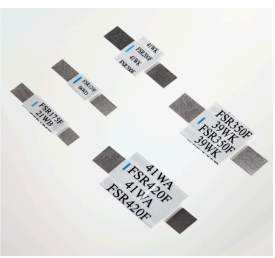
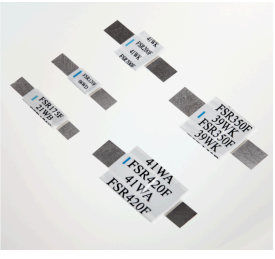


Fuzetec Battery Strap PPTC Resettable Fuses

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Axial Leaded PTC Resettable Fuse: FSR Series

1. Summary

- (a) **RoHS Compliant & Halogen Free**
- (b) **Applications: Rechargeable battery packs, Lithium cell and battery packs**
- (c) **Product Features: Low profile, Solid state**
- (d) **Operation Current: 1.2A~4.2A**
- (e) **Maximum Voltage: 15V~30Vdc**
- (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	Rated Voltage	Max. Current	Typ. Power	Resistance		
	I _H , A	I _T , A	at 5xI _H , S	V _{MAX} , VDC	I _{MAX} , A	P _d , W	R _{MIN}	R _{MAX}	R _{1MAX}
	Ohms	Ohms	Ohms						
FSR120F	1.20	2.70	5.0	15	100	1.2	0.085	0.160	0.220
FSR175F	1.75	3.80	5.0	15	100	1.5	0.050	0.090	0.120
FSR200F	2.00	4.40	4.0	30	100	1.9	0.030	0.060	0.100
FSR350F	3.50	6.30	3.0	30	100	2.5	0.017	0.031	0.050
FSR420F	4.20	7.60	6.0	30	100	2.9	0.012	0.024	0.040

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=Maximum 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:0.13mm nominal thickness, quarter-hard nickel.

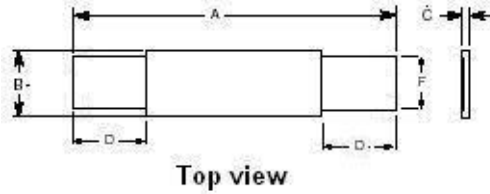
Insulating material: Polyester tape.

NOTE : Specification subject to change without notice.

2019/11/13

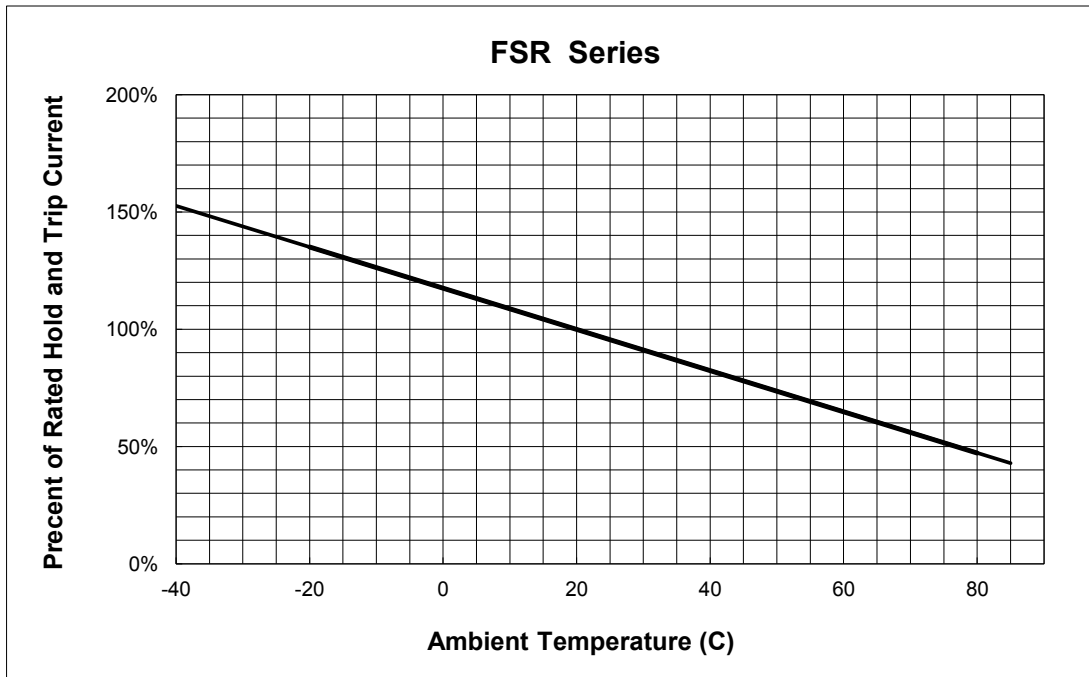


4. Production Dimensions (millimeter)



Part Number	A		B		C		D		F	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
FSR120F	19.9	22.1	4.9	5.2	0.6	1.0	5.5	7.5	3.9	4.1
FSR175F	20.9	23.1	4.9	5.2	0.6	1.0	4.1	5.5	3.9	4.1
FSR200F	21.3	23.4	10.2	11.0	0.5	1.1	5.0	7.6	4.8	5.4
FSR350F	28.4	31.8	13.0	13.5	0.5	1.1	6.3	8.9	5.9	6.1
FSR420F	30.6	32.4	12.9	13.6	0.5	1.1	5.0	7.5	5.9	6.1

5. Thermal Derating Curve

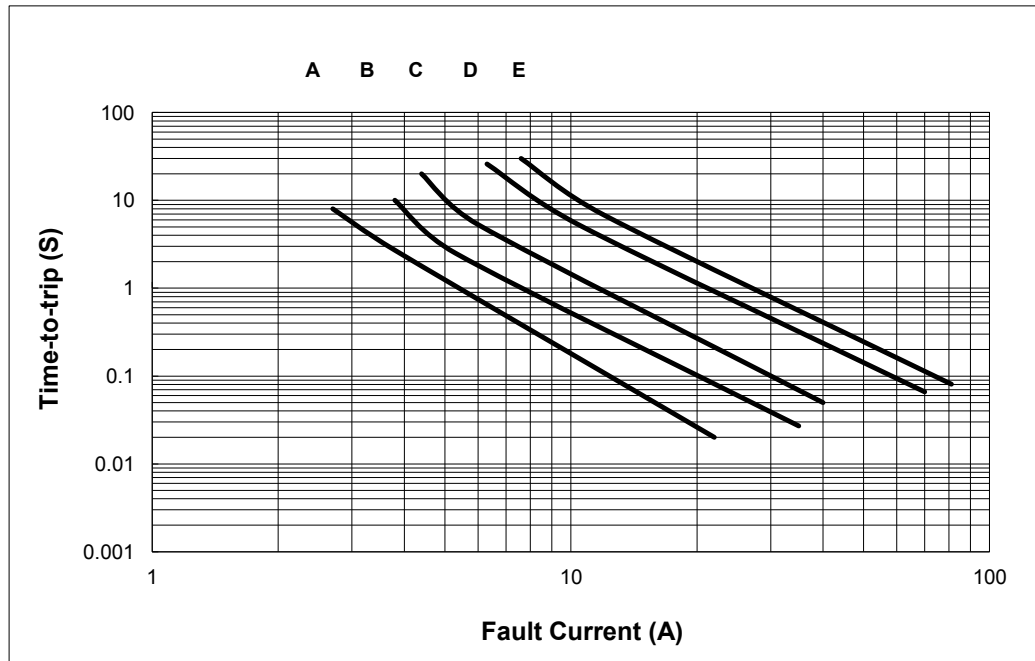


NOTE : Specification subject to change without notice.



6. Typical Time-To-Trip at 23°C

- A =FSR120F
- B =FSR175F
- C =FSR200F
- D =FSR350F
- E =FSR420F



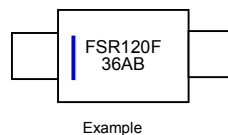
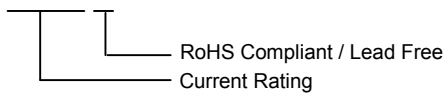
7. Material Specification

Lead material: 0.13 mm nominal thickness, quarter-hard nickel
 Insulating material: Polyester tape

8. Part Numbering and Marking System

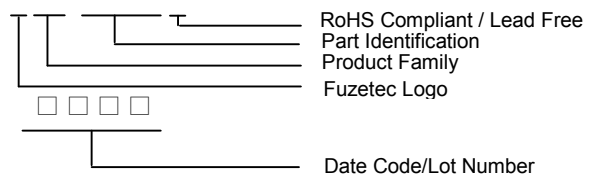
Part Numbering System

F S R □ □ □ F



Part Marking System

F S R □ □ □ F



- 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.[⚡]



NOTE : Specification subject to change without notice.

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 FUZETEC TECHNOLOGY CO., LTD.	NO.	PQ07-101E		
	Product Specification and Approval Sheet	Version	8	Page

Axial Leaded PTC Resettable Fuse: FLR Series

1. Summary

- (a) **RoHS Compliant & Halogen Free**
- (b) **Applications: Rechargeable battery packs, Lithium cell and battery packs**
- (c) **Product Features: Low profile, Low resistance, High hold current, Solid state**
- (d) **Operation Current: 1.9A~9.0A**
- (e) **Maximum Voltage: 15V ~ 20VDC**
- (f) **Temperature Range : -40°C to 85°C**

2. Agency Recognition

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

*FLR450F~FLR730F C-UL In Process.

3. Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Max.Time to Trip	Rated Voltage	Max. Current	Typical Power	Resistance		
	I _H , A	I _T , A	at 5xI _H ,S	V _{MAX} , VDC	I _{MAX} , A	P _d , W	R _{MIN}	R _{MAX}	R _{1MAX}
	Ohms	Ohms	Ohms						
FLR190F	1.9	3.9	5.0	15	100	1.2	0.039	0.072	0.102
FLR260F	2.6	5.8	5.0	15	100	2.5	0.020	0.042	0.063
FLR380F	3.8	8.3	5.0	15	100	2.5	0.013	0.026	0.037
FLR450F	4.5	8.9	5.0	20	100	2.5	0.011	0.020	0.028
FLR550F	5.5	10.5	5.0	20	100	2.8	0.009	0.016	0.022
FLR600F	6.0	11.7	5.0	20	100	2.8	0.007	0.014	0.019
FLR730F	7.3	14.1	5.0	20	100	3.3	0.006	0.012	0.015
FLR900F	9.0	16.7	5.0	20	100	3.8	0.006	0.010	0.014

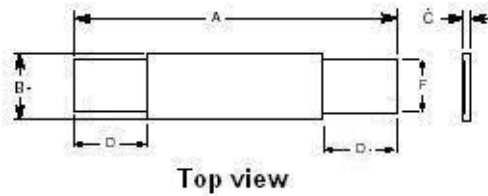
I_H=Hold current-maximum current at which the device will not trip at 23°C still air.
 I_T=Trip current-minimum current at which the device will always trip at 23°C still air.
 V_{MAX}=Maximum voltage device can withstand without damage at its rated current.
 I_{MAX}= Maximum fault current device can withstand without damage at rated voltage (V_{MAX}).
 P_d=Maximum 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 23C, 1 hour after tripping.
 Physical specifications:
 Lead material:0.13mm nominal thickness, quarter-hard nickel.
 Insulating material: Polyester tape.

NOTE : Specification subject to change without notice.

2019/11/13

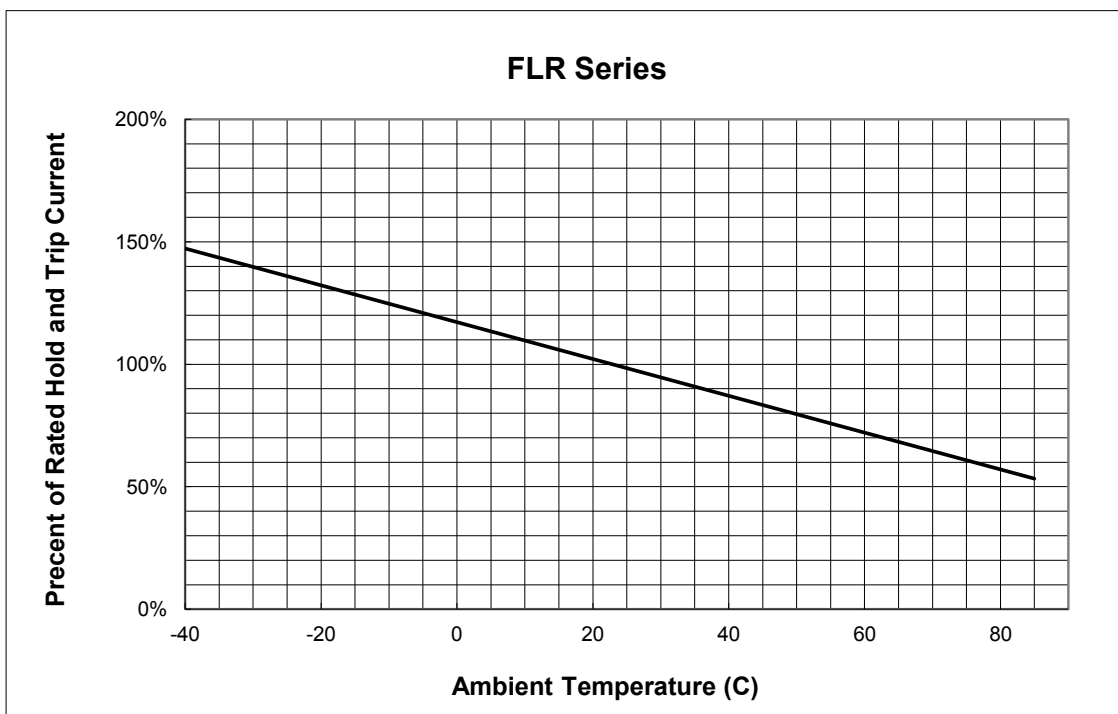


4. Production Dimensions (millimeter)



Part Number	A		B		C		D		F	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
FLR190F	19.9	22.1	4.9	5.5	0.6	1.0	5.5	7.5	3.9	4.1
FLR260F	20.9	23.1	4.9	5.5	0.6	1.0	4.1	5.5	3.9	4.1
FLR380F	24.0	26.0	6.9	7.5	0.6	1.0	4.1	5.5	4.9	5.1
FLR450F	24.0	26.0	9.9	10.5	0.6	1.0	5.3	6.7	5.9	6.1
FLR550F	35.0	37.0	6.9	7.5	0.6	1.0	5.3	6.7	4.9	5.1
FLR600F	24.0	26.0	13.9	14.5	0.6	1.0	4.1	5.5	5.9	6.1
FLR730F	27.1	29.1	13.9	14.5	0.6	1.0	4.1	5.5	5.9	6.1
FLR900F	45.4	47.6	7.9	8.5	0.6	1.3	5.2	7.9	5.9	6.1

5. Thermal Derating Curve

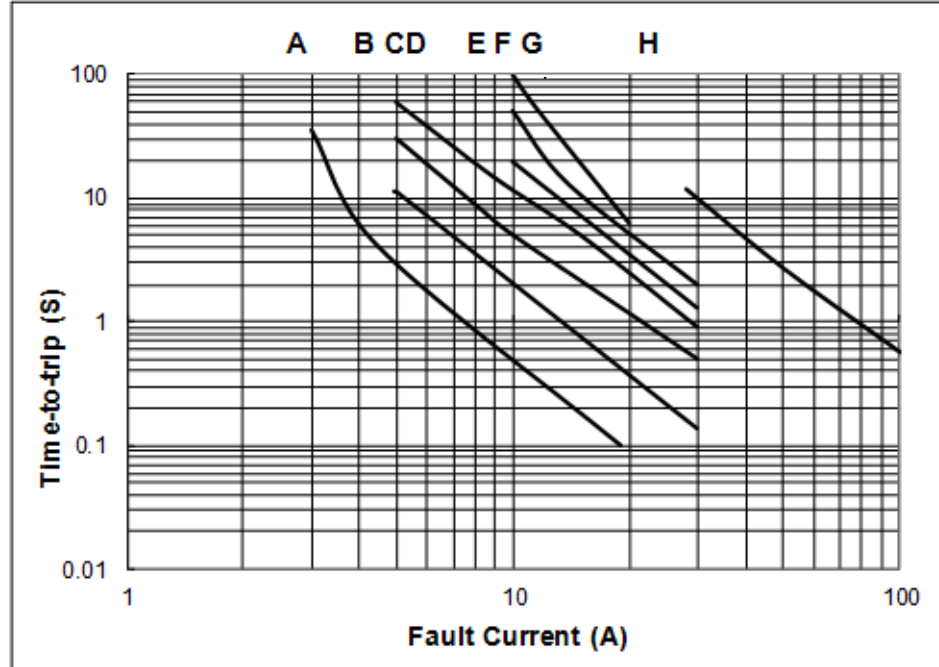


NOTE : Specification subject to change without notice.



6. Typical Time-To-Trip at 23°C

- A=FLR190F
- B=FLR260F
- C=FLR380F
- D=FLR450F
- E=FLR550F
- F=FLR600F
- G=FLR730F
- H=FLR900F

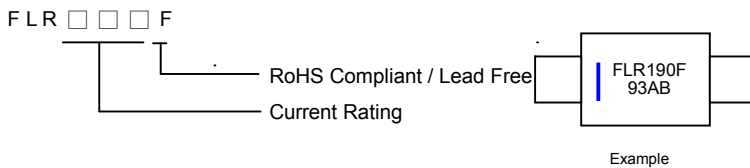


7. Material Specification

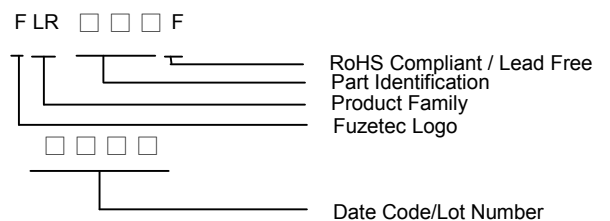
Lead material: 0.13 mm nominal thickness, quarter-hard nickel
 Insulating material: Polyester tape

8. Part Numbering and Marking System

Part Numbering System



Part Marking System



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.



NOTE : Specification subject to change without notice.