



Expertise Applied | Answers Delivered

May 16th, 2017

RE: LFPCN41260

To: Our Valued Customers.

From: Littelfuse Product Management Team

Subject: SIDACtor® Devices Sawing grid Optimization

Similar to LFPCN41228 which issued two years ago for die grid optimization only for B and C-rated SIDACtor® Devices on DO-214AA Package

Littelfuse would like to notify you of another PCN- LFPCN41260 for die grid design optimization only for the rest SIDACtor® Devices in various Packages. there are NO changes in active area of silicon, therefore the actual electrical performance stays identical to existing design,

Please refer to 3rd page for qualification report and refer to separate attachment for the affected Part number List

There are no changes to fit, form, function and shape of the finished product and electrical parameter.

Form, Fit, Function and shape Changes: None

Part Number Changes: None

Effective Date: Aug, 16th, 2017

Migration period: Aug 16th 2017 to Dec 31st 2017

Replacement Products: N/A

Last Time Buy: N/A

If you have any other question or concerns, please contact Littelfuse® local sales representative, or Meng Wang, Product Manager for further assistance.

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

Best Regards,

Meng Wang

Product Manager

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Product Qualification Report

To: Those who may concern
 From: Zihui Chen, Product Engineer, Littelfuse,
 Date: May 9th, 2017
 Subject: SIDACTor die grid optimization qualification

Purpose:

This report is to inform the successful qualification test results associated with all SIDACTor die shrink grid product

1. Qualification Types (Test Vehicle)

Product Series	Representative Test Sample Part Numbers	Package	Assembly Location
SIDACTor	P0300S1ALRP	DO-214AC	Wuxi
	P833P0080S1BLRP		
	P6002SBLRP	DO-214AA	
	P4202SCLRP		
	PLED13SW		
	P1300SDLRP		
	P3500SDLRP		
	P1101SDLRP		
	P3100Q12BLRP	Q3X3	
	P0080Q22CLRP	Q3.3X3.3	
	P0084UALRP	MS-013	
	P1602ACLRP	A-PACK	

2. Qualification Test Items and Result Summary:

Test Category	Description	Sample P/N	Sample Qty	Littelfuse test Ref#	Contents/Conditions	Result summary
Parametric	Electrical Parameters	P0300S1ALRP	50	88094	VBO, V _{drm} , I _H , V _T	Meet datasheet spec
		P833P0080S1BLRP	50	87487		
		P6002SBLRP	50	87810		
		P4202SCLRP	50	87811		
		PLED13SW	50	90365		
		P1300SDLRP	50	90334		
		P3500SDLRP	50	90336		
		P1101SDLRP	50	90505		

		P3100Q12BLRP	50	91399		
		P0080Q22CLRP	50	91399		
		P0084UALRP	50	92727		
		P1602ACLRP	50	92729		
Surge out	Surge out 8*20us	P0300S1ALRP	10	88094	'+/- hit,from rated lpp,0.1lpp step	Meet datasheet spec
		P833P0080S1BLRP	10	87487		
		P6002SBLRP	10	87810		
		P4202SCLRP	10	87811		
		P1300SDLRP	10	90334		
		P3500SDLRP	10	90336		
		P1101SDLRP	10	90505		
		P3100Q12BLRP	10	91399		
		P0080Q22CLRP	10	91399		
		P0084UALRP	10	92727		
		P1602ACLRP	10	92729		
	Surge out 10*700us	P0300S1ALRP	10	88094	'+/- hit,from rated lpp,0.1lpp step	
		P833P0080S1BLRP	10	87487		
		P6002SBLRP	10	87810		
		P4202SCLRP	10	87811		
		P1300SDLRP	10	90334		
		P3500SDLRP	10	90336		
		P1101SDLRP	10	90505		
		P3100Q12BLRP	10	91399		
		P0080Q22CLRP	10	91399		
		P0084UALRP	10	92727		
P1602ACLRP	10	92729				
		P0300S1ALRP	10	88094		
		P833P0080S1BLRP	10	87487		
		P6002SBLRP	10	87810		
		P4202SCLRP	10	94943		
		P1300SDLRP	10	90334		
Surge out 10*1000us		P3500SDLRP	10	90336	'+/- hit,from rated lpp,0.1lpp step	
		P1101SDLRP	10	90505		
		P3100Q12BLRP	10	91399		
		P0080Q22CLRP	10	91399		
		P0084UALRP	10	92727		
		P1602ACLRP	10	92729		
VS	VS	P0300S1ALRP	10	88094	100V/us	Meet datasheet spec
		P833P0080S1BLRP	10	87487		
		P6002SBLRP	10	87810		
		P4202SCLRP	10	87811		
		P1300SDLRP	10	90334		
		P3500SDLRP	10	90336		
		P1101SDLRP	10	90505		
		P3100Q12BLRP	10	91399		
		P0080Q22CLRP	10	91399		
		P0084UALRP	10	92727		
P1602ACLRP	10	92729				
Reliability	DC/AC Blocking (HTRB)	P0300S1ALRP	77	88093	125°C,24h at +/- 80%Vdrm,AC	0 failure at 1008h
		P833P0080S1BLRP	77	87484		

		P6002SBLRP	77	90243	blocking test with AC peak 80% Vdrm 168/504/1008h	
		P4202SCLRP	77	90243		
		PLED13SW	77	90364		
		P1300SDLRP	77	90332		
		P3500SDLRP	77	90335		
		P1101SDLRP	77	90504		
		P3100Q12BLRP	77	91398		
		P0080Q22CLRP	77	91398		
		P0084UALRP	77	92726		
		P1602ACLRP	77	92728		
	Temperature Cycling (TC)	P0300S1ALRP	40	88093	-55°C ~+150°C, H851000cycles	0 failure at 1000Cycles
		P833P0080S1BLRP	40	87484		
		P6002SBLRP	40	90243		
		P4202SCLRP	40	90243		
		PLED13SW	40	90364		
		P1300SDLRP	40	90332		
		P3500SDLRP	40	90335		
		P1101SDLRP	40	90504		
		P3100Q12BLRP	40	91398		
		P0080Q22CLRP	40	91398		
		P0084UALRP	40	92726		
		P1602ACLRP	40	92728		
		P0300S1ALRP	40	88093		
		P833P0080S1BLRP	40	87484		
		P6002SBLRP	40	90243		
	H3TRB	P4202SCLRP	40	90243	168/504/1008h at Tj=85C/85% RH with device reverse biased at 80% VDRM and not exceed 52V	0 failure at 1008hrs
		PLED13SW	40	90364		
		P1300SDLRP	40	90332		
		P3500SDLRP	40	90335		
		P1101SDLRP	40	90504		
		P3100Q12BLRP	40	91398		
		P0080Q22CLRP	40	91398		
		P0084UALRP	40	92726		
		P1602ACLRP	40	92728		

3. MTBF Calculation

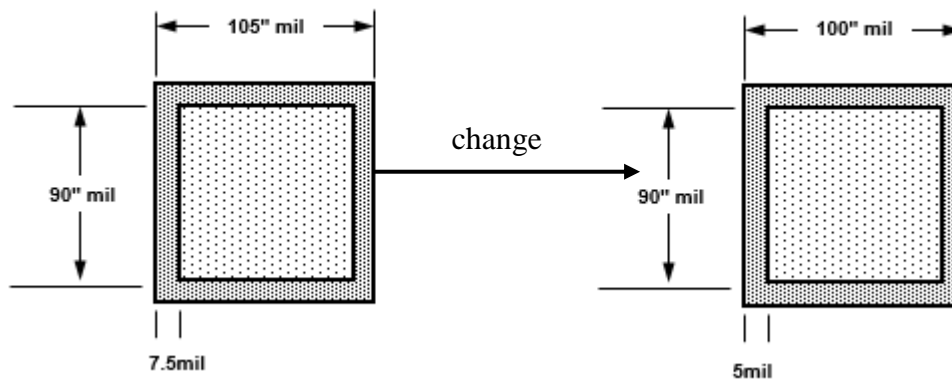
Estimate of Failure Rate, MTBF, FITS for a Given Operation Temperature (**See note**)

Temp °C	% FR/khrs	MTBF (K)	FITS
30	0.00004251	2352588	0.42
60	0.00133448	74918	13.34
80	0.00959617	10420	95.96
100	0.05584068	1790	558.4
125	0.39351454	254	3935.1

Note: The **Mean-Time-Between-Failure (MTBF)** in hours and the percent failure rate per 1000 hours (%FR/khr) are computed at a 60% confidence level using the chi square method and the Arrhenius derating model for various junction operating temperatures. For the calculations, a value of 1 eV was used for the activation energy.

4. FAB Process & Material Differences/Changes:

There is grid size change from 7.5mil/side to 5mil/side in FAB process method



5. Assembly Process & Material Differences/Changes:

There are no significant changes in the assembly and process method.

6. Conclusion

According to the above qualification test results, Littelfuse concluded that SIDACTor product series passed the all Reliability Test at WTC Lab.