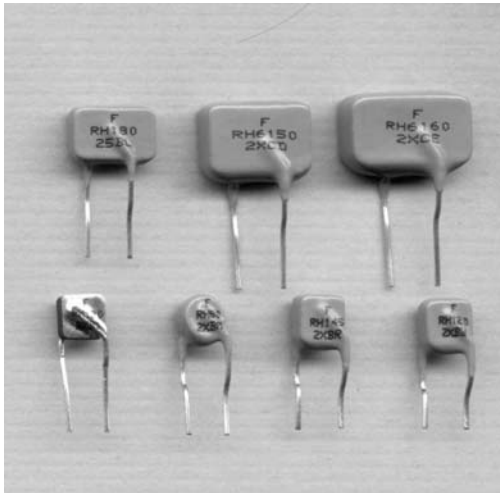


# Radial Leaded PTC FRH Series



## Application:

Telecommunication and Data transmitting

## Product Features:

Low hold current, Solid state

Radial-leaded product ideal for up to  
60V/250V/600V

**Operation Current:** 0.08 A~0.18A

**Maximum Voltage:** 60V/250V/600V

**Temperature Range:** -40°C to 85°C

**Agency Recognition:** UL(E211981)

C-UL(E211981)

TÜV(R50021651)

## Electrical Characteristics(23°C)

Part Number	Hold Current	Maximum Current	Max Oper. Voltage	Max Int. Voltage	Resistance Tolerance	
					R MIN	R1MAX
	I <sub>H</sub> , A	I <sub>MAX</sub> , A	V <sub>MAX</sub> , V	V <sub>I MAX</sub> , V	Ω	Ω
FRH080-250U	0.08	3.0	60	250	14.0	33.0
FRH080-250	0.08	3.0	60	250	14.0	33.0
FRH110-250U	0.11	3.0	60	250	5.0	16.0
FRH110-250	0.11	3.0	60	250	5.0	16.0
FRH120-250U	0.12	3.0	60	250	6.0	16.0
FRH120-250	0.12	3.0	60	250	4.0	16.0
FRH145-250U	0.15	3.0	60	250	3.5	12.0
FRH145-250	0.15	3.0	60	250	3.0	12.0
FRH180-250U	0.18	10.0	60	250	0.8	4.0
FRH180-250	0.18	10.0	60	250	0.8	4.0
FRH150-600	0.15	3.0	60	600	6.0	22.0
FRH160-600	0.16	3.0	60	600	4.0	18.0

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.

V<sub>MAX</sub>=Maximum voltage device can withstand without damage at its rated current.

V<sub>I-MAX</sub> = Maximum interrupt voltage device can withstand for short period of time. (Not for long term.)

I<sub>MAX</sub>= Maximum fault current device can withstand without damage at rated voltage (V max).

P<sub>d</sub>=Typical power dissipated from device when in the 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: FRH080-250 ~ FRH180-250 Tin plated copper, 22 AWG.

FRH150-600 ~ FRH160-600 Tin plated copper, 22 AWG.

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

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

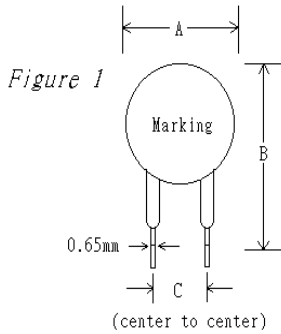
**NOTE : All FRH products are designed to assist equipment to pass ITU, UL1950 or GR1089 specification.**

**CAUTION : FRH devices are not intended for continuous use of Line Voltage such as 120 VAC~ 600VAC and above.**

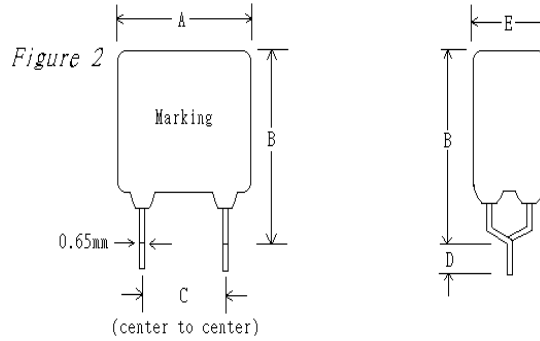
# Radial Leaded PTC FRH Series



## FRH Product Dimensions (millimeters)



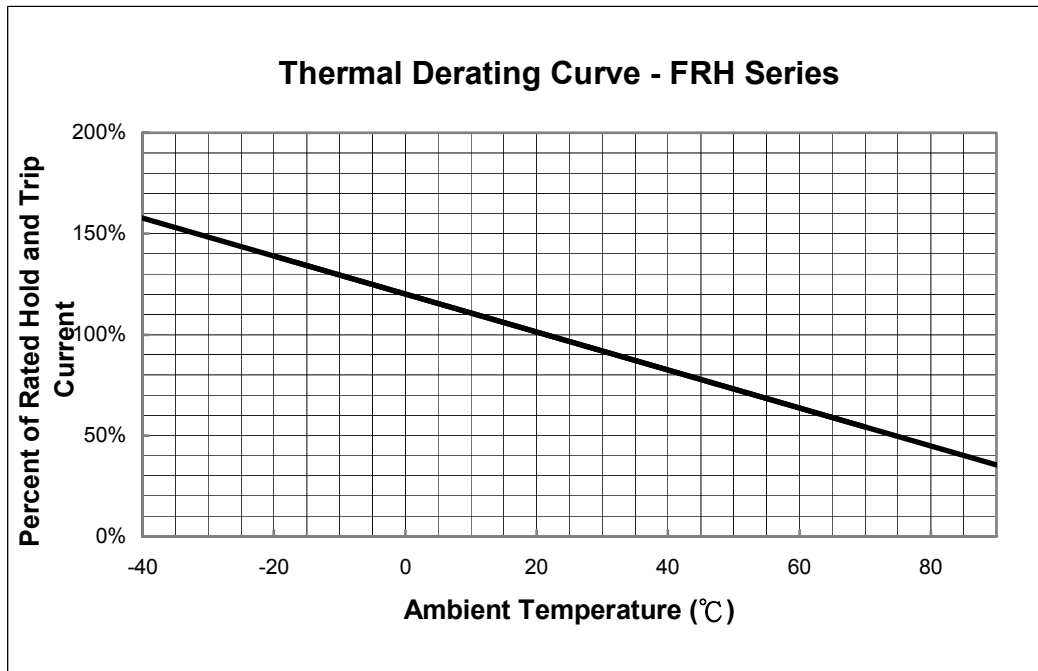
Lead Size: 22AWG,  
Φ 0.65 mm Diameter



Lead Size: 22AWG,  
Φ 0.65 mm Diameter

Part Number	Fig	A	B	C	D	E
		Maximum	Maximum	Typical	Minimum	Maximum
FRH080-250U	1	5.1	9.1	5.0	4.7	3.8
FRH080-250	1	5.8	9.6	5.0	4.7	4.6
FRH110-250U	1	5.9	9.4	5.0	4.7	3.8
FRH110-250	1	6.8	9.9	5.0	4.7	4.6
FRH120-250U	2	6.0	10.0	5.0	4.7	3.8
FRH120-250	2	6.5	11.0	5.0	4.7	4.6
FRH145-250U	2	6.0	10.0	5.0	4.7	3.8
FRH145-250	2	6.5	11.0	5.0	4.7	4.6
FRH180-250U	2	10.4	12.6	5.0	4.7	3.8
FRH180-250	2	10.9	12.6	5.0	4.7	4.6
FRH150-600	2	13.5	12.6	5.0	4.7	6.0
FRH160-600	2	16.0	12.6	5.0	4.7	6.0

## Thermal Derating Curve

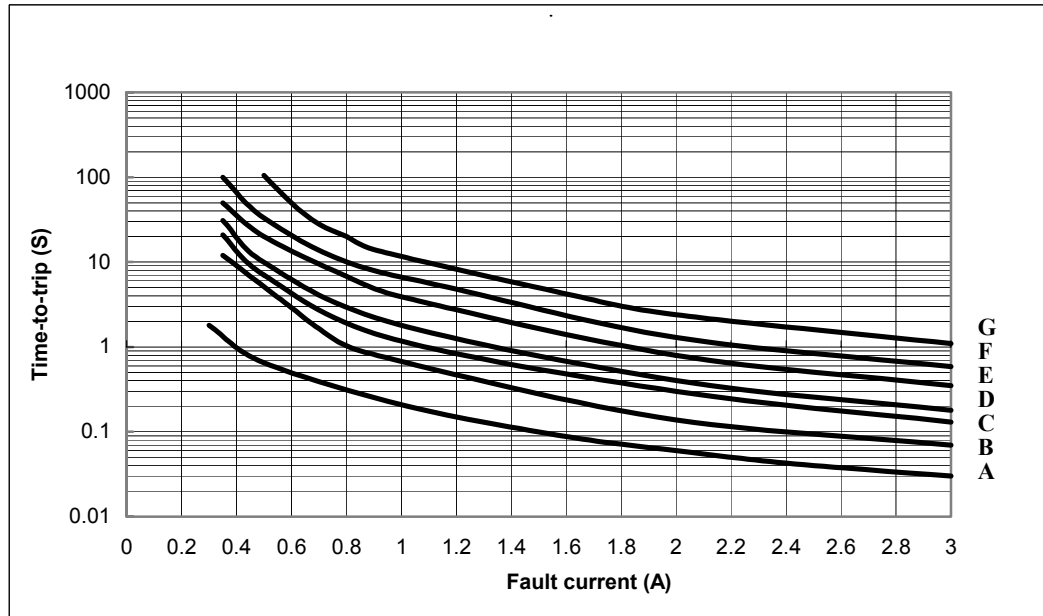


# Radial Leaded PTC FRH Series



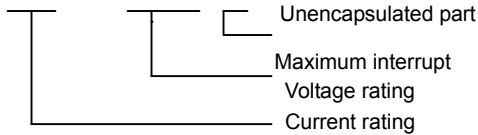
## Typical Time-To-Trip at 23°C

- A= FRH080-250(U)
- B= FRH110-250(U)
- C= FRH120-250(U)
- D= FRH145-250(U)
- E= FRH180-250(U)
- F= FRH150-600
- G= FRH160-600



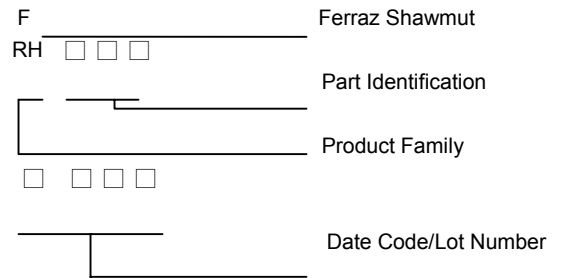
## Part Numbering System

FRH □ □ □ - □ □ □ U



Example

## Part Marking System



\* FRH150-600 Marking: RH6150

\* FRH160-600 Marking: RH6160

## Standard Package

P/N	Pcs /Bag	Reel/Tape
FRH080-250U	300	1.5K
FRH080-250	300	1.5K
FRH110-250U	300	1.5K
FRH110-250	300	1.5K
FRH120-250U	300	1.5K
FRH120-250	300	1.5K

P/N	Pcs /Bag	Reel/Tape
FRH145-250U	300	1.5K
FRH145-250	300	1.5K
FRH180-250U	200	1.2K
FRH180-250	200	1.2K
FRH150-600	100	600
FRH160-600	100	600

**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.