

Chicago, Illinois USA 60631

Apr 28th, 2017

RE: PCN # ESU270-39 -- SOD323 & uDFN6 package additional, alternative backend location approval

To our valued customers,

Littelfuse would like to notify you of 1) two newly approved backend locations for SOD323 and uDFN6 package TVS Diode Array (SPA® Diodes) products. Both two new backend factories in China are fully approved for all assembly, test, and packing operations. 2) A new molding compound for SOD323 package is approved. There are no changes to fit, form, and function of the finished product.

Qualification efforts are complete and the new factory is online for immediate shipments. Please see the attached documentation for change detail and affected part numbers.

All affected products have been fully qualified in accordance with established performance and reliability criteria. The attached pages summarize the qualification results. Full qualification data and/or samples will be available upon request.

Form, fit, function changes: None Part number changes: None Effective date: Apr 28st, 2017 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 Jia Zhu, Product Manager.

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

Best Regards,

Jia Zhu
Diode Arrays Product Manager
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800 E. Northwest Highway Des Plaines, IL 60016

Product/Process Change Notice (PCN)

PCN#: ESU270-39 Date: Apr 28, 201	7 Contact Information			
Product Identification:	Name: Jia Zhu			
SOD323 and uDFN6 additional, alternate	Title: Product Marketing Manager			
backend location approval	Phone #: +86 13913131571			
Implementation Date for Change:	Fax#: N/A			
July 28, 2017 or sooner	E-mail: jzhu3@littelfuse.com			
Category of Change:	Description of Change:			
☐ Assembly Process	Approve two alternate backend assembly, test, and packing locations for			
☐ Data Sheet	SOD323 and uDFN6 package .			
☐ Technology	There are no changes to fit, form & function of the finished product. The			
☐ Discontinuance/Obsolescence	affected products have been fully qualified in accordance with all established			
☐ Equipment	criteria for performance and reliability			
Manufacturing Site All relevant detail is included in the supplemental pages.				
Raw Material				
☐ Testing				
☐ Fabrication Process				
☐ Other:				
Important Dates:				
Qualification Samples Available: Apr	28,2017			
	or 28, 2017			
☐ Date of Final Product Shipment:				
Method of Distinguishing Changed Pro	oduct			
☑ Product Mark, See (8.0) in the succeed	eding PCN report for details			
☑ Date Code,				
☐ Other,				
Demonstrated or Anticipated Impact o	n Form, Fit, Function or Reliability:			
N/A				
LF Qualification Plan/Results:				
N/A				
Customer Acknowledgement of Receip	ot: Littelfuse requests you acknowledge receipt of this PCN. In your acknowledgement, you can			
grant approval or request additional information. Lit	telfuse will assume the change is acceptable if no acknowledgement is received within 30 days			
of this notice. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of the change				



PCN Report ETR # Various

Prepared By : Jia Zhu-SPA Product Manager, Jordan Hsieh-SPA Product Engineering Manager,

Light Hsieh-SPA Product Engineer,

Date : 04/19/2017

Device : SOD323 (SD & SP402X) and uDFN-6 Product

Revision : A

1.0 Objective:

The purpose of this project is to qualify an alternative assembly supplier for SD series and u-DFN6 package products and a new molding compound for SOD323 package (both SD and SP402X series) products. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

2.0 Applicable Devices:

2.1 SOD323 package type

SD Series Part Numbers	SP402X Series Part Numbers
SD05-01FTG	SP4020-01FTG
SD05C-01FTG	SP4020-01FTG-C
SD12-01FTG	SP4021-01FTG
SD12C-01FTG	SP4021-01FTG-C
SD15-01FTG	SP4022-01FTG
SD15C-01FTG	SP4022-01FTG-C
SD24-01FTG	SP4023-01FTG
SD24C-01FTG	SP4023-01FTG-C
SD36-01FTG	SP4024-01FTG
SD36C-01FTG	SP4024-01FTG-C
SD40C-01FTG	

2.2 u-DFN6 package type

Part Numbers		
SP3003-02UTG		
SP3014-02UTG		

3.0 Assembly, Process & Material Differences/Changes:

3.1 Assembly Changes → See section 8

3.2 Process Changes

There are no changes in the process method



3.3 Material Change

3.2.1 To change one material as molding compound, detail refer to below table

	SOD323 package type products				
Material	Original		New		Changed?
	Material Name	Supplier	Material Name	Supplier	Changed?
Molding compound	EMG600-55M	ННСК	EME-E500DJ	Sumitomo	Yes

4.0 Packing Method

No changes in the packing method.

5.0 Physical Differences/Changes:

No change in mechanical specification or package outline dimension (POD).

6.0 Reliability Test Results Summary:

6.1 SD (Including SP402X) series products summary report:

Test Items	Condition	S/S	Results	ETR#
Pre-conditioning	JESD22-A113	308 each	0/1232	
DC Blocking(HTRB)	Bias = VRWM,Ta = 150°C Duration = 1008 Hours	77 each	0/308	
Temperature Cycle	Ta = -55°C to $+150$ °C Duration = 1000 Cycles	77 each	0/308	
Temperature/Humidity	Ta = 85°C, 85% RH Duration = 1008 Hours	77 each	0/308	ETR87757 ETR92579
Autoclave	Ta = 121°C, 100%RH, 2ATM Duration = 96 Hours	77 each	0/308	ETR92321 ETR92580
Resistance to Solder Heat	260°C,10 sec M-2031	10 each	0/40	
Moisture Sensitivity Level(MSL)	Per Jedec J-STD-020D Level 1	308 each	0/1232	
Solderability	ANSI-J-STD-002	10 each	0/40	

6.2 uDFN-6 series products summary report:

Test Items	Condition	S/S	Results	ETR#
Pre-conditioning	JESD22-A113	308 each	0/616	
DC Blocking(HTRB)	Bias = 5V,Ta = 150°C Duration = 1008 Hours	77 each	0/154	
Temperature Cycle	Ta = -55°C to $+150$ °C Duration = 1000 Cycles	77 each	0/154	
Temperature/Humidity	Ta = 85°C, 85% RH Duration = 1008 Hours	77 each	0/154	ETR94695
Autoclave	Ta = 121°C, 100%RH, 2ATM Duration = 96 Hours	77 each	0/154	ETR94696
Resistance to Solder Heat	260°C,10 sec M-2031	10 each	0/20	
Moisture Sensitivity Level(MSL)	Per Jedec J-STD-020D Level 1	308 each	0/616	
Solderability	ANSI-J-STD-002	10 each	0/20	

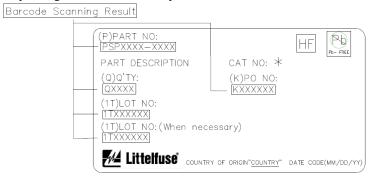


7.0 Electrical Characteristic Summary:

No change in electrical characteristics. Characterization data is available upon request.

8.0 Changed Part Identification:

Assy change can be identified by code of CAT NO on the label.



Package Type	Part Number	Original CAT Currently CA	
		NO	NO
SOD323	SDxx Series	S, C	S, C, F(new)
uDFN-6	Refer to 2.2	Н	H, K(new)

9.0 Recommendations & Conclusions:

Based on the test results, it is determined that the alternative assembly supplier for SOD-323 and u-DFN6 products and a new molding compound of SOD323 package products are qualified and certified for production of all Littelfuse datasheet.

10.0 Approvals:

<u>Jia Zhu</u>	Jordan Hsieh	Light Hsieh
SPA Product Manager	SPA Product Engineering Manager	SPA Product Engineer
Littelfuse, Wuxi	Littelfuse, HsinChu	Littelfuse, HsinChu