

Extra small size: U2=1/2W-SS

Tolerance:
F = ±1%, G = ±2%, J = ±5%, K = ±10%

Resistance Value:
- E-24 series: the 1st digit is "0", the 2nd & 3nd digit are for the significant figures of the resistance and the 4th indicate the number of zeros:
  "J" ~ 0.1, "K" ~ 0.01
  Ex.: 4.7Ω ~ 47J, 4.7KΩ ~ 472
- E-96 series: the 1st to 3rd digits are for the significant figures of the resistance and the 4th digit denotes the number of zeros.
  Ex: 1.33kΩ = 1331

Packing Type:
A = Tape / Box
T = Tape / Reel
B = Bulk / Box
P = Tape / Box of PT-26 product

Packing Qty:
1 = 1,000 pcs, 2= 2,000 pcs
4 = 4,000 pcs, 5 = 5,000 pcs
A = 500 pcs, B = 2,500 pcs
0 = for Bulk / Box packing

Additional Information:
P = Panasert type
1 = Avisert type
2 = Avisert type 2
3 = Avisert type 3
0 = PT-52mm, NIL for PT-26
8 = PT-58mm
9 = PT-64mm
7 = Lead wire (H) 38mm

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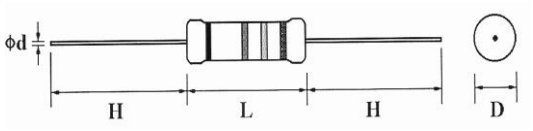
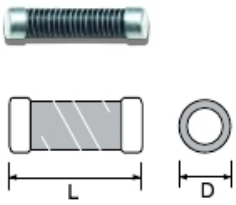
(1)Copper Plated Steel Lead Wire Type
Copper Plated Wire (CP)
Tin Plated Copper Wire (CT)



Part No	Style	Power Rating at 70℃	Dimension (mm)					Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Resistance Range	Std Packing Qty
			D Max	L Max	H±3	d ± 0.02	PT					
CPxxW8/CTxxW8	CP/CT-12	1/8W (0.125W)	1.85	3.5	28	0.5	52	200V	400V	400V	1Ω~1MΩ	5,000
CPxxW4/CTxxW4	CP/CT-25	1/4W (0.25W)	2.5	6.8	28/38	0.5	52	250V	500V	500V	1Ω~10MΩ	5,000
CPxxS3/CTxxS3	CP/CT-33-S	1/3W (0.33W)	2.5	6.8	28/38	0.5	52	300V	600V	500V	1Ω~10MΩ	5,000
CPxxW3/CTxxW3	CP/CT-33	1/3W (0.33W)	3.0	9.0	28	0.5	52	300V	600V	700V	1Ω~10MΩ	2,000
CPxxS2/CTxxS2	CP/CT-50-S	1/2W (0.5W)	3.0	9.0	28	0.5	52	350V	700V	**700V**	1Ω~10MΩ	2,000

(2)Cutting (CO) Type

Part No	Dimension (mm)	Power Rating at 70℃	Dimension (mm)		Resistance Range
			D	L.	
CO…W8	CO-12	0.125W	$1.6^{+0.10}_{-0.00}$	3.5	1Ω~1MΩ
CO…W4	CO-25	0.25W	2.5	6.8	1Ω~10MΩ
CO…W4…A	CO-25-A	0.25W	2.5	6.8	1Ω~10MΩ
CO…W4…B	CO-25-B	0.25W	3.0	9.0	1Ω~10MΩ



*Cutting type resistors are produced without lead-wire and without coating *Cap plated: 1.Tin-plated (Royal std), 2.Nickel-plated (Special request)

Ordering Procedure: (Ex.: CP0 1/4W, +/-5%, 10Ω, T/B-5000

C P 0 0 W 4 J 0 1 0 0 A 5 0

Resistor Type:
CP0 = Copper Plated Steel Lead Wire, H=28mm
CPL = Copper Plated Steel Lead Wire, H=38mm
Steel Lead Wire, H=28mm
CTL = Tin Plated Copper Steel Lead Wire, H=38mm
COT = Cutting Type (Tin-Plated Cap)
CON = Cutting Type (Nickel-Plated Cap)

Wattage:
Normal size:
W8 = 1/8W
W4 = 1/4W
W3 = 1/3W

Small size:
S2 = 1/2W-S
S3 = 1/3W-S

Resistance Value:
E=24 series: the 1st digit is "0", the 2nd & 3rd digits are for the significant figures of the resistance and the 4th indicate the number of zeros.
"J" ~ 0.1, "K" ~ 0.01
Ex. 4.7Ω ~ 47J, 4.7KΩ ~ 472

Tolerance:
G = ±2%
J = ±5%
K = ±10%

Packing Type:
A = Tape / Box
T = Tape / Reel
B = Bulk / Box

Special Feature :
0 = Standard Product
F = Non-Flame
I = Non-Inductive

Packing Qty :
1 = 1,000 pcs, 2 = 2,000 pcs, 5 = 5,000 pcs
A =500 pcs, B = 2,500 pcs, 0 = for Bulk / Box packing

Additional Information:
0 = For CP/CT type,
A = Cutting type (CO-25-A)
B = Cutting type (CO-25-B)