



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

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Nov 18<sup>th</sup>, 2019

RE: PCN # ESU270-47 – SC70-3L & DFN-10L 2.6x2.6 alternative backend location approval

To our valued customers,

Littelfuse would like to notify you another newly approved backend location for SC70-3L & DFN-10L 2.6x2.6 TVS Diode Array (SPA® Diodes) product. This new 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 product.

Qualification efforts are completed, and the new factory is online for immediate shipments. Please see the documentation in the following pages for change details.

**Products Affected:**

SC70-3L Part Numbers
SP1001-02JTG
SP1002-02JTG
SP0502BAJTG

DFN-10L 2.6x2.6 Part Numbers
SP2504NUTG
SP2504NUTG-C
SP3304NUTG

The affected product has 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:** Feb 18<sup>th</sup>, 2020 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 Jia Zhu, Product Manager.

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

Best Regards,

Jia Zhu  
TVS Diode Array 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#:**

ESU270-47 Date: Nov 18, 2019

Product Identification :

SC70-3L & DFN-10L 2.6x2.6 TVS Diode Array Product

alternative backend location approval

Implementation Date for Change:

Feb 18, 2020 or sooner

**Contact Information**

Name: Jia Zhu

Title: Product Marketing Manager

Phone # : +86 13913131571

Fax# : N/A

E-mail : jzhu3@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 another alternated backend assembly, test, and packing locations for SC70-3L & DFN-10L 2.6x2.6. There are no changes to fit, form & function of the finished product. The affected product has been fully qualified in accordance with all established criteria for performance and reliability. All relevant details are included in the supplemental pages.

**Important Dates:**

- Qualification Samples Available: Available  Last Time Buy:
- Final Qualification Data Available: Available
- 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.



# PCN Report

## ETR # Various

**Prepared By** : Jia Zhu-SPA Product Manager, Jordan Hsieh-SPA Product Engineering Manager,  
Light Hsieh-SPA Product Engineer,  
**Date** : 11/13/2019  
**Device** : SC70-3L & DFN-10L 2.6x2.6 products  
**Revision** : A

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### 1.0 Objective:

The purpose of this project is to qualify an alternative assembly supplier for SC70-3L and DFN-10L 2.6x2.6 products. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

### 2.0 Applicable Devices:

#### 2.1 SC70-3L

SP1001-02JTG
SP1002-02JTG
SP0502BAJTG

#### 2.2 DFN-10L 2.6x2.6

SP2504NUTG
SP2504NUTG-C
SP3304NUTG

### 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

Please refer to below tables (On next page):

SC70-3L			
Item	Original (H site)	New (F site)	Change or not
Lead frame	A194	CAC5	Yes
Die Attach Material	8006NS/2200D	84-1LMISR4	Yes
Wire	Gold	Gold	No
Mold Compound	G600	G600	No
Plating	Matte Tin	Tin	Yes

DFN-10L 2.6x2.6			
Item	Original(H site)	New (G site)	Change or not
Leadframe	Copper alloy	Copper alloy	No
Die Attach Material	8600	QMI519	Yes
Wire	Cu	Cu	No
Mold Compound	CEL9220	G770	Yes
Plating	PPF	PPF	No

#### 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:

##### 6.1 SC70-3L products summary report:

Test Items	Condition	S/S	Results	ETR#
Pre-conditioning(PC)	24hrs 150°C soak, 168hrs 85°C/85%RH, 3 Reflows of peak temperature 260°C	308 each lot	0/308	ETR129871 ETR131471 ETR132237
High Temperature DC Blocking(HTRB)	Bias=VRWM, Ta=150°C, Duration=1008Hours	77 each lot	0/231	
Temperature Cycle(TC)	Ta=-55°C to +150°C, 15minutes dwell, Duration=1000 cycle	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, 2 atm, Duration=96 Hours	77 each lot	0/231	
Resistance to Solder Heat(RSH)	260°C, 10sec	30 each lot	0/90	
Moisture Sensitivity Level(MSL)	Per J-STD-020E Level 1	22 each lot	0/66	
Solderability(SD)	Reflow	10 each lot	0/30	

##### 6.2 DFN-10L 2.6x2.6

Test Items	Condition	S/S	Results	ETR#
Pre-conditioning(PC)	24hrs 150°C soak, 168hrs 85°C/85%RH, 3 Reflows of peak temperature 260°C	308 each lot	0/308	ETR129848 ETR129855 ETR132242
High Temperature DC Blocking(HTRB)	Bias=VRWM, Ta=150°C, Duration=1008Hours	77 each lot	0/231	
Temperature Cycle(TC)	Ta=-55°C to +150°C, 15minutes dwell, Duration=1000 cycle	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, 2 atm, Duration=96 Hours	77 each lot	0/231	
Resistance to Solder Heat(RSH)	260°C, 10sec	30 each lot	0/90	
Moisture Sensitivity Level(MSL)	Per J-STD-020E Level 1	22 each lot	0/66	
Solderability(SD)	Reflow	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:

There are suppliers qualified, detail please refer to below table

Package Type	Part Number	Original	Currently
SC70-3L	Refer to 2.1	H	F, H
DFN-10L 2.6x2.6	Refer to 2.3	H	G, H

And it can be identified by code of CAT NO on the label.

Barcode Scanning Result

(P)PART NO: PSPXXXX-XXXX	HF	Pb Pb= FREE
PART DESCRIPTION	CAT NO: *	
(Q)Q'TY: QXXXX	(K)PO NO: KXXXXXX	
(1T)LOT NO: TXXXXXX		
(1T)LOT NO: (When necessary) TXXXXXX		
 COUNTRY OF ORIGIN "COUNTRY" DATE CODE (MM/DD/YY)		

## 9.0 Recommendations & Conclusions:

Based on the test results, it is determined that the alternative assembly supplier for SC70-3L and DFN2626-10L products are qualified and certified for production of all Littelfuse datasheet.

## 10.0 Approvals:

**Jia Zhu**  
SPA Product Manager  
Littelfuse, Wuxi

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

**Light Hsieh**  
SPA Product Engineer  
Littelfuse, HsinChu