



## Axial Leaded Low Rho PTC Resettable Fuse: FSL-N Series

### 1. Summary

- (a) **RoHS Compliant & Halogen Free**
- (b) **Applications: Laptop Computer, Mobile phone battery packs, Rechargeable battery packs, Lithium cell and battery packs**
- (c) **Product Features: Low resistance, Solid state**
- (d) **Operation Current: 1.4~7.0A**
- (e) **Maximum Voltage: 6V<sub>DC</sub>**
- (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	Rated Voltage	Maximum Current	Typical Power	Max Time to Trip		Resistance Tolerance		
						Current	Time	R <sub>MIN</sub>	R <sub>MAX</sub>	R <sub>1MAX</sub>
	I <sub>H</sub> ,A	I <sub>T</sub> ,A	V <sub>MAX</sub> , VDC	I <sub>MAX</sub> , A	P <sub>d</sub> , W	A	Sec	Ohms	Ohms	Ohms
FSL140F-N	1.4	3.6	6	50	1.0	7.0	3.0	0.0100	0.0200	0.0350
FSL190F-N	1.9	4.9	6	50	1.0	9.5	3.0	0.0060	0.0140	0.0240
FSL250F-N	2.5	8.0	6	50	1.0	12.5	3.0	0.0060	0.0120	0.0200
FSL270F-N	2.7	8.1	6	50	1.0	13.5	2.0	0.0060	0.0120	0.0180
FSL310F-N	3.1	8.8	6	50	1.0	15.5	3.0	0.0040	0.0100	0.0160
FSL370F-N	3.7	9.0	6	50	1.0	18.5	5.0	0.0030	0.0080	0.0140
FSL450LF-N	4.5	9.5	6	50	1.0	22.5	3.0	0.0025	0.0055	0.0100
FSL500F-N	5.0	10.0	6	50	1.0	25.0	3.0	0.0015	0.0050	0.0090
FSL700F-N	7.0	14.0	6	50	1.0	25.0	3.0	0.0010	0.0045	0.0080

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.

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

P<sub>d</sub>=Maximum power dissipated from device when in tripped state in 23°C still air environment.

R<sub>MIN</sub>=Minimum device resistance at 23°C.

R<sub>MAX</sub>=Maximum device resistance at 23°C.

R<sub>1MAX</sub> =

1) Maximum resistance of device at 23°C measured 1 hour, after tripping for all product series;

2) or after REFLOW soldering of 260°C for 20 ~ 40 seconds for all SMD series;

3) or after WAVE soldering of 260°C for less than 5 seconds for all DIP series.

Special Note :

- In the event that TWO of the above three conditions were experienced once each, the acceptance criteria will become 1.3 times of R<sub>1MAX</sub>.

- In the event that ALL of the above three conditions were experienced once each, the acceptance criteria will become 1.5 times of R<sub>1MAX</sub>.

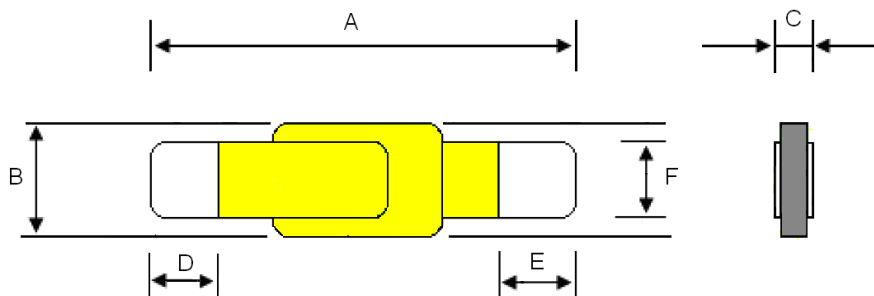
Physical specifications:

Lead material: 0.1 mm nominal thickness, quarter-hard nickel.

Insulating material: Epoxy.

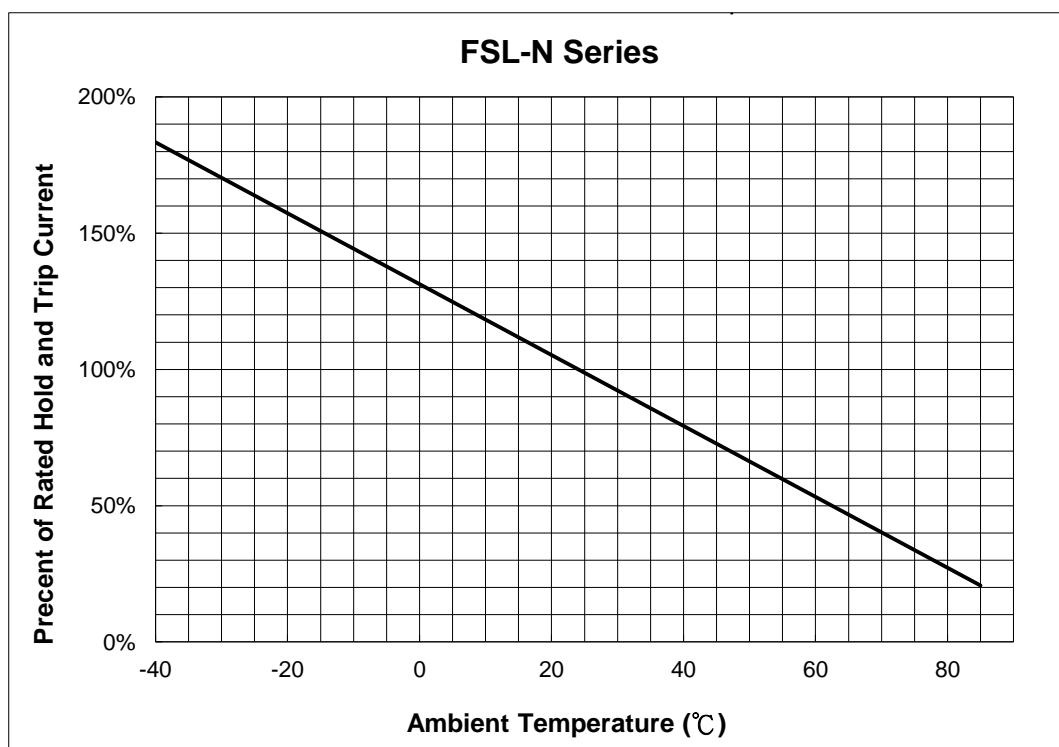


### 4. Production Dimensions (millimeter)



Part Number	A		B		C		D		E		F	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
FSL140F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL190F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL250F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL270F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL310F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL370F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL450LF-N	20.50	21.50	3.50	3.90	0.55	1.10	7.00	8.00	7.00	8.00	2.40	2.60
FSL500F-N	20.50	21.50	3.50	3.90	0.55	1.10	7.00	8.00	7.00	8.00	2.40	2.60
FSL700F-N	21.00	23.00	3.50	3.90	0.55	1.10	4.60	6.60	4.60	6.60	2.90	3.10

### 5. Thermal Derating Curve

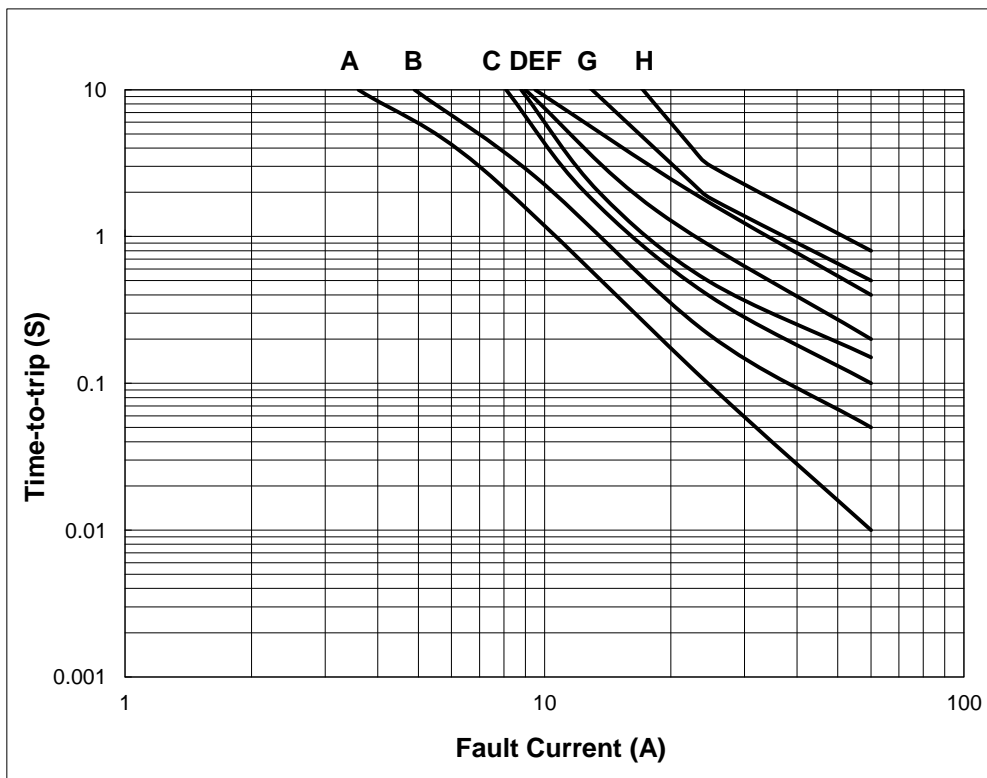


NOTE : Specification subject to change without notice.



### 6. Typical Time-To-Trip at 23°C

- A = FSL140F-N
- B = FSL190F-N
- C = FSL250F-N / FSL270F-N
- D = FSL310F-N
- E = FSL370F-N
- F = FSL450LF-N
- G = FSL500F-N
- H = FSL700F-N



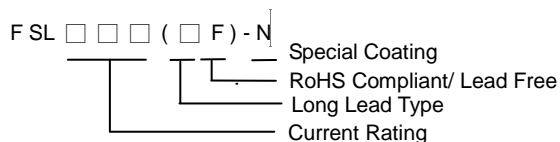
### 7. Material Specification

Lead material: 0.1 mm nominal thickness, quarter-hard nickel

Insulating material: Epoxy

### 8. Part Numbering and Marking System

#### Part Numbering System



**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.

NOTE : Specification subject to change without notice.