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8755 W. Higgins Road  
Suite 500  
Chicago, IL 60631

[www.littelfuse.com](http://www.littelfuse.com)

Jun 2<sup>nd</sup> , 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 2<sup>nd</sup> , 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

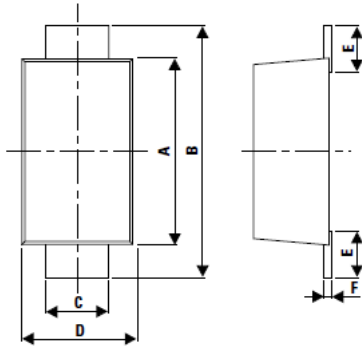
Inside Product Specialist

SIDACtor & TVS Hi-Rel

Tel: +86 510 85277701 Ext – 7673

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## Appendix

**1, Package dimensions standardized summary:**
**Dimensions - SOD-123FL Package**


Series	Current dimensions on published datasheet					After PCN				
	Dimensions	Millimeters		Inches		Dimensions	Millimeters		Inches	
Min		Max	Min	Max	Min		Max	Min	Max	
PLED6N	A	2.50	2.90	0.0984	0.1142	A	2.50	3.10	0.0984	0.1220
	B	3.40	3.90	0.1339	0.1535	B	3.40	3.90	0.1339	0.1535
	C	0.70	1.20	0.0275	0.0472	C	0.70	1.20	0.0275	0.0472
	D	1.50	2.00	0.0591	0.0787	D	1.50	2.00	0.0591	0.0787
	E	0.35	0.90	0.0138	0.0354	E	0.35	0.90	0.0138	0.0354
	F	0.05	0.26	0.0020	0.0102	F	0.05	0.26	0.0020	0.0102
	G	0.00	0.10	0.0000	0.0039	G	0.00	0.10	0.0000	0.0039
	H	0.95	1.10	0.0374	0.0433	H	0.90	1.10	0.0354	0.0433
	P0080/02 20S4BLRP	A	2.90	3.10	0.114	0.122	A	2.70	3.10	0.106
B		3.50	3.90	0.138	0.154	B	3.50	3.90	0.138	0.154
C		0.85	1.05	0.033	0.041	C	0.85	1.05	0.033	0.041
D		1.70	2.00	0.067	0.079	D	1.70	2.00	0.067	0.079
E		0.43	0.83	0.017	0.033	E	0.43	0.83	0.017	0.033
F		0.10	0.25	0.004	0.010	F	0.10	0.25	0.004	0.010
G		0.00	0.10	0.000	0.004	G	0.00	0.10	0.000	0.004
H		0.90	1.08	0.035	0.043	H	0.90	1.08	0.035	0.043



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## Product/Process Change Notice (PCN)

**PCN# :** LFPCN#41483 **Date :** Jun 2<sup>nd</sup>, 2023

**Product Identification:**

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

**Implementation Date for Change:**

Sept 1<sup>st</sup>, 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 31<sup>st</sup>, 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 the notice. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of the change.



# 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
<b>Tape</b>	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
<b>Reel</b>	White Plastic Reel, 7 inches	White Plastic Reel,7 inches	White Plastic Reel, 7 inches	<b>Black Plastic Reel</b> ,7 inches
<b>Pizza Box</b>	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)
<b>Label</b>	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**





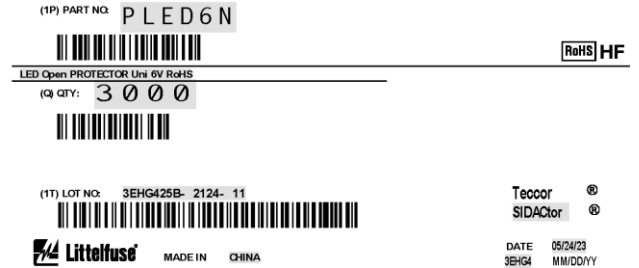
### 4.3 Label on Reel and Pizza Box

**PLED6N**

**Current Site (100mm\*40mm)**

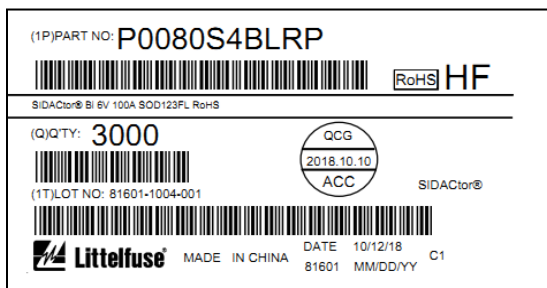


**Additional site B (70mm\*40mm)**

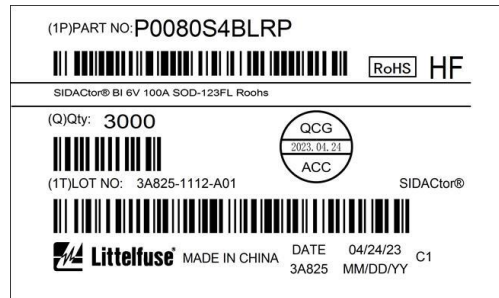


**P0080/0220S4BLRP**

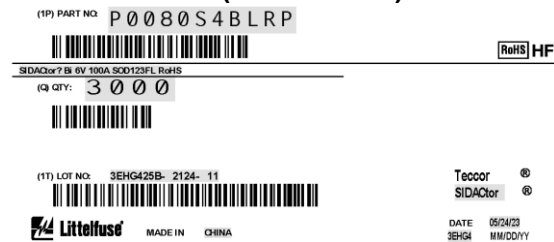
**Current Site (100mm\*40mm)**



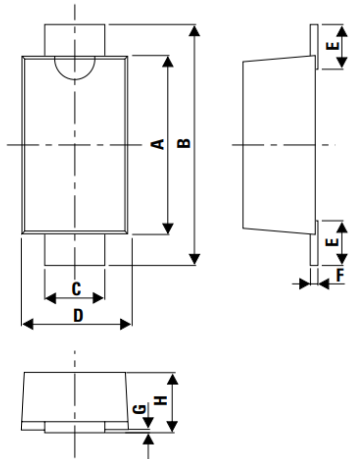
**Additional site A (70mm\*40mm)**



**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 Temperature 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 °C	% 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 Mean-Time-Between-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**

<b>Package</b>	<b>Standard Part Numbers</b>
SOD-123FL	PLED6N
SOD-123FL	P0080S4BLRP
SOD-123FL	P0220S4BLRP