

 <b>FUZETEC TECHNOLOGY CO., LTD.</b>	<b>NO.</b>	<b>PQ08-101E</b>		
	<b>Product Specification and Approval Sheet</b>	<b>Version</b>	<b>5</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 16V**
- (d) **Operation Current : 2.5A~14.0A**
- (e) **Maximum Voltage : 16V**
- (f) **Temperature Range : -40°C to 85°C**

### 2. Agency Recognition

UL : File No. E211981  
C-UL: File No. E211981  
TÜV: File No. R 50004084

### 3. Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Max.Time to trip	Maximum Current	Rated Voltage	Typical Power	Resistance	
	I <sub>H</sub> , A	I <sub>T</sub> , A	at 5x I <sub>H</sub>	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						
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
FRG500-16KF	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<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, 24 AWG.  
FRG300-16F~FRG1100-16F Tin plated copper,20 AWG.  
FRG1200-16F~FRHG400-16F Tin plated copper,18 AWG.

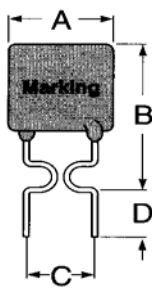
Soldering characteristics:MIL-STD-202, Method 208E.

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

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

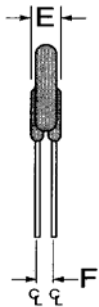


**4. Production Dimensions (millimeter)**



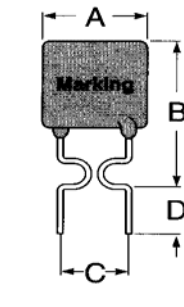
**Figure 1**

**Lead Size: 24AWG**  
 $\Phi$  0.51 mm Diameter



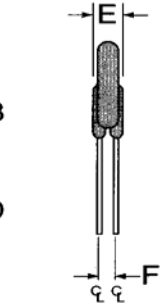
**Figure 2**

**Lead Size: 20AWG**  
 $\Phi$  0.81 mm Diameter



**Figure 3**

**Lead Size: 20AWG**  
 $\Phi$  0.81 mm Diameter

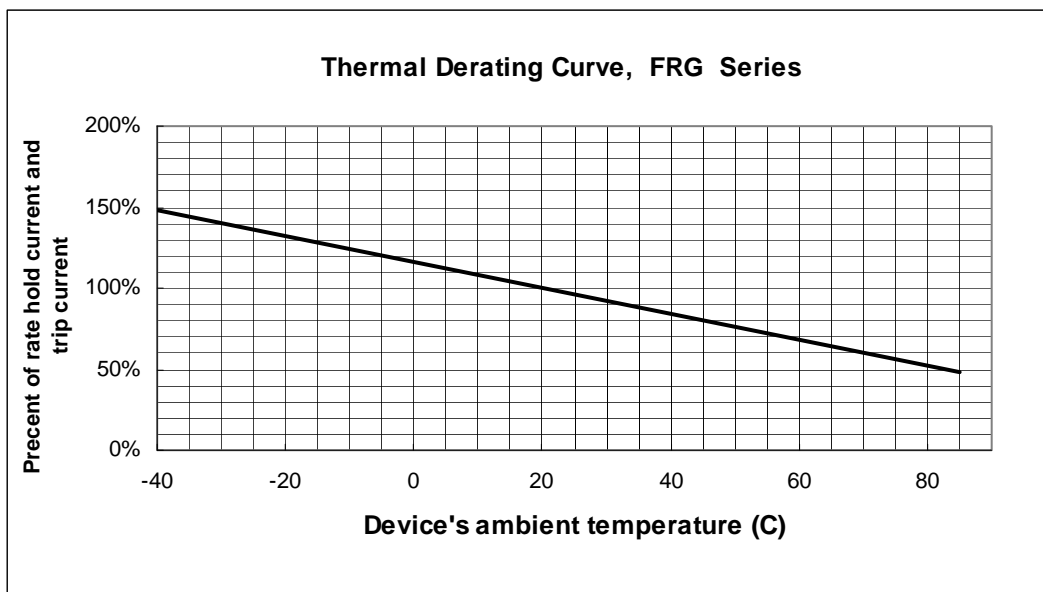


**Figure 4**

**Lead Size: 18AWG**  
 $\Phi$  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	3	7.1	11.0	5.1	7.6	3.0	1.2
FRG400-16F	3	8.9	12.8	5.1	7.6	3.0	1.2
FRG500-16F	3	10.4	14.3	5.1	7.6	3.0	1.2
FRG500-16KF	2	10.4	18.7	5.1	7.6	3.0	1.2
FRG600-16F	3	10.7	17.1	5.1	7.6	3.0	1.2
FRG700-16F	3	11.2	19.7	5.1	7.6	3.0	1.2
FRG800-16F	3	12.7	20.9	5.1	7.6	3.0	1.2
FRG900-16F	3	14.0	21.7	5.1	7.6	3.0	1.2
FRG1000-16F	3	16.5	24.1	5.1	7.6	3.0	1.2
FRG1100-16F	3	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**

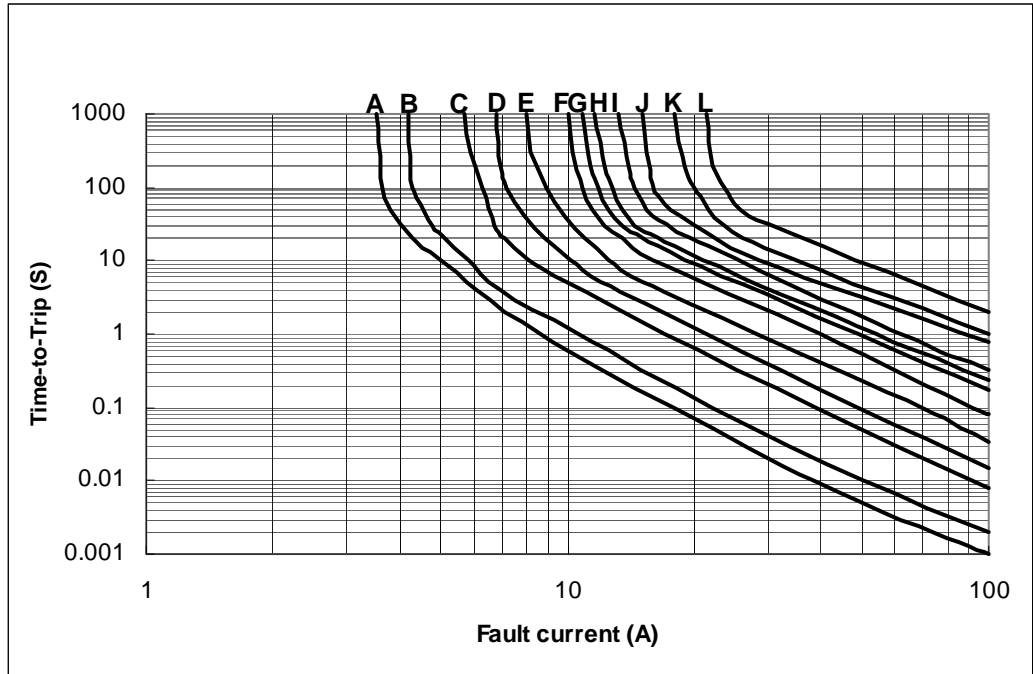


**NOTE : Specification subject to change without notice.**



### 6. Typical Time-To-Trip at 23°C

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



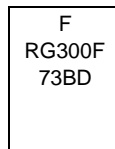
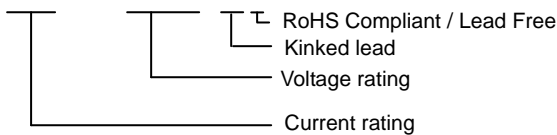
### 7. Material Specification

- Lead material : FRG250-16F Tin plated copper, 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

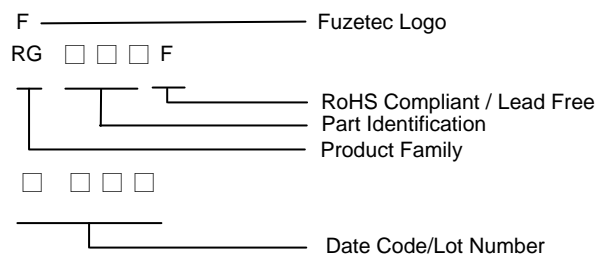
#### Part Numbering System

FRG □ □ □ - □ □ □ KF



Example

#### Part Marking System



**Warning:** -Operation beyond the specified maximum ratings 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. Prolonged contact will damage the device performance



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