



PRODUCT / PROCESS CHANGE NOTIFICATION

PCN-000726

Date: MAR-28-2022

P1/2

cSemtech Corporation, 200 Flynn Road, Camarillo CA 93012

Change Details

Part Number(s) Affected: GN2104C-INE3 GN2104R2BINE3 GN2104R2BINTE3D GN2104R2BINTE3Z GN2104R3BINE3 GN2104R3BINTE3D GN2104R3BINTE3Z GN2504A-INE3 GN2504-INE3 GN2904-INE3 GN2904-INTE3D GN2904-INTE3Z	Customer Part Number(s) Affected: <input checked="" type="checkbox"/> N/A
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Description, Purpose and Effect of Change:

Semtech has qualified Greatek Taiwan as an alternative assembly source for 5x7mm 54L QFN package assembly in order to improve supply chain security and efficiency.

ASEM is currently assembling 5x7mm 54L QFN packages, with final testing at KYEC.

Change Classification	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	Impact to Form, Fit, Function	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Impact to Data Sheet	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Revision or Date	<input checked="" type="checkbox"/> N/A

Impact to Performance, Characteristics or Reliability:

Overall qualification meets the requirements for assembly, testing, and reliability. The change has no impact on the performance, characteristics, or reliability.

Implementation Date	JUN-28-2022	Work Week	WW27
Last Time Ship (LTS) <small>Of unchanged product</small>	N/A	Affecting Lot No. / Serial No. (SN)	N/A
Sample Availability	MAR-28-2022	Qualification Report Availability	MAR-28-2022

Supporting Documents for Change Validation/Attachments:

- PRODDOC025861 Rev. 0 Reliability Qualification Report for 5x7 Package Assembly in Greatek




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P2/2

Issuing Authority	
Semtech Business Unit:	Signal Integrity Product Group (SIP)
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SEMTECH

Reliability Qualification report for 5x7 Package Assembly in Greatek

Revision History

Version	ECO	Date	Modifications
0	ECO-060383	Feb 2022	New Release

Contents

Revision History	2
Contents	2
1 Background	3
2 Qualification Approach	3
3 Reliability Qualification Stresses	4
4 Conclusion	5

1 Background

Semtech's 5x7 QFN package products are currently being assembled at ASEM, and final tested at KYEC. The purpose of this qualification is to qualify Greatek as a second source for 5x7 QFN assembly.

2 Product Scope

All products affected by this process change, along with their package type, are listed in table 1

Table 1: all products covered in this qualification and their package type

Product	Package Type
GN2904	5x7mm 54L QFNs
GN2504	
GN2104	

3 Qualification Approach

All products listed in table 1 has already been fully qualified previously (see table 3 for product document number of each qualification report). This qualification only intends to assess the reliability impact of having package assembly at Greatek. Thus, die-level reliability stresses (HTOL, ESD and LU) was not planned. TC, UHAST and HTS were carried out on three lots of 80 devices. For more information about the conditions of the qualification stresses, please refer to table in section 4.

Table 3: product document number of qualification reports for all product affected by this process change

Product	Product document number (Reliability Report)
GN2904	PRODDOC010826
GN2504	PRODDOC009773
GN2104	PRODDOC005740

4 Reliability Qualification Stresses

Table 4: Reliability qualification stresses for GN2904 assembled at Greatek

Stress Test	Conditions	Duration	Qualification Vehicle	Sample Size	Result
High Temperature Storage (HTS)	JESD22-A103	1000 hours	GN2904	80 pcs/lots (2 lots)	Pass
	Pre and post CSAM T=150 °C			79 pcs/lot (1 lot)*	
UHASt	JESD22-A118	96hrs	GN2904	80 pcs/lots (3 lots)	Pass
	MSL3 preconditioning Pre and post CSAM 130°C, 85 % RH (Condition A)				
TC	JESD22-A104	850 cycles	GN2904	80 pcs/lots (2 lots)	Pass
	MSL3 preconditioning Pre and Post CSAM -40°C to +125°C (Condition G)			76 pcs/lot (1 lot)*	

*4 pcs of TC devices and 1 pc of HTS censored due to non-stress related factors



5 Conclusion

In conclusion, GN2904 assembled at Greatek has successfully passed required reliability stresses. Thus, Greatek can be considered a qualified source for 5x7 QFN assembly.