

SINLOON®

熔斷保險絲電阻

Power Rated: 1/4W ~ 3WS

FR SERIES
Fusible Resistor

□ FEATURES

- ◆ The Fusible resistor is applied to safety circuit in wide range of electronic sets.
- ◆ Complete flame proof construction resistance range 0.33R ~ 1K ohm
- ◆ Resistance tolerance ±2%, ±5%.
- ◆ There are 5 color band is in white color means wire wound fusible resistor
- ◆ The fusing time 60/sec Max.



◆ INTRODUCTION

- ◆ FR Type (Standard)
- ◆ Rated power : 1/4W ~ 2W; 1/2WS ~ 3WS.
- ◆ Superior quality fusible resistors which are flameproof during operation These resistors fuse in less than 30 seconds at 16 times rated power

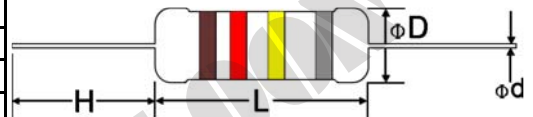
◆ ORDERING

Example: FR025G1R0JT (1/4W 1R0 ohm ±5% TCR ±350ppm T/Box)

Type	Power	TCR/°C	Resistance	Tolerance	Package
FR025	1/4W	G=±350ppm	R33 =0.33Ω	G = ±2%	T = T/Box
FR50S	1/2WS		1R0 =1Ω	J = ±5%	B = Bulk
FR50	1/2W		100 =10Ω	K = ±10%	R = Reel
FR100S	1WS		101 =100Ω		
FR100	1W		102 =1KΩ		
FR200S	2WS				
FR200	2W				
FR300S	3WS				

◆ EXTERNAL DIMENSIONS

Type	Power	DIMENSION (mm)			
		L	ΦD	H	Φd
FR025	1/4W	6.3±0.5	2.3±0.3	28±2	0.55±0.03
FR50S	1/2WS	6.3±0.5	2.3±0.3	28±2	0.55±0.03
FR50	1/2W	9.0±0.5	3.2±0.5	28±2	0.65±0.03
FR100S	1WS	9.0±0.5	3.2±0.5	28±2	0.65±0.03
FR100	1W	11.5±1.0	4.5±0.5	35±2	0.78±0.03
FR200S	2WS	11.5±1.0	4.5±0.5	35±2	0.78±0.03
FR200	2W	15.5±1.0	5.0±0.5	35±2	0.78±0.03
FR300S	3WS	15.5±1.0	5.0±0.5	35±2	0.78±0.03



◆ RATED POWER

Type	Power	Limiting Element Voltage	Resistance Range	Resistance Tolerance		Operating temperature Range
FR025	1/4W	200V	1R~1KΩ	G=±2%	J=±5%	-40°C ~ +155°C
FR50S	1/2WS	250V	1R~1KΩ			
FR50	1/2W	250V	1R~1KΩ			
FR100S	1WS	300V	1R~1KΩ			
FR100	1W	300V	1R~1KΩ			
FR200S	2WS	350V	1R~1KΩ			
FR200	2W	350V	1R~1KΩ			
FR300S	3WS	400V	1R~1KΩ			

Remark: The products value range for standard resistance, below or over this resistance on request please contact us.
註: 如有低於或高於規格參數阻值的要求請聯絡我們

* Rated continuous Working Voltage (RCWV) = $\sqrt{\text{power rating} \times \text{resistance value}}$

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◆ PERFORMANCE SPECIFICATIONS

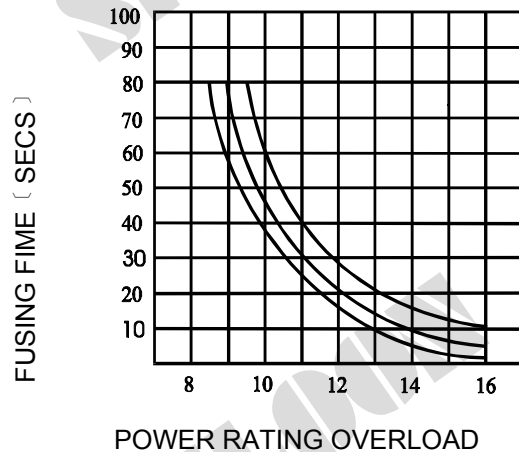
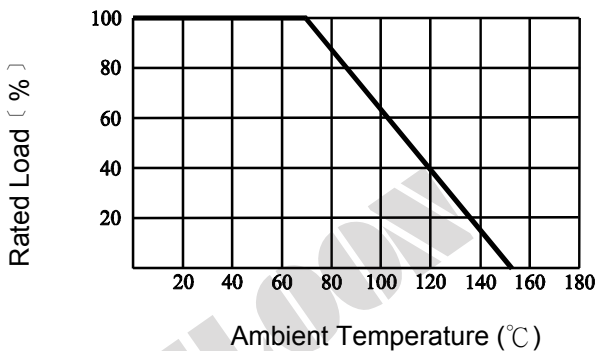
ITEMS	SPECIFICATION LIMITS
TEMPERATURE COEFFICIENT	±350ppm
SHORT TIME OVERLOAD	±(2%+0.05Ω)
INSULATION RESISTANCE MIN DRY	1000MΩ
LOAD LIFE	±(5%+0.05Ω)
TERMINAL STRENGTH	Tensile: ≥2.5kg
SOLDERABILITY	95% min overage
DIELECTRIC WITHSTANDING VOLTAGE	≥500V
OPERETING TEMPERATURE RANGE	-40°C TO +155°C
TOLARANCE	±5%
SELECTION SERIES	E-24
WORKIKNG VOLTAGE	$\sqrt{P * R}$ at 70°C

◆ FUSING CHARACTERISTICS

TYPE		MAGNIFICATION OF ROWER			FUSING TIME
		X 30	X 25	X 16	
1/4W	1/2WS	≤0E47	0E47~	1E~1K	60Sec Max
1/2W	1WS	≤0E33	0E33~	1E2~1K	
1W	2WS	≤0E33	0E33~	1E2~1K	
2W	3WS	≤0E33	0E33~	1E2~1K	

The above power rating and fusing time for standard fusible resistors, other spec. on request

◆ Power rating curve



◆ Marking

The resistors are marked with a 4 colors band code indicating the value and a fifth BLACK band denoting a fusible RESISTORS. The reduced size use gold color band instead of the fifth BLACK band.

◆ Technology and suggested application

The resistive element comprises a resistive film sputtered onto a ceramic element. Metal end caps are force fitted to the element prior to spiraling. Tinned copper lead wires are welded to the end caps and the components are than coated with four layers of a flameproof cement. All resistors are tested for value and tolerance.

◆ Painting Resistor body color

Standard 1. Normal size----- Grey

Small size-----Pink



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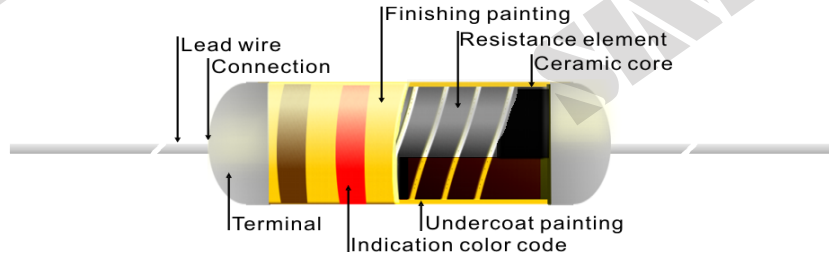
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◆ STRUCTURE DIAGRAM

The construction of resistor (FR Series) shall be Figure.



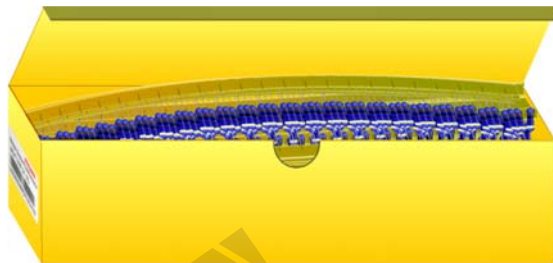
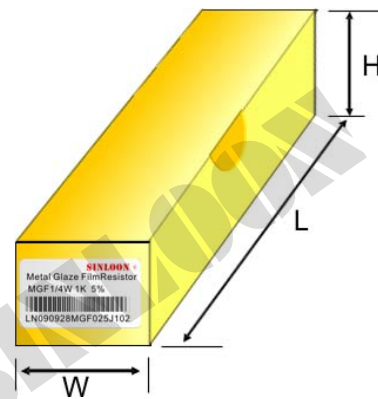
Item	Material
Ceramic Core	High alumina ceramic is used
Resistance element	The resistor element shall consist of metal glaze film.
Terminal	Tinned iron cap.
Connection	The lead wire, Which is olated with solder, shall be mounted to the caps by welding process.
Lead Wire	Soldered or tinned annealed copper wire.
Undercoat Painting	Electric insulation varnish.
Finishing painting	Epoxy resin is used.
Indiction	Color code.

◆ Painting Resistor body color



◆ PACKAGE:

Type	Power	Form	Dimensions (mm)		
			L	W	H
FR025	1/4W	T52	262	80	105
FR50S	1/2WS	T52	262	80	89
FR50	1/2W	T52	265	107	102
FR100S	1WS	T52	265	107	102
FR100	1W	T63	265	107	105
FR200S	2WS	T63	265	107	102
FR200	2W	T73	265	107	102
FR300S	3WS	T73	265	107	102



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□ **Standard Resistor Color Code (4 band code)**

Color	Black	Brown	Red	Orange	Yellow	Green	Blue	Violet	Gray	White	Gold	Silver
1st digit	0	1	2	3	4	5	6	7	8	9		
2nd digit	0	1	2	3	4	5	6	7	8	9		
Multiplier	x10 ⁰	x10 ¹	x10 ²	x10 ³	x10 ⁴	x10 ⁵	x10 ⁶	x10 ⁷	x10 ⁸	x10 ⁹		
Tolerance		±1% (F)	±2% (G)			±0.5% (D)	±0.25% (C)	±0.1% (B)			±5% (J)	±10% (K)

□ **Examples:**

Fig-1: (E24) Resistor 560R 5% Fig-2: (E24) Resistor 5.6K 10%

Green, Blue, brown, silver tolerance band:
56 x 10 = 560 ohms (560 ohms), with a tolerance of 5%

Green, blue, red, with silver tolerance band:
56 x 100 = 5.6 kohms, with a tolerance of 10%

□ **Standard EIA Decade Resistor Value** E24 series: (5% tolerance)
10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91

□ **Standard Resistor Color Code (5 band code)**

Color	Black	Brown	Red	Orange	Yellow	Green	Blue	Violet	Gray	White	Gold	Silver
1st digit	0	1	2	3	4	5	6	7	8	9		
2nd digit	0	1	2	3	4	5	6	7	8	9		
3rd digit	0	1	2	3	4	5	6	7	8	9		
Multiplier	x10 ⁰	x10 ¹	x10 ²	x10 ³	x10 ⁴	x10 ⁵	x10 ⁶	x10 ⁷	x10 ⁸	x10 ⁹		
Tolerance		±1% (F)	±2% (G)			±0.5% (D)	±0.25% (C)	±0.1% (B)			±5% (J)	±10% (K)

□ **Examples:**

Fig-3: (E96) Resistor 280R ±1% Fig-4: (E96) Resistor 39.1K ±5%

Red, Gray, Black, Black, Brown tolerance band:
280 x 1 = 280 ohms (2800 ohms), with a tolerance of 1%

Orange, White, Brown, Red, Gold tolerance band:
390 x 100 = 39.1K ohms (39.1K ohms), with a tolerance of 5%

E96 series: (1% tolerance)
100, 102, 105, 107, 110, 113, 115, 118, 121, 124, 127, 130, 133, 137, 140, 143, 147, 150, 154, 158, 162, 165, 169, 174, 178, 182, 187, 191, 196, 200, 205, 210, 215, 221, 226, 232, 237, 243, 249, 255, 261, 267, 274, 280, 287, 294, 301, 309, 316, 324, 332, 340, 348, 357, 365, 374, 383, 392, 402, 412, 422, 432, 442, 453, 464, 475, 487, 491, 511, 523, 536, 549, 562, 576, 590, 604, 619, 634, 649, 665, 681, 698, 715, 732, 750, 768, 787, 806, 825, 845, 866, 887, 909, 931, 959, 976

※美隆電子產品規格特性參數的改變或更新,將不會另行通知。
※Mayloon characteristic parameters of electronic product specification changes or updates without prior notice.