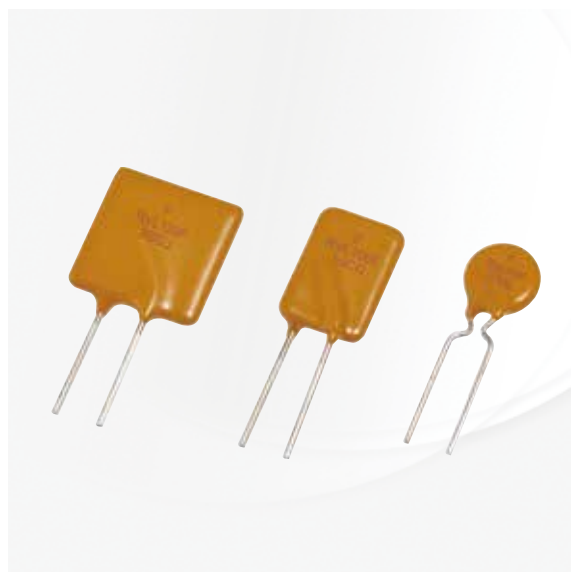


FRVL Series



Application

Line Voltage Power Supply, Transformer and Appliances Product

Features

Solid state, Radial leaded product ideal for up to 120V_{AC/DC}



Maximum Operation Current

0.10A~3.75A

Maximum Voltage

120V_{AC/DC}

Maximum Interrupt Voltage

135V_{AC/DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50122733)



SVHC Compliant

Electrical Characteristics (23°C)

Part Number	Hold Current I_H , A	Trip Current I_T , A	Max. Time to trip at 5x I_H , s	Max. Current I_{MAX} , A	Max. Oper. Voltage V_{MAX} , V _{AC/DC}	Max. Int. Voltage V_{I-MAX} , V _{AC/DC}	Typ. Power Pd, W	Resistance	
								R _{MIN} Ohms	R _{1MAX} Ohms
FRVL010-120F	0.10	0.20	10.0	2.0	120	135	0.84	3.00	7.50
FRVL017-120F	0.17	0.34	10.0	2.0	120	135	0.84	2.00	7.00
FRVL020-120F	0.20	0.40	9.0	2.0	120	135	1.08	1.83	4.40
FRVL025-120F	0.25	0.50	7.5	3.0	120	135	1.08	1.25	3.00
FRVL030-120F	0.30	0.60	8.5	3.0	120	135	1.44	0.88	2.10
FRVL040-120F	0.40	0.80	6.5	3.0	120	135	1.44	0.55	1.29
FRVL050-120F	0.50	1.00	6.0	3.0	120	135	1.56	0.50	1.17
FRVL065-120F	0.65	1.30	5.7	5.0	120	135	1.68	0.31	0.72
FRVL070-120F	0.75	1.50	6.3	5.0	120	135	1.80	0.25	0.60
FRVL075-120F	0.75	1.50	15.0	7.5	120	135	2.64	0.25	0.69
FRVL090-120F	0.90	1.80	7.2	5.0	120	135	1.80	0.20	0.47
FRVL100-120F	1.00	2.00	15.0	10.0	120	135	2.64	0.18	0.47
FRVL110-120F	1.10	2.20	8.2	8.0	120	135	2.28	0.15	0.38
FRVL125-120F	1.25	2.50	20.0	12.5	120	135	2.88	0.11	0.33
FRVL130-120F	1.35	2.70	9.6	10.0	120	135	2.64	0.12	0.30
FRVL135-120F	1.35	2.70	20.0	13.5	120	135	3.12	0.11	0.30
FRVL160-120F	1.60	3.20	11.4	12.0	120	135	3.12	0.09	0.22
FRVL185-120F	1.85	3.70	12.6	12.0	120	135	3.36	0.08	0.19
FRVL200-120F	2.00	4.20	36.0	20.0	120	135	4.32	0.08	0.21
FRVL250-120F	2.50	5.00	15.6	15.0	120	135	4.44	0.05	0.13
FRVL300-120F	3.00	6.00	19.8	17.0	120	135	4.56	0.04	0.10
FRVL375-120F	3.75	7.50	24.0	20.0	120	135	4.80	0.03	0.08

Thermal Derating for PPTC Device at Various Ambient Temperatures

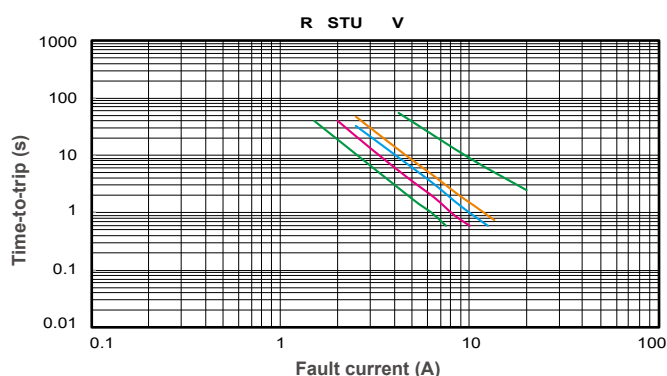
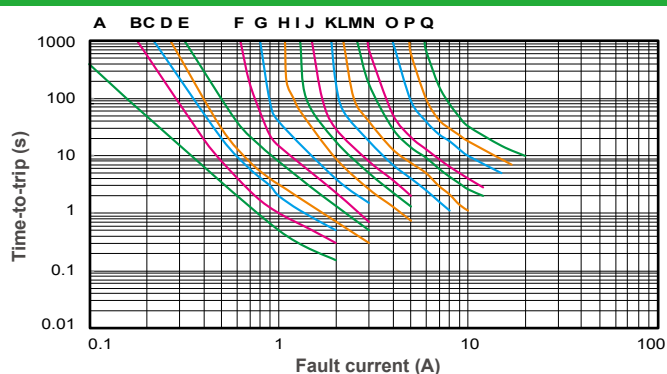
TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	158%	138%	119%	100%	90%	80%	70%	60%	50%	38%

IV - Radial Leaded PPTC

Typical Time-To-Trip at 23°C

A = FRVL010-120F	J = FRVL090-120F
B = FRVL017-120F	K = FRVL110-120F
C = FRVL020-120F	L = FRVL130-120F
D = FRVL025-120F	M = FRVL160-120F
E = FRVL030-120F	N = FRVL185-120F
F = FRVL040-120F	O = FRVL250-120F
G = FRVL050-120F	P = FRVL300-120F
H = FRVL065-120F	Q = FRVL375-120F
I = FRVL070-120F	

R = FRVL075-120F
S = FRVL100-120F
T = FRVL125-120F
U = FRVL135-120F
V = FRVL200-120F



FRVL Product Dimensions (mm)

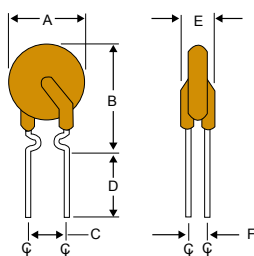


Fig.1
Lead Size : 24AWG
Φ 0.51 mm Diameter

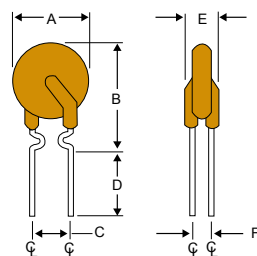


Fig.2
Lead Size : 22AWG
Φ 0.65 mm Diameter

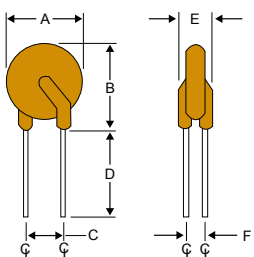


Fig.3
Lead Size : 20AWG
Φ 0.81 mm Diameter

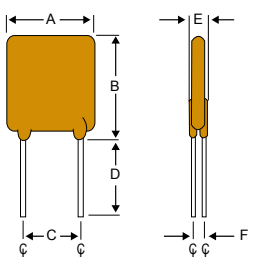
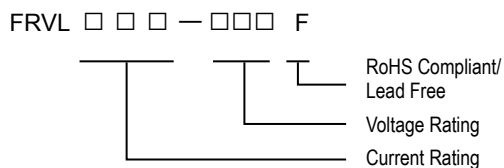


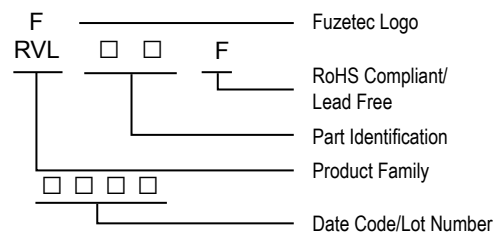
Fig.4
Lead Size : 20AWG
Φ 0.81 mm Diameter

Part Number	Fig.	A	B	C	D	E	F
		Max.	Max.	Typ.	Min.	Max.	Typ.
FRVL010-120F	1	7.9	13.0	5.1	7.6	3.8	2.2
FRVL017-120F	1	7.9	13.0	5.1	7.6	3.8	2.2
FRVL020-120F	2	7.9	13.0	5.1	7.6	3.8	2.2
FRVL025-120F	2	7.9	13.0	5.1	7.6	3.8	2.2
FRVL030-120F	2	7.9	13.0	5.1	7.6	3.8	2.2
FRVL040-120F	2	8.2	14.2	5.1	7.6	3.8	2.2
FRVL050-120F	2	9.2	14.9	5.1	7.6	3.8	2.2
FRVL065-120F	2	9.7	14.9	5.1	7.6	3.8	2.2
FRVL070-120F	2	10.6	15.5	5.1	7.6	3.8	2.2
FRVL075-120F	4	10.9	17.0	5.1	7.6	4.1	2.2
FRVL090-120F	2	11.9	15.9	5.1	7.6	3.8	2.2
FRVL100-120F	4	11.5	20.1	5.1	7.6	4.1	2.2
FRVL110-120F	3	13.3	18.3	5.1	7.6	4.1	2.2
FRVL125-120F	4	14.0	21.7	5.1	7.6	4.1	2.2
FRVL130-120F	3	15.5	20.6	5.1	7.6	4.1	2.2
FRVL135-120F	4	16.3	21.7	5.1	7.6	4.1	2.2
FRVL160-120F	3	17.5	22.5	5.1	7.6	4.1	2.2
FRVL185-120F	3	19.9	24.9	5.1	7.6	4.1	2.2
FRVL200-120F	4	23.5	27.9	10.2	7.6	4.1	2.2
FRVL250-120F	3	22.5	27.5	10.2	7.6	4.1	2.2
FRVL300-120F	3	25.5	30.0	10.2	7.6	4.1	2.2
FRVL375-120F	3	29.5	34.0	10.2	7.6	4.1	2.2

Part Numbering System



Part Marking System



Package Information

Part Number	Standard Package
FRVL010-120F~FRVL050-120F	: 500 Pcs/Bag, 2.0K Reel/Tape
FRVL065-120F~FRVL075-120F	: 300 Pcs/Bag, 1.5K Reel/Tape
FRVL090-120F	: 300 Pcs/Bag, 2.0K Reel/Tape
FRVL100-120F~FRVL110-120F	: 300 Pcs/Bag, 1.5K Reel/Tape
FRVL125-120F~FRVL135-120F	: 200 Pcs/Bag, 1.0K Reel/Tape
FRVL160-120F	: 200 Pcs/Bag
FRVL185-120F~FRVL375-120F	: 100 Pcs/Bag

Physical specifications

Lead material	FRVL010-120F Tin plated copper clad steel, 24AWG.
	FRVL017-120F Tin plated copper, 24AWG.
	FRVL020-120F~FRVL070-120F and FRVL090-120F Tin plated copper, 22AWG.
	FRVL075-120F and FRVL100-120F~FRVL375-120F Tin plated copper, 20AWG.
Soldering characteristics	MIL-STD-202, Method 208E.
Insulating coating	Flame retardant epoxy, meets UL-94V-0 requirement.

Warning :



- Each product should be carefully evaluated and tested for their suitability of application.
- 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, 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.