8755 W. Higgins Road
Suite 500
Chicago, Illinois USA 60631

Sep 30th, 2022

RE: PCN # ESU270-84 – SOD323 additional backend location approval

To our valued customers,

Littelfuse would like to notify you of an additional approved backend location for SOD323 TVS Diode Array (SPA® Diodes) products. This additional backend factory in China is fully approved for all assembly, test, and packing operations. There are no changes to fit, form, and function of the finished products.

Qualification efforts are complete, and the new factory is ramping for shipments.

Products Affected:

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

The 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: Dec 31st 2022, or sooner
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 Sophia Hu, Assistant Product Manager.

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

Best Regards,

Sophia Hu
TVS Diode Array Assistant Product Manager
Semiconductor Business Unit, Wuxi, China
+86 510 85277701 - 7653
shu@littelfuse.com

PCN# :	**Contact Information**
ESU270-84 Date: Sep 30th, 2022 Product Identification : SOD323 additional backend location approval Implementation Date for Change: Dec 31st, 2022 or sooner	Name: Sophia Hu Title: Assistant Product Manager Phone # : +86 13771377277 Fax# : N/A E-mail : shu@littelfuse.com

Category of Change:

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

Description of Change:

Approve additional backend assembly, test, and packing location for SOD323. There are no changes to fit, form & function of the finished products.

Important Dates:

- ☒ Qualification Samples Available: Upon request
- ☐ Last Time Buy:
- ☒ Final Qualification Data Available: Upon request
- ☐ Date of Final Product Shipment:

Method of Distinguishing Changed Product

- ☒ Product Mark, See (8.0) in the succeeding PCN report for details
- ☐ Date Code,
- ☐ Other,

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

N/A

LF Qualification Plan/Results:

Yes

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 this notice. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of the change.

Prepared By : Light Hsieh-Product Engineering Supervisor,
Raider Chen-Product Engineer, Sophia Hu- Assistant Product Manager
Date : 2022/9/22
Device : Please refer to 2.1.
Revision : A

1.0 Objective:

Qualify alternative assembly supplier for SOD323 package type products. Summarize the physical items, electrical characteristics and reliability result of qualification lots.

2.0 Applicable Devices:

2.1 **Product name:**

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

3.0 Assembly, Process & Material Differences/Changes:

3.1 Assembly Changes
No change of assemble process.

3.2 Process Changes
No change of process method.

3.3 Material Change

Raw materials			
Item	Original	New	Change or not
Lead frame	Alloy42	Alloy42	No
Die Attach Material	84-1LMISR4/DA-5880	84-1LMISR4	Yes
Wire	Gold	Gold	No
Mold Compound	EME-500/G600/ELER-8-100HFE	EMG-400/G600	Yes
Plating	Matte Tin	Matte Tin	No

4.0 Packing Method

No change of packing method.

5.0 Physical Differences/Changes:

No change of packing method.

6.0 Reliability Test Results Summary:

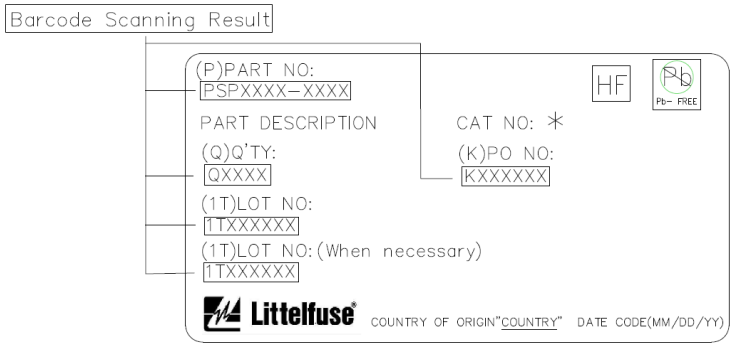
Test Items	Condition	S/S	Results	ETR #
Pre-conditioning (PC)	JESD22-A113	308 each lot	0/924	174600 174604 174614
DC Blocking (HTRB)	Bias = VRWM, Ta = 150°C, Duration = 1008 Hours	77 each lot	0/231	
Temperature Cycle (TC)	Ta = -55°C to 150°C, Duration = 1000 Cycles	77 each lot	0/231	
Temperature/Humidity (H3TRB)	Ta = 85°C, 85% RH, Bias = VRWM, Duration = 1008 Hours	77 each lot	0/231	
Autoclave (AC)	Ta = 121°C, 100%RH, 2ATM, Duration = 96 Hours	77 each lot	0/231	
Resistance to Solder Heat (RSH)	260°C, 10 sec, M-2031	10 each lot	0/30	
Moisture Sensitivity Level (MSL)	Per Jedec J-STD-020D Level 1	308 each lot	0/924	
Solderability (SD)	ANSI-J-STD-002	10 each lot	0/30	

7.0 Electrical Characteristic Summary:

Electrical performances were comparable and characterization data is available upon request.

8.0 Changed Part Identification:

Suppliers were qualified by Littelfuse and product can be identified by CAT NO on the label.



9.0 Approvals:

Sophia Hu	Light Hsieh	Raider Chen
SPA Assistant Product Manager	SPA Product Engineering Supervisor	SPA Product Engineer
Littelfuse, Wuxi	Littelfuse, HsinChu	Littelfuse, HsinChu