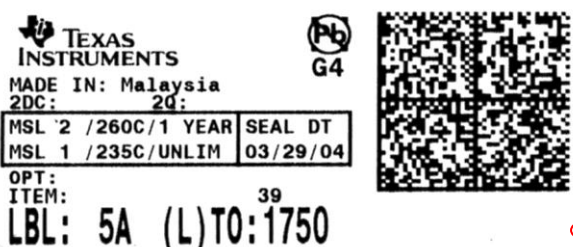


<b>PCN Number:</b>	20150625003	<b>PCN Date:</b>	07/10/2015
<b>Title:</b>	Qualification of Carsem Suzhou (CSZ) as additional Assembly and Test Site for Select Devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	10/10/2015	<b>Estimated Sample Availability:</b>	Date Provided at Sample request
<b>Change Type:</b>			
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Design
<input type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change
<input type="checkbox"/>	Mechanical Specification	<input checked="" type="checkbox"/>	Test Site
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process
		<input type="checkbox"/>	Wafer Bump Site
		<input type="checkbox"/>	Wafer Bump Material
		<input type="checkbox"/>	Wafer Bump Process
		<input type="checkbox"/>	Wafer Fab Site
		<input type="checkbox"/>	Wafer Fab Materials
		<input type="checkbox"/>	Wafer Fab Process
<b>PCN Details</b>			
<b>Description of Change:</b>			
Qualification of Carsem Suzhou (CSZ) as additional Assembly and Test Site for Select Devices. Assembly differences are shown in the following table:			
	<b>TI Clark</b>	<b>Carsem Suzhou</b>	
Mount compound	4207768	435143	
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.			
<b>Reason for Change:</b>			
Continuity of Supply			
<b>Anticipated impact on Material Declaration</b>			
<input type="checkbox"/>	No Impact to the Material Declaration	<input checked="" type="checkbox"/>	Material Declarations or Product Content reports are driven from production data and will be available following the production release. Upon production release the revised reports can be obtained from the <a href="#">TI ECO website</a> .
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>			
None			
<b>Changes to product identification resulting from this PCN:</b>			
Assembly Site			
TI Clark Philippines	Assembly Site Origin (22L)	ASO: QAB	
Carsem Suzhou	Assembly Site Origin (22L)	ASO: CSZ	
Sample product shipping label (not actual product label)			
 <p> <b>TEXAS INSTRUMENTS</b>  MADE IN: Malaysia  2DC: 2d:  MSL 2 /260C/1 YEAR SEAL DT  MSL 1 /235C/UNLIM 03/29/04  OPT:  ITEM: 39  <b>LBL: 5A (L)T0:1750</b> </p> <p> (1P) SN74LS07NSR  (Q) 2000 (D) 0336  (31T) LOT: 3959047MLA  (4W) TKY (1T) 7523483SI2  (P)  (2P) REV: (V) 0033317  (20L) CSO: SHE (21L) CCO:USA  (22L) ASO: MLA (23L) ACO: MYS </p>			
ASSEMBLY SITE CODES: TI-Clark = I, Carsem Suzhou = F			

<b>Product Affected:</b>			
905-5462001	TPS53219ARGTR	TPS54620RGYT	TPS63021DSJR
TLV62084DSGR	TPS53219ARGTT	TPS63020DSJR	TPS63021DSJT
TLV62084DSGT	TPS54620RGYR	TPS63020DSJT	SN1408009RTER

### Qualification Data

This qualification has been developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.

#### Qual Vehicle 1: TPA3117D2RHBR (MSL2-260C)

##### Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	441086
# Pins-Designator, Family:	32-RHB, VQFN	Mount Compound:	435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.30 Mil Dia., Cu

**Qualification:**     Plan     Test Results

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
Electrical Characterization	-	10/0	10/0	10/0
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Biased HAST	130C/85%RH (96hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability	(per mfg. Site specification)	1/0	1/0	1/0
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-

Notes    \*\* - Preconditioning sequence: Level 2-260C.

#### Qual Vehicle 2: SN1010017RSAR2 (MSL2-260C)

##### Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	441086
# Pins-Designator, Family:	16-RSA, VQFN	Mount Compound:	435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	2.00 Mil Dia., Cu

**Qualification:**     Plan     Test Results

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
Electrical Characterization	-	10/0	-	-
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	77/0
**Biased HAST	130C/85%RH (96hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability	(per mfg. Site specification)	Passed	Passed	Passed
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	12/0	12/0

Notes    \*\* - Preconditioning sequence: Level 2-260C.

#### Qual Vehicle 3: TPS51123RGER (MSL2-260C)

##### Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	441086
# Pins-Designator, Family:	24-RGE, VQFN	Mount Compound:	435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu

**Qualification:**     Plan     Test Results

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
Electrical Characterization	-	10/0	-	-
Life Test	125C (168 Hrs)	36/0	37/0	38/0

**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	76/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Surface Mount Solderability	Pb Free	22/0	22/0	22/0
Salt Atmosphere	-	22/0	22/0	22/0
Manufacturability	(per mfg. Site specification)	Passed	Passed	Passed
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	11/0	10/0
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle 4: TPS650240RHBR (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	441086	
# Pins-Designator, Family:	32-RHB, VQFN	Mount Compound:	435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.30 Mil Dia., Cu	
<b>Qualification:</b> <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results				
Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420hrs)	77/0	77/0	76/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability	(per mfg. Site specification)	Passed	Passed	Passed
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	12/0	12/0
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle 5: TPA6132A2RTER (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	441086	
# Pins-Designator, Family:	16-RTE, WQFN	Mount Compound:	435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.96 Mil Dia., Cu	
<b>Qualification:</b> <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results				
Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	
**Autoclave 121C	121C, 2 atm (96 Hrs)	77/0	77/0	
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	
Manufacturability	(per mfg. Site specification)	Passed	-	
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle 6: TPS2540RTER (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	441086	
# Pins-Designator, Family:	16-RTE, WQFN	Mount Compound:	435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.98 Mil Dia., Cu	
<b>Qualification:</b> <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results				
Reliability Test	Conditions	Sample Size/Fail		
Life Test	155C (168 Hrs)	80/0		
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0		
Notes ** - Preconditioning sequence: Level 2-260C.				

# Qualification Report

## DSJ PACKAGE OFFLOAD TO CARZ

### Product Attributes

Attributes	Qual Device: TPS63020DSJ	QBS Package: SN1010017RSAR2-CU	QBS Package: TPS650240RHBR-CU	QBS Package: TPS53211RGTR	QBS Package: TPS2559DRC
Assembly Site	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU
Package Family	QFN	QFN	QFN	QFN	QFN
Wafer Fab Site	FFAB	MIHO8	FFAF	MIHO8	MIHO8
Wafer Fab Process	LBC 7	LBC7X3	3370A12X3	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device TPS63020DSJ is qualified at LEVEL1-260C

### Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	Test Name / Condition	Duration	Qual Device: TPS63020DSJ	QBS Package: SN1010017RSAR2-CU	QBS Package: TPS650240RHBR-CU	QBS Package: TPS53211RGTR	QBS Package: TPS2559DRC
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/230/0	3/231/0
AC	Autoclave 121C	96 Hours	-	3/230/0	3/230/0	3/231/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/230/0	3/230/0	3/231/0	2/154/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/230/0	3/230/0	3/231/0	2/154/0
HTOL	Life Test, 150C	300 Hours	-	-	-	-	2/154/0
ELFR	Early Life Failure Rate, 125C	48 Hours	-	-	-	-	3/3000/0
WBS	Ball Bond Shear	Wires	1/76/0	-	-	-	3/228/0
WBP	Bond Pull	Bonds	1/76/0	-	-	-	-
SD	Solderability	PB-Free	-	-	-	-	3/66/0
PD	Physical Dimensions	--	1/15/0	-	-	-	3/45/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours

- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours

- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

#### Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

For questions regarding this notice, e-mails can be sent to the regional contacts shown below or your local Field Sales Representative.

Location	E-Mail
USA	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
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Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>