



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:		Customer Part Number(s) Affected: ☒ N/A	
-TS30041-M000QFNR; -TS30041-M015QFNR; -TS30041-M018QFNR; -TS30041-M025QFNR; -TS30041-M033QFNR; -TS30041-M050QFNR; -TS30042-M000QFNR; -TS30042-M015QFNR; -TS30042-M018QFNR; -TS30042-M025QFNR; -TS30042-M033QFNR; -TS30042-M050QFNR;			
Description, Purpose and Effect of Change:			
Add Carsem Ipoh to support production Assembly & Final Test)			
Change Classification	☒ Major ☐ Minor	Impact to Form, Fit, Function	☐ Yes ☒ No
Impact to Data Sheet	☐ Yes ☒ No	New Revision or Date	☒ 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) Of unchanged product	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 Site Production Data													SZ Sample Production Data														
Test Number	Test Name	Max	Std Dev	Min	K	Spec Min	Spec High	N	Lot's	Good	Yield	Pd	Test Number	Test Name	Max	Std Dev	Min	K	Spec Min	Spec High	N	Lot's	Good	Yield	Pd		
120000000	Reg2	120.2	15.484	1	20.5	75.7	0	250	8	757	20.0	0	1.000	120000000	Reg2	120.2	15.484	1	20.5	75.7	0	250	8	757	20.0	0	1.000
120000001	Vout_0p_Threshold	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	120000001	Vout_0p_Threshold	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000002	Input_data	2.124	1.249	0	1	75.7	0	7	8	757	20.0	0	1.000	900000002	Input_data	2.124	1.249	0	1	75.7	0	7	8	757	20.0	0	1.000
900000003	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000003	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000004	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000004	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000005	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000005	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000006	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000006	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000007	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000007	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000008	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000008	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000009	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000009	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000
900000010	Input_data	102.4	12.547155	30.000	30.4	75.7	200.0	104	8	757	20.0	0	1.000	900000010	Input_data	102.4	12.547155	30.000	30.4	75.7	0	250	8	757	20.0	0	1.000

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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PRODUCT / PROCESS CHANGE NOTIFICATION

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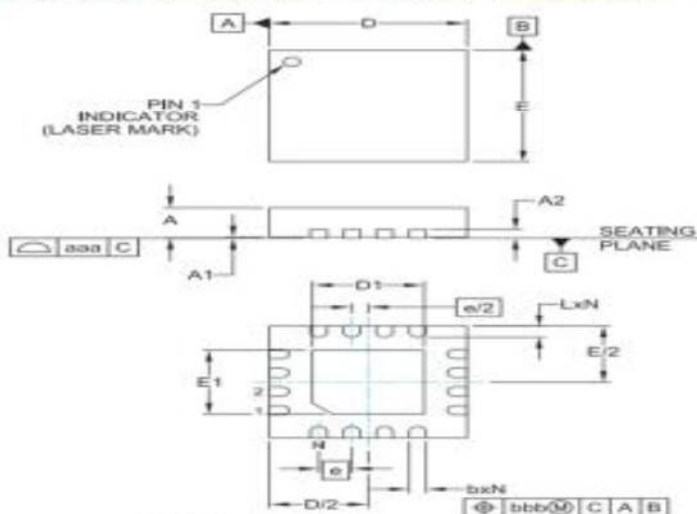
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Introduction

- ❑ 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.

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		
bbb	0.08		
bb	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 Comparison for CarsemSZ (Old) vs. CarsemIPH (New)

Assembly Process Flow:

CARSEMSZ (Old)



CARSEMIPH (New)



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

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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.

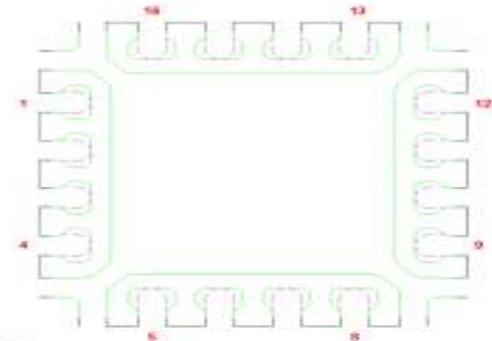
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**Lead frame outline Comparison CARSEMSZ (OLD)
Vs CARSEMIPH(NEW) for TS3004X-M0XXQFNR**



Lead frame Outline



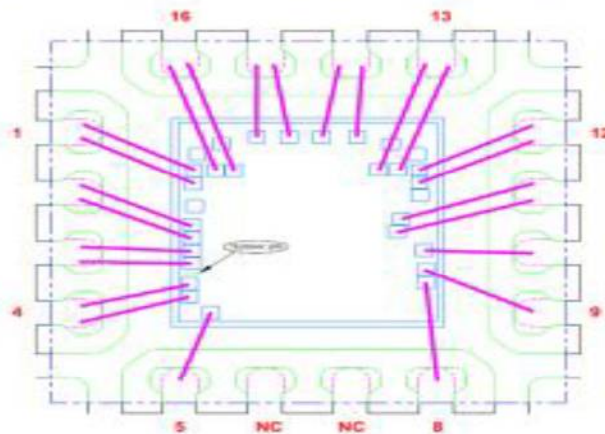
Die Pad : 2.1 x 2.1mm
Exposed Pad : 1.7 x 1.7mm

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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