

RFE  FUZETEC	NO.	PQ15-101E		
Product Specification and Approval Sheet	Version	1	Page	1/3

Radial Leaded PTC Resettable Fuse: FRT Series

1. Summary

- (a) **RoHS Compliant (Lead Free) Product**
- (b) **Applications: IEEE 1394 FireWire, Computers & Consumer electronics**
- (c) **Product Features: Fast trip time, Lower Trip-to-hold Ratio, Radial-leaded product ideal for up to 36V_{DC}**
- (d) **Operation Current: 0.50A~2.50A**
- (e) **Maximum Voltage: 36V_{DC}**
- (f) **Temperature Range: -40°C to 85°C**

2. Agency Recognition

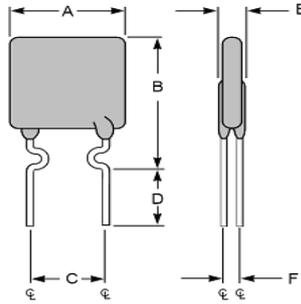
UL: File No. E211981
C-UL: File No. E211981
TÜV: File No. R50004084

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 $5 \times I_H$, s	I_{MAX} , A	V_{MAX} , V _{DC}	P_d , W	R_{MIN}	R_{1MAX}
							Ohm	Ohm
FRT050-33F	0.50	1.10	5.0	40	36	0.67	0.140	0.448
FRT075-33F	0.75	1.50	4.0	40	36	0.71	0.115	0.368
FRT090-33F	0.90	1.80	3.5	40	36	0.74	0.090	0.288
FRT120-33F	1.20	2.30	3.5	40	36	0.78	0.074	0.180
FRT135-33F	1.35	2.50	4.5	40	36	0.84	0.059	0.143
FRT160-33F	1.60	2.75	4.5	40	36	0.86	0.041	0.131
FRT190-33F	1.90	3.00	3.5	40	36	0.90	0.045	0.092
FRT220-33F	2.20	3.50	6.5	40	36	0.95	0.025	0.080
FRT250-33F	2.50	4.00	8.0	40	36	0.99	0.020	0.064

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: Tin plated copper clad steel, 24 AWG.
 Soldering characteristics: MIL-STD-202, Method 208E.
 Insulating coating: Flame retardant epoxy, meets UL-94V-0 requirement.

4. Production Dimensions (millimeter)

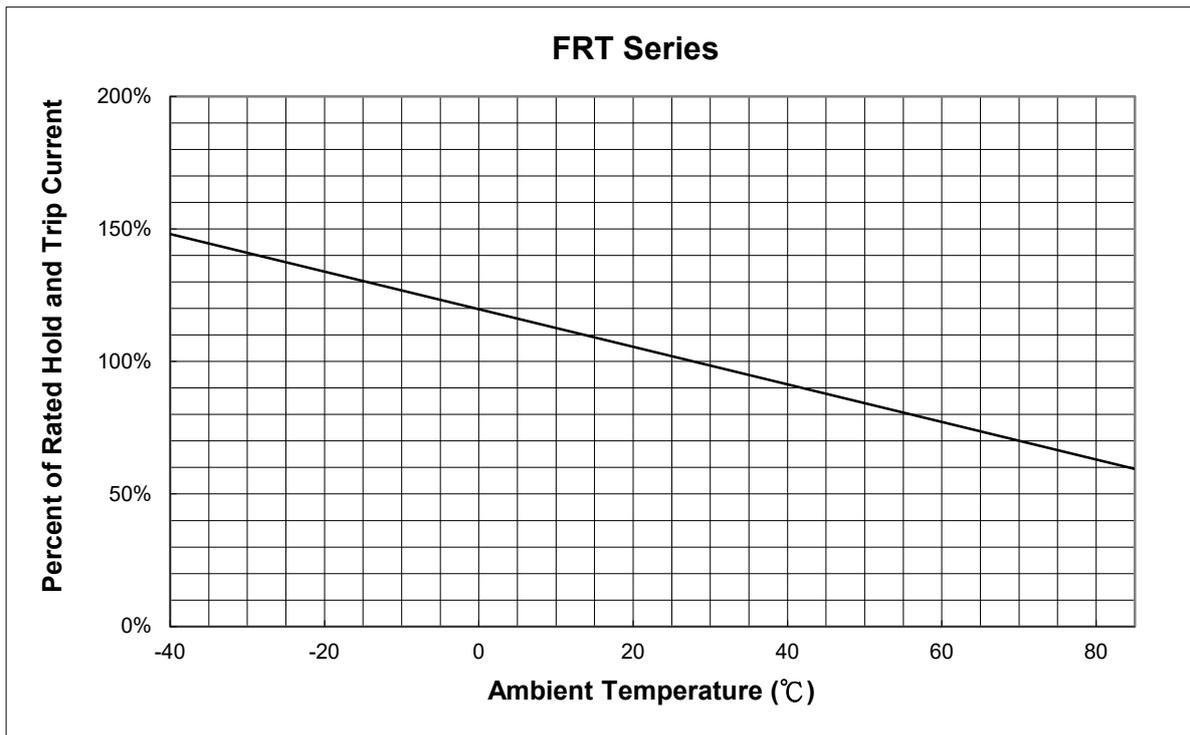


Lead Size: 24AWG

φ0.51 mm Diameter

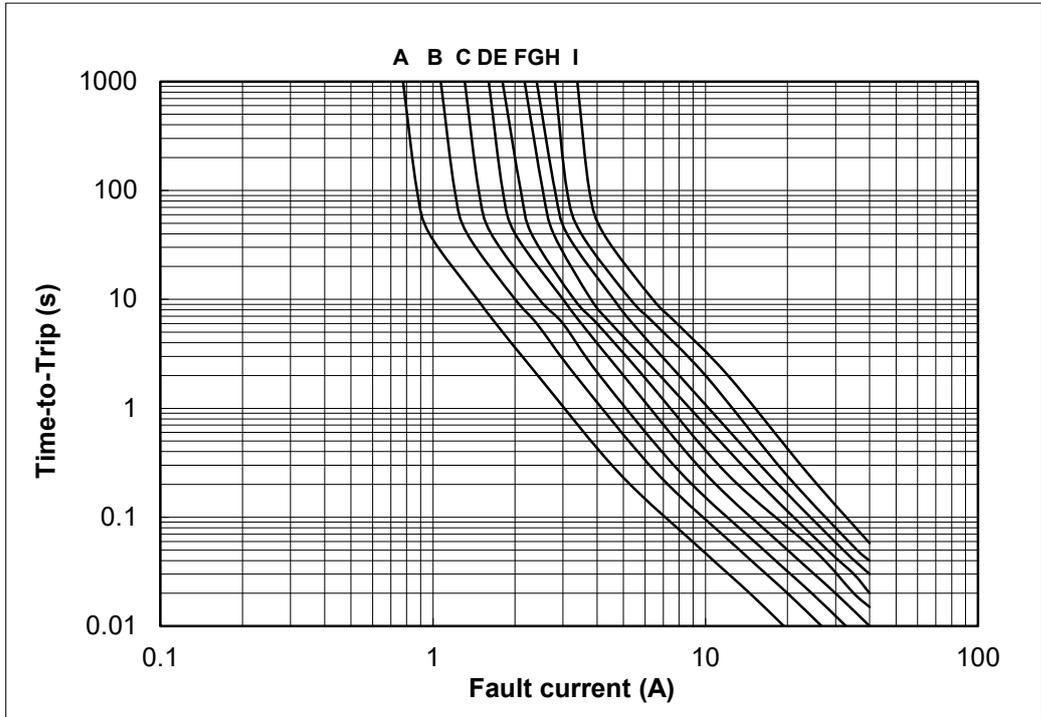
Part Number	A	B	C	D	E	F
	Maximum	Maximum	Typical	Minimum	Maximum	Typical
FRT050-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT075-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT090-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT120-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT135-33F	7.4	14.2	5.1	7.6	3.0	1.1
FRT160-33F	7.4	14.0	5.1	7.6	3.0	1.1
FRT190-33F	9.0	13.5	5.1	7.6	3.0	1.1
FRT220-33F	10.0	17.0	5.1	7.6	3.0	1.1
FRT250-33F	10.0	19.5	5.1	7.6	3.0	1.1

5. Thermal Derating Curve



6. Typical Time-to-Trip at 23°C

- A= FRT050-33F
- B= FRT075-33F
- C= FRT090-33F
- D= FRT120-33F
- E= FRT135-33F
- F= FRT160-33F
- G= FRT190-33F
- H= FRT220-33F
- I= FRT250-33F

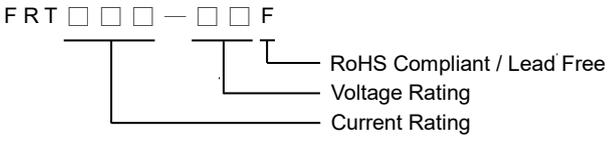


7. Material Specification

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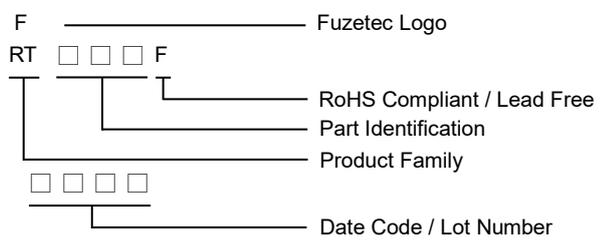
8. Part Numbering and Marking System

Part Numbering System



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.

Designed and manufactured by Fuzetec Technology Co., Ltd., offered by RFE International, Inc.

NOTE: Specification subject to change without notice.