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

July 29th, 2022

RE: PCN # ESU270-80 – SOT23-5L/6L additional backend location approval

To our valued customers,

Littelfuse would like to notify you of an additional approved backend location for SOT23-5L/6L TVS Diode Array (SPA® Diodes) products. This additional 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 products.

Qualification efforts are complete, and the new factory is ramping for shipments.

Products Affected:

Affected Part Numbers
SP0504BAHTG
SP3019-04HTG
SP0505BAHTG
SP0504SHTG
SP0504SHTG-ER

The 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: October 29th, 2022 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 Sophia Hu, Assistant Product Manager.

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

Best Regards,

Sophia Hu
TVS Diode Array Assistant Product Manager
Semiconductor Business Unit, Wuxi, China
+86 510 85277701 - 7653
shu@littelfuse.com

PCN# :	**Contact Information**
ESU270-80 Date: July 29th, 2022 Product Identification : SOT23-5L/6L additional backend location approval Implementation Date for Change: Oct 29th, 2022 or sooner	Name: Sophia Hu Title: Assistant Product Manager Phone # : +86 13771377277 Fax# : N/A E-mail : shu@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 additional backend assembly, test, and packing location for SOT23-5L/6L. There are no changes to fit, form & function of the finished products.

Important Dates:

- ☒ Qualification Samples Available: Upon request
- ☐ Last Time Buy:
- ☒ Final Qualification Data Available: Upon request
- ☐ 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.

Prepared By : Jordan Hsieh-Product Engineering Manager,
Raider Chen-Product Engineer, Sophia Hu- Assistant Product Manager
Date : 2022/7/20
Device : SP3019-04HTG/SP0504SHTG/SP0504SHTG-ER/SP0504BAHTG/SP0505BAHTG
Revision : A

1.0 Objective:

This document is to qualify an additional assembly and testing site FOR SOT23-5L/6L package type. Summarize the physical, electrical and reliability test performed in qualification lots.

2.0 Applicable Devices:

2.1 Product name:

Affected Part Numbers
SP0504BAHTG
SP3019-04HTG
SP0505BAHTG
SP0504SHTG
SP0504SHTG-ER

3.0 Assembly, Process & Material Differences/Changes:

3.1 Assembly Changes

No change of assembled process.

3.2 Process Changes

No change of process method.

3.3 Material Change

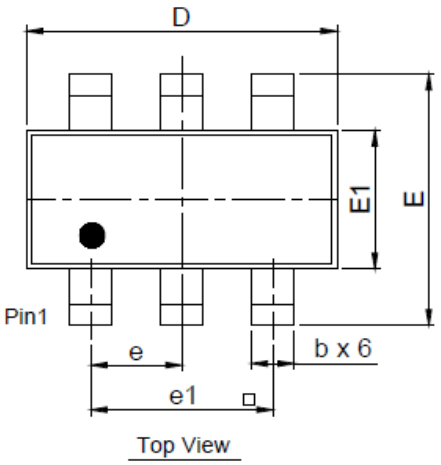
SOT23-5/6L			
Item	Original	New	Change or not
Lead frame	C194	C194	No
Die Attach Material	84-1LMISR4	84-1LMISR4	No
Wire	Gold	Gold	No
Mold Compound	CEL8240HF10	EK3600	Yes
Plating	Matte Tin	Matte Tin	No

4.0 Packing Method:

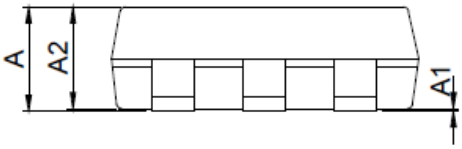
SOT23-5/6L			
Item	Original	New	Change or not
Color of 7-inch reel	Blue	Blue	No
Inner box	185*185*22(mm)	220*194*25(mm)	Yes
Outer box	350*220*230(mm) 650*260*260(mm) 610*450*210(mm)	438*231*241(mm)	Yes

5.0 Physical Differences/Changes:

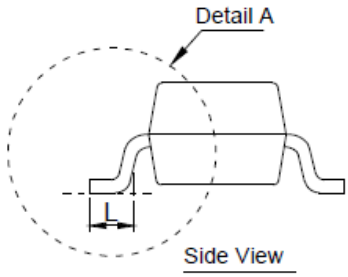
Symbol	Original			New		
	MIN	TYP	MAX	MIN	TYP	MAX
A	--	--	1.45	--	--	1.45
A1	0.000	--	0.15	0.000	--	0.15
A2	0.90	1.15	1.30	0.90	--	1.30
b	0.30	--	0.50	0.25	--	0.50
D	2.75	2.90	3.05	2.70	--	3.05
E	2.60	2.80	3.00	2.60	--	3.00
E1	1.45	1.60	1.75	1.45	--	1.75
e	0.95 BSC			0.95 BSC		
e1	1.9 BSC			1.9 BSC		
L	0.30	0.50	0.60	0.30	--	0.55



Top View



Bottom View



Side View

6.0 Reliability Test Results Summary:

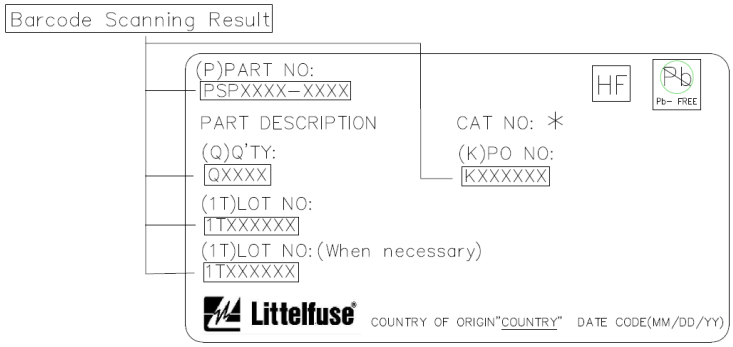
Test Items	Condition	S/S	Results	ETR #
Pre-conditioning (PC)	JESD22-A113	308 each lot	0/924	175240 173926 173923
DC Blocking (HTRB)	Bias = VRWM, Ta = 150°C, Duration = 1008 Hours	77 each lot	0/231	
Temperature Cycle (TC)	Ta = -55°C to +150°C, Duration = 1000 Cycles	77 each lot	0/231	
Temperature/Humidity (H3TRB)	Ta = 85°C, 85% RH, Bias = VRWM, Duration = 1008 Hours	77 each lot	0/231	
Autoclave (AC)	Ta = 121°C, 100%RH, 2ATM, Duration = 96 Hours	77 each lot	0/231	
Resistance to Solder Heat (RSH)	260°C, 10 sec, M-2031	10 each lot	0/30	
Moisture Sensitivity Level (MSL)	Per Jedec J-STD-020D Level 1	308 each lot	0/924	
Solderability (SD)	ANSI-J-STD-002	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:

Both were qualified suppliers and it can be identified by code of CAT NO on the label.



9.0 Approvals:

Sophia Hu	**Jordan Hsieh**	**Raider Chen**
SPA Assistant Product Manager	**SPA Product Manager**	**SPA Product Engineer**
Littelfuse, Wuxi	**Littelfuse, HsinChu**	**Littelfuse, HsinChu**