

Suite 500 Chicago, Illinois USA 60631

Oct 21<sup>th</sup>, 2015

RE: PCN # ESU270-32 -- SP1006-01UTG Backend Assembly, Test and Packing Location Transfer

To our valued customers,

Littelfuse would like to notify you of an upcoming backend site transfer for SP1006-01UTG TVS Diode Array (SPA® Diodes) product. The backend assembly and packaging operations will begin transitioning from Thailand to China. We reduced height of finished product to align with industry standard profile. Refer to PCN report for details.

Qualification efforts are complete and the new capacity is 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: Reduce height of finished product

Part number changes: None

Effective date: Jan 21th, 2016 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 Tim Micun, Product Manager.

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

Best Regards,

Tim Micun 8755 W. Higgins Road, Suite 500 Chicago, Illinois USA 60631 +1 408 409 3657 tmicun@littelfuse.com



800 E. Northwest Highway Des Plaines, IL 60016

# Product/Process Change Notice (PCN)

<b>PCN#:</b> ESU270-32 Date: Oct 21, 201	5	Contact Information			
Product Identification:		Name: Tim Micun			
SP1006-01UTG of TVS		Title: Product Marketing Manager			
Diode Array Products		Phone #: +1 408 409 3657			
Implementation Date for Change:		Fax#: N/A			
Jan 21, 2016 or sooner		E-mail: tmicun@littelfuse.com			
Category of Change:	Descri	ption of Change:			
☐ Assembly Process	Transfer backend assembly, test, and packing location for SP1006-01UTG				
□ Data Sheet	product from current location in Thailand to China.				
☐ Technology	We reduced height of finished product to align with industry standard profile.				
☐ Discontinuance/Obsolescence	The affected product has been fully qualified in accordance with all establish				
☐ Equipment	criteria for performance and reliability				
Manufacturing Site	All relevant detail is included in the supplemental pages				
Raw Material					
☐ Testing					
Fabrication Process					
Other:					
Important Dates:					
Qualification Samples Available: Oct	21, 201	5 Last Time Buy:			
Final Qualification Data Available: Oc	ct 21, 20	15			
☐ Date of Final Product Shipment:					
Method of Distinguishing Changed Pro	oduct				
☐ Product Mark,					
☐ Date Code,					
☑ Other, CAT NO, refer to section 8 in s	succeedi	ing PCN report			
<b>Demonstrated or Anticipated Impact o</b>	n Form,	Fit, Function or Reliability:			
None					
LF Qualification Plan/Results:					
N/A					
Customer Acknowledgement of Receip	ot: Littelf	use requests you acknowledge receipt of this PCN. In your acknowledgement, you can			
grant approval or request additional information. Lit	ttelfuse wil	l 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 # 75345

**Prepared By**: Jordan Hsieh-SPA Product Engineering Manager,

: Ming-Huan Ko-SPA Product Engineer

**Date** : Oct/15/2015

**Device** : SP1006-01UTG Product

**Revision** : C

#### 1.0 Objective:

The purpose of this project is to qualify a new assembly location for SP1006-01UTG product. We will no longer manufacture SP1006-01UTG at the original assembly location; however we will continue to manufacture SP1006-01UTG at the new assembly location. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lot.

#### 2.0 Applicable Devices:

Part Numbers
SP1006-01UTG

# 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

	SP1006-01UTG						
Material	Original		1	Ch 19			
	Material Name	Supplier	Material Name	Supplier	Changed?		
Leadframe	EFTECT64T	ASM	EFTECT64T	ASM	No		
Die Attach Material	CDF200	HENKEL	8008MD	HENKEL	Yes		
Au Wire	20um	TANAKA	20um	KangQiang	Yes		
Molding Compound	CELL9220HF13H	Hitachi Chemical	GE-300LCF	SUMITOMO BAKELITE	Yes		
Wafer	LFZE105A		LFZE105A		No		
Lead Finish	Ni,Pd,Au	ASM	Matte Tin	Tianshui Long Bo	Yes		

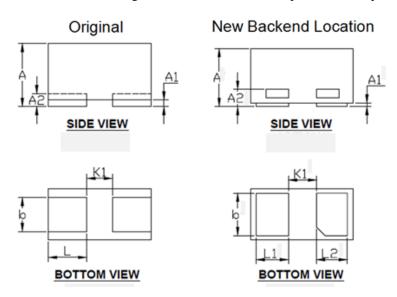
# 4.0 Packing Method

There will be no changes in the packing method.

#### 5.0 Physical Differences/Changes:



Unit thickness of new backend location is thinner than original one and pad dimension is different with original. There are no changes in the others mechanical specification or package outline dimension (POD).



Original		New Backend Location		
Α	0.37	Α	0.30	
A1	0.025	A1	0.02	
A2	0.075	A2	0.10	
b	0.20	b	0.25	
K1	0.15	K1	0.165	
L	0.225	L1	0.19	
		L2	0.18	

Unit: mm

# 6.0 Reliability Test Results Summary:

Test Items	Condition	S/S	Results	ETR#	
Precondition	Bake 24hr @ 150°C	320	0/311		
DC Blocking(HTRB)	Bias = 5V Ta = 155°C Duration = 1008 Hours	160	0/77	ETR 75345	
Temperature Cycle	Ta = -55°C to +150°C Duration = 1000 Cycles	80	0/77		
Temperature/Humidity (H <sup>3</sup> TRB)	Bias=5V Ta = 85°C, 85% RH Duration = 1008 Hours	79	0/79		
Autoclave	Ta = 121°C, 100%RH, 15psi Duration = 96 Hours	80 0/78			
Moisture Sensitivity Level(MSL)	'   Reter to Precondition Test		0/311		

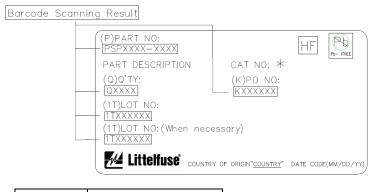


#### 7.0 Electrical Characteristic Summary:

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 : H CAT No : T

# 9.0 Recommendations & Conclusions:

Based on the test results, it is determined that the new assembly location is qualified and certified for production of Littelfuse® SP1006-01UTG product.

## 10.0 Approvals:

Jordan Hsieh SPA Product Engineering Manager Littelfuse, Hsinchu