



PRODUCT / PROCESS CHANGE NOTIFICATION

PCN-000659

Date: December 17, 2020

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<input type="checkbox"/>	Semtech Corporation, 200 Flynn Road, Camarillo CA 93012
<input type="checkbox"/>	Semtech Canada Corporation, 4281 Harvester Road, Burlington, Ontario L7L 5M4 Canada
<input type="checkbox"/>	Semtech Irvine, 5141 California Ave., Suite 100, Irvine CA 92617
<input checked="" type="checkbox"/>	Semtech Neuchatel Sarl, Route des Gouttes d'Or 40, CH-2000 Neuchatel Switzerland
<input type="checkbox"/>	Semtech Bristol - EMEA Limited, Block B, St James Court, Great Park Road, Bristol BS32 4QJ, UK
<input type="checkbox"/>	Semtech Corpus Christi SA de CV, Carretera Matamorros Edificio 7, Reynosa, Tamaulipas, Mexico 88780
<input type="checkbox"/>	Semtech Triune, 1101 Resource Drive, Suite 121, Plano TX 75074

Part Number(s) Affected:

SX1276IMLTRT
SX1278IMLTRT

Customer Part Number(s) Affected: ☒ N/A

Description, Purpose and Effect of Change:

For business continuity purposes, Semtech will start using qualified alternate sources for assembly and test for the above-mentioned parts.

The assembly of these parts is currently performed at Carsem and ASEM (Malaysia). An alternate source assembly has been qualified at Greatek.

The production final electrical test for these parts is currently performed at Carsem and ASE (Malaysia) on Teradyne Flex testers, and on Advantest 93000 testers at Giga (Taiwan). This Advantest 93000 test has been validated also at Greatek (Taiwan).

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:

No impact to performance, characteristics or reliability is expected as a result of this change.

Implementation Date	March 17, 2021	Work Week	2111
Last Time Ship (LTS) Of unchanged product	N/A	Affecting Lot No. / Serial No. (SN)	N/A
Sample Availability	December 17, 2020	Qualification Report Availability	See below



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Supporting Documents for Change Validation/Attachments

Assembly :

- From-To analysis.
- Qualification report available upon request.

Test:

- Validation report available upon request.

Issuing Authority

Semtech Business Unit: Wireless and Sensing (WSP)

Semtech Contact Info:

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FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: <http://www.semtech.com/contact/index.html#support>



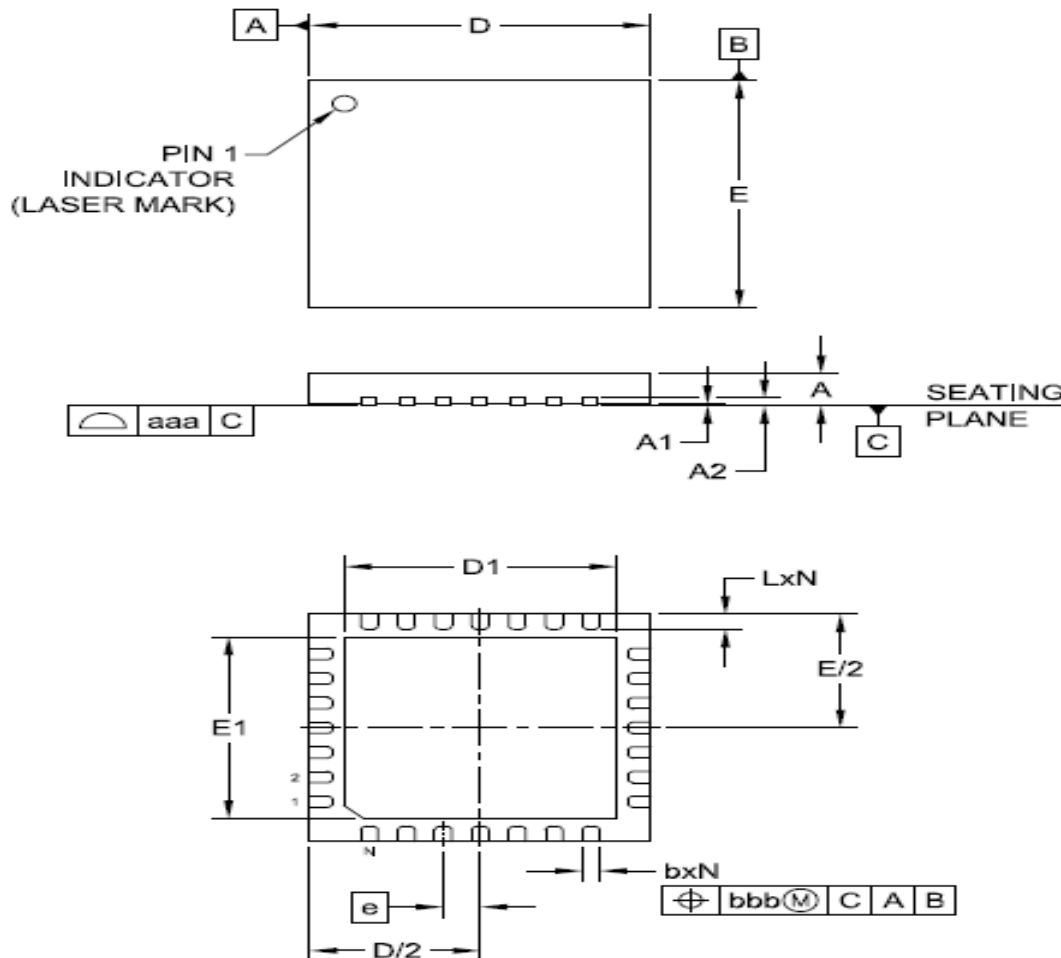
PCN No. 000659

Qualification of Greatek Taiwan as a second source Assembly manufacturer for LORA and ISM products

Introduction

- ❑ In order to increase the overall production capacity, Semtech is qualifying Greatek as a second source for assembly and test. Assembly is currently performed at Carsem.
- ❑ The selected qualification vehicle is SX1276IMLTRT.
- ❑ Schedule for Implementation :
 - Passing REL qualification MSL 3 under Rel job# 7140.

SEMTECH Package Outline on SX1276IMLTRT/ SX1278IMLTRT (Carsem and Greatek)



DIM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.80	—	1.00
A1	0.00	—	0.05
A2	(0,20)		
b	0.25	0.30	0.35
D	5.90	6.00	6.10
D1	4.65	4.80	4.90
E	5.90	6.00	6.10
E1	4.65	4.80	4.90
e	0.65 BSC		
L	0.30	0.40	0.50
N	28		
aaa	0.08		
bbb	0.10		

**No Change in
Package Outline.**

NOTES:

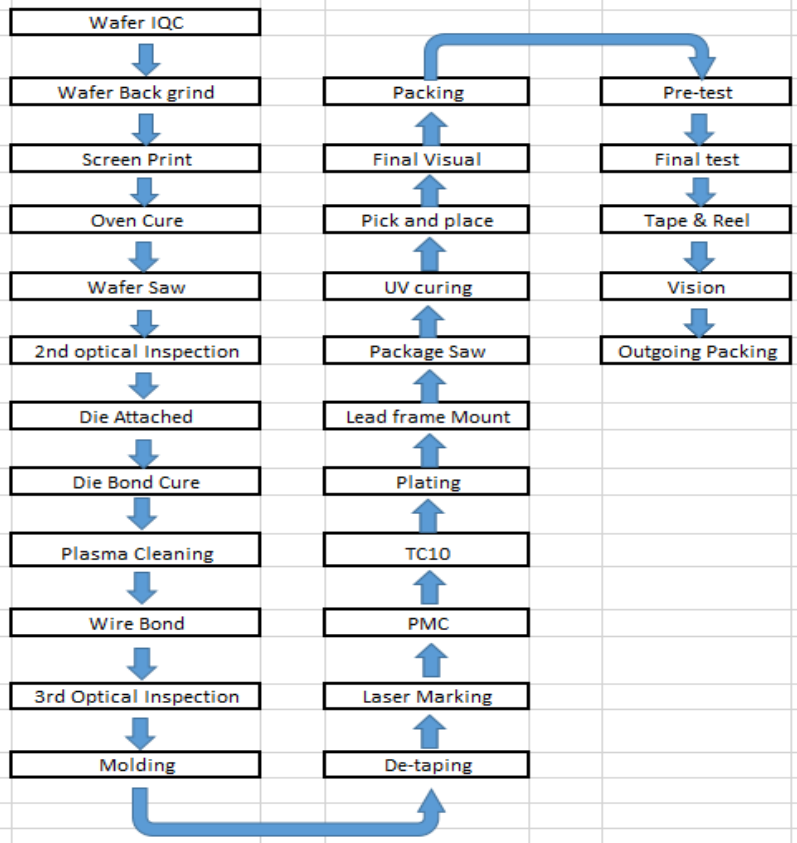
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.



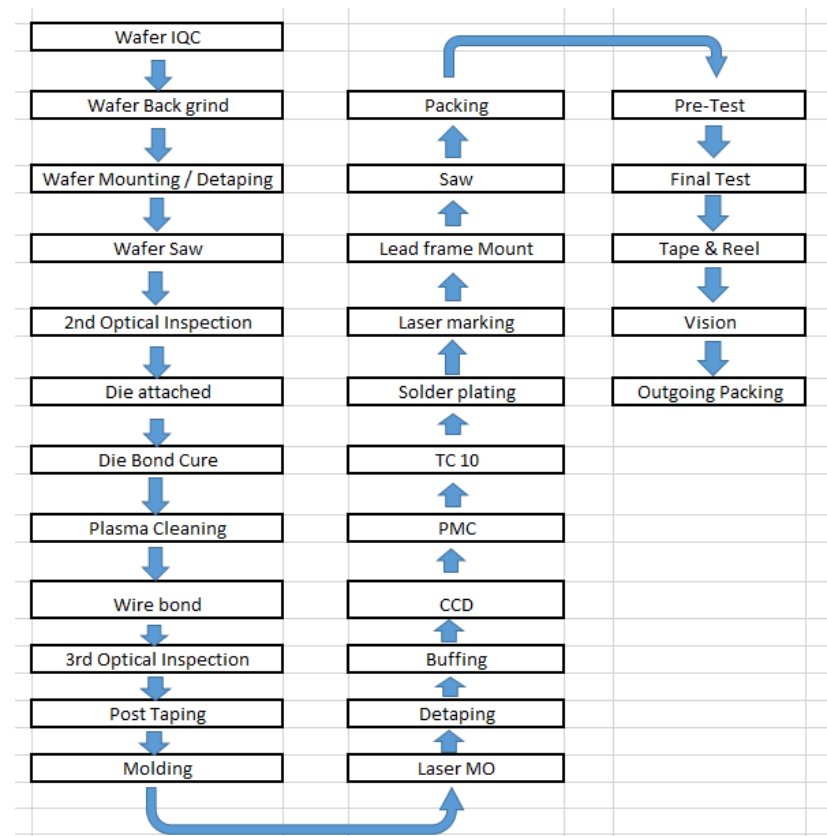
Assembly Process Flow (Carsem vs. Greatek)

Assembly Process Flow:

CARSEM (Old)



GREATEK (New)



- No major Change in manufacturing Flow
- 1X IR reflow process step is applied in the assembly flow for both Carsem and Greatek.

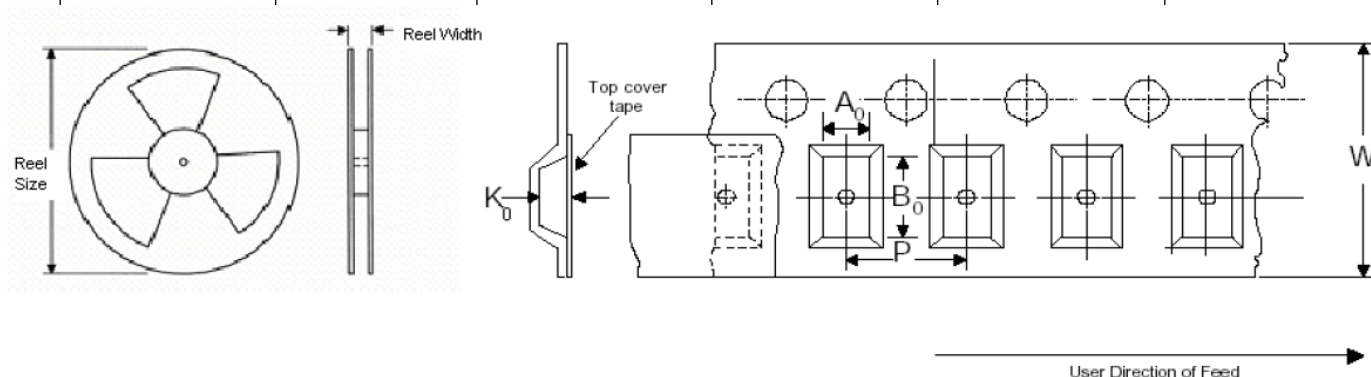
BOM (Carsem vs Greatek)

Carsem (Current)				Greatek (New)			
Epoxy	Leadframe	Wire Type	Mold compound	Epoxy	Leadframe	Wire Type	Mold compound
QMI519 Conductive epoxy	AgCu LDF	1.0 mils Au wire	G770HCD	EN-4900 Conductive epoxy	AgCu LDF	1.0 mils Au wire	G700HA

- Bill Of Material (BOM) for both suppliers (Greatek/Carsem) is MSL3 qualified.
- Carsem uses conductive epoxy of QMI519. Greatek uses EN-4900 which is also conductive epoxy. Both epoxys are supplier standard BOM with proven MSL3 performance.
- Lead frame base material and finishing is identical for both suppliers. These are supplier standard BOMs with proven MSL1 performance.
- Wire for both suppliers is identical, 1.0mils Au wire.
- Mold compound for Carsem is G770HCD and Greatek is G700HA. This is supplier standard BOM with proven MSL3 performance. Both BOMs running >5years high volume production. Greatek has shipped >100Mu with G700HA on QFN/DFN products.
- BOM selection between Carsem and Greatek is to ensure each subcontractor uses their previously qualified process. This avoids risk on new assembly process.

Carrier tape 6x6 comparison (Carsem Vs Greatek)

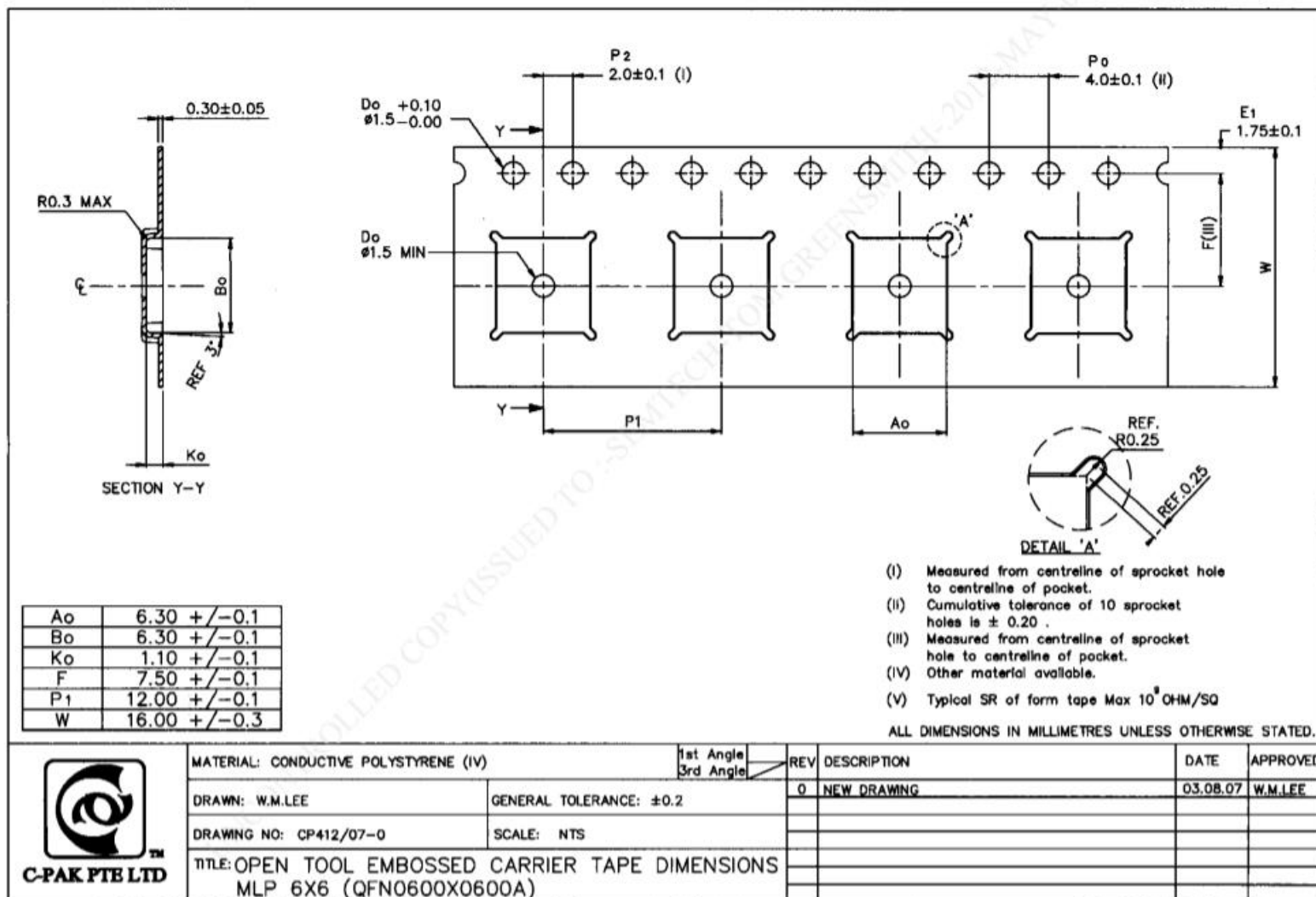
Carrier tape Carsem - CPAK (Current)				Carrier tape Greatek - UPAK (New)			
Ao	Bo	Ko	W	Ao	Bo	Ko	W
6.3+/- 0.1	6.3 +/- 0.1	1.1 +/- 0.1	16	6.3 +/- 0.1	6.3 +/- 0.1	1.1 +/- 0.1	16



Pkg size	Carrier tape (mm)					Reel				
	Tape Width (W)	Pocket Pitch (P)	Ao	Bo	Ko	Reel Size (in)	Reel Width (mm)	Minimum Trailer Length (mm)	Minimum Leader Length (mm)	QTY per Reel
6x6	16	12	6.30	6.30	1.10	13	16.4	400	400	3000

Carrier tape suppliers are different but critical dimensions are identical.

Carrier tape for Carsem 6x6 (Current)



THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO C-PAK PTE.LTD.

Carrier tape for Greatek (New)

