FUSING RESISTORS

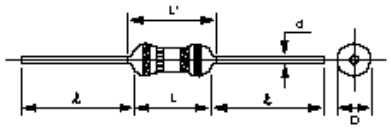
FRN 14, 12, 01

Kamaya metal film fusing resistors operate as a typical resistor under normal load conditions. During an abnormal overload, this resistor's internal conductive film disintegrates creating an open circuit. It is suitable for use in any circuit where overload conditions might constitute a safety hazard.

FEATURES

1. Low cost circuit protection.
2. Flameproof conformal coating.
3. No flaming or arcing under all overload conditions.
4. 1/4 watt through 1.0 watt power ratings available.

DIMENSIONS



Four-Band Color Code

Unit = mm

Dimension / Type	L	L'	D	ℓ	d
FRN 14	6.5 ± 0.5	7.5 max.	2.3 ± 0.5	27 min.	0.6 ± 0.5
FRN 12	8.5 ± 1.0	9.5 max.	3.0 ± 0.5	27 min.	0.6 ± 0.5
FRN 01	11.0 ± 1.0	12.0 max.	4.0 ± 1.0	27 min.	0.7 ± 0.5

RATINGS

Type	Rated Power @ 70°C W	Resistance Range And Tolerance (E_{24} Series) ± 5% (J)	Fusing Characteristics Opening Time * 15 x Rated Power	Operating Temperature Range
FRN 14	0.25	1.0 Ω to 4.3 Ω 4.7 Ω to 1.0 KΩ	30 seconds max. 24 seconds max.	-55°C to 155°C
FRN 12	0.50	1.0 Ω to 1.0 KΩ	24 seconds max.	
FRN 01	1.0	1.0 Ω to 1.0 KΩ	24 seconds max.	

* Resistor is open when resistance value increases to more than 50 times nominal resistance value.

PERFORMANCE CHARACTERISTICS

DESCRIPTION	PERFORMANCE	TEST METHOD JIS C5202	
Resistance Temperature Coefficient	± 300 ppm/°C	**section 5.2**	Measuring temperature +25°C/-55°C/+25°C/+125°C
Short-time Overload	± 1.5% maximum	**section 5.5**	Condition A Rated power x 2.5, 5 seconds
Insulation Resistance	1,000 MΩ minimum	**section 5.6**	Condition A. 100Vdc 1 minute
Dielectric Strength 500 Volt	± 0.5% maximum	**section 5.7**	FRN1/4:300Vac 1 Minute FRN1/2,1:350Vac 1 Minute
Terminal Strength — Pulling	No mechanical damage	**section 6.1.2(1)**	FRN 12 : 5N (0.51kgf) FRN 14, 01 : 10N (1.02kgf) for 5~10 seconds
Terminal Strength — Bending	No mechanical damage	**section 6.1.2(2)**	360° revolution 5 times
Vibration	± 1.0% maximum	**section 6.3**	Type A. 10~55Hz 3 directions 2 hours each
Solder-Heat Resistance	± 1.0% maximum	**section 6.4**	350°C 2~2.5mm from the body 3.5 seconds
Solderability	95% minimum coverage	**section 6.5**	235°C 5 seconds
Temperature Cycle	± 1.0% maximum	**section 7.4**	-25°C/ + 85°C for 5 cycles
Load Life in Moisture	± 3.0% maximum	**section 7.9**	Rated voltage 1.5 hours "ON" 0.5 hours "OFF" 40°C 95%RH 1,000 Hours
Load Life	± 3.0% maximum	**section 7.10**	Rated voltage 1.5 hours "ON" 0.5 hours "OFF" 70°C 1,000 Hours

PART NUMBER SYSTEM

FRN 14 - XXX J T

Product Type
FRN = Fusing Resistor

Wattage
14 = 1/4 watt
12 = 1/2 watt
01 = 1 watt

Resistance Value
2 significant digits plus multiplier
102 = 1.0 KΩ
1R0 = 1.0 Ω

Tolerance
J = ± 5%

Packaging
B = Bulk
T = Tape and Reel (52 mm)
TA = Tape and Ammo Box (26 mm)
TB = Tape and Ammo Box (52 mm)

Note: Axial packaging per EIA RS-296-E