



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

Oct 29<sup>th</sup>, 2021

RE: PCN # ESU270-72 – Additional Wafer Foundry Approval for SOD323, SOT23-3L, SOIC 8, uDFN 8L and MSOP-10

To our valued customers,

Littelfuse would like to notify you of approved additional wafer foundry for SOD323, SOT23-3L, SOIC 8, uDFN 8L and MSOP-10 SPA™ TVS Diode Arrays products. There are no changes to fit, form, function of the finished products.

Qualification efforts are complete. Please see the attached documentation for change details and affected part numbers.

Affected Part Numbers		
SOT23-3L, SOIC8, uDFN 8L and MSOP-10	SOD323	
SLVU2.8HTG	SP4020-01FTG	AQ4020-01FTG
SLVU2.8-4BTG	SP4020-01FTG-C	AQ4020-01FTG-C
SLVU2.8-4BTG-S	SP4021-01FTG	AQ4021-01FTG
SLVU2.8-8BTG	SP4021-01FTG-C	AQ4021-01FTG-C
SP3312TUTG	SP4022-01FTG	AQ4022-01FTG
SP4044-04ATG	SP4022-01FTG-C	AQ4022-01FTG-C
SP4045-04ATG	SP4023-01FTG	AQ4023-01FTG
	SP4023-01FTG-C	AQ4023-01FTG-C
	SP4024-01FTG	AQ4024-01FTG
	SP4024-01FTG-C	AQ4024-01FTG-C

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: Jan 29<sup>th</sup>, 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  
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800 E. Northwest Highway Des Plaines, IL 60016

## Product/Process Change Notice (PCN)

**PCN# :**

ESU270-72 Date: Oct 29<sup>th</sup>, 2021

**Product Identification:**

Additional wafer foundry approved for SOD323, SOT23-3L, SOIC uDFN 8L and MSOP-10

**Implementation Date for Change:**

Jan 29<sup>th</sup>, 2022 or sooner

**Contact Information**

Name : Sophia Hu

Title : Assistant Product Marketing 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:**

Additional wafer foundry approved for SOD323, SOT23-3L, SOIC 8, uDFN 8L and MSOP-10 SPA™ TVS Diode Arrays products. There are no changes to fit, form, function of the finished products.

**Important Dates:**

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

**Method of Distinguishing Changed Product**

- Product Mark,
- Date Code,
- Other, Littelfuse internal work order documentation

**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.



# PCN Report

## ETR # Various

**Prepared By** : Jordan Hsieh-Product Engineering Manager, Raider Chen-Product Engineer,  
Sophia Hu-Assistant Product Manager  
**Date** : 2021/10/28  
**Device** : Please refer to table of item2.1.  
**Revision** : A

### 1.0 Objective:

The purpose of this project is to qualify additional wafer foundry for SPA products. This wafer foundry has been qualified by Littelfuse and its products have been already released to mass production. Following pages summarized the physical, electrical and reliability test performed in qualification lots.

### 2.0 Applicable Devices:

#### 2.1 Product name:

Affected Part Numbers		
SOT23-3L, SOIC8, uDFN 8L and MSOP-10	SOD323	
SLVU2.8HTG	SP4020-01FTG	AQ4020-01FTG
SLVU2.8-4BTG	SP4020-01FTG-C	AQ4020-01FTG-C
SLVU2.8-4BTG-S	SP4021-01FTG	AQ4021-01FTG
SLVU2.8-8BTG	SP4021-01FTG-C	AQ4021-01FTG-C
SP3312TUTG	SP4022-01FTG	AQ4022-01FTG
SP4044-04ATG	SP4022-01FTG-C	AQ4022-01FTG-C
SP4045-04ATG	SP4023-01FTG	AQ4023-01FTG
	SP4023-01FTG-C	AQ4023-01FTG-C
	SP4024-01FTG	AQ4024-01FTG
	SP4024-01FTG-C	AQ4024-01FTG-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**

Adding alternative wafer part number in BOM, but no other raw materials changed.

### **4.0 Packing Method**

No change of packing method.

### **5.0 Physical Differences/Changes**

No change of appearance and package outline dimension (POD).

### **6.0 Reliability Test Results Summary:**

Test Items	Condition	S/S	Results	ETR #
Pre-conditioning (PC)	JESD22-A113	308 each lot	0/924	162438 164843 164854
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:**

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

### **8.0 Changed Part Identification:**

Will control by purchase order and provide to customer once customer requested.

### **9.0 Approvals:**

**Sophia Hu**  
SPA Assistant Product Manager  
Littelfuse, Wuxi

**Jordan Hsieh**  
SPA Product Manager  
Littelfuse, HsinChu

**Raider Chen**  
SPA Product Engineer  
Littelfuse, HsinChu