



PRODUCT / PROCESS CHANGE NOTIFICATION
PCN-000712
Date: 12-29-2021

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Semtech Corporation, 200 Flynn Road, Camarillo CA 93012

Change Details

Part Number(s) Affected: -TS30041-M000QFNR; -TS30041-M015QFNR; -TS30041-M018QFNR; -TS30041-M025QFNR; -TS30041-M033QFNR; -TS30041-M050QFNR; -TS30042-M000QFNR; -TS30042-M015QFNR; -TS30042-M018QFNR; -TS30042-M025QFNR; -TS30042-M033QFNR; -TS30042-M050QFNR;	Customer Part Number(s) Affected: <input checked="" type="checkbox"/> N/A
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Description, Purpose and Effect of Change:
 Add Carsem Ipoh to support production Assembly & Final Test)

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

Implementation Date	12/29/2021	Work Week	WW53
Last Time Ship (LTS) <small>Of unchanged product</small>	N/A	Affecting Lot No. / Serial No. (SN)	N/A
Sample Availability	-	Qualification Report Availability	Yes

Supporting Documents for Change Validation/Attachments:

- TS3004X-M0XXQFNR SZ to Ipoh Test qual data Transfer
- TS3004X-M0XXQFNR SZ to Ipoh Assembly qual data Transfer

Issuing Authority

Semtech Business Unit:	Power Management		
Semtech Contact Info:	<i>Carlos Sierra</i> Quality Assurance Semtech Corporation 200 Flynn Road Camarillo, CA, 93012		



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



Site Transfer

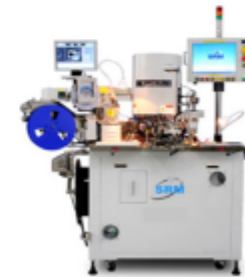
P/N TS30041-M0XXQFNR & TS30042-M0XXQFNR

From: Carsem Suzhou

To: Carsem Ipoh





COMPARISON BETWEEN CARSEM SUZHOU & CARSEM IPOH

ITEM	CARSEM SUZHOU	CARSEM IPOH
ATE Tester	ETS364	ETS364
Handler	Manufatcurer : SRM Model : XD248 Type : Turret/Rotary # Sites : Quad	Manufatcurer : SRM Model : XD248 Type : Turret/Rotary # Sites : Quad
Load Board	TS3001X/3004X	TS3001X/3004X
Test Program	ef3004x_BC01 (TP-001224)	ef3004x_BC01 (TP-001224)



SZ vs IPOH Handler Comparison

	Carsem Ipoh	Carsem SZ
Model	S248	XD248
Manufacturer	SRM Integration (Malaysia) Sdn Bhd	SRM Integration (Malaysia) Sdn Bhd
No of Site	Quad	Quad
Top Marking & Orientation Vision	Yes	Yes
Coplanarity & Pad Smear Vision	Yes	Yes
Integrated Tape and Reel	Yes	Yes
In Pocket Vision	Yes	Yes
Socket Cleaning Frequency	1x/Shift	1x/Shift
Impact to Part Lifetime	None	None

	IPOH - S248	SZ - XD248
Handler Photo		
GUI		

Remarks: Both Carsem SZ and Carsem IPOH handlers are compatible with similar capabilities

TS3004X Series – Qual Data

CPK Carsem Ipoh VS Carsem Suzhou



Ipoh Sample Production Data											SZ Sample Production Data																	
Lot Number	Test Item	Mean	Std Dev	Min	Max	% Spec Pass	Spec High	% Bad	% Good	Field	Pot Def/Star	Cpk	Lot Number	Test Item	Mean	Std Dev	Min	Max	% Spec Pass	Spec High	% Bad	% Good	Field	Pot Def/Star	Cpk			
1000000005	Reg2	155.2	45.484	1	205	757	0	255	0	757	200	0	0.888	1000000005	Reg2	148.1	46.651	0	198	757	0	255	0	757	200	0	0.888	
1000000001	Vout_oh_threshold	102.48	0.94715	101.000	104	757	200.0	104	0	757	200	0	0.881	1000000001	Vout_oh_threshold	102.48	0.94715	101.000	104	757	0	200.0	104	0	757	200	0	0.881
9000000003	zarrn_code	3.129	0.349	0	3	757	0	7	0	757	200	0	0.133	9000000003	zarrn_code	3.129	0.349	0	3	757	0	7	0	757	200	0	0.133	
9000000000	err_meas	302	17.059	285.385	319.0	757	50	200	0	757	200	0	1.134	9000000000	err_meas	292.45	17.059	285.385	319.0	757	0	200	0	757	200	0	1.134	
9000000001	vout_ohm_code	13.78	14.332	0	31	757	0	31	0	757	200	0	0.424	9000000001	vout_ohm_code	13.78	14.332	0	31	757	0	31	0	757	200	0	0.424	
9000000001	vout_ohm_code	1.803	0.462	0	1	701	0	7	0	701	200	0	0.380	9000000001	vout_ohm_code	1.803	0.462	0	1	701	0	7	0	701	200	0	0.380	

Critical Parameter looks good

Conclusion:

From the Cpk data all parameters are comparable for both Suzhou and Carsem



TS3004X Series – Qual Data

SPIKE CHECK

- Spike Check done ETS, while loop testing the device.
- No ripple found and no device damaged during the 1000X loop test.
- All the waveform captured within acceptable range
- Details are in the spike plot check attached.
- Spike check for both Carsem Suzhou and Carsem Ipoh are compatible



TS3004X Series – Qual Data- Other Summary



- No changes do to the Test Program, Limits:

FT Program: *ef3004x_BC01 (TP-001224)*

QA Program: *ef3004x_BC01 (TP-001224)*

- Both Carsem Suzhou and Ipoh uses the same Tester Platform (ETS)
- Both Carsem Suzhou and Ipoh uses the same QC flow diagram
100% FT and Sample QA.
- No Changes required in Control Plan and FMEA.



PCN No. 000712
Qualification of Carsem Ipoh for TS3004X-M0XXQFNR
products

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Introduction

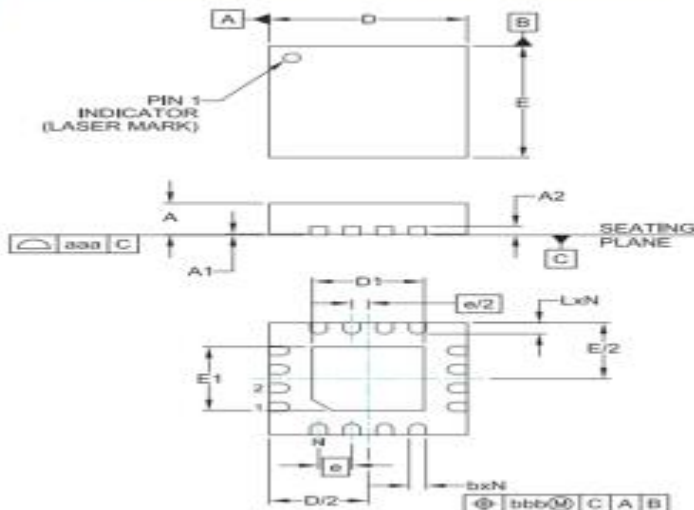


- ❑ TS3004X-M0XXQFNR Series have been qualified in Carsem Ipoh, Malaysia as a site for assembly. Current Assembly is performed in Carsem SuZhou, China.
- ❑ The change affect applicable to products:
TS3004X-M0XXQFNR
- ❑ Qualification Vehicles selected are TS14002/ TS30042-M033QFNR/ TS61002
- ❑ Schedule for Implementation
Passing REL qualification MSL 1 under Rel job# 7198.

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SEMTECH Package Outline on TS3004X-M0XXQFNR CarsemSZ (Old) and CarsemIPH (New)



DIM	DIMENSIONS MILLIMETERS		
	MIN	NOM	MAX
A	0,80	0,90	1,00
A1	0,00	0,02	0,05
A2	-	(0,20)	-
b	0,18	0,25	0,30
D	2,90	3,00	3,10
D1	1,55	1,70	1,80
E	2,90	3,00	3,10
E1	1,55	1,70	1,80
e	0,50 BSC		
L	0,20	0,30	0,40
N	16		
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.

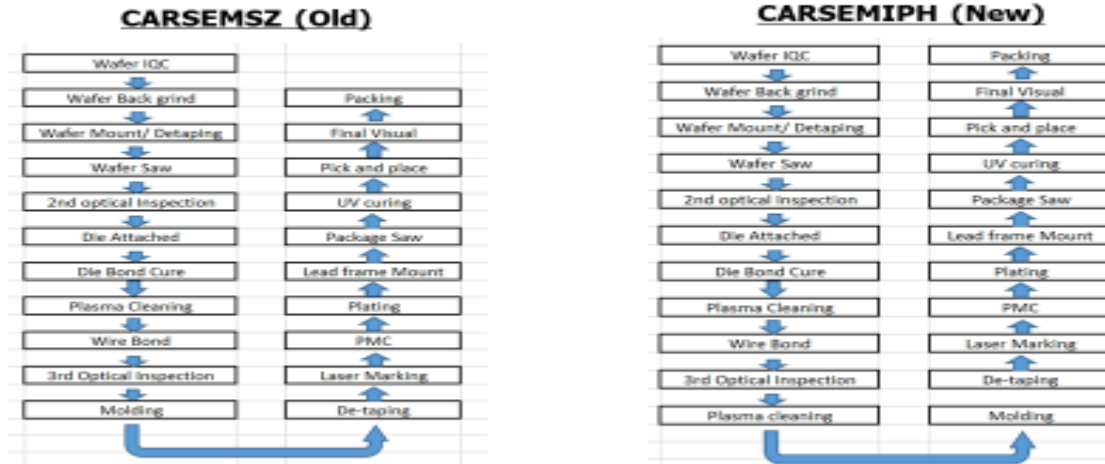
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Assembly Process Flow Comparison for CarsemSZ (Old) vs. CarsemIPH (New)



Assembly Process Flow:



- No major Change in manufacturing Flow for both Assembly site CarsemSZ versus CarsemIPH except additional process step for plasma cleaning before mold for Carsem Iph.

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BOM Comparison CarsemSZ (Old) vs CarsemIPH (New) for TS3004X-M0XXQFNR



CarsemSZ (Old)				CarsemIPH (New)			
Epoxy	Leadframe	Wire Type	Mold compound	Epoxy	Leadframe	Wire Type	Mold compound
Henkel QMI-519 Conductive epoxy	Haesung NiPdAuAg LDF	1.2 mils PdCu wire	Sumitomo G770HCD	Henkel QMI-519 Conductive epoxy	Haesung NiPdAuAg LDF	1.2 mils PdCu wire	Sumitomo G770HCD

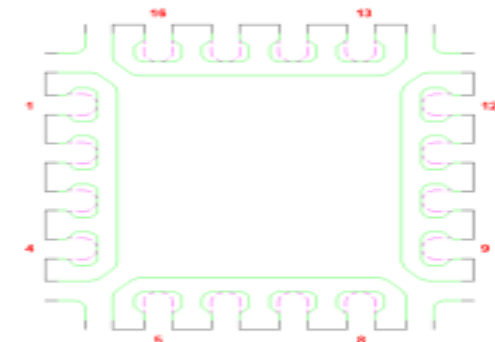
- BOM for both supplier CarsemSZ and CarsemIPH are no difference.

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**Lead frame outline Comparison CARSEMSZ (OLD)
Vs CARSEMIPH(NEW) for TS3004X-M0XXQFNR**



Lead frame Outline



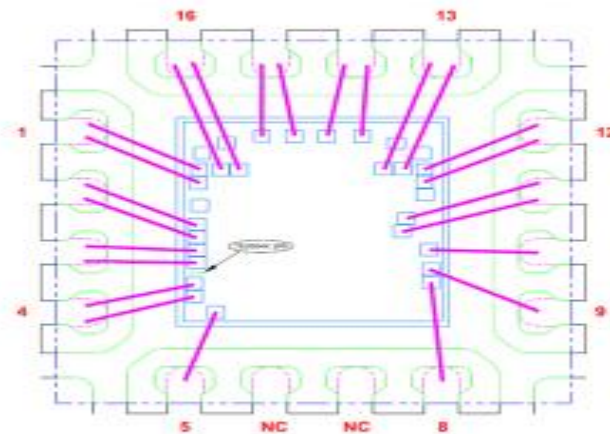
Die Pad : 2.1 x 2.1mm
Exposed Pad : 1.7 x 1.7mm

No Difference on lead frame outline for CARSEMSZ and CARSEMIPH as both are using the same lead frame.

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**Bonding Layout (CarsemSZ vs
CarsemIPH) for TS3004X-M0XXQFNR**



No Change in Bonding Layout.

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