



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

---

Dec 25<sup>th</sup>, 2020

RE: PCN # ESU270-55 – Approval of wafer foundry location & wafer size change for productivity improvement

To our valued customers,

Littelfuse would like to notify you that we are going to change foundry location and change wafer size from 5-inch to 6-inch of below SPA™ TVS Diode Arrays products for productivity improvement. There are no changes to fit, form, function of the finished product.

Qualification efforts are complete. Please see the attached documentation for change details 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.

| Affected Part Numbers |                |                  |
|-----------------------|----------------|------------------|
| AQ2555NUTG            | SP2555NUTG     | SP4042-02UTG     |
| AQ4020-01FTG          | SP3304NUTG     | SP4042-02UTG-ER  |
| AQ4020-01FTG-C        | SP3304NUTG-ER  | SP4042-02UTG-ER1 |
| SLVU2.8-4BTG          | SP3312TUTG     | SP4044-04ATG     |
| SLVU2.8-8BTG          | SP3374NUTG     | SP4045-04ATG     |
| SLVU2.8HTG            | SP4020-01FTG   | SP4050-12UTG-IMP |
| SP2504NUTG            | SP4020-01FTG-C | SP4065-08ATG     |
| SP2504NUTG-C          | SP4031-02BTG   | SRDA3.3-4BTG     |
| SP2504NUTG-N          |                |                  |

| Foundry location                          |  |
|---|--|
| Current Fab location                      | New Fab location                           |
| 150 Kinoko-cho, Ibara-shi, Okayama, Japan | 6833 Kinoko-cho, Ibara-shi, Okayama, Japan |
| Wafer Size                                |  |
| Current Wafer Size                        | New Wafer Size                             |
| 5-inch                                    | 6-inch                                     |

**Form, fit, function changes: NA**

**Part number changes: None**

**Effective date: Dec 25<sup>th</sup>, 2020**

**Replacement products: N/A**

**Last time buy: NA**

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](mailto:Shu@littelfuse.com)



800 E. Northwest Highway Des Plaines, IL 60016

## Product/Process Change Notice (PCN)

**PCN# :**

ESU270-55 Date: Dec 25<sup>th</sup>, 2020

**Product Identification:**

Littelfuse is going to change foundry location and change wafer size from 5-inch to 6-inch for productivity improvement purpose.

**Implementation Date for Change:**

Mar 25<sup>th</sup>, 2021 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: \_\_\_\_\_ Wafer size \_\_\_\_\_

**Description of Change:**

Littelfuse is going to change foundry location and change wafer size from 5-inch to 6-inch of SPA™ TVS Diode Arrays products for productivity improvement. There are no changes to fit, form, function of the finished product.

**Important Dates:**

- Qualification Samples Available: Upon request  Last Time Buy:
- Final Qualification Data Available: Dec 25<sup>th</sup>, 2020
- Date of Final Product Shipment:

**Method of Distinguishing Changed Product**

- Product Mark,
- 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** : Sophia Hu-SPA Assistant Product Manager, Jordan Hsieh-SPA Product Engineering Manager,  
Light Hsieh-SPA Product Engineer,  
**Date** : 12/21<sup>th</sup>/2020  
**Device** : All SPA products involved, list in 2.0  
**Revision** : A

---

**1.0 Objective:**

The purpose of this project is to qualify wafer size change from 5 inch to 6 inch for all affected SPA products. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

**2.0 Applicable Devices:**

| Affected Part Numbers |                |                  |
|-----------------------|----------------|------------------|
| AQ2555NUTG            | SP2555NUTG     | SP4042-02UTG     |
| AQ4020-01FTG          | SP3304NUTG     | SP4042-02UTG-ER  |
| AQ4020-01FTG-C        | SP3304NUTG-ER  | SP4042-02UTG-ER1 |
| SLVU2.8-4BTG          | SP3312TUTG     | SP4044-04ATG     |
| SLVU2.8-8BTG          | SP3374NUTG     | SP4045-04ATG     |
| SLVU2.8HTG            | SP4020-01FTG   | SP4050-12UTG-IMP |
| SP2504NUTG            | SP4020-01FTG-C | SP4065-08ATG     |
| SP2504NUTG-C          | SP4031-02BTG   | SRDA3.3-4BTG     |
| SP2504NUTG-N          |                |                  |

**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

No change of BOM

**4.0 Packing Method**

No change of packing method.

**5.0 Physical Differences/Changes:**

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

## 6.0 Reliability Test Results Summary:

| Test Items                         | Condition   | s/s          | Results<br>Defects/Sample Size | ETR#  |
|------------------------------------|---|--------------|--------------------------------|---|
| Pre-conditioning(PC)               | 24hrs 150°C soak, 168hrs 85°C/85%RH,<br>3 Reflows of peak temperature 260°C | 308 each lot | 0 fail of each lot             | ETR147602,147605,147606<br>ETR148942<br>ETR148948 |
| High Temperature DC Blocking(HTRB) | Bias=VRWM, Ta=150 C,<br>Duration=1008Hours                                  | 77 each lot  | 0 fail of each lot             |   |
| Temperature Cycle(TC)              | Ta=-55 C to +150 C, 15minutes dwell, Duration=1000<br>cycle                 | 77 each lot  | 0 fail of each lot             |   |
| Temperature/Humidity(H3TRB)        | Ta=85 C, 85%RH, Bias=VRWM,<br>Duration=1008 Hours                           | 77 each lot  | 0 fail of each lot             |   |
| Autoclave(AC)                      | Ta=121 C, 100%RH, 2 atm,<br>Duration=96 Hours                               | 77 each lot  | 0 fail of each lot             |   |
| Resistance to Soler Heat(RSH)      | 260 C, 10sec  | 30 each lot  | 0 fail of each lot             |   |
| Moisture Sensitivity Level(MSL)    | Per J-STD-020E Level 1  | 22 each lot  | 0 fail of each lot             |   |
| Solerability(SD)                   | Reflow  | 10 each lot  | 0 fail of each lot             |   |

## 7.0 Electrical Characteristic Summary:

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

## 8.0 Changed Part Identification:

No change

## 9.0 Recommendations & Conclusions:

Based on the qual test results, it is determined that new wafer foundry location was qualified and certified for production of Littelfuse's datasheet.

## 10.0 Approvals:

Sophia Hu  
SPA Assistant Product Manager  
Littelfuse, Wuxi

Jordan Hsieh  
SPA Product Engineering Manager  
Littelfuse, HsinChu

Light Hsieh  
SPA Product Engineer  
Littelfuse, HsinChu