

## FRT Series



**RoHS Compliant & Lead Free**



**Application:** IEEE 1394 Firewire, Computers & Consumer electronics

**Product Features:** Fast trip time, Lower Trip-to-hold Ratio, Radial-leaded product ideal for up to 36V<sub>DC</sub>

**Operation Current:** 0.5A~2.5A

**Maximum Voltage:** 36V<sub>DC</sub>

**Temperature Range:** -40°C to 85°C

**Agency Recognition:** UL(E211981)

C-UL(E211981)

TÜV (R50004084)

### Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Max.Time To Trip	Max. Current	Rated Voltage	Typ. Power	Resistance	
							R <sub>MIN</sub>	R <sub>1 MAX</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	Ohms	Ohms
FRT050-33F	0.50	1.00	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

Physical specifications:

Lead material: Tin plated copper, 24 AWG.

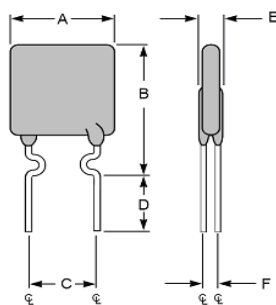
Soldering characteristics: MIL-STD-202, Method 208E.

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

### Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	148%	134%	120%	100%	98%	90%	84%	78%	70%	59%

### FRT Product Dimensions (mm)

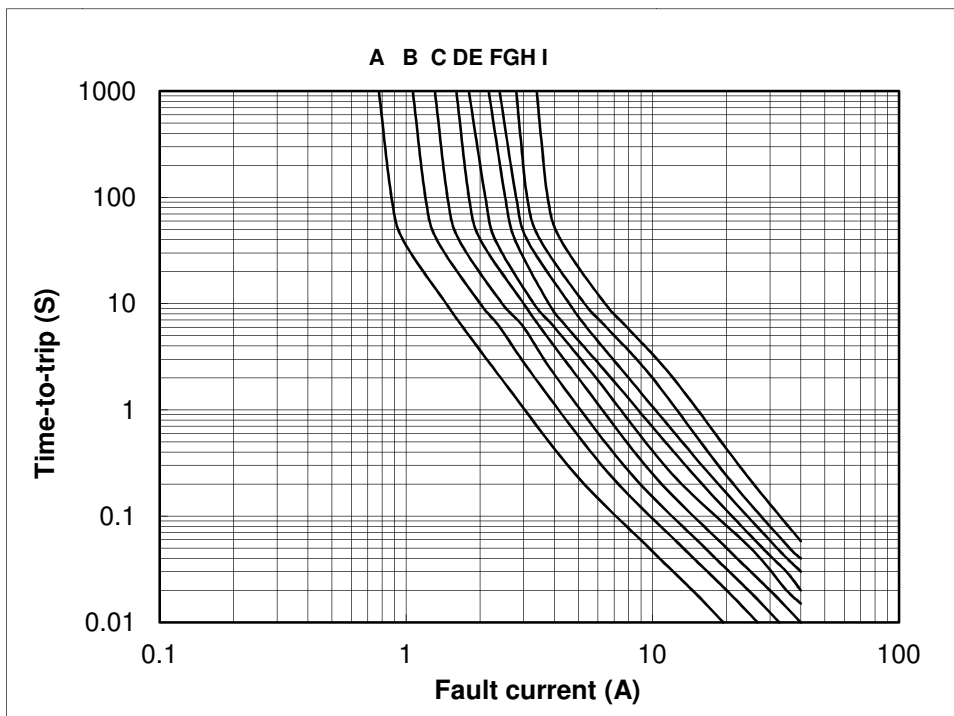


Lead Size: 24AWG,  
Φ 0.51 mm Diameter

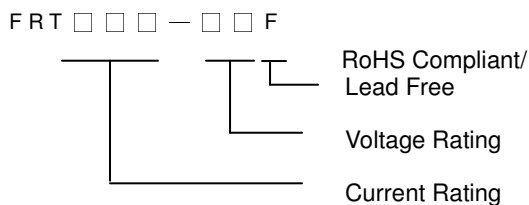
Part Number	A	B	C	D	E	F
	Max	Max	Typ	Min	Max	Typ
FRT050-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT075-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT090-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT120-33F	7.4	12.2	5.1	7.6	3.0	1.1
FRT135-33F	7.4	14.2	5.1	7.6	3.0	1.1
FRT160-33F	7.4	14.0	5.1	7.6	3.0	1.1
FRT190-33F	9.0	13.5	5.1	7.6	3.0	1.1
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

## Typical Time-To-Trip at 23°C

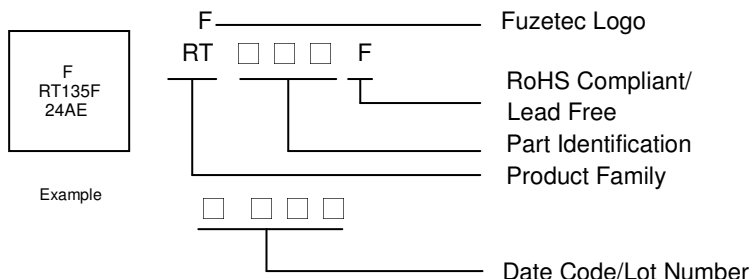
- A = FRT 050-33F
- B = FRT 075-33F
- C = FRT 090-33F
- D = FRT 120-33F
- E = FRT 135-33F
- F = FRT 160-33F
- G = FRT 190-33F
- H = FRT 220-33F
- I = FRT 250-33F



### Part Numbering System



### Part Marking System



### Standard Package

FRT050-33F~FRT250-33F : 500 Pcs/Bag, 3.0K Reel/Tape

- 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.

