



**THE DATASHEET OF  
FRU090-30F**



|  |                |                  |             |            |
|--|----------------|------------------|-------------|------------|
| <b>RFE</b>    <b>FUZETEC</b> | <b>NO.</b>     | <b>PQ02-101E</b> |             |            |
| <b>Product Specification and Approval Sheet</b>  | <b>Version</b> | <b>1</b>         | <b>Page</b> | <b>1/3</b> |

## Radial Leaded PTC Resettable Fuse: FRU Series

### 1. Summary

- (a) **RoHs Compliant (Lead Free) Product**
- (b) **Applications: Wide variety of electronic equipment**
- (c) **Product Features: Low resistance, High hold current, Solid state, Radial leaded product ideal for up to 30V<sub>DC</sub>**
- (d) **Operation Current: 0.9A~9.0A**
- (e) **Maximum Voltage: 30V<sub>DC</sub>**
- (f) **Temperature Range: -40°C to 85°C**

### 2. Agency Recognition

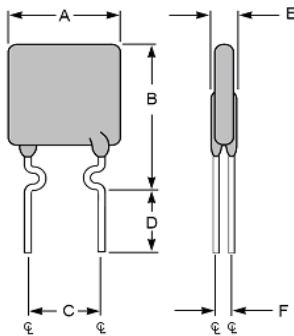
UL: File No. E211981  
C-UL: File No. E211981  
TÜV: File No. R50004084

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

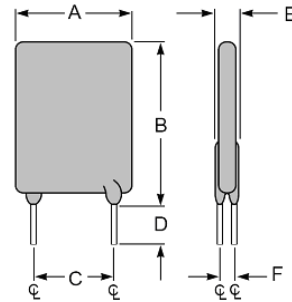
| Part Number | Hold Current       | Trip Current       | Max. Time To Trip       | Maximum Current      | Rated Voltage                      | Typical Power      | Resistance       |                   |
|-------------|--------------------|--------------------|-------------------------|----------------------|------------------------------------|--------------------|------------------|-------------------|
|             |                    |                    |                         |                      |                                    |                    | R <sub>MIN</sub> | R <sub>1MAX</sub> |
|             | 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> , V <sub>DC</sub> | P <sub>d</sub> , W | Ohm              | Ohm               |
| FRU090-30F  | 0.90               | 1.80               | 5.9                     | 100                  | 30                                 | 0.6                | 0.070            | 0.220             |
| FRU110-30F  | 1.10               | 2.20               | 6.6                     | 100                  | 30                                 | 0.7                | 0.050            | 0.170             |
| FRU135-30F  | 1.35               | 2.70               | 7.3                     | 100                  | 30                                 | 0.8                | 0.040            | 0.130             |
| FRU160-30F  | 1.60               | 3.20               | 8.0                     | 100                  | 30                                 | 0.9                | 0.030            | 0.110             |
| FRU185-30F  | 1.85               | 3.70               | 8.7                     | 100                  | 30                                 | 1.0                | 0.030            | 0.090             |
| FRU250-30F  | 2.50               | 5.00               | 10.3                    | 100                  | 30                                 | 1.2                | 0.020            | 0.070             |
| FRU300-30F  | 3.00               | 6.00               | 10.8                    | 100                  | 30                                 | 2.0                | 0.020            | 0.080             |
| FRU400-30F  | 4.00               | 8.00               | 12.7                    | 100                  | 30                                 | 2.5                | 0.010            | 0.050             |
| FRU500-30F  | 5.00               | 10.00              | 14.5                    | 100                  | 30                                 | 3.0                | 0.010            | 0.050             |
| FRU600-30F  | 6.00               | 12.00              | 16.0                    | 100                  | 30                                 | 3.5                | 0.005            | 0.040             |
| FRU700-30F  | 7.00               | 14.00              | 17.5                    | 100                  | 30                                 | 3.8                | 0.005            | 0.030             |
| FRU800-30F  | 8.00               | 16.00              | 18.8                    | 100                  | 30                                 | 4.0                | 0.005            | 0.020             |
| FRU900-30F  | 9.00               | 18.00              | 20.0                    | 100                  | 30                                 | 4.2                | 0.005            | 0.020             |

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.  
I<sub>MAX</sub>= Maximum fault current device can withstand without damage at rated voltage (V<sub>MAX</sub>).  
V<sub>MAX</sub>=Maximum voltage device can withstand without damage at its rated current.  
P<sub>d</sub>=Typical power dissipated from device when in 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: FRU090-30F~FRU250-30F Tin plated copper clad steel, 24 AWG.  
FRU300-30F~FRU900-30F Tin plated copper, 20 AWG.  
Soldering characteristics: MIL-STD-202, Method 208E.  
Insulating coating: Flame retardant epoxy, meets UL-94V-0 requirement.

**4. Production Dimensions (millimeter)**



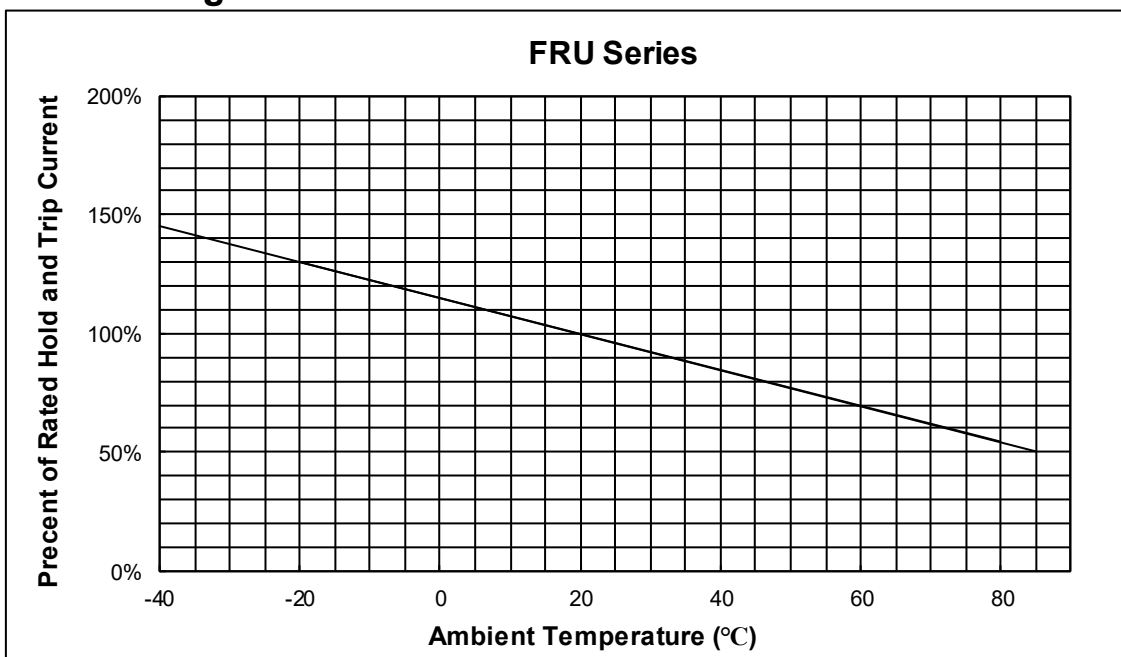
**Fig. 1**  
Lead Size: 24AWG  
φ 0.51 mm Diameter



**Fig. 2**  
Lead Size: 20AWG  
φ 0.81 mm Diameter

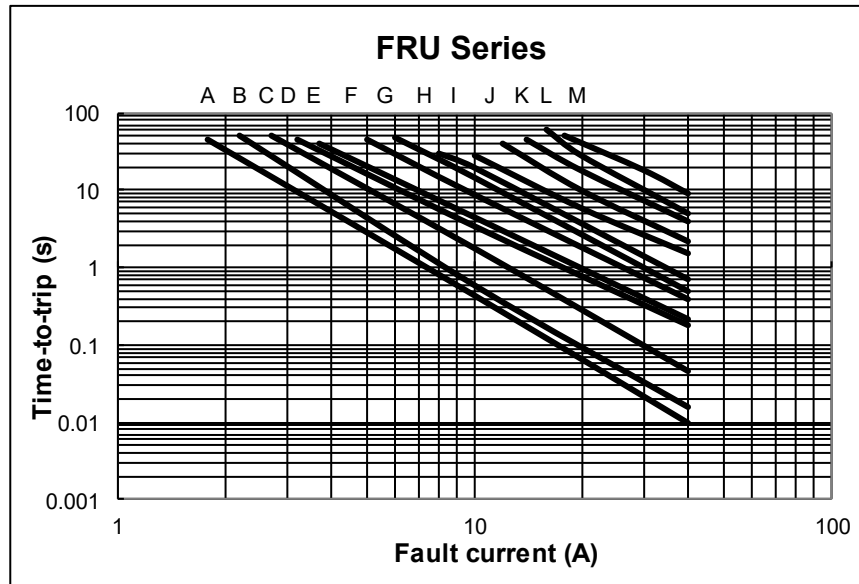
| Part Number | Fig | A       | B       | C       | D       | E       | F       |
|-------------|-----|---------|---------|---------|---------|---------|---------|
|             |     | Maximum | Maximum | Typical | Minimum | Maximum | Typical |
| FRU090-30F  | 1   | 7.4     | 12.2    | 5.1     | 7.6     | 3.0     | 0.9     |
| FRU110-30F  | 1   | 7.4     | 14.2    | 5.1     | 7.6     | 3.0     | 0.9     |
| FRU135-30F  | 1   | 8.9     | 13.5    | 5.1     | 7.6     | 3.0     | 0.9     |
| FRU160-30F  | 1   | 8.9     | 15.2    | 5.1     | 7.6     | 3.0     | 0.9     |
| FRU185-30F  | 1   | 10.2    | 15.7    | 5.1     | 7.6     | 3.0     | 0.9     |
| FRU250-30F  | 1   | 11.4    | 18.3    | 5.1     | 7.6     | 3.0     | 0.9     |
| FRU300-30F  | 2   | 11.4    | 17.3    | 5.1     | 7.6     | 3.0     | 1.2     |
| FRU400-30F  | 2   | 14.0    | 20.1    | 5.1     | 7.6     | 3.0     | 1.2     |
| FRU500-30F  | 2   | 14.0    | 24.9    | 10.2    | 7.6     | 3.0     | 1.2     |
| FRU600-30F  | 2   | 16.5    | 24.9    | 10.2    | 7.6     | 3.0     | 1.2     |
| FRU700-30F  | 2   | 19.1    | 26.7    | 10.2    | 7.6     | 3.0     | 1.2     |
| FRU800-30F  | 2   | 21.6    | 29.2    | 10.2    | 7.6     | 3.0     | 1.2     |
| FRU900-30F  | 2   | 24.1    | 29.7    | 10.2    | 7.6     | 3.0     | 1.2     |

**5. Thermal Derating Curve**



## 6. Typical Time-To-Trip at 23°C

- A = FRU090-30F
- B = FRU110-30F
- C = FRU135-30F
- D = FRU160-30F
- E = FRU185-30F
- F = FRU250-30F
- G = FRU300-30F
- H = FRU400-30F
- I = FRU500-30F
- J = FRU600-30F
- K = FRU700-30F
- L = FRU800-30F
- M = FRU900-30F



## 7. Material Specification

Lead material: FRU090-30F~FRU250-30F Tin plated copper clad steel, 24 AWG.

FRU300-30F~FRU900-30F Tin plated copper, 20 AWG.

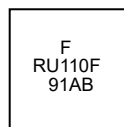
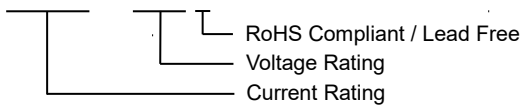
Soldering characteristics: MIL-STD-202, Method 208E.

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

## 8. Part Numbering and Marking System

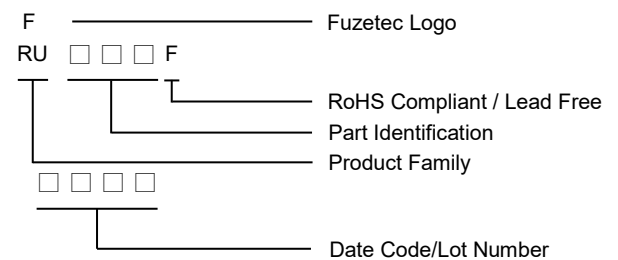
### Part Numbering System

FRU □ □ □ - □ □ 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.

## Looking for pricing, stock, or lifecycle information?

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-  [RFE/Fuzetec Information](#)

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