

 <b>FUZETEC TECHNOLOGY CO., LTD.</b>	<b>NO.</b>	<b>PQ08-101E</b>		
	<b>Product Specification and Approval Sheet</b>	<b>Version</b>	<b>9</b>	<b>Page</b>

## 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 16VDC**
- (d) **Operation Current : 2.5A~14.0A**
- (e) **Maximum Voltage : 16VDC**
- (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 <sub>H</sub> , A	I <sub>T</sub> , A	at 5xI <sub>H</sub> ,s	I <sub>MAX</sub> , A	V <sub>MAX</sub> , VDC	P <sub>d</sub> , W	R <sub>MIN</sub>	R <sub>1MAX</sub>
							Ohms	Ohms
<b>FRG250-16F</b>	2.5	4.7	5.0	100	16	1.0	0.022	0.053
<b>FRG300-16F</b>	3.0	5.1	2.0	100	16	2.3	0.034	0.105
<b>FRG400-16F</b>	4.0	6.8	3.5	100	16	2.4	0.020	0.063
<b>FRG500-16F</b>	5.0	8.5	3.6	100	16	2.6	0.014	0.044
<b>FRG600-16F</b>	6.0	10.2	5.8	100	16	2.8	0.009	0.033
<b>FRG700-16F</b>	7.0	11.9	8.0	100	16	3.0	0.006	0.021
<b>FRG800-16F</b>	8.0	13.6	9.0	100	16	3.0	0.005	0.018
<b>FRG900-16F</b>	9.0	15.3	12.0	100	16	3.3	0.004	0.015
<b>FRG1000-16F</b>	10.0	17.0	12.5	100	16	3.3	0.003	0.012
<b>FRG1100-16F</b>	11.0	18.7	13.5	100	16	3.7	0.003	0.010
<b>FRG1200-16F</b>	12.0	20.4	16.0	100	16	4.2	0.002	0.009
<b>FRG1400-16F</b>	14.0	23.8	20.0	100	16	4.6	0.002	0.008

I<sub>H</sub>=Hold current-maximum current at which the device will not trip at 23°C still air.  
 I<sub>T</sub>=Trip current-minimum current at which the device will always trip at 23°C still air.  
 V<sub>MAX</sub>=Maximum voltage device can withstand without damage at its rated current.  
 I<sub>MAX</sub>= Maximum fault current device can withstand without damage at rated voltage (V max).  
 P<sub>d</sub>=Typical power dissipated from device when in the tripped state in 23°C still air environment.  
 R<sub>MIN</sub>=Minimum device resistance at 23°C.  
 R<sub>1MAX</sub>=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.

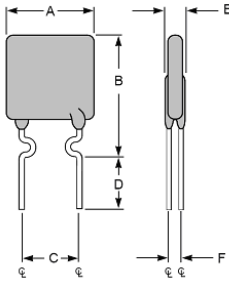
Insulating coating:Flame retardant epoxy ,meet UL-94V-0 requirement.

**NOTE : Specification subject to change without notice.**

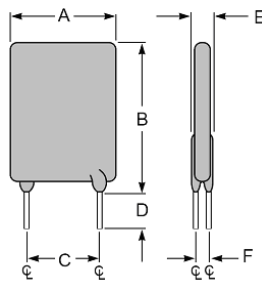
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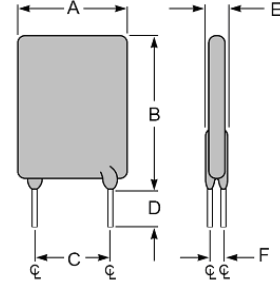
**4. Production Dimensions (millimeter)**



**Figure 1**  
Lead Size: 24AWG  
Φ 0.51 mm Diameter



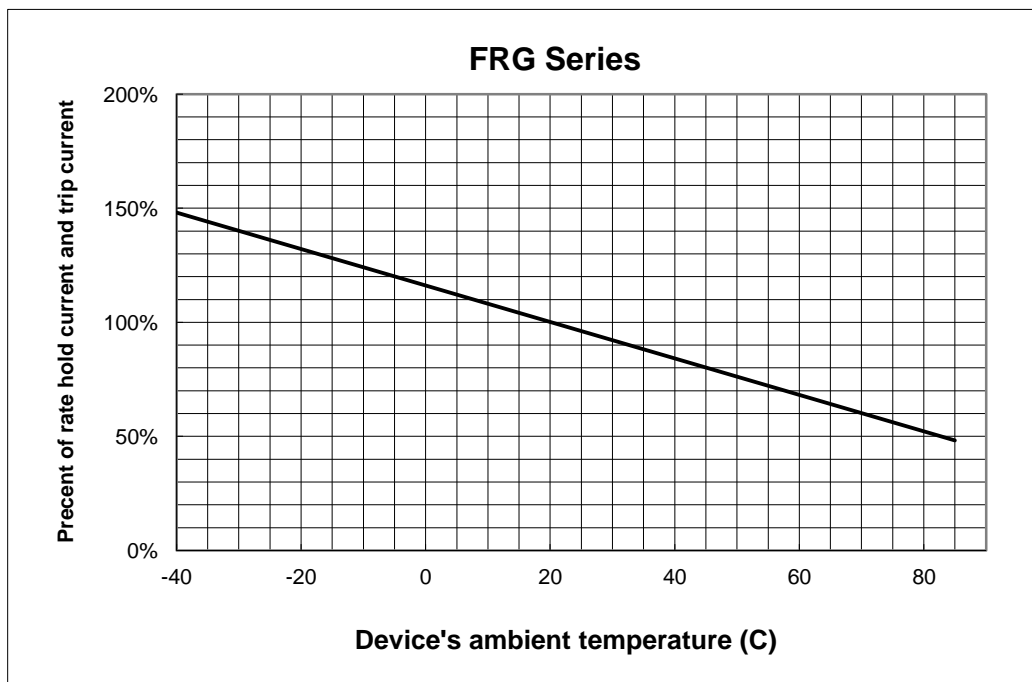
**Figure 2**  
Lead Size: 20AWG  
Φ 0.81 mm Diameter



**Figure 3**  
Lead Size: 18AWG  
Φ 1.0 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**

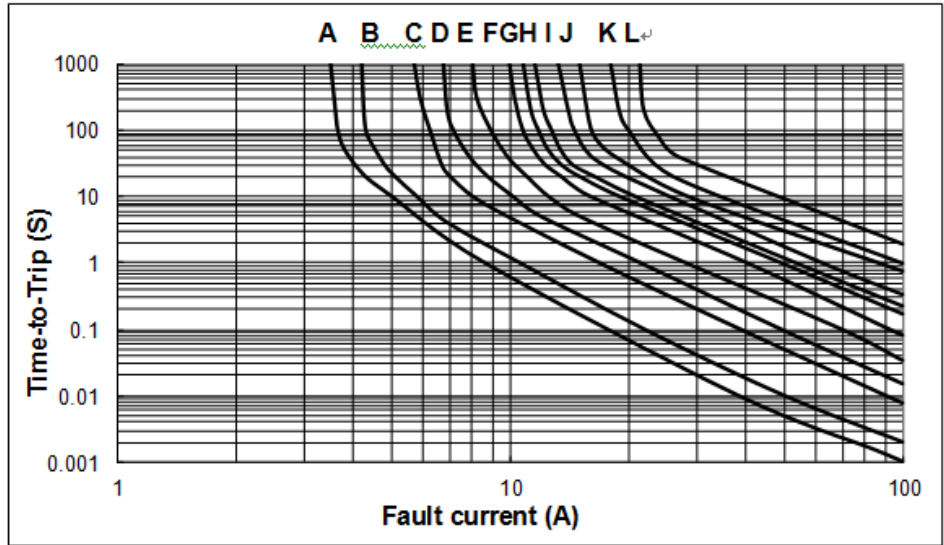


NOTE : Specification subject to change without notice.



### 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



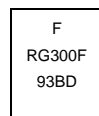
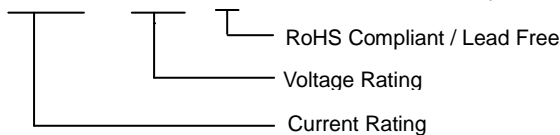
### 7. Material Specification

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

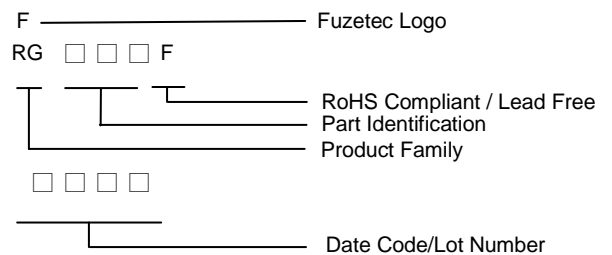
#### Part Numbering System

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.

NOTE : Specification subject to change without notice.

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