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

Dec 19th, 2014

RE: PCN # ESU270-29 -- SR70-02CTG Alternate Manufacturing Location Approval for Wafer Foundry & Backend Assembly, Test and Packing

To our valued customers,

Littelfuse would like to notify you of a newly approved wafer foundry location and a backend location for the SR70-02CTG TVS Diode Array (SPA® Diodes) products. The new wafer foundry in China and the new backend factory in Philippines are all fully approved. There are no changes to fit, form, and function of the finished product.

Qualification efforts are complete and the new factories are online for immediate shipments. Please see the attached documentation for change detail 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.

Form, fit, function changes: None
Part number changes: None
Effective date: Dec 19th, 2014
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 Chad Marak, Product Manager.

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

Best Regards,

Chad Marak

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Product/Process Change Notice (PCN)

PCN#: ESU270-29 Date: 12/19/2014	**Contact Information**
Product Identification:	Name: Chad Marak
SR70-02CTG of TVS	Title: Product Marketing Manager
Diode Array Products	Phone #: +1 408 886 1600
Implementation Date for Change:	Fax#: N/A
12/19/2014	E-mail: cmarak@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 a new wafer foundry location and an alternate backend assembly, test, and packing location for SR70-02CTG product.

There are no changes to fit, form & function of the finished product. The affected products have been fully qualified in accordance with all established criteria for performance and reliability

All relevant detail is included in the supplemental pages..

Important Dates:

☒ Qualification Samples Available: 12/19/2014
☒ Final Qualification Data Available: 12/19/2014
☐ Date of Final Product Shipment:

☐ Last Time Buy:

Method of Distinguishing Changed Product

☐ Product Mark,
☐ Date Code,
☒ Other, 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:

N/A

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 # 64833

Prepared By : Jordan Hsieh-SPA Product Engineering Manager,
: Ming-Huan Ko-SPA Product Engineer
Date : DEC/16/2014
Device : SR70-02CTG Product
Revision : A

1.0 Objective:

The purpose of this project is to qualify a new wafer foundry location and a second / alternate assembly location for SR70-02CTG product. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

2.0 Applicable Devices:

Part Numbers	Part Numbers
SR70-02CTG	

3.0 Assembly, Process & Material Differences/Changes:

3.1 Assembly and Process Changes

There are no changes in the assembly and process method.

3.2 Material Changes

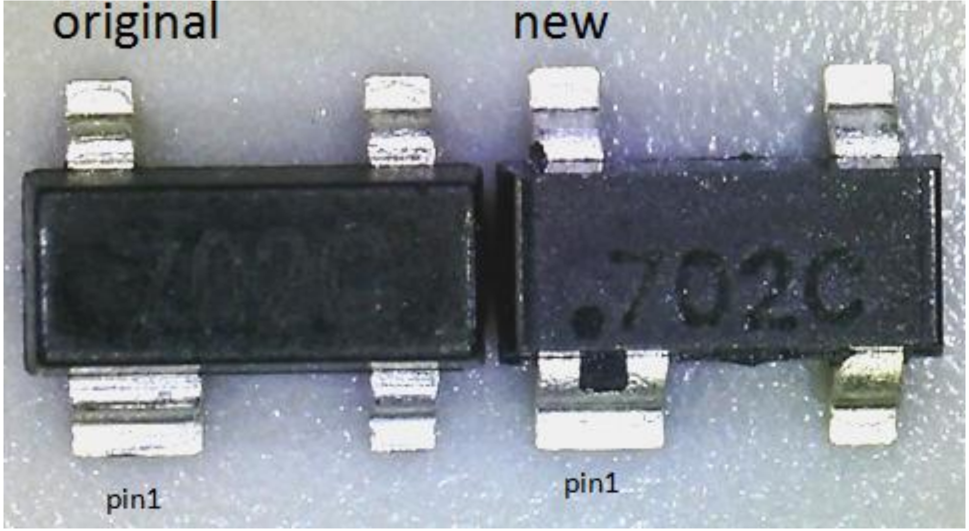
Material	SR70-02CTG				
	Original		New		Changed?
	Material Name	Supplier	Material Name	Supplier	
Leadframe	YEF-42	XMYH	A42	PSMC	Yes
Die Attach Material	84-1LMISR4	HENKEL	84-1LMISR4	HENKEL	No
Au Wire	30um	HERAEUS	30um	HERAEUS	No
Molding Compound	ELER-8-100HFE	E'DALE	G600	SUMITOMO BAKELITE	Yes
Lead Finish	Matte Tin	Yunnan	Matte Tin	REDRING SOLDER (M) SDN. BHD.	Yes
Wafer	333DA		LFSPR03A LFSNR01A		Yes

4.0 Packing Method

There will be no changes in the packing method.

5.0 Physical Differences/Changes:

Pin1 appearance is changed. The other dimensions are no change in mechanical specification or package outline dimension (POD).



6.0 Reliability Test Results Summary:

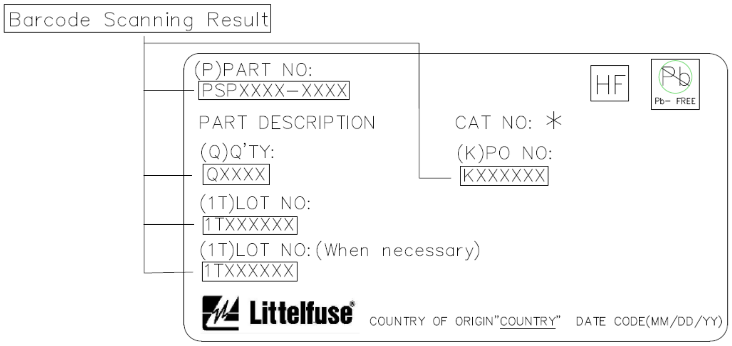
Test Items	Condition	S/S	Results	ETR #
Precondition	Bake 24hr @ 150°C	320	0/320	ETR 64833
DC Blocking(HTRB)	Bias = 70V & 140V Ta = 125°C Duration = 1008 Hours	160	0/160	
Temperature Cycle	Ta = -55°C to +150°C Duration = 1000 Cycles	80	0/80	
Temperature/Humidity (H^3TRB)	Bias=70V Ta = 85°C, 85% RH Duration = 1008 Hours	79	0/79	
Autoclave	Ta = 121°C, 100%RH, 15psi Duration = 96 Hours	80	0/80	
Moisture Sensitivity Level(MSL)	Refer to Precondition Test	80	0/80	
Mechanical Dimensions	Refer to spec in datasheet	30	0/30	

7.0 Electrical Characteristic Summary:

There is no change in electrical characteristics. Characterization data is available upon request.

8.0 Changed Part Identification:

To distinguish different manufacturing locations please refer to labeling information as CAT NO:



Original	New Backend Location
CAT No : S	CAT No : C

9.0 Recommendations & Conclusions:

Based on the test results, it is determined that the new wafer foundry location and the second/alternative assembly location are qualified and certified for production of Littelfuse® SR70-02CTG product.

10.0 Approvals:

Jordan Hsieh
SPA Product Engineering Manager
Littelfuse, Hsinchu