



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

Jan 13th, 2021

RE: PCN # ESU270-56 – Alternative lead frame vendors Approval for DFN0402 & DFN2510 & SOT23-3L & SOD323 & SOD523 & SC70

To our valued customers,

Littelfuse would like to notify you of approved alternative lead frame vendors for DFN0402 & DFN2510 & SOT23-3L & SOD323 & SOD523 & SC70 SPA™ TVS Diode Arrays products for BCP and productivity improvement. 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:

DFN0402-2L and DFN2510-10L Part Numbers		
SP1004U-ULC-04UTG	SP1212-01ETG	SPHV12-01ETG
SP3420-04UTG	SP1220-01ETG	SPHV15-01ETG
SP1064-04UTG	SP3530-01ETG	SPHV24-01ETG
SP3012-04UTG	SP1233-01ETG	SPHV36-01ETG
SP3012-04UTG-1	SP3522-01ETG	SPHV12-01ETG-C
SP1003-01ETG	SP3030-01ETG	SPHV15-01ETG-C
SP1005-01ETG	SP3031-01ETG	SPHV24-01ETG-C
SP1007-01ETG	SP1250-01ETG	SPHV36-01ETG-C
SP3022-01ETG	SP0402B-ELC-01ETG	SP0402B-ULC-01ETG
	SP0402U-ELC-01ETG	SP0402U-ULC-01ETG

SOT23-3L, SOD323, SOD523 and SC70 Part Numbers		
SD05-01FTG	SP4020-01FTG	SM05-02HTG
SD05C-01FTG	SP4020-01FTG-C	SM12-02HTG
SD12-01FTG	SP4021-01FTG	SM15-02HTG
SD12C-01FTG	SP4021-01FTG-C	SM24-02HTG
SD15-01FTG	SP4022-01FTG	SM36-02HTG
SD15C-01FTG	SP4022-01FTG-C	SP0502BAHTG
SD22-01FTG	SP4022-01FTG-C-L	SP1305-02HTG
SD24-01FTG	SP4023-01FTG	SP6150-01HTG
SD24C-01FTG	SP4023-01FTG-C	SP712-02HTG
SD36-01FTG	SP4024-01FTG	SP1326-01LTG
SD36C-01FTG	SP4024-01FTG-C	SP1326-01LTG-ER
SP4208-01FTG-C	SP4203-01FTG-C	SP0502BAJTG
	SP1002-02JTG	SP1001-02JTG



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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: April 13th, 2021 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

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PCN Report

ETR # Various

Prepared By : Jia Zhu-Product Manager, Jordan Hsieh-Product Engineering Manager,
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Date : 2021/1/11
Device : SPA products
Revision : A

1.0 Objective:

The purpose of this project is to qualify alternative lead frame suppliers for SPA products. Succeeding pages summarize the physical, electrical and reliability test performed in qualification lots.

2.0 Applicable Devices:

2.1 DFN0402-2L and DFN2510-10L Part Numbers

DFN0402-2L and DFN2510-10L Part Numbers		
SP1004U-ULC-04UTG	SP1212-01ETG	SPHV12-01ETG
SP3420-04UTG	SP1220-01ETG	SPHV15-01ETG
SP1064-04UTG	SP3530-01ETG	SPHV24-01ETG
SP3012-04UTG	SP1233-01ETG	SPHV36-01ETG
SP3012-04UTG-1	SP3522-01ETG	SPHV12-01ETG-C
SP1003-01ETG	SP3030-01ETG	SPHV15-01ETG-C
SP1005-01ETG	SP3031-01ETG	SPHV24-01ETG-C
SP1007-01ETG	SP1250-01ETG	SPHV36-01ETG-C
SP3022-01ETG	SP0402B-ELC-01ETG	SP0402B-ULC-01ETG
	SP0402U-ELC-01ETG	SP0402U-ULC-01ETG

2.2 SOT23, SOD323, SOD523 and SC70-3L Part Numbers

SOT23-3L, SOD323, SOD523 and SC70 Part Numbers		
SD05-01FTG	SP4020-01FTG	SM05-02HTG
SD05C-01FTG	SP4020-01FTG-C	SM12-02HTG
SD12-01FTG	SP4021-01FTG	SM15-02HTG
SD12C-01FTG	SP4021-01FTG-C	SM24-02HTG
SD15-01FTG	SP4022-01FTG	SM36-02HTG
SD15C-01FTG	SP4022-01FTG-C	SP0502BAHTG
SD22-01FTG	SP4022-01FTG-C-L	SP1305-02HTG
SD24-01FTG	SP4023-01FTG	SP6150-01HTG
SD24C-01FTG	SP4023-01FTG-C	SP712-02HTG
SD36-01FTG	SP4024-01FTG	SP1326-01LTG
SD36C-01FTG	SP4024-01FTG-C	SP1326-01LTG-ER
SP4208-01FTG-C	SP4203-01FTG-C	SP0502BAJTG
	SP1002-02JTG	SP1001-02JTG



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
No change of material.

4.0 Packing Method

No change of packing method.

5.0 Physical Differences/Changes:

No change of this item.

6.0 Reliability Test Results Summary:

6.1 DFN0402-2L and DFN2510-10L summary report:

Test Items	Condition	S/S	Results	ETR #
Pre-conditioning (PC)	JESD22-A113	308 each lot	Upon request	139830 139834 149781 148212 152497 152629 152635 152659
DC Blocking (HTRB)	Bias = VRWM, Ta = 150°C, Duration = 1008 Hours	77 each lot	Upon request	
Temperature Cycle (TC)	Ta = -55°C to +150°C, Duration = 1000 Cycles	77 each lot	Upon request	
Temperature/Humidity (H3TRB)	Ta = 85°C, 85% RH, Bias = VRWM, Duration = 1008 Hours	77 each lot	Upon request	
Autoclave (AC)	Ta = 121°C, 100%RH, 2ATM, Duration = 96 Hours	77 each lot	Upon request	
Resistance to Solder Heat (RSH)	260°C, 10 sec, M-2031	10 each lot	Upon request	
Moisture Sensitivity Level (MSL)	Per Jedec J-STD-020D Level 1	308 each lot	Upon request	
Solderability (SD)	ANSI-J-STD-002	10 each lot	Upon request	



6.2 SOT23, SOD323, SOD523 and SC70-3L summary report:

Test Items	Condition	S/S	Results	ETR #
Pre-conditioning (PC)	JESD22-A113	308 each lot	Upon request	152663 152664 152665 152666
DC Blocking (HTRB)	Bias = VRWM, Ta = 150°C, Duration = 1008 Hours	77 each lot	Upon request	
Temperature Cycle (TC)	Ta = -55°C to +150°C, Duration = 1000 Cycles	77 each lot	Upon request	
Temperature/Humidity (H3TRB)	Ta = 85°C, 85% RH, Bias = VRWM, Duration = 1008 Hours	77 each lot	Upon request	
Autoclave (AC)	Ta = 121°C, 100%RH, 2ATM, Duration = 96 Hours	77 each lot	Upon request	
Resistance to Solder Heat (RSH)	260°C, 10 sec, M-2031	10 each lot	Upon request	
Moisture Sensitivity Level (MSL)	Per Jedec J-STD-020D Level 1	308 each lot	Upon request	
Solderability (SD)	ANSI-J-STD-002	10 each lot	Upon request	

7.0 Electrical Characteristic Summary:

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

8.0 Changed Part Identification:

Internal control can identify lead frame difference.

9.0 Approvals:

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