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

May 5th, 2019

RE: PCN # ESU270-44 – Alternate Locations Approval 2.8V/3.3V/6V of SOIC8 Package & SLVU2.8HTG Wafer Foundries and Backend Assembly, Test and Packing

To our valued customers,

Littelfuse would like to notify you of new approved wafer foundries location and a new backend location for 2.8V/3.3V/6V of SOIC8 package & SLVU2.8HTG SPA™ TVS Diode Arrays products. The two new wafer foundries in Taiwan & China, and backend location in Philippines are all fully approved. 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.

Products Affected:

Affected Part Numbers
LC03-3.3BTG
SP03-3.3BTG
SP03-3.3BTG-1
SP03A-3.3BTG-1
SP03-6BTG
SP2502LBTG
SLVU2.8HTG
SLVU2.8-4BTG
SLVU2.8-4BTG-S

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: Aug 1st, 2019 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
+86 510 85277701 - 7966
jzhu3@littelfuse.com

800 E. Northwest Highway Des Plaines, IL 60016

Product/Process Change Notice (PCN)

PCN# :

ESU270-44 Date: May 5th, 2019

Product Identification :

2.8V/3.3V/6V of SOIC8 package & SLVU2.8HTG TVS Diode Array Product alternative wafer foundries & backend location approval

Implementation Date for Change:

Aug 1st, 2019 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:

Alternate locations approval for 2.8V/3.3V/6V of SOIC8 package & SLVU2.8HTG wafer foundries and backend assembly, test and packing.

Important Dates:

☒ Qualification Samples Available: Up to request

☐ Last Time Buy:

☒Final Qualification Data Available: Up to request

☐ Date of Final Product Shipment:

Method of Distinguishing Changed Product

☒Product Mark, See (5.0) in the succeeding PCN report for details

☐ Date Code,

☒ Other, labeling see (8.0) in the succeeding PCN report for details

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 : 03/19/2019
Device : Refer to 2.0
Revision : A

1.0 Objective:

The purpose of this project is to qualify new wafer foundry and second assembly site for 2.8V/3.3V/6V of SOIC8 package & SLVU2.8HTG. Succeeding pages summarized the physical, electrical and reliability test performance in qualification lots.

2.0 Applicable Devices:

Part Numbers
LC03-3.3BTG
SP03-3.3BTG
SP03-3.3BTG-1
SP03A-3.3BTG-1
SP03-6BTG
SP2502LBTG
SLVU2.8HTG
SLVU2.8-4BTG
SLVU2.8-4BTG-S

3.0 Assembly, Process & Material Differences/Changes:

3.1 Assembly Changes

Part Numbers	Wafer source change	assy source
LC03-3.3BTG	v	
SP03-3.3BTG	v	
SP03-3.3BTG-1	v	Add one more supplier
SP03A-3.3BTG-1	v	Add one more supplier
SP03-6BTG	v	Add one more supplier
SP2502LBTG	v	
SLVU2.8HTG	v	
SLVU2.8-4BTG	v	
SLVU2.8-4BTG-S	v	

3.2 Process Changes

There are no changes in the process method

3.3 Material Change

There is no material change based on original usage.

4.0 Packing Method

No changes in the packing method.

5.0 Physical Differences/Changes:

Summary table of body marking
(Note: The alphabet before date code of body marking can identify assembly source)

Part Numbers	Original	New qualify
SP03-3.3BTG-1	SP03-3.3 T DateCode	SP03-3.3 C DateCode
SP03A-3.3BTG-1	SP03A-3.3 T DateCode	SP03A-3.3 C DateCode
SP03-6BTG	SP03-6 T DataCode	SP03-6 C DateCode

6.0 Reliability Test Results Summary:

Test Items	Condition	S/S	Results	ETR #
Precondition	(1) Bake 24hr @ 150°C (2) 168hrs @ 85% RH and 85°C (3) IR Reflow, 3 reflows, Peak Temperature of 260°C	308	0/308 0/308 0/308	ETR124041 ETR124509 ETR124447
DC Blocking (HTRB)	Bias = 100% VRWM Ta = 150°C Duration = 1008 Hours	77	0/77 0/77 0/77	
Temperature Cycle	Ta = -55°C to +150°C Duration = 1000 Cycles	77	0/77 0/77 0/77	
Temperature/Humidity (H^3TRB)	Bias = 100% VRWM Ta = 85°C, 85% RH Duration = 1008 Hours	77	0/77 0/77 0/77	
Autoclave	Ta = 121°C, 100%RH, 15psi Duration = 1008 Hours	77	0/77 0/77 0/77	
Resistance Solder to Heat(RSH)	Refer to Precondition Test	30	0/30 0/30 0/30	
Moisture Sensitivity Level(MSL)	Refer to Precondition Test	22	0/22 0/22 0/22	
Solderability	Refer to Precondition Test	10	0/10 0/10 0/10	

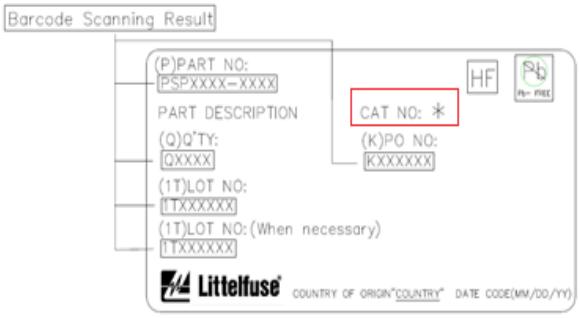
7.0 Electrical Characteristic Summary:

No difference in electrical characteristics. Characterization data is met requirement.

8.0 Changed Part Identification:

Assy change can be identified by mark code of CAT NO on the label as below description.

Part Numbers	Original CAT NO.	New qualify CAT NO.
SP03-3.3BTG-1	T	C
SP03A-3.3BTG-1	T	C
SP03-6BTG	T	C



Label format

9.0 Recommendations & Conclusions:

Based on the reliability test results, it is determined that new wafer foundries and second assembly site are qualified and certified for 2.8V/3.3V/6V of SOIC8 package & SLVU2.8HTG production of Littelfuse® datasheet.

10.0 Approvals:

Jia Zhu	**Jordan Hsieh**	**Light Hsieh**
SPA Product Manager	**SPA Product Engineering Manager**	**SPA Product Engineer**
Littelfuse, Wuxi	**Littelfuse, HsinChu**	**Littelfuse, HsinChu**