

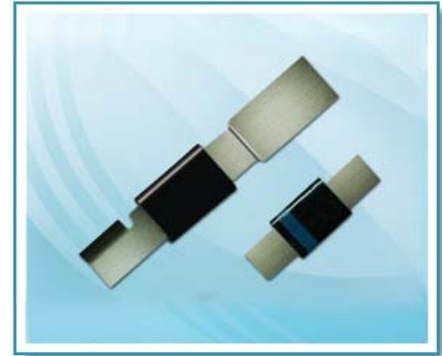


SLD-Axial Leaded Strap Lead(Pb) Free PTC Devices





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Description



- The new SLD Axial Leaded Strap Lead(Pb) Free PTC device are designed based on a proprietary conductive polymer material, to provide both overcurrent and overtemperature protection for rechargeable battery cells.
- The SLD Axial Leaded Strap Lead(Pb) Free devices featuring a slim, low profile and low resistance design and are ideal to install directly on the latest generations of battery cells for longer battery run time.
- SLD products provide reliable, noncycling protection against overcharging and short circuits events and increase the battery safety level.



Agency Approval and Environmental Compliance

Agency	File Number	Regulation	Standard
	E201431		2011/65/EU
	R50103314		IEC 61249-2-21:2003

Electrical Characteristics

Part Number	I _{hold} (A)	I _{trip} (A)	V _{max} (Vdc)	I _{max} (A)	P _{d typ} (W)	Maximum Time To Trip		Resistance			Agency Approval	
						Current (A)	Time (Sec.)	R _{min} (Ω)	R _{max} (Ω)	R _{1max} (Ω)		
SLD140GF	1.40	3.60	6	50	1.0	7.0	3.00	0.010	0.020	0.035	✓	✓
SLD190GF	1.90	4.90	6	50	1.0	9.5	3.00	0.006	0.013	0.024	✓	✓
SLD190LF	1.90	4.90	6	50	1.0	9.5	3.00	0.006	0.013	0.024	✓	✓
SLD190MF	1.90	4.90	6	50	1.0	9.5	3.00	0.007	0.015	0.024	✓	✓
SLD190RLF	1.90	4.90	6	50	1.0	9.5	3.00	0.006	0.014	0.024	✓	✓
SLD190VF2	1.90	4.90	6	50	1.0	9.5	3.00	0.008	0.014	0.024	✓	✓
SLD190VF4	1.90	4.90	6	50	1.0	9.5	3.00	0.008	0.014	0.024	✓	✓
SLD270GF-22	2.70	6.20	6	50	1.0	13.5	2.00	0.006	0.014	0.026	✓	✓
SLD270UF	2.70	6.20	10	50	1.0	13.5	2.00	0.006	0.014	0.026	✓	✓
SLD270UF2	2.70	6.20	6	50	1.0	13.5	2.00	0.006	0.014	0.026	✓	✓
SLD310GF-12	3.10	8.00	6	50	1.1	15.5	3.00	0.005	0.013	0.024	✓	✓
SLD370GF-C	3.70	9.00	6	50	1.2	18.5	5.00	0.005	0.013	0.020	✓	✓
SLD370GF-D	3.70	9.00	6	50	1.2	18.5	5.00	0.005	0.013	0.020	✓	✓
SLD370GUF-AC	3.70	9.00	6	50	1.2	18.5	5.00	0.005	0.013	0.020	✓	✓

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How to Select a Polymer PTC fuse

(1) Determine the following operating parameters for the circuits:

- (A) Normal Operating Current (I hold)
- (B) Maximum Circuit Voltage (V max)
- I Maximum Interrupt Current (I max)
- (D) Normal Operating Temperature (min °C /max °C)

(2) Select the device form factor and dimension suitable for the application:

- Axial Leaded Strap Device (SLD, VTD, LTD, LRD , STD ,LTD Series)
- Surface Mount Device (SMD Series)
- Radial Leaded Device (RLD Series)
- Other Custom-designed Device (Disc/Chip)

(3) Compare the maximum ratings for V max and I max of the PTC device with the circuit in application and make sure that the circuit's requirement does not exceed the device ratings.

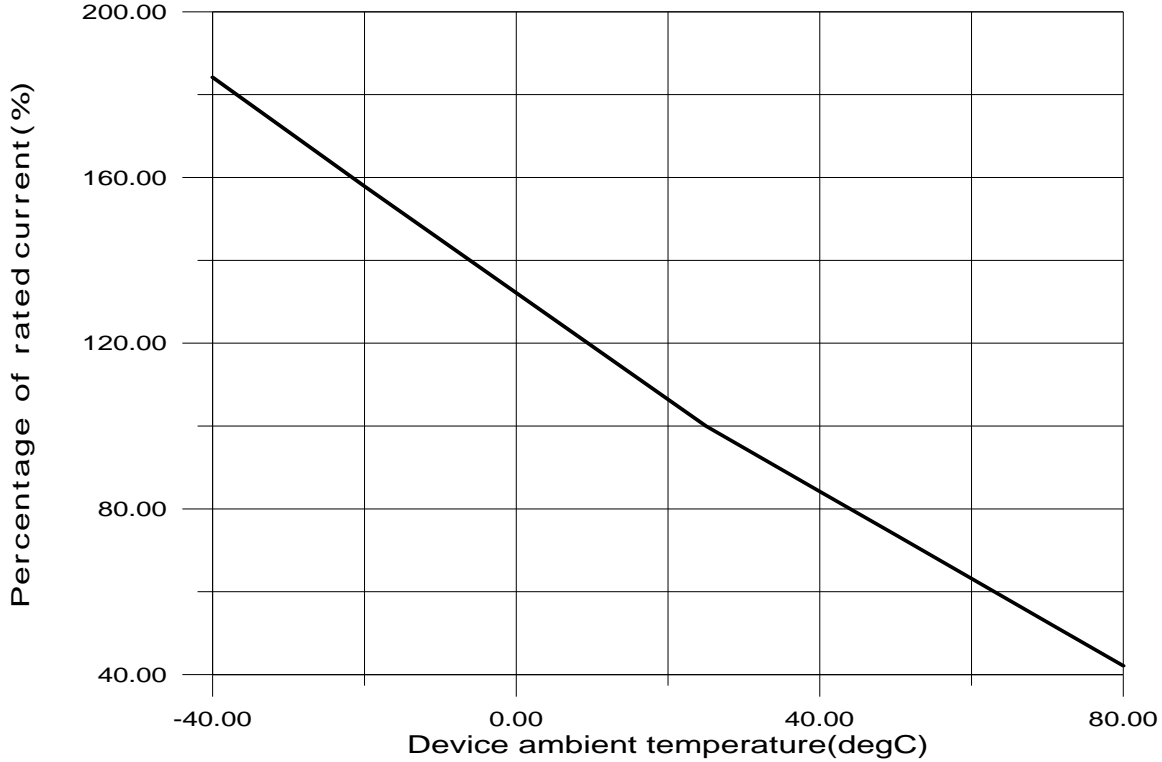
(4) Check that the PTC device's trip time (time-to-trip) will protect the circuit.

(5) Verify that the circuit operating temperatures are within the PTC device's normal operating temperature range.

(6) Verify the performance and suitability of the chosen PTC device in the application.

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THERMAL DERATING CURVE FOR SLD SERIES

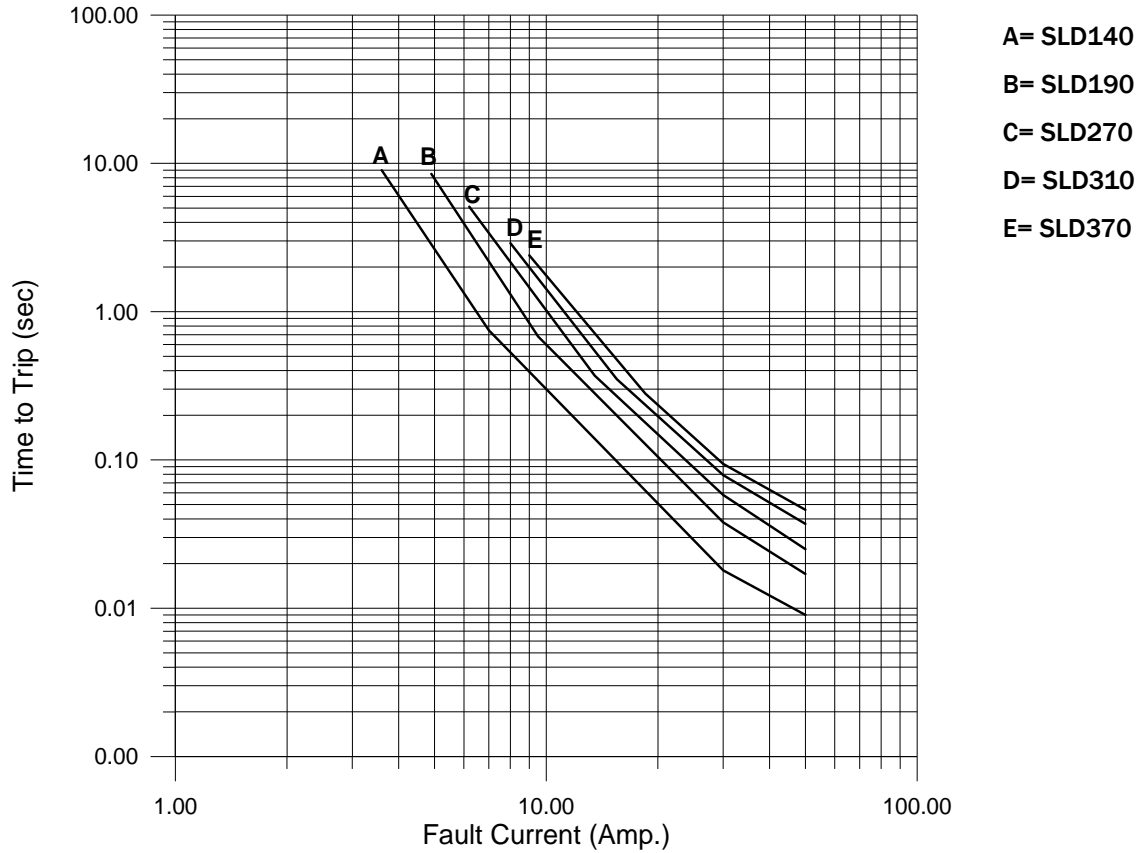


THERMAL DERATING CHART FOR SLD SERIES - Ihold (Amps)

Model	Ambient Operation Temperature								
	-40 °C	-20 °C	0 °C	25 °C	40 °C	50 °C	60 °C	70 °C	80 °C
SLD140GF	2.2	2.0	1.7	1.4	1.2	1.1	1.0	0.8	0.7
SLD190GF	3.5	3.0	2.6	1.9	1.7	1.4	1.2	1.0	0.8
SLD190LF	3.5	3.0	2.6	1.9	1.7	1.4	1.2	1.0	0.8
SLD190MF	3.5	3.0	2.6	1.9	1.7	1.4	1.2	1.0	0.8
SLD190RLF	3.5	3.0	2.6	1.9	1.7	1.4	1.2	1.0	0.8
SLD190VF2	3.5	3.0	2.6	1.9	1.7	1.4	1.2	1.0	0.8
SLD190VF4	3.5	3.0	2.6	1.9	1.7	1.4	1.2	1.0	0.8
SLD270GF-22	5.4	4.6	3.8	2.7	2.2	1.8	1.4	1.0	0.6
SLD270UF	5.4	4.6	3.8	2.7	2.2	1.8	1.4	1.0	0.6
SLD270UF2	5.4	4.6	3.8	2.7	2.2	1.8	1.4	1.0	0.6
SLD310GF-12	5.0	4.4	3.8	3.1	2.6	2.3	2.0	1.5	1.1
SLD370GF-C	6.5	5.6	4.8	3.7	3.0	2.6	2.2	1.7	1.3
SLD370GF-D	6.5	5.6	4.8	3.7	3.0	2.6	2.2	1.7	1.3
SLD370GUF-AC	6.5	5.6	4.8	3.7	3.1	2.6	2.2	1.7	1.3

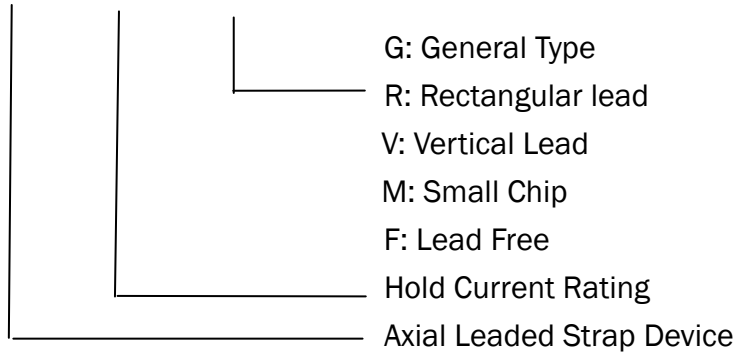
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AVERAGE TIME-CURRENT CURVE FOR SLD SERIES



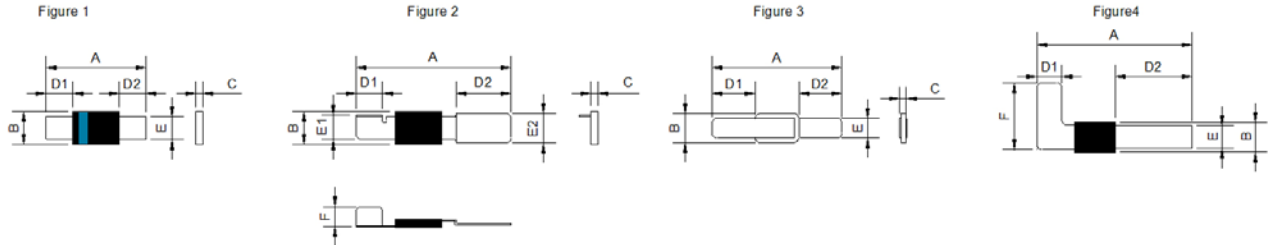
PART NUMBERING SYSTEM

SLD



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PHYSICAL DIMENSIONS (mm)



Part Number	Fig	A		B		C		D1		D2		E / E1		E2		F	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
SLD140GF	1	9.2	10.8	3.15	3.45	0.55	0.95	2.15	3.25	2.15	3.25	2.20	2.40	-	-	-	-
SLD190GF	1	9.2	10.8	3.15	3.45	0.55	0.95	2.15	3.25	2.15	3.25	2.20	2.40	-	-	-	-
SLD190LF	1	13.8	15.4	3.15	3.45	0.55	0.95	4.50	5.50	4.50	5.50	2.20	2.40	-	-	-	-
SLD190MF	1	12.5	13.5	2.80	3.10	0.55	0.95	4.00	-	4.00	-	2.20	2.40	-	-	-	-
SLD190RLF	4	15.0	16.0	2.85	3.15	0.55	0.95	2.40	2.60	6.85	7.95	2.20	2.40	-	-	6.60	6.80
SLD190VF2	2	15.0	16.0	3.15	3.45	0.55	0.95	2.55	2.75	5.40	5.60	2.35	2.55	2.90	3.10	1.80	2.20
SLD190VF4	2	15.0	16.0	3.15	3.45	0.55	0.95	2.55	2.75	5.40	5.60	2.35	2.55	2.90	3.10	1.45	1.65
SLD270GF-22	1	14.1	15.1	2.80	3.10	0.55	0.95	4.80	-	4.80	-	2.20	2.40	-	-	-	-
SLD270UF	3	12.2	13.8	2.90	3.30	0.40	0.70	3.50	4.50	3.50	4.50	1.90	2.10	-	-	-	-
SLD270UF2	3	14.2	15.8	2.90	3.30	0.40	0.70	4.50	5.50	4.50	5.50	1.90	2.10	-	-	-	-
SLD310GF-12	1	13.8	15.4	3.15	3.45	0.55	0.95	4.50	5.50	4.50	5.50	2.20	2.40	-	-	-	-
SLD370GF-C	1	13.8	15.4	3.15	3.45	0.55	0.95	4.50	5.50	4.50	5.50	2.20	2.40	-	-	-	-
SLD370GF-D	1	18.9	19.9	3.15	3.45	0.55	0.95	4.50	5.50	9.30	10.30	2.20	2.40	-	-	-	-
SLD370GUF-AC	3	13.8	15.4	2.95	3.35	0.45	0.80	4.70	5.90	4.70	5.90	2.20	2.40	-	-	-	-

ENVIRONMENTAL SPECIFICATIONS

Operating/Storage Temperature	-40 °C to +70 °C		
Passive Aging	-40°C, 1000 hours	≤ R1max	
	+60°C, 1000 hours	≤ R1max	
Humidity Aging	+60°C, 95%R.H. 1000hours	≤ R1max	
Vibration	MIL-STD-883D, Method 2026		No change

PHYSICAL SPECIFICATIONS

Lead Material	0.1mm nominal thickness.
Insulating Material	Polyester tape

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PHYSICAL SPECIFICATIONS

Product Description	Bag Quantity(ea)	Standard Package(ea)
SLD140GF	1,000	10,000
SLD190GF	1,000	10,000
SLD190LF	1,000	10,000
SLD190MF	1,000	10,000
SLD190RLF	1,000	10,000
SLD190VF2	1,000	10,000
SLD190VF4	1,000	10,000
SLD270GF-22	1,000	10,000
SLD270UF	1,000	10,000
SLD270UF2	1,000	10,000
SLD310GF-12	1,000	10,000
SLD370GF-C	1,000	10,000
SLD370GF-D	1,000	10,000
SLD370GUF-AC	1,000	10,000

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All models are packaged in bulk.

CROSS REFERENCE

Polytronics/ EVERFUSE [†]	Cross Reference	
	Raychem/ PolySwitch®	Bourns/ Multifuse®
SLD140GF	N/A	N/A
SLD190GF	MXP190BB	MF-LL190
SLD190LF	N/A	N/A
SLD190MF	N/A	N/A
SLD190RLF	N/A	N/A
SLD190VF2	MXP190BK	MF-LL190KB
SLD190VF4	N/A	MF-LL190KA
SLD270GF-22	N/A	N/A
SLD270UF	N/A	N/A
SLD270UF2	N/A	N/A
SLD310GF-12	N/A	N/A
SLD370GF-C	N/A	N/A
SLD370GF-D	N/A	N/A
SLD370GUF-AC	N/A	N/A

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“Multifuse” is a registered trademark of Bourns , Inc.

“PolySwitch” is a registered trademark of Raychem Corporation.

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