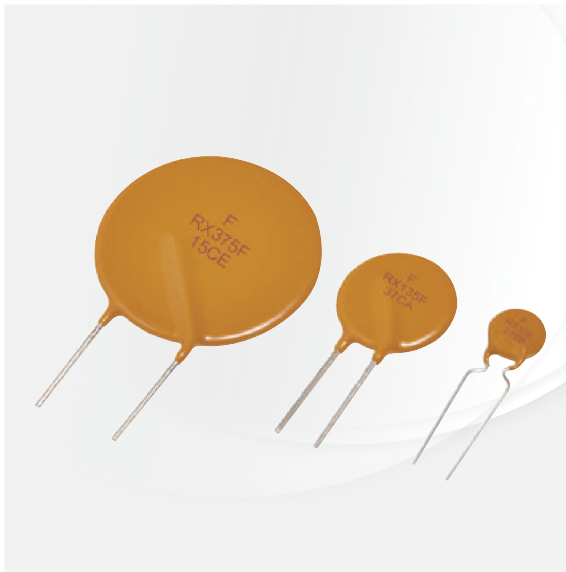


FRX Series



Application

Wide variety of electronic equipment

Product Features

Low hold current, Solid state Radial-leaded product ideal for up to 60V_{DC}



Operation Current

0.05A ~ 3.75A

Maximum Voltage

60V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

| AGENCY | AGENCY FILE NUMBER |
|--------|--------------------|
| | UL(E211981) |
| | C-UL(E211981) |
| | TÜV (R50004084) |



SVHC Compliant

Electrical Characteristics (23°C)

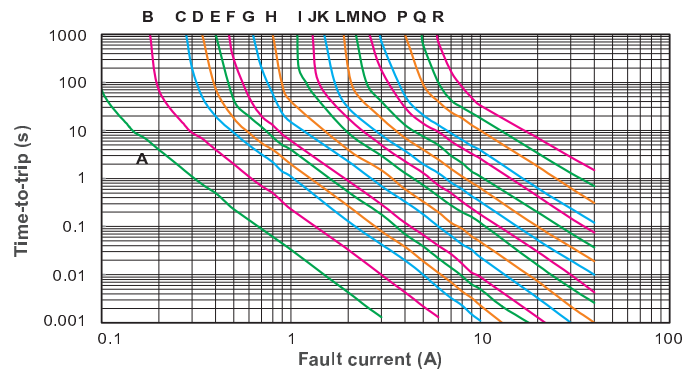
| Part Number | Hold Current | Trip Current | Max. Time to trip | Max. Current | Rated Voltage | Typ. Power | Resistance | |
|-------------|--------------|--------------|-------------------|--------------|---------------|------------|------------------|-------------------|
| | | | | | | | R _{MIN} | R _{1MAX} |
| | | | | | | | Ohms | Ohms |
| FRX005-60F | 0.05 | 0.10 | 5.0 | 40 | 60 | 0.26 | 7.30 | 20.00 |
| FRX010-60F | 0.10 | 0.20 | 4.0 | 40 | 60 | 0.38 | 2.50 | 7.50 |
| FRX017-60F | 0.17 | 0.34 | 3.0 | 40 | 60 | 0.48 | 2.00 | 8.00 |
| FRX020-60F | 0.20 | 0.40 | 2.2 | 40 | 60 | 0.41 | 1.83 | 4.40 |
| FRX025-60F | 0.25 | 0.50 | 2.5 | 40 | 60 | 0.45 | 1.25 | 3.00 |
| FRX030-60F | 0.30 | 0.60 | 3.0 | 40 | 60 | 0.49 | 0.88 | 2.10 |
| FRX040-60F | 0.40 | 0.80 | 3.8 | 40 | 60 | 0.56 | 0.55 | 1.29 |
| FRX050-60F | 0.50 | 1.00 | 4.0 | 40 | 60 | 0.77 | 0.50 | 1.17 |
| FRX065-60F | 0.65 | 1.30 | 5.3 | 40 | 60 | 0.88 | 0.31 | 0.72 |
| FRX075-60F | 0.75 | 1.50 | 6.3 | 40 | 60 | 0.92 | 0.25 | 0.60 |
| FRX090-60F | 0.90 | 1.80 | 7.2 | 40 | 60 | 0.99 | 0.20 | 0.47 |
| FRX110-60F | 1.10 | 2.20 | 8.2 | 40 | 60 | 1.50 | 0.15 | 0.38 |
| FRX135-60F | 1.35 | 2.70 | 9.6 | 40 | 60 | 1.70 | 0.12 | 0.30 |
| FRX160-60F | 1.60 | 3.20 | 11.4 | 40 | 60 | 1.90 | 0.09 | 0.22 |
| FRX185-60F | 1.85 | 3.70 | 12.6 | 40 | 60 | 2.10 | 0.08 | 0.19 |
| FRX250-60F | 2.50 | 5.00 | 15.6 | 40 | 60 | 2.50 | 0.05 | 0.13 |
| FRX300-60F | 3.00 | 6.00 | 19.8 | 40 | 60 | 2.80 | 0.04 | 0.10 |
| FRX375-60F | 3.75 | 7.50 | 24.0 | 40 | 60 | 3.20 | 0.03 | 0.08 |

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 % | 158% | 138% | 119% | 100% | 90% | 81% | 70% | 60% | 50% | 36% |

Typical Time-To-Trip at 23°C

- A = FRX005-60F J = FRX075-60F
- B = FRX010-60F K = FRX090-60F
- C = FRX017-60F L = FRX110-60F
- D = FRX020-60F M = FRX135-60F
- E = FRX025-60F N = FRX160-60F
- F = FRX030-60F O = FRX185-60F
- G = FRX040-60F P = FRX250-60F
- H = FRX050-60F Q = FRX300-60F
- I = FRX065-60F R = FRX375-60F



FRX Product Dimensions (mm)

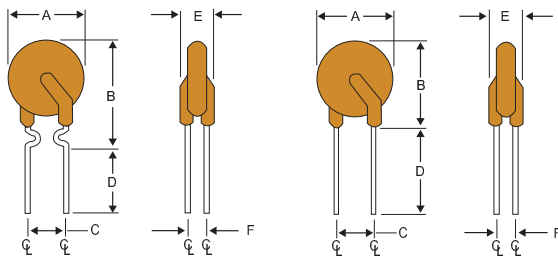
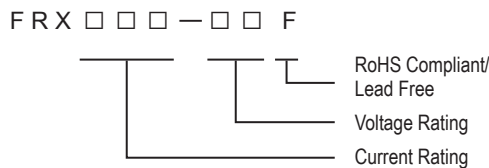


Fig.1
Lead Size : 24AWG
Φ 0.51 mm Diameter

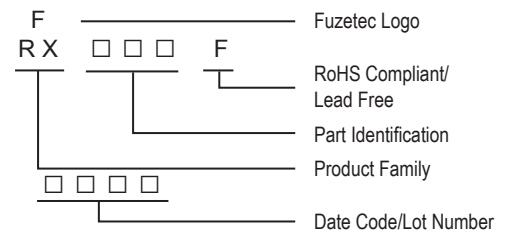
Fig.2
Lead Size : 20AWG
Φ 0.81 mm Diameter

| Part Number | Fig. | A | B | C | D | E | F |
|-------------|------|------|------|------|------|------|------|
| | | Max. | Max. | Typ. | Min. | Max. | Typ. |
| FRX005-60F | 1 | 7.4 | 12.7 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX010-60F | 1 | 7.4 | 12.7 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX017-60F | 1 | 7.4 | 12.7 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX020-60F | 1 | 7.4 | 12.7 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX025-60F | 1 | 7.4 | 12.7 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX030-60F | 1 | 7.4 | 13.0 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX040-60F | 1 | 7.6 | 13.5 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX050-60F | 1 | 7.9 | 13.7 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX065-60F | 1 | 9.7 | 14.5 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX075-60F | 1 | 10.4 | 15.2 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX090-60F | 1 | 11.7 | 15.8 | 5.1 | 7.6 | 3.1 | 1.1 |
| FRX110-60F | 2 | 13.0 | 18.0 | 5.1 | 7.6 | 3.1 | 1.4 |
| FRX135-60F | 2 | 14.5 | 19.6 | 5.1 | 7.6 | 3.1 | 1.4 |
| FRX160-60F | 2 | 16.3 | 21.3 | 5.1 | 7.6 | 3.1 | 1.4 |
| FRX185-60F | 2 | 17.8 | 22.9 | 5.1 | 7.6 | 3.1 | 1.4 |
| FRX250-60F | 2 | 21.3 | 26.4 | 10.2 | 7.6 | 3.1 | 1.4 |
| FRX300-60F | 2 | 24.9 | 30.0 | 10.2 | 7.6 | 3.1 | 1.4 |
| FRX375-60F | 2 | 28.5 | 33.5 | 10.2 | 7.6 | 3.1 | 1.4 |

Part Numbering System



Part Marking System



Package Information

| Part Number | Standard Package |
|-----------------------|-------------------------------|
| FRX005-60F~FRX050-60F | : 500 Pcs/Bag, 3.0K Reel/Tape |
| FRX065-60F~FRX090-60F | : 300 Pcs/Bag, 3.0K Reel/Tape |
| FRX110-60F | : 300 Pcs/Bag, 1.5K Reel/Tape |
| FRX135-60F~FRX185-60F | : 200 Pcs/Bag, 1.5K Reel/Tape |
| FRX250-60F~FRX375-60F | : 100 Pcs/Bag, 1.0K Reel/Tape |

Physical specifications

| | |
|---------------------------|--|
| Lead material | FRX005-60F~FRX090-60F Tin plated copper, 24 AWG. |
| | FRX110-60F~FRX375-60F Tin plated copper, 20 AWG. |
| Soldering characteristics | MIL-STD-202, Method 208E. |
| Insulating coating | Flame retardant epoxy, meets UL-94V-0 requirement. |

- 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.

