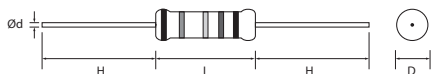


Feature

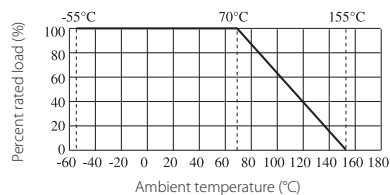
- Ideal circuit opening controller, disconnecting units from overload rating specified.
- Too low or too high ohmic value can be supplied on a case to case basis.
- UL items available (File NO:E306074, E245468)



Dimension (mm)



Derating Curve



Specification

Part No	Type	Power Rating 70°C	Dimension (mm)					Dielectric Withstanding Voltage	Resistance Range
			D	L	d ±0.05	H±3	PT		
FRN0W4	FRN-25	1/4W	2.2±0.5	6.5±1.0	0.60	28	52	300V	0.22Ω~10KΩ
FRN0S2	FRN-50-S	1/2W-S	2.2±0.5	6.5±1.0	0.60	28	52	300V	0.22Ω~10KΩ
FRN004	FRN-40	0.4W	2.2±0.5	6.5±1.0	0.60	28	52	300V	0.22Ω~10KΩ
FRN0W2	FRN-50	1/2W	3.0±0.5	9.0±1.0	0.60	28	52	350V	0.22Ω~10KΩ
FRN075	FRN-75	3/4W	3.5±0.6	9.5±1.0	0.54	28	52	350V	0.22Ω~10KΩ
FRN01W	FRN-100	1W	3.5±0.6	9.5±1.0	0.54	28	52	350V	0.22Ω~10KΩ
FRN01A	FRN-150	1.5W	4.5±0.6	11.5±1.0	0.70	25	52	600V	0.22Ω~10KΩ
FRN02W	FRN-200	2W	4.5±0.6	11.5±1.0	0.70	25	52	600V	0.22Ω~10KΩ
FRN03W	FRN-300	3W	5.0±0.6	15.5±1.0	0.80	28	64	600V	0.22Ω~10KΩ

Fusing Characteristics

Resistance Value

≤2.2Ω

>2.2Ω

Test Wattage

32 X Power Rating

16 X Power Rating

Fusing Time

≤ 60 seconds

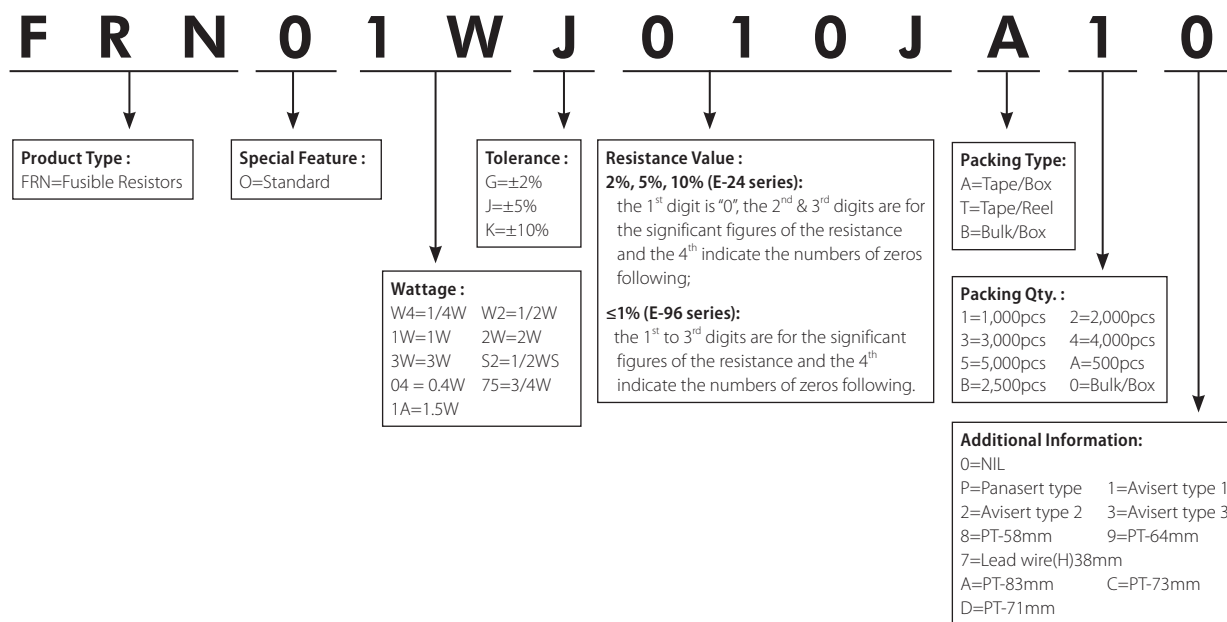
≤ 60 seconds

The fusing test current or voltage should be stable, change within 5%.

Performance Specification

Temperature coefficient	$\pm 350 \text{ PPM}/^{\circ}\text{C}$
Short-time Overload	$\Delta R/R \leq \pm(2\%+0.05 \Omega)$, with no evidence of mechanical damage
Dielectric withstanding voltage	With no evidence of flashover, mechanical damage, arcing or insulation breakdown
Terminal strength	No evidence of mechanical damage
Soldering heat	$\Delta R/R \leq \pm(1\%+0.05 \Omega)$ with no evidence of mechanical damage
Solderability	Coverage must be over 95%.
Rapid change of temperature	$\Delta R/R \leq \pm(2\%+0.05 \Omega)$ with no evidence of mechanical damage
Load life in humidity	$\Delta R/R \leq \pm(5\%+0.05 \Omega)$ with no evidence of mechanical damage
Load life	$\Delta R/R \leq \pm(5\%+0.05 \Omega)$ with no evidence of mechanical damage
Flame retardant	Resistor insulation is self-extinguishing within 10 seconds after externally applied flame is removed

Ordering Procedure (Example: FRN 1W 5% 1 Ω T/B-1000)

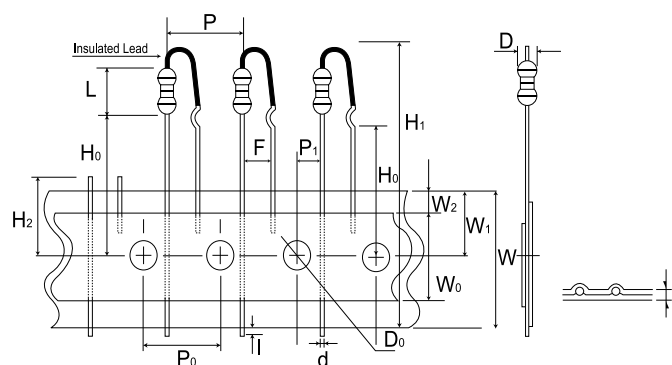


Avisert Type

Ordering Procedure: Ex.: CFR 1/8W, +/-5%, 22Ω, T/R 5000 Avisert Type 3

C	F	R	0	W	8	J	0	2	2	0	T	5	3
Type: CFR = Carbon Film MF = Metal Film MOR = Metal Oxide Film FRN = Fusible Film				Wattage: Avisert Type 1 W4 = 1/4W U2 = 1/2W-SS 06 = 0.6W-S S2 = 1/2W-S (S2 for MOR & FRN)			Resistance Value: - E-24 series: 1st digit is "0" 2nd & 3rd digits are the significant figures of the resistance 4th indicates the number of zeros - E-96 series: 1st to 3rd digits are the significant figures of the resistance and the 4th digit indicates the number of zeros.						
Special Feature: 0 = Standard product F = Non-Flame				Avisert Type 2 W8 = 1/8W S4 = 1/4W-S			Packing Type: A = Tape/Box T = Tape/Reel						
				Avisert Type 3 W8 = 1/8W S4 = 1/4W-S W4 = 1/4W U2 = 1/2W-SS 06 = 0.6W-S S2 = 1/2W-S (S2 for MOR & FRN)			Packing Qty: 2 = 2,000 pcs. (T/B only); 5 = 5,000 pcs. (T/R) T/R is 2,500 pcs.per reel & 2 reels per box						
Note: 1.) For Metal Film Fixed Resistors, please follow Part No. system on page 28						Tolerance: F = ±1% J = ±5%				Additional Info.: 1 = Avisert Type 1 2 = Avisert Type 2 3 = Avisert Type 3			

Avisert Type 1



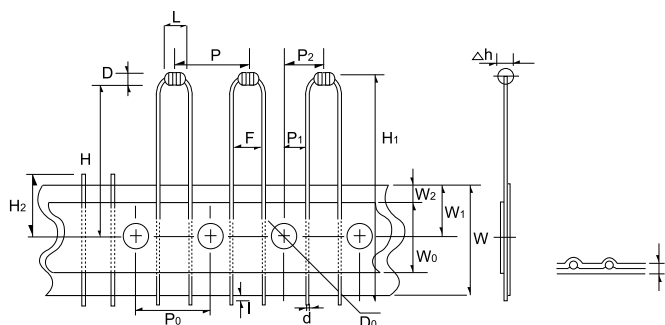
- This specification is applicable to: CFR 1/4W, 1/2W-SS, MFR 1/4W, 1/2W-SS, 0.6W-S
MOR 1/4W, 1/2W-S, FRN 1/4W, 1/2W-S

Items	Symbol	Dimension (mm)	Items	Symbol	Dimension (mm)
Body diameter	D	2.5 Max.	Hole position	W ₁	9.5 ± 0.5
Body length	L	6.8 Max.	Paper and tape distance	W ₂	3.0 Max.
Lead wire diameter	d	0.54 ± 0.05	Height of Component from tape center	H	17 ± 0.5
Pitch of component	P	12.7 ± 1	Lead wire clinch height	H ₀	16 ± 0.5
Feed hole pitch	P ₀	12.7 ± 0.3	Component height	H ₁	34.50 Max.
Feed hole center to lead	P ₁	3.85 ± 0.7	Length of snapped lead	H ₂	11 Max.
Lead to lead distance	F	5 ± 1	Lead wire protrusion	l	1 Max.
Paper width	W	18 ± 1	Feed hole diameter	D ₀	4 ± 0.3
Tape width	W ₀	6 Min.	Total tape thickness	t	0.5 ± 0.2

Remark: P₀ cumulative pitch error 1mm / 20 pitch. Packing in this type have Ammo packing and Reel packing.

Avisert Type

Avisert Type 2

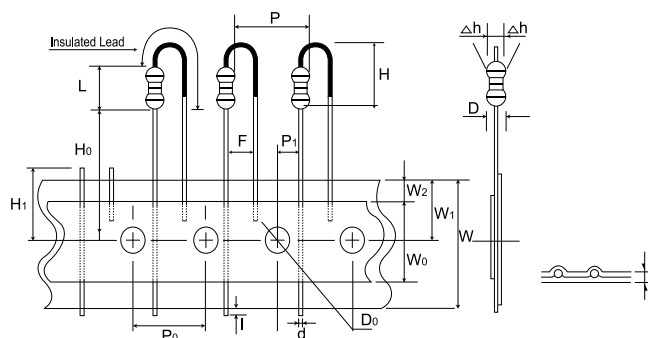


•This specification is applicable to: CFR 1/8W, 1/4W-S, MFR 1/8W, 1/4W-S This type is ideal for automatic insertion.

Items	Symbol	Dimension (mm)	Items	Symbol	Dimension (mm)
Body diameter	D	1.85 Max.	Tape width	W ₀	6 Min.
Body length	L	3.5 Max.	Hole position	W ₁	9 ± 0.5
Lead wire diameter	d	0.45 ± 0.05	Paper and tape distance	W ₂	3 Max.
Pitch of component	P	12.7 ± 1	Lead wire clinch height	H	21.25 Max.
Feed hole pitch	P ₀	12.7 ± 0.3	Component height	H ₁	32.25 Max.
Hole center to lead	P ₁	3.85 ± 0.7	Length of snapped lead	H ₂	11 Max.
Hold center to component center	P ₂	6.35 ± 1.3	Lead wire protrusion	I	1 Max.
Lead to lead distance	F	5 ± 1	Feed hole diameter	D ₀	4 ± 0.3
Component alignment	Δh	0 ± 1	Total tape thickness	t	0.5 ± 0.2
Paper width	W	18 ± 1			

Remark: P₀ cumulative pitch error 1mm / 20 pitch. Packing in this type have Ammo packing and Reel packing.

Avisert Type 3



•This specification is applicable to: CFR 1/8W, 1/4W-S, 1/4W, 1/2W-SS, MFR 1/8W, 1/4W-S, 1/4W, 1/2W-SS, 0.6W-S MOR 1/4W, 1/2W-S FRN 1/4W, 1/2W-S

Items	Symbol	Dimension (mm)		Items	Symbol	Dimension (mm)
		1/8W	1/4W			1/8W, 1/4W
Body diameter	D	2.0 Max.	2.5 Max.	Paper width	W	18 ± 1
Body length	L	4.2 Max.	6.8 Max.	Tape width	W ₀	6 Min.
Lead wire diameter	d	0.45 ± 0.05	0.54 ± 0.05	Hole position	W ₁	9 ± 0.5
Body height	H	7.0 Max.	10.0 Max.	Paper and tape distance	W ₂	3.0 Max.
Lead wire clinch height	H ₀	20.0 Max.	16.0 Max.	Length of snapped lead	H ₁	11 Max.
Lead to lead spacing	F	2.5 ± 1	5 ± 1	Lead wire protrusion	I	1 Max.
Pitch of component	P	12.7 ± 1	12.7 ± 1	Feed hole diameter	D ₀	4 ± 0.3
Feed hole pitch	P ₀	12.7 ± 0.3	12.7 ± 0.3	Total tape thickness	t	0.5 ± 0.2
Hole center to lead	P ₁	3.85 ± 0.7	3.85 ± 0.7	Component alignment	Δh	0 ± 1

Remark: P₀ cumulative pitch error 1mm / 20 pitch. Packing in this type have Ammo packing and Reel packing.