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Jan 18<sup>th</sup>, 2018

RE: PCN # ESU270-41 – SOT23 package additional, alternative backend location approval

To our valued customers,

Littelfuse would like to notify you of two newly approved backend locations for SOT23 package TVS Diode Array (SPA® Diodes) products. One new backend factory in Malaysia and the other in China are 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 complete and the new factory 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:** None  
**Part number changes:** None  
**Effective date:** Apr 18<sup>st</sup>, 2018 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  
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# PCN Report

## ETR # Various

**Prepared By** : Jia Zhu-SPA Product Manager, Jordan Hsieh-SPA Product Engineering Manager,  
 Raider Chen-SPA Product Engineer,  
**Date** : 01/18/2018  
**Device** : SOT23-3/5/6L products  
**Revision** : A

### 1.0 Objective:

The purpose of this project is to qualify two alternative assembly suppliers for SOT23-3/5/6L package products. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

### 2.0 Applicable Devices:

2.1 SOT23-3/5/6L product list

SOT23-3L Part Numbers	SOT23-5L Part Number	SOT23-6L Part Number
SLVU2.8HTG	SP0504BAHTG	SP3051-04HTG
SM05-02HTG		SP0505BAHTG
SM12-02HTG		SP0504SHTG
SM15-02HTG		SP3002-04HTG
SM24-02HTG		SRV05-4HTG
SM36-02HTG		SP3012-04HTG
SP0502BAHTG		SP3050-04HTG

### 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

SOT23-3L	Item	Original	Supplier F	Supplier V	Change or not
	Lead frame	C194	C194	C194	No
	Die Attach Material	8008/2200D	84-1LMISR4	84-1LMISR4	Yes
	Wire	Gold	Gold	Gold	No
	Mold Compound	G600	G600/E500DJ	G600/CEL8240HF10	Yes
	Plating	Tin	Tin	Tin	No

SOT23-5L	Item	Original	Supplier V	Change or not
	Lead frame	C194	C194	No
	Die Attach Material	2200D	84-1LMISR4	Yes
	Wire	Gold	Gold	No
	Mold Compound	G600	CEL8240HF10	Yes
	Plating	Tin	Tin	No



SOT23-6L	Item	Original	Supplier V	Change or not
	Lead frame	C194	C194	No
	Die Attach Material	84-1LMISR4	84-1LMISR4	No
	Wire	Gold/Cu	Gold/Cu	No
	Mold Compound	G600	CEL8240HF10	Yes
	Plating	Tin	Tin	No

Added new assembly sites and material will follow their own qualified materials to mass production.

**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 SOT23-3/5/6L products summary report:

Test Items	Condition	S/S	Results	ETR #
Pre-conditioning	JESD22-A113	308 each lot	0/2464	ETR103432 ETR103437 ETR103436 ETR104585 ETR104596 ETR104597 ETR104774 ETR104775
DC Blocking(HTRB)	Bias = VRWM, Ta = 150°C Duration = 1008 Hours	77 each lot	0/616	
Temperature Cycle	Ta = -55°C to +150°C Duration = 1000 Cycles	77 each lot	0/616	
Temperature/Humidity	Ta = 85°C, 85% RH Duration = 1008 Hours	77 each lot	0/616	
Autoclave	Ta = 121°C, 100%RH, 2ATM Duration = 96 Hours	77 each lot	0/616	
Resistance to Solder Heat	260°C,10 sec M-2031	10 each lot	0/80	
Moisture Sensitivity Level (MSL)	Per Jedec J-STD-020D Level 1	308 each lot	0/2464	
Solderability	ANSI-J-STD-002	10 each lot	0/80	

**7.0 Electrical Characteristic Summary:**

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

**8.0 Changed Part Identification:**

There are qualified suppliers, detail please refer to below table

Package Type	Part Number	Original	New added
SOT23-3L	Refer to 2.1	H	F, V(new)
SOT23-5/6L	Refer to 2.1	H	V(new)

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 SOT23-3/5/6L 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

**Raider Chen**  
SPA Product Engineer  
Littelfuse, HsinChu