

PRODUCT / PROCESS CHANGE NOTIFICATION PCN-000778 Date: JUL-29-2022

P1/1

Semtech Corporation, 200 Flynn Road, Camarillo CA 93012							
Change Details							
Part Number(s) Affecte	d:	Cu	stomer Part N	umber(s)	Affected: 🗵] N/A
	G54915-II	IE3					
Description, F	Purpose a	nd Effect of Chand	ae:				
• •	•	-	-				
To meet custome	er demands,	ASEM, Semtech's supp	lier, v	will replace its lead	d frame for C	S4915-IE3 6x6	5 40L
package assembl	ly. The curre	nt lead frame's supplier		rendered it obsole	ete. The curr	ent and new lea	ad frames
	sign, and in		OD.				
Γ	Curi	ent supplier		New suppli	er	7	
	Dyr	acraft (DCI)		QPL			
						_	
Change Classi	fication	🗌 Major 🛛 🖾 Mino	r	Impact to Fo Functio	orm, Fit, on	🗌 Yes	🛛 No
Impact to Dat	a Sheet	🗌 Yes 🛛 No		New Revisior	n or Date		🖂 N/A
Impact to Per	formanco	Characteristics o	r Po	liability			
	Ionnance		1 1.0	mabiney.			
There is no impac	ct to form, fit	function, performance,	chai	racteristics, or relia	ability.		
Implementation	on Date	AUG-29-2022		Work W	eek	WW	/36
Last Time Ship (LTS) Of unchanged product		N/A		Affecting Lot No. / Serial No. (SN)		N/A	
Sample Availability		JUL-01-2022		Qualification Report Availability		JUL-29-2022	
Supporting D	ocuments	for Change Valida	atio	h/Attachments	5: 5:		
		-					
 PRODDC 	DC026869 R	ev. 0 GS4915 (QPL Lea	adfra	me) Reliability Qu	alification Re	eport	
		lssui	ng /	Authority			
Semtech Official States in Product Over (OID)							
Business	Unit:		Signal Integrity Product Group (SIP)				
Dudu la Dunan				\sim \sim \sim	2		
Semtech Contact Info		Pedro Jr. Bernas pbernas@semtech.com (289) 856-9326 x1162			C		K
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GS4915 (QPL Leadframe) Reliability Qualification Report

Revision History

Version	ECO	Date	Modifications
0	ECO-062282	Jun 2022	New Release

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1 Background

Semtech's GS4915 currently uses leadframe from Dynacraft (DCI). To meet customer demands, ASEM, Semtech's supplier, will replace the leadframe for GS4915 assembly. The new leadframes will come from QPL and are identical in design and BOM as leadframes from DCI. This qualification intends to qualify the use of QPL leadframe on GS4915 at ASEM

2 Product Scope

The only product affected by this change is GS4915. Please find more details about the package type and lot numbers of parts used in this qualification in table 1 below.

Semtech Device Codes	GS4915
Package Type	6x6mm 40L QFN
Lot Numbers	7607.1, 7607.2, 7607.3

Table1: Package type and lot number information for GS4915 used in this qualification.

3 Qualification Approach

GS4915 has been fully qualified previously. For more information on the original qualification of GS4915, please refer to the GS4915 Qualification Report (GENDOC-046742)

This qualification only intends to assess the reliability impact of using substrate from QPL on GS4915. Thus, die-level reliability stresses (HTOL, ESD and LU) were not planned. TC, UHAST and HTS were carried out on three lots of 80 devices of each product using QPL substrate at the vendor side. A separate MSL qualification was also carried out at a Semtech facility for information. Please refer to table 1 in section 3 for more details about conditions of each qualification stresses.

4 Reliability Qualification Stresses

High Temperature Storage (HTS)JESD22-A10380 pcs/lots*3 lotsPassT=150 °CT=150 °CB0 pcs/lots*3 lotsPassJESD22-A118MSL3 preconditioning Pre and post CSAM96hrsGS491580 pcs/lots*3 lotsPassJ30°C, 85 % RH (Condition A)96hrsGS491580 pcs/lots*3 lotsPassJESD22-A104JESD22-A104BS202-A104BS202-A104BS202-A104MSL3 preconditioning Pre and Post CSAM850 cyclesGS491580 pcs/lots*3 lotsPassTCGross section analysis to inspect layer integrityN/AGS49151PassCross Sectional AnalysisCross section analysis to inspect layer integrityN/AGS49151PassMSL 3MSL3 preconditioning Pre and post CSAMN/AGS491580 pcs/lots*3 lotsPassCross Sectional AnalysisCross section analysis to inspect layer integrityN/AGS49151PassMSL 3MSL3 preconditioning re and post CSAMN/AGS491580 pcs/lots*3 lotsPass	Stress Test	Conditions	Duration	Qualification Vehicle	Sample Size	Result
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MSL 3 MSL3 preconditioning N/A GS4915 80 pcs/lots * 3 lots Pass Pre and post CSAM		JSTD020				
Pre and post CSAM	MSL 3	MSL3 preconditioning	N/A	GS4915	80 pcs/lots * 3 lots	Pass
		Pre and post CSAM				

Table 3: Reliability qualification stresses for GS4915 with QPL substrate

5 Conclusion

In conclusion, GS4915 with QPL leadframe has successfully passed required reliability stresses. Thus, QPL substrate can be considered qualified for use in GS4915 at ASEM.