



THE DATASHEET OF FRG500-16F



Radial Leaded PTC Resettable Fuse: FRG Series

1. Summary

- (a) **RoHS Compliant (Lead Free) Product**
- (b) **Applications: Wide variety of electronic equipment**
- (c) **Product Features: Very Low resistance, Very High hold current, Solid state, Radial leaded product ideal for up to 16V_{DC}**
- (d) **Operation Current: 2.5A~14.0A**
- (e) **Maximum Voltage: 16V_{DC}**
- (f) **Temperature Range: -40°C to 85°C**

2. Agency Recognition

UL: File No. E211981
 C-UL: File No. E211981
 TÜV: File No. R50004084

3. Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Max. Time to trip	Max. Current	Rated Voltage	Typ. Power	Resistance	
	I _H , A	I _T , A	at 5xI _H , s	I _{MAX} , A	V _{MAX} , V _{DC}	Pd, W	R _{MIN}	R1 _{MAX}
							Ohm	Ohm
FRG250-16F	2.5	4.7	5.0	100	16	1.0	0.022	0.053
FRG300-16F	3.0	5.1	2.0	100	16	2.3	0.034	0.105
FRG400-16F	4.0	6.8	3.5	100	16	2.4	0.020	0.063
FRG500-16F	5.0	8.5	3.6	100	16	2.6	0.014	0.044
FRG600-16F	6.0	10.2	5.8	100	16	2.8	0.009	0.033
FRG700-16F	7.0	11.9	8.0	100	16	3.0	0.006	0.021
FRG800-16F	8.0	13.6	9.0	100	16	3.0	0.005	0.018
FRG900-16F	9.0	15.3	12.0	100	16	3.3	0.004	0.015
FRG1000-16F	10.0	17.0	12.5	100	16	3.3	0.003	0.012
FRG1100-16F	11.0	18.7	13.5	100	16	3.7	0.003	0.010
FRG1200-16F	12.0	20.4	16.0	100	16	4.2	0.002	0.009
FRG1400-16F	14.0	23.8	20.0	100	16	4.6	0.002	0.008

I_H=Hold current-maximum current at which the device will not trip at 23°C still air.
 I_T=Trip current-minimum current at which the device will always trip at 23°C still air.
 I_{MAX}= Maximum fault current device can withstand without damage at rated voltage (V_{MAX}).
 V_{MAX}=Maximum voltage device can withstand without damage at its rated current.
 Pd=Typical power dissipated from device when in the tripped state in 23°C still air environment.
 R_{MIN}=Minimum device resistance at 23°C.
 R1_{MAX}=Maximum device resistance at 23°C 1 hour after tripping.

Physical specifications:

Lead material: FRG250-16F Tin plated copper clad steel, 24 AWG.
 FRG300-16F~FRG1100-16F Tin plated copper, 20 AWG.
 FRG1200-16F~FRG1400-16F Tin plated copper, 18 AWG.

Soldering characteristics: MIL-STD-202, Method 208E.

Insulating coating: Flame retardant epoxy, meet UL-94V-0 requirement.

4. Production Dimensions (millimeter)

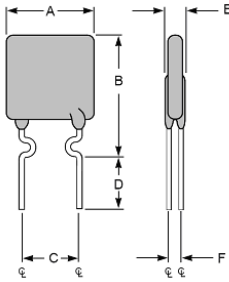


Figure 1
Lead Size: 24AWG
φ0.51 mm Diameter

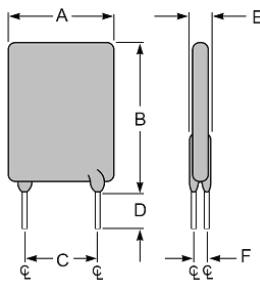


Figure 2
Lead Size: 20AWG
φ0.81 mm Diameter

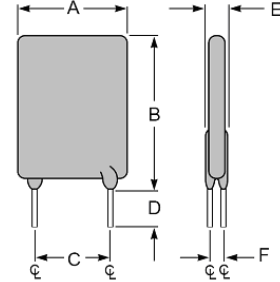
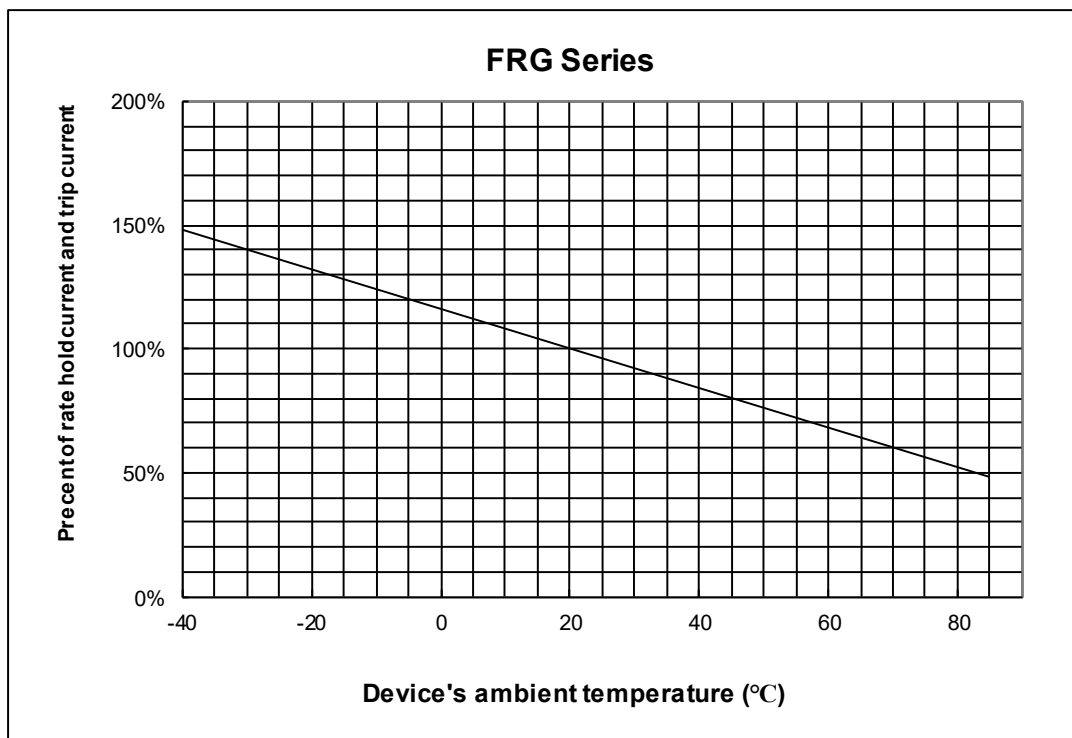


Figure 3
Lead Size: 18AWG
φ1.0 mm Diameter

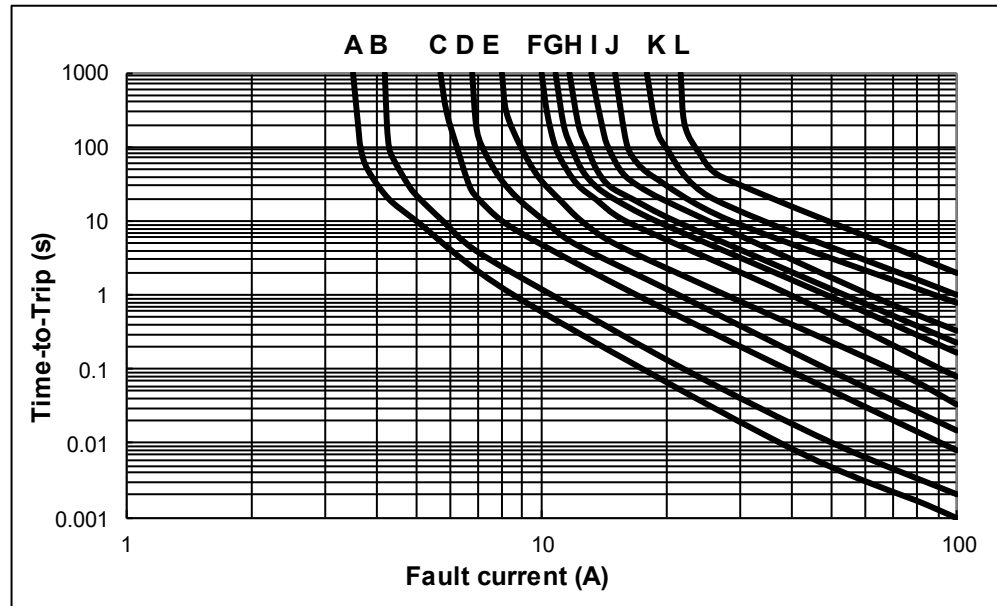
Part Number	Fig	A	B	C	D	E	F
		Maximum	Maximum	Typical	Minimum	Maximum	Typical
FRG250-16F	1	8.9	12.8	5.1	7.6	3.0	1.2
FRG300-16F	2	7.1	11.0	5.1	7.6	3.0	1.2
FRG400-16F	2	8.9	12.8	5.1	7.6	3.0	1.2
FRG500-16F	2	10.4	14.3	5.1	7.6	3.0	1.2
FRG600-16F	2	10.7	17.1	5.1	7.6	3.0	1.2
FRG700-16F	2	11.2	19.7	5.1	7.6	3.0	1.2
FRG800-16F	2	12.7	20.9	5.1	7.6	3.0	1.2
FRG900-16F	2	14.0	21.7	5.1	7.6	3.0	1.2
FRG1000-16F	2	16.5	24.1	5.1	7.6	3.0	1.2
FRG1100-16F	2	17.5	26.0	5.1	7.6	3.0	1.2
FRG1200-16F	3	17.5	28.0	10.2	7.6	3.6	1.4
FRG1400-16F	3	27.9	27.9	10.2	7.6	3.6	1.4

5. Thermal Derating Curve



6. Typical Time-To-Trip at 23°C

- A = FRG250-16F
- B = FRG300-16F
- C = FRG400-16F
- D = FRG500-16F
- E = FRG600-16F
- F = FRG700-16F
- G = FRG800-16F
- H = FRG900-16F
- I = FRG1000-16F
- J = FRG1100-16F
- K = FRG1200-16F
- L = FRG1400-16F



7. Material Specification

Lead material: FRG250-16F Tin plated copper clad steel, 24 AWG.

FRG300-16F~FRG1100-16F Tin plated copper, 20 AWG.

FRG1200-16F~FRG1400-16F Tin plated copper, 18 AWG.

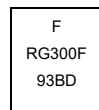
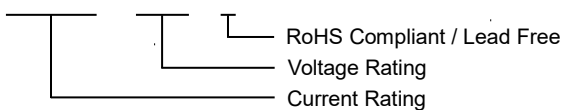
Soldering characteristics: MIL-STD-202, Method 208E.

Insulating coating: Flame retardant epoxy, meets UL-94V-0 requirement.

8. Part Numbering and Marking System

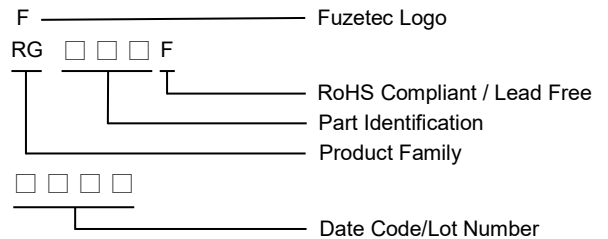
Part Numbering System

FRG □ □ □ - □ □ F



Example

Part Marking System



Note: Font on Marking may look slightly different due to fine turnings of each Marking printer.



Warning: - Each product should be carefully evaluated and tested for their suitability of application.



- Operation beyond the specified maximum rating or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent, including some inert material such as silicone based oil, lubricant and etc. Prolonged contact will damage the device performance.
- Additional protection mechanism are strongly recommended to be used in conjunction with the PPTC device for protection against abnormal or failure conditions.
- Avoid use of PPTC device in a constrained space such as potting material, housing and containers where have limited space to accommodate device thermal expansion and/or contraction.

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