Littelfuse
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8755 W. Higgins Road
Suite 500
Chicago, IL 60631

www.littelfuse.com

Jun 2nd , 2023

RE: LFPCN 41483 - Littelfuse SIDACtor SOD-123FL package additional Assy site approval

To: Our Valued Customers

In order to support our fast-growing demand and secure continuity of supply for our customers, Littelfuse will be adding two additional assembly/test sites for the SIDACtor products SOD-123FL (SMF) package, including PLED6N and PxxxxS4BLRP series.

The electrical performance of the affected product will remain within the existing datasheet specifications. The fit, function, and reliability of affected products will remain same. In order to standardize the package specifications, the datasheets of affected Series will be updated. Please refer to the appendix for the changes.

All affected products have been fully qualified in accordance with established performance and reliability criteria. Please refer to the attached affected parts list and documentation for qualification result and change details. Samples and qualification data are available upon request.

Form, fit, function changes: No change to fit & function. Refer to appendix for form changes.
Part number changes: None
Effective date: Sept 2nd , 2023
Replacement products: N/A
Last time buy: N/A

This notification is for your information and acknowledgement. If you have any other questions or concerns, please contact your local sales team or product team below for further assistance.

We highly value your business and look forward to assisting you whenever possible.

Sincerely,

Cathy Wu
Inside Product Specialist
SIDACtor & TVS Hi-Rel
Tel: +86 510 85277701 Ext – 7673
CWu4@Littelfuse.com

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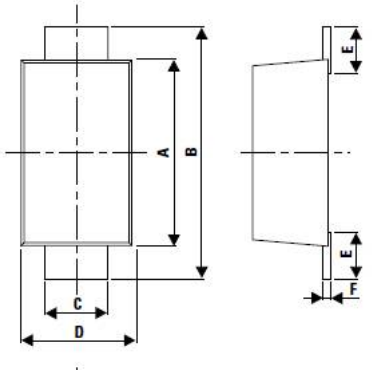
Appendix

1, Package dimensions standardized summary:

Dimensions - SOD-123FL Package



Series	Current dimensions on published datasheet	After PCN

PLED6N

Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.50	2.90	0.0984	0.1142
B	3.40	3.90	0.1339	0.1535
C	0.70	1.20	0.0275	0.0472
D	1.50	2.00	0.0591	0.0787
E	0.35	0.90	0.0138	0.0354
F	0.05	0.26	0.0020	0.0102
G	0.00	0.10	0.0000	0.0039
H	0.95	1.10	0.0374	0.0433

Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.50	3.10	0.0984	0.1220
B	3.40	3.90	0.1339	0.1535
C	0.70	1.20	0.0275	0.0472
D	1.50	2.00	0.0591	0.0787
E	0.35	0.90	0.0138	0.0354
F	0.05	0.26	0.0020	0.0102
G	0.00	0.10	0.0000	0.0039
H	0.90	1.10	0.0354	0.0433

P0080/02 20S4BLRP

Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.90	3.10	0.114	0.122
B	3.50	3.90	0.138	0.154
C	0.85	1.05	0.033	0.041
D	1.70	2.00	0.067	0.079
E	0.43	0.83	0.017	0.033
F	0.10	0.25	0.004	0.010
G	0.00	0.10	0.000	0.004
H	0.90	1.08	0.035	0.043

Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	3.50	3.90	0.138	0.154
C	0.85	1.05	0.033	0.041
D	1.70	2.00	0.067	0.079
E	0.43	0.83	0.017	0.033
F	0.10	0.25	0.004	0.010
G	0.00	0.10	0.000	0.004
H	0.90	1.08	0.035	0.043

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Product/Process Change Notice (PCN)

PCN# : LFPCN#41483 Date : Jun 2nd , 2023

Product Identification:

SIDACtor products SOD-123FL (SMF) package, including PLED6N and PxxxxS4BLRP series.

Implementation Date for Change:

Sept 1st , 2023

Contact Information

Name: Cathy Wu

Title: Inside Product Specialist

Phone #: +86 510 85277701 ext. 7673

Fax#: NA

E-mail: CWu4@Littelfuse.com

Category of Change:

- ☐ Assembly Process
- ☒ Data Sheet
- ☐ Technology
- ☐ Discontinuance/Obsolescence
- ☐ Equipment
- ☒ Manufacturing Site
- ☒ Raw Material
- ☐ Testing
- ☐ Fabrication Process
- ☐ Other: _____

Description of Change:

In order to support our fast-growing demand and secure continuity of supply for our customers, Littelfuse will be adding two additional assembly/test sites for the SIDACtor products SOD-123FL (SMF) package, including PLED6N and PxxxxS4BLRP series.

The electrical performance of the affected product will remain within the existing datasheet specifications. The fit, function, and reliability of affected products will remain same. In order to standardize the package specifications, the datasheets of affected Series will be updated.

Important Dates:

- ☒ Qualification Samples Available: sample available upon request
- ☐ Last Time Buy:
- ☒ Final Qualification Data Available: May 31st , 2023
- ☐ Date of Final Product Shipment:

Method of Distinguishing Changed Product

- ☐ Product Mark,
- ☒ Date Code, traceability data available upon request
- ☐ Other

Demonstrated or Anticipated Impact on Form, Fit, Function or Reliability:

N/A

LF Qualification Plan/Results:

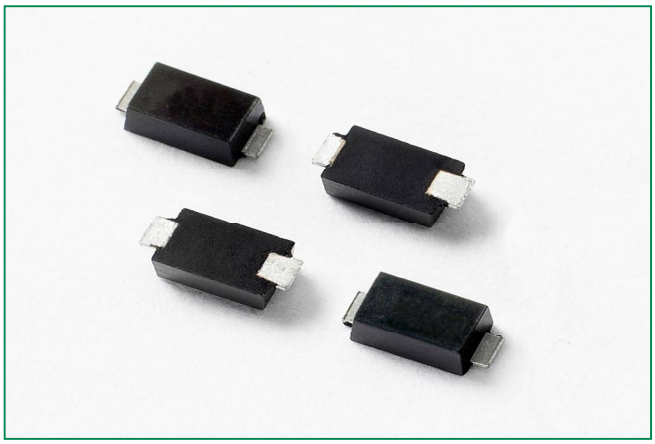
Littelfuse Qualification Report is available and full detail data available upon request

Customer Acknowledgement of Receipt: Littelfuse requests you acknowledge receipt of this PCN. In your acknowledgement, you can grant approval or request additional information. Littelfuse will assume the change is acceptable if no acknowledgement is received within 30 days of th notice. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of the change.

PxxxxS4xLRP Series

SOD-123FL, 100A SIDACtor® Component

HF RoHS Pb e3



Schematic Symbol

Description

The PxxxxS4LRP component series is used to protect equipment such as TV/camera CVBS and/or other low voltage data communication from damaging overvoltage transients. The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within its ratings.
- Fails short circuit when surged in excess of ratings
- Low capacitance
- 4kV 10/700 surge protection capability

Applicable Global Standards

- TIA-968-A*
- TIA-968-B*
- ITU K.20/21 Enhanced Level*
- ITU K.20/21 Basic Level
- GR 1089 Inter-building*
- GR 1089 Intra-building
- IEC 61000-4-5, 2nd Edition*
- YD/T 1082
- YD/T 993
- YD/T 950

* Line impedance required to pass operationally

Electrical Characteristics

Part Number	Marking	V_{DRM} @I_{DRM}=5µA	V_S @100V/µs	I_H	I_S	I_T	V_T @I_T=2.2 Amps	Capacitance @1MHz, 2V bias	
		V min	V max	mA min	mA max	A max	V max	pF min	pF max
P0080S4BLRP	P-8B	6	25	50	800	2.2	4	15	25
P0220S4BLRP	P02B	15	32	50	800	2.2	4	10	30

Notes:
- Absolute maximum ratings measured at T_A= 25ºC (unless otherwise noted).
- Component is bi-directional (unless otherwise noted).

Revised: GD. 02/18/21

PxxxxS4xLRP Series
SOD-123FL, 100A SIDACtor® Component

Surge Ratings

Series	I_{PP}									I_{TSM} 50/60 Hz	di/dt
	0.2/310 [1] 0.5/700 [2]	2/10 [1] 2/10 [2]	8/20 [1] 1.2/50 [2]	10/160 [1] 10/160 [2]	10/560 [1] 10/560 [2]	5/320 [1] 9/720 [2]	10/360 [1] 10/360 [2]	10/1000 [1] 10/1000 [2]	5/310 [1] 10/700 [2]		
	A min	A min	A min	A min	A min	A min	A min	A min	A min	A min	Amps/µs max
B	20	200	200	90	60	75	75	55	100	25	500

Notes:

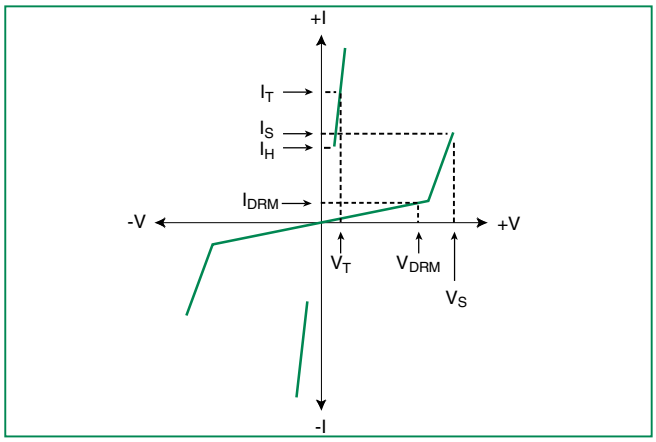
1 Current waveform in µs
2 Voltage waveform in µs

- Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product.
- I_{PP} ratings applicable over temperature range of -40°C to +85°C
- The component must initially be in thermal equilibrium with -55°C ≤ T_J ≤ +150°C

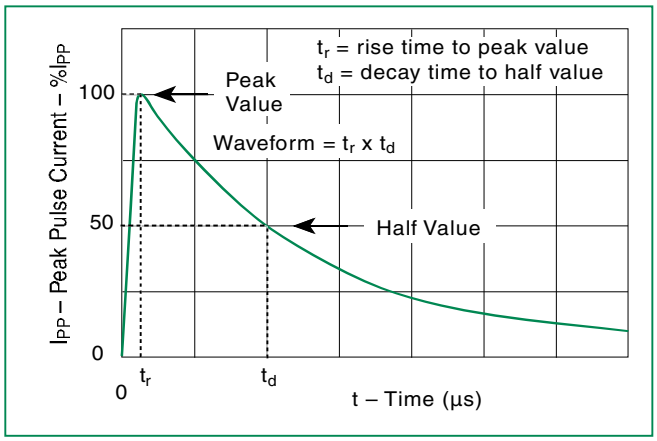
Thermal Considerations

Symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +150	°C
T_S	Storage Temperature Range	-55 to +150	°C
$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90	°C/W

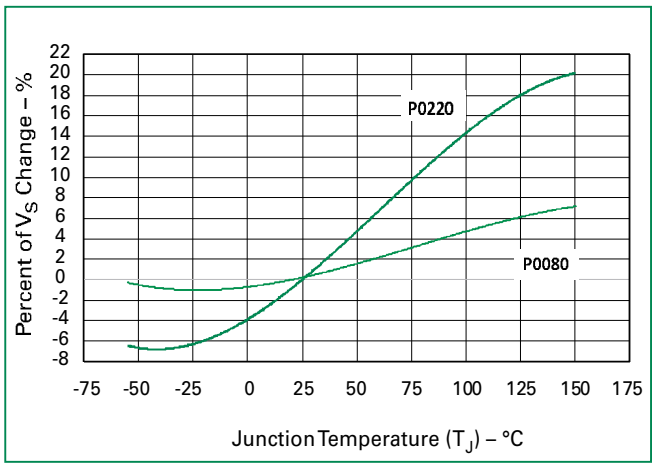
V-I Characteristics



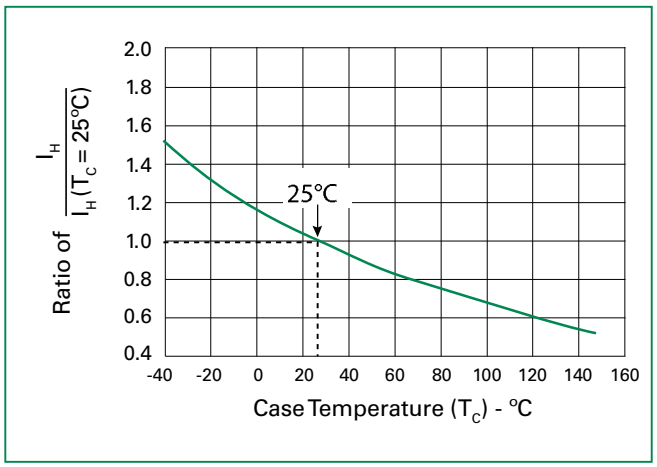
tr x td Pulse Waveform



Normalized VS Change vs. Junction Temperature



Normalized DC Holding Current vs. Case Temperature

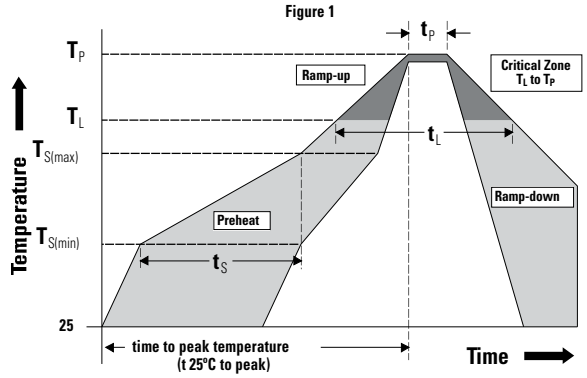


PxxxxS4xLRP Series
SOD-123FL, 100A SIDACtor® Component

Soldering Parameters

Reflow Condition		Pb-Free assembly (see Fig. 1)
Pre Heat	**-Temperature Min ($T_{s(min)}$)**	+150°C
	-Temperature Max ($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-120 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max.
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max.
Reflow	**-Temperature (T_L) (Liquidus)**	+217°C
	-Temperature (t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to Peak Temp (T_P)		8 min. Max.
Do not exceed		+260°C

Figure 1



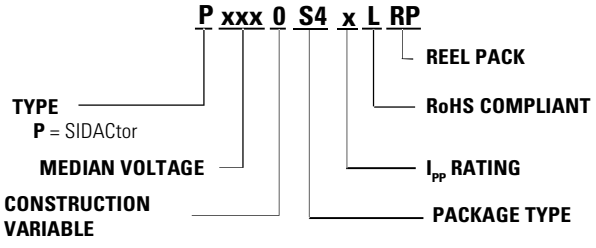
Physical Specifications

Lead Material	Copper Alloy
Terminal Finish	100% Matte-Tin Plated
Body Material	UL Recognized compound meeting flammability rating V-0

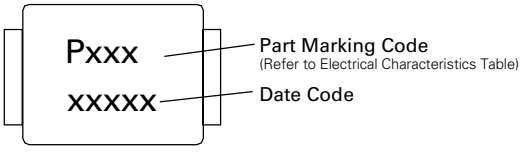
Environmental Specifications

High Temp Voltage Blocking	80% Rated V_{DRM} (V_{AC} Peak) T_J, 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
Temp Cycling	1000 cycles. JEDEC, JESD22-A104
Biased Temp & Humidity	52 V_{DC} (+85°C) 85%RH, 1008 hrs. EIA/JEDEC, JESD22-A-101
High Temp Storage	+150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101
UHAST	+130°C, 85%RH, 2atm, 96 hrs. EIA/JEDEC, JESD22-A-118
Resistance to Solder Heat	+260°C, 10 secs. MIL-STD-750 (Method 2031)
Moisture Sensitivity Level	85%RH, +85°C, 168 hrs., 3 reflow cycles (+260°C Peak). JEDEC-J-STD-020, Level 1

Part Numbering

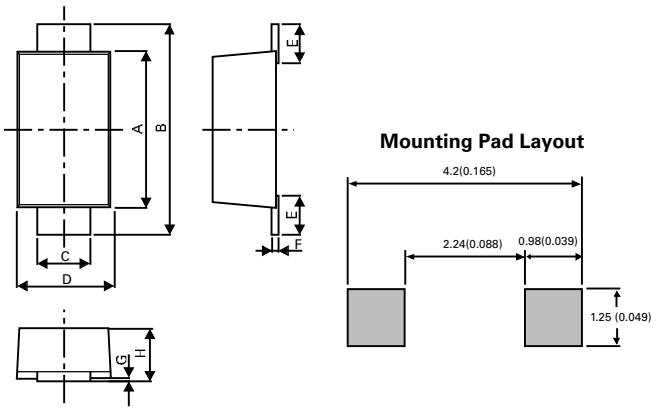


Part Marking



PxxxxS4xLRP Series
SOD-123FL, 100A SIDACtor® Component

Dimensions - SOD-123FL Package

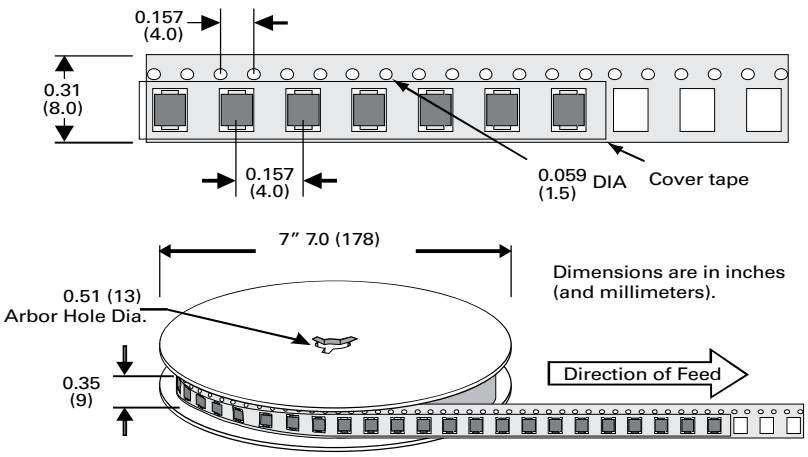


Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	3.50	3.90	0.138	0.154
C	0.85	1.05	0.033	0.041
D	1.70	2.00	0.067	0.079
E	0.43	0.83	0.017	0.033
F	0.10	0.25	0.004	0.010
G	0.00	0.10	0.000	0.004
H	0.90	1.08	0.035	0.043

Packing Option

Package Type	Description	Packing Options Quantity	Added Suffix	Industry Standard
S4	SOD-123FL Tape & Reel Pack 8mm/7" tape	3000	RP	EIA-481

Tape and Reel Specification



Revised: GD. 02/18/21

PLED Open LED Protectors
PLEDxN Series

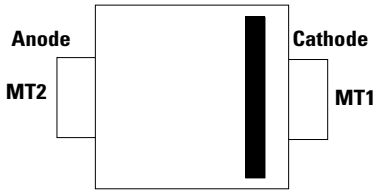
PLEDxN Series

HF RoHS

Description

The open LED protector provides a switching electronic shunt path when a single LED in an LED string fails as an open circuit. This ensures the entire LED string will continue to function even if a single LED in the string does not. This provides higher reliable lighting functions in applications such as headlights, aircraft lights, airport runway lighting, roadside warning lights, etc. This component is compatible with one watt rated LEDs with a nominal 350 mA current at 3V. The SOD-123FL package is one of the lowest height profiles (1.1 mm) packages offered in the industry.

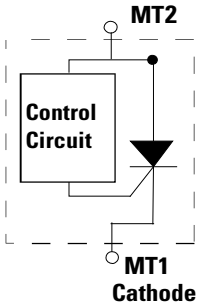
Pinout Diagram



Features & Benefits

- Fast switching
- Automatically resets after power cycle
- Compatible with industrial standard package SOD-123FL
- Compatible with industrial lighting environments
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- Low profile: maximum height of 1.1mm
- RoHS compliant and halogen-free
- MSL: Level 1 - unlimited

Schematic Symbol



Electrical Characteristics(All parameters are measured at T_A=25°C unless otherwise noted)

Part Number	Marking	V_{BR} @I_{BR} = 1 mAmps		I_{LEAK} V_{MT2} = 5V	I_H	I_S	I_T@V_T	V_T @I_T = 350mA	Critical rate of rise dV/dt	Capacitance @1MHz, 2V bias
		Volts		uA	mA	mA	A	V	V	pF
		Min	Max	Max	Max	Max	Max	Max	Max	Max
PLED6N	P6N	5.5	7.5	250	12	70	1.0 [1, 2]	1.2	250	24

Notes:
1) Standard FR-4 PCB with Copper Pads (2mm x 2mm/pad)
2) Aluminum PCB Pads (2mm x 3mm/pad)

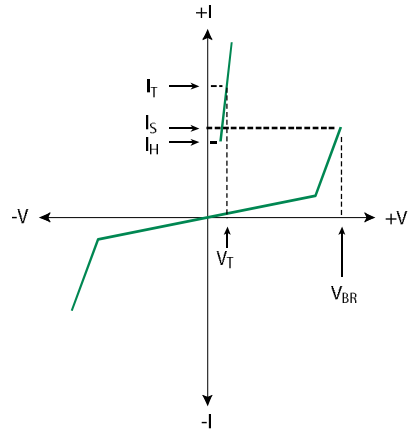
Revised: 03/31/20

Thermal Considerations

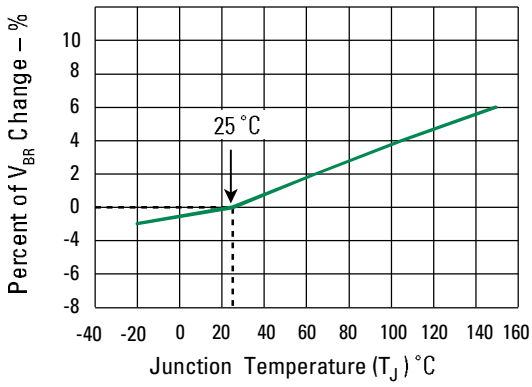
Symbol	Parameter	Value	Unit
I_T	Average On–State Current, (T_A = 25°C)	1.0 [1, 2]	A
V_T	On-state Voltage (T_A = 125°C)	1.0	V
P_D	Power Dissipation (T_A = 25°C)	1.45 [1]	W
		1.50 [2]	
T_J	Operating Junction Temperature Range	-65 to +150	°C
T_S	Storage Temperature Range		°C
$R_{\theta JL}$	Thermal Resistance: Junction to Lead	25 [1]	°C/W
		20 [2]	
$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	80 [1]	°C/W
		50 [2]	

Notes:
1) Standard FR-4 PCB with Copper Pads (2mm x 2mm/pad)
2) Aluminum PCB Pads (2mm x 3mm/pad)

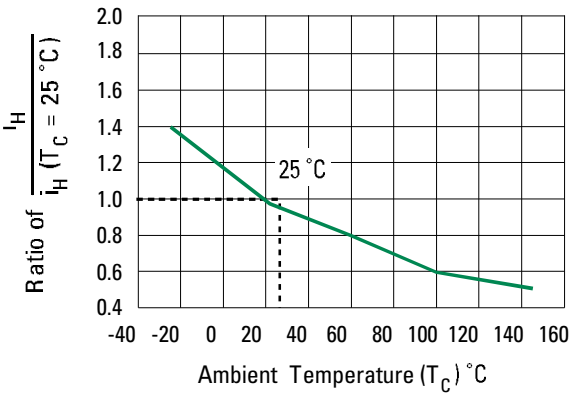
V-I Characteristics



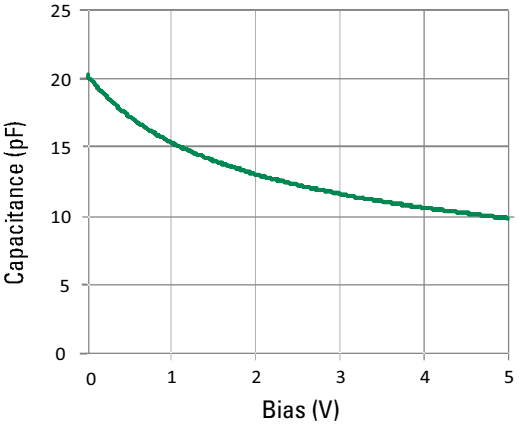
V_{BR} vs. Junction Temperature



Normalized DC Holding Current vs. Ambient Temperature



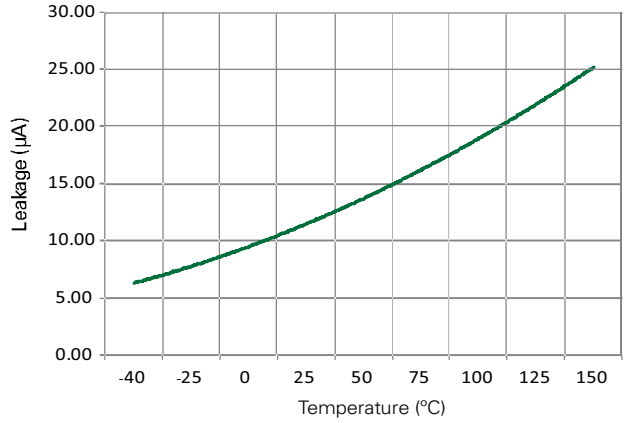
Capacitance vs Voltage



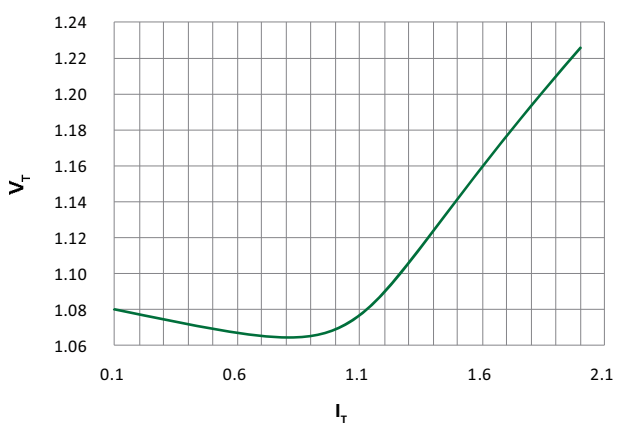
Revised: 03/31/20

PLED Open LED Protectors
PLEDxN Series

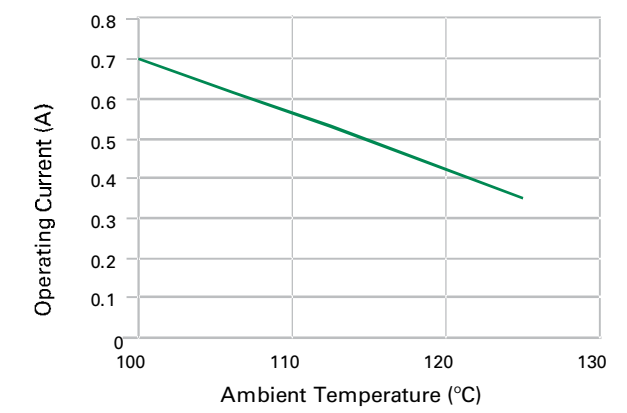
Leakage Current vs Temperature



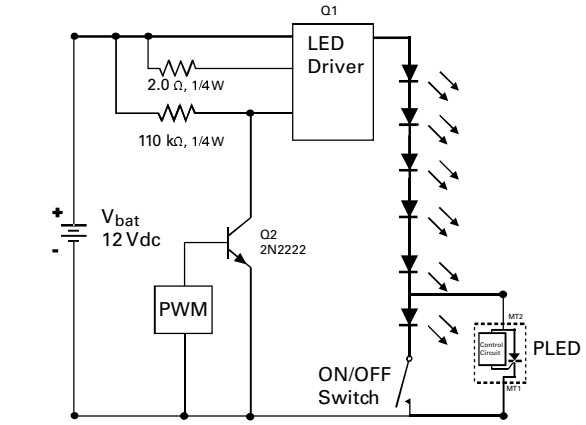
V_T vs I_T



Operating Current vs. Ambient Temperature

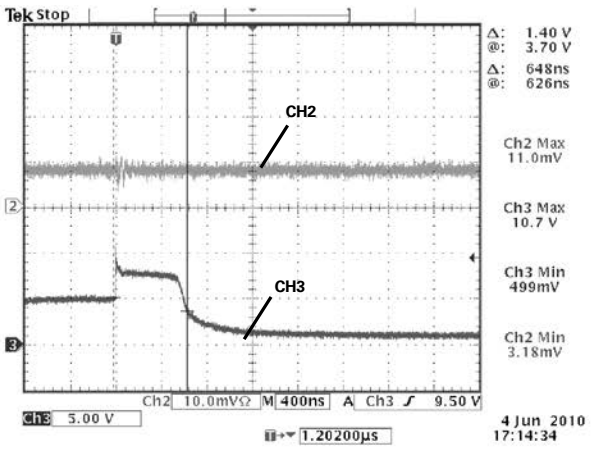


LED Interference Test Circuit

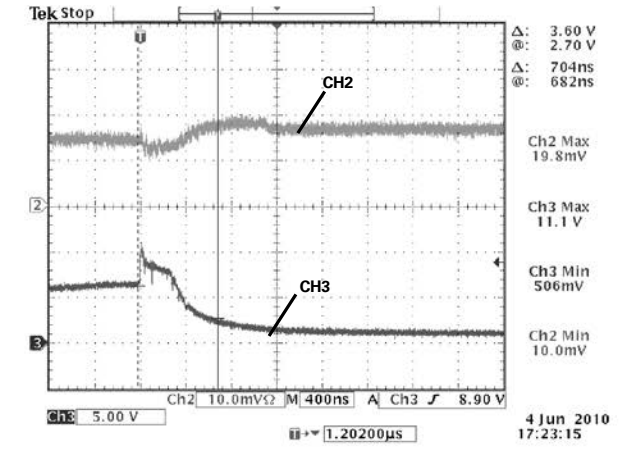


Typical Operation Waveforms

100mA LED
CH2 I: LED, 10mV/div=100mA/div
CH3 V: PLED6N



350mA LED
CH2 I: LED, 10mV/div=200mA/div
CH3 V: PLED6N

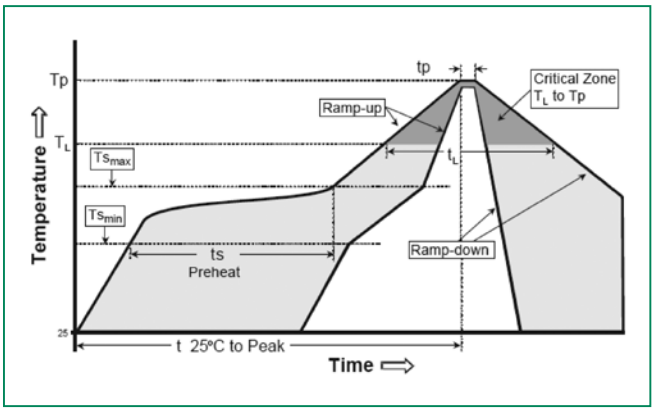


Revised: 03/31/20

PLED Open LED Protectors
PLEDxN Series

Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	**-Temperature Min ($T_{s(min)}$)**	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	**-Temperature (T_L) (Liquidus)**	217°C
	-Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_p)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max
Do not exceed		260°C



Physical Specifications

Terminal Material	Copper Alloy
Terminal Finish	100% Matte Tin Plated
Body Material	UL recognized epoxy meeting flammability classification V-0

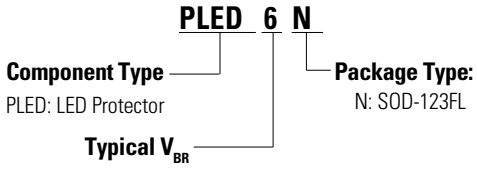
Environmental Specifications

High Temperature Voltage Blocking	MIL-STD-750: Method 1040, Condition A, 80% min V_{BR} DC, 150°C, 504 hours
Temperature Cycling	MIL-STD-750: Method 1051, -65°C to 150°C, 15-minute dwell, 100 cycles
Biased Temperature & Humidity	EIA/JEDEC: JESD22-A101 80% min V_{BR}, 85°C, 85%RH, 1008 hours
Resistance to Solder Heat	MIL-STD-750: Method 2031 260°C, 10 seconds
Moisture Sensitivity Level	JEDEC-J-STD-020, Level 1
Burn-In Test	I_T = 0.350 Adc, 1008 hours

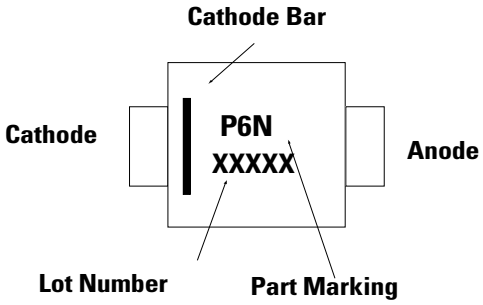
Packaging

Package Code	Description	Packaging Quantity	Industry Standard
N	SOD-123FL	3000	EIA-481 Tape and Reel

Part Numbering System



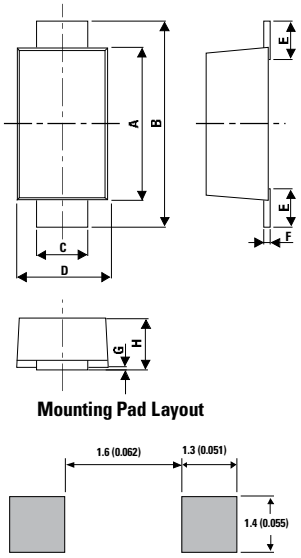
Part Marking System



Revised: 03/31/20

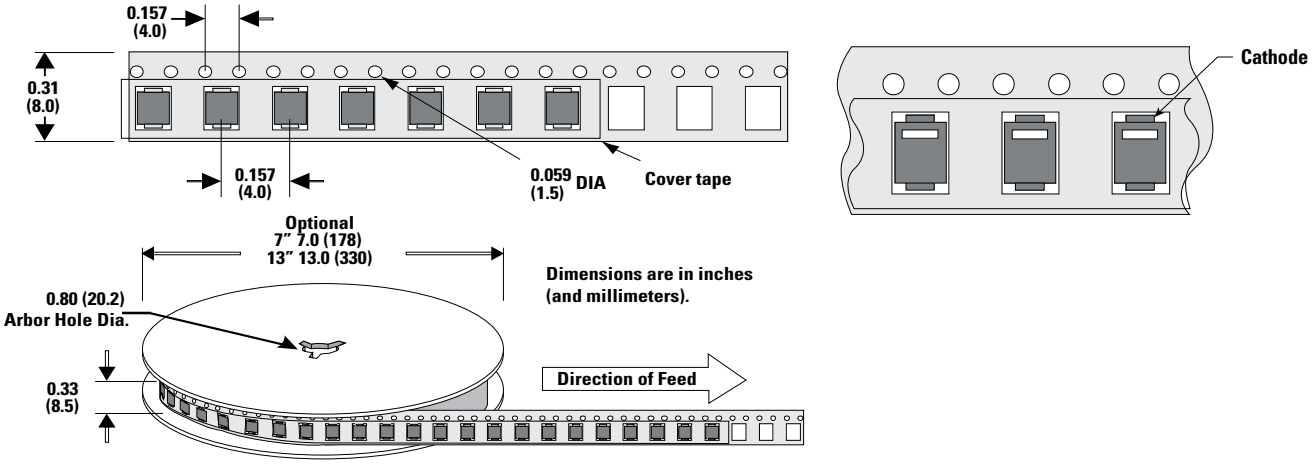
PLED Open LED Protectors
PLEDxN Series

Dimensions - SOD-123FL Package



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.50	3.10	0.0984	0.1220
B	3.40	3.90	0.1339	0.1535
C	0.70	1.20	0.0275	0.0472
D	1.50	2.00	0.0591	0.0787
E	0.35	0.90	0.0138	0.0354
F	0.05	0.26	0.0020	0.0102
G	0.00	0.10	0.0000	0.0039
H	0.90	1.10	0.0354	0.0433

Tape and Reel Specification



Revised: 03/31/20

PCN Report

Prepared By : Tianhua Wang, Glisten Xu, Kimi Xiong-Product Engineer,
Ada Du-Sr. OSAT Engineer,
Date : 5/31/2023
Device : SOD-123FL Package Product
Revision : 1

1.0 Objective:

The purpose of this project is to qualify two additional assembly & test locations for SOD-123FL Package.
Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

2.0 Applicable Devices:

Product	Package	Part Number	Additional site A	Additional site B
SIDACtor	SOD-123FL	PLED6N		Y
		P0080/0220S4BLRP	Y	Y

3.0 Assembly, Process & Material Differences/Changes:

3.1 Assembly and Process Changes

There are no significant changes in the assembly and process method.

3.2 Material Changes

Package	Series	Material	Current site	Additional site A	Additional site B
SOD-123FL	PLED6N	Epoxy Molding Compound	E125G		GR640HV-L1 E500-HME
	P0080/0220S4BLRP	Epoxy Molding Compound	EK-1700GH	EME-E115	GR640HV-L1 E500-HME

4.0 Packing Method

4.1 Packing Material

Packing	Current Site PLED6N	Current Site P0080/0220S4BLRP	Additional site A P0080/0220S4BLRP	Additional site B PLED6N P0080/0220S4BLRP
Tape	Hot seal carrier tape	Hot seal carrier tape	Hot seal carrier tape	Hot seal carrier tape
	Detailed dimension refer to datasheet	Detailed dimension refer to datasheet	Detailed dimension refer to datasheet	Detailed dimension refer to datasheet
Reel	White Plastic Reel, 7 inches	White Plastic Reel,7 inches	White Plastic Reel, 7 inches	**Black Plastic Reel**,7 inches
Pizza Box	192mm*189mm*69mm, 7 inches(5 reels)	188mm*180mm*20mm, 7 inches(1 reel)	**199mm*182mm*21mm**, 7 inches(1 reel)	**183mm x 193mm x 22mm**, 7 inches(1 reel)
Label	Size:**100mmx40mm**	Size:70mmx40mm	Size:70mmx40mm	Size:70mmx40mm

4.2 Packing Reel outlook:

7inch Reel, Current Site

PLED6N

P0080/0220S4BLRP

7inch Reel, Additional sites

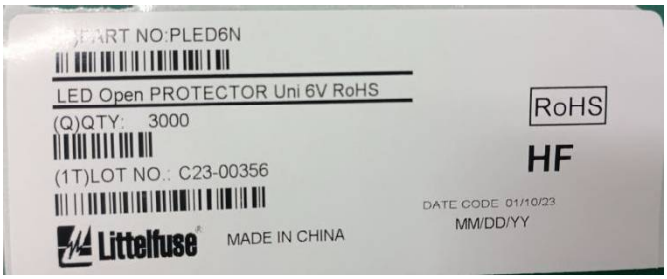
Additional site A

Additional site B

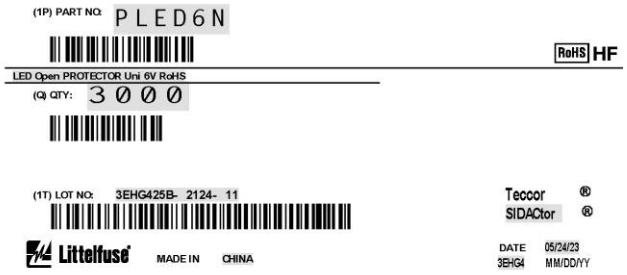
4.3 Label on Reel and Pizza Box

PLED6N

Current Site (100mm*40mm)

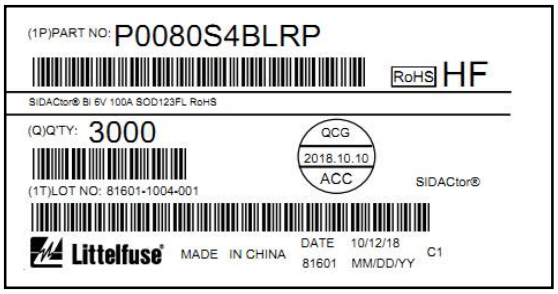


Additional site B (70mm*40mm)



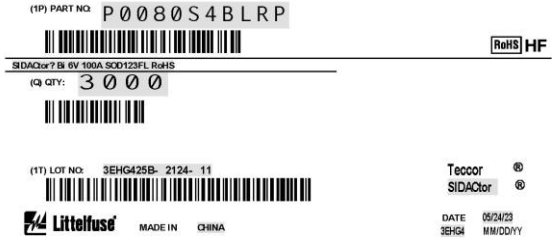
P0080/0220S4BLRP

Current Site (100mm*40mm)

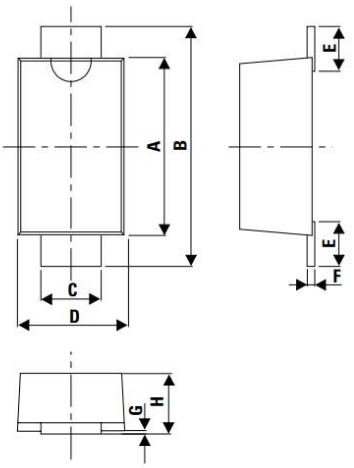


Additional site A (70mm*40mm)

Additional site B (70mm*40mm)



5.0 Package Dimensions Changes:



Dimensions	PLED6N				Changed?
	Before		After		
	Min	Max	Min	Max	
A	2.5	2.9	2.5	3.1	**Yes**
B	3.4	3.9	3.4	3.9	No
C	0.7	1.2	0.7	1.2	No
D	1.5	2	1.5	2	No
E	0.35	0.9	0.35	0.9	No
F	0.05	0.26	0.05	0.26	No
G	0	0.1	0	0.1	No
H	0.95	1.1	0.9	1.1	**Yes**

Dimensions	P0080/0220S4BLRP				Changed?
	Before		After		
	Min	Max	Min	Max	
A	2.90	3.10	2.70	3.10	**Yes**
B	3.50	3.90	3.50	3.90	No
C	0.85	1.05	0.85	1.05	No
D	1.70	2.00	1.70	2.00	No
E	0.43	0.83	0.43	0.83	No
F	0.10	0.25	0.10	0.25	No
G	0.00	0.10	0.00	0.10	No
H	0.90	1.08	0.90	1.08	No

6.0 Reliability Test Results Summary:

— Reliability test results

Test Category	Description	Sample P/N	Package	Sample Qty	Littelfuse test Ref#	Contents/ Conditions	Standard	Result Summary
Parametric Test	Electrical Parameters	PLED6N	SOD-123FL	267	184146	VBR, VT, IH, ILEAK		100% meet datasheet spec
		PLED6N	SOD-123FL	267	184146			
Reliability Test For SMF Integration From OSAT To Wuxi Inhouse	High Temperatrue Reverse Bias (HTRB)	PLED6N	SOD-123FL	77	184146	TA = Tj = 150°C, 1008hrs, DC biased at 80%VBR	MIL-STD-750-1 M1038 Method A	0 failures at 1008hours
		PLED6N	SOD-123FL	77	184146			
	High Humidity High Temp Reverse Bias (H3TRB)	PLED6N	SOD-123FL	40	184146	TA = 85°C, 85%RH, 1008hours, DC biased at 80%VBR	JESD22-A-101	0 failures at 1008hours
		PLED6N	SOD-123FL	40	184146			
	Unbiased Highly Accelerated Stress Test (UHAST)	PLED6N	SOD-123FL	40	184146	96 hours at TA=130°C & 85%RH	JESD22-A-118	0 failures at 96hours
		PLED6N	SOD-123FL	40	184146			
	Temperature Cycling (TC)	PLED6N	SOD-123FL	40	184146	TA: -65°C to 150°C, 15 minutes dwell time, 1000 cycles	JESD22-A104	0 failures at 1000cycles
		PLED6N	SOD-123FL	40	184146			
	Resistance to Solder Heat (RSH)	PLED6N	SOD-123FL	30	184146	260°C, 10secs	JESD22-A-111	0 failure after RSH
		PLED6N	SOD-123FL	30	184146			
	Solderability	PLED6N	SOD-123FL	10	184146	245°C ± 5°C, 5 ± 0.5s	J-STD-002	0 failure after Solderability
		PLED6N	SOD-123FL	10	184146			

— MTBF Calculation

Estimate of Failure Rate, MTBF, FITS for a Given Operation Temperature

Temp ℃	% FR/khrs	MTBF (K)	FITS
30	0.00000760	13163061.53	0.076
60	0.00023856	419175.11	2.386
80	0.00171509	58306.01	17.151
100	0.00998019	10019.85	99.802
125	0.07033148	1421.84	703.315
150	0.39351454	254.12	3935.145

The **M**ean-**T**ime-**B**etween-Failure (MTBF) in hours and the percent failure rate per 1000 hours (%FR/khr) are computed at a 60% confidence level using the chi square method and the Arrhenius derating model for various junction operating temperatures. For the calculations, a value of 1 eV was used for the activation energy.

Arrhenius derating model: $AF(T) = \exp\left[\frac{Ea}{k}\left(\frac{1}{T_{use}} - \frac{1}{T_{stress}}\right)\right]$

7.0 Electrical Characteristic Summary:

There is no change in electrical characteristics. Characterization data is available upon request.

8.0 Changed Part Identification:

There is no Part used in affected products.

9.0 Recommendations & Conclusions:

Based on the test results, it is determined that the alternative backend location is qualified and certified for production of above listed Littelfuse products.

10.0 Approvals:

Yaling Fan
OSAT Operation Manager
Littelfuse, Wuxi

Peter Liu
Asia OSAT Product Engineering Manager
Littelfuse, Wuxi

Hellen Yang
Product Manager
Littelfuse, Inc.

Affected Part Number

Package	Standard Part Numbers
SOD-123FL	PLED6N
SOD-123FL	P0080S4BLRP
SOD-123FL	P0220S4BLRP

Package	Standard Part Numbers
SOD-123FL	PLED6N
SOD-123FL	P0080S4BLRP
SOD-123FL	P0220S4BLRP