



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**
- (d) **Operation Current: 900mA~9.0A**
- (e) **Maximum Voltage: 30V**
- (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 Tolerance	
	I _H , A	I _T , A	at 5xI _H	I _{MAX} , A	V _{MAX} , Vdc	P _d , W	R _{MIN} ohms	R _{1MAX} ohms
FRU090-30F	0.90	1.80	5.9	40	30	0.6	0.070	0.22
FRU110-30F	1.10	2.20	6.6	40	30	0.7	0.050	0.17
FRU135-30F	1.35	2.70	7.3	40	30	0.8	0.040	0.13
FRU160-30F	1.60	3.20	8.0	40	30	0.9	0.030	0.11
FRU185-30F	1.85	3.70	8.7	40	30	1.0	0.030	0.09
FRU250-30F	2.50	5.00	10.3	40	30	1.2	0.020	0.07
FRU300-30F	3.00	6.00	10.8	40	30	2.0	0.020	0.08
FRU400-30F	4.00	8.00	12.7	40	30	2.5	0.010	0.05
FRU500-30F	5.00	10.00	14.5	40	30	3.0	0.010	0.05
FRU600-30F	6.00	12.00	16.0	40	30	3.5	0.005	0.04
FRU700-30F	7.00	14.00	17.5	40	30	3.8	0.005	0.03
FRU800-30F	8.00	16.00	18.8	40	30	4.0	0.005	0.02
FRU900-30F	9.00	18.00	20.0	40	30	4.2	0.005	0.02

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.

V_{MAX}=Maximum voltage device can withstand without damage at its rated current.

I_{MAX}= Maximum fault current device can withstand without damage at rated voltage (V_{MAX}).

P_d=Typical power dissipated from device when in tripped state in 23°C still air environment.

R_{MIN}=Minimum device resistance at 23°C.

R_{1MAX}=Maximum device resistance at 23°C, 1 hour after tripping.

Physical specifications:

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

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

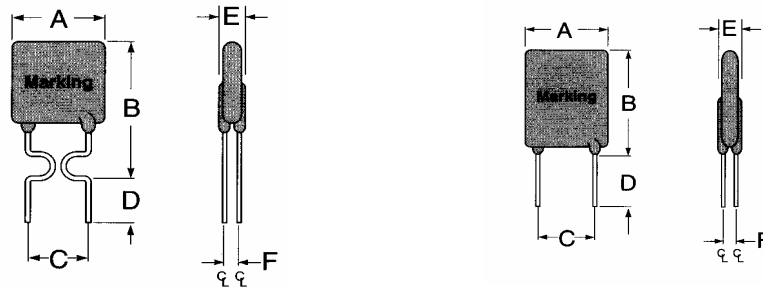
Soldering characteristics:MIL-STD-202, Method 208E.

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

NOTE : Specification subject to change without notice.



4. Production Dimensions (millimeter)

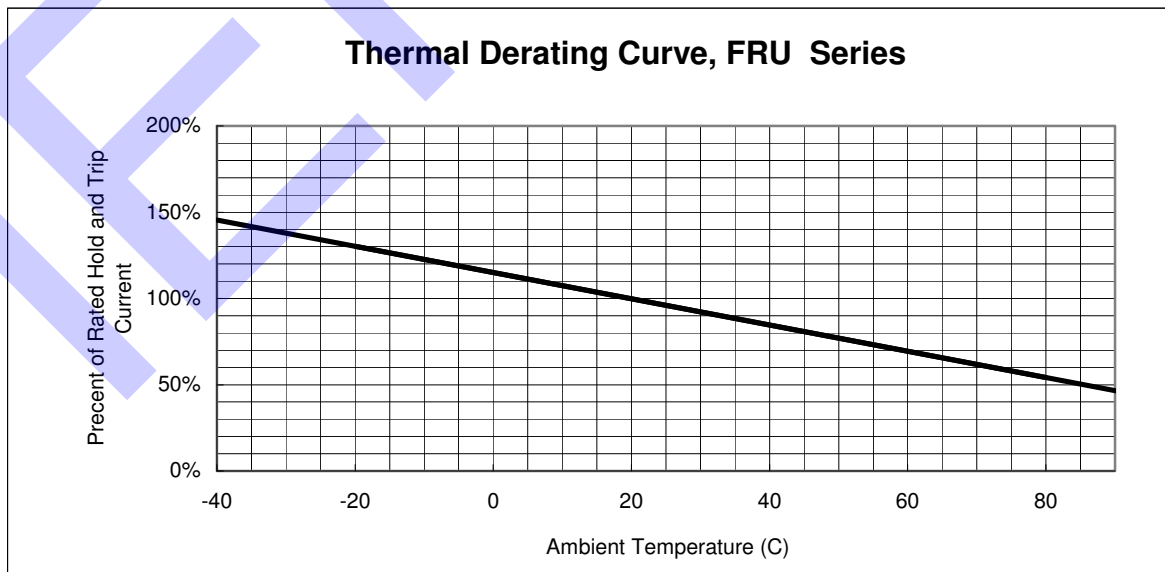


FRU 090-30F ~ FRU 250-30F
 Lead Size: 24AWG
 Φ 0.51 mm Diameter

FRU 300-30F ~ FRU 900-30F
 Lead Size: 20AWG
 Φ 0.81 mm Diameter

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

5. Thermal Derating Curve

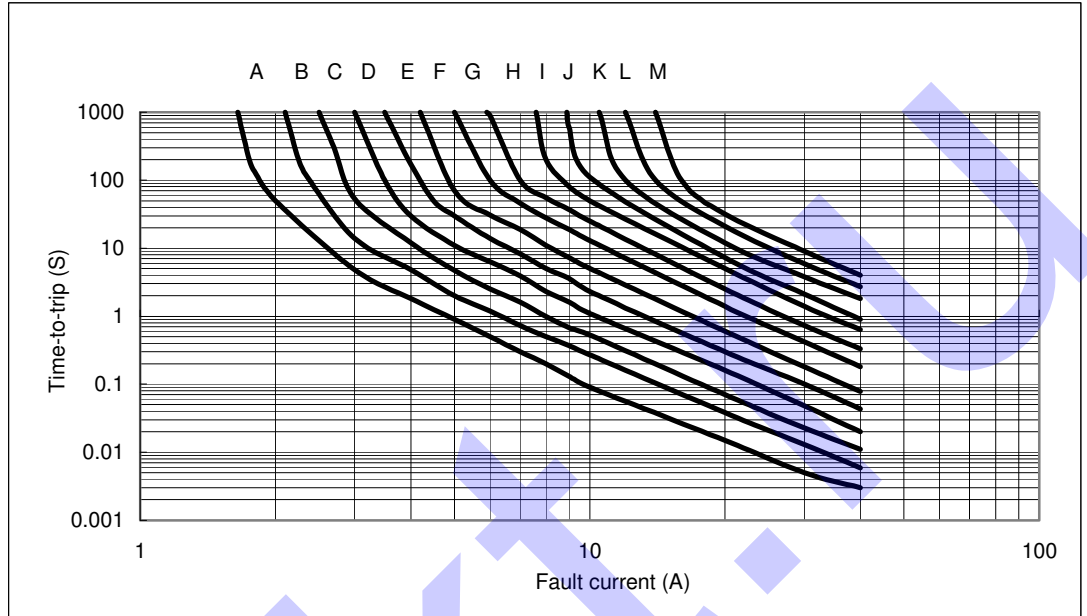


NOTE : Specification subject to change without notice.



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



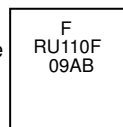
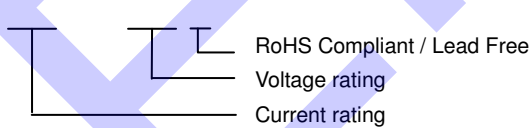
7. Material Specification

Lead material : FRU090-30F~FRU250-30F Tin plated copper, 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

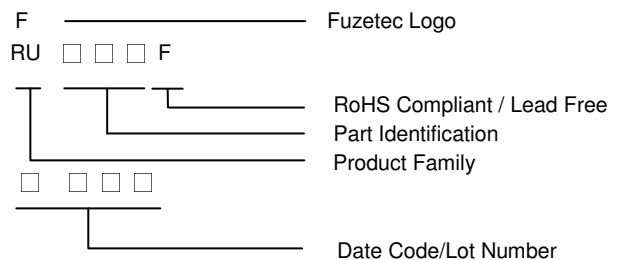
Part Numbering System

F R U □ □ □ - □ □ F



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.

