

<b>PCN Number:</b>	20130716001			<b>PCN Date:</b>	07/17/2013															
<b>Title:</b>	Qualification of Carsem Suzhou (CSZ) as Additional Assembly and Test Site for Select Devices on QFN/SON package																			
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Phone:</b>	+1(214)480-6037	<b>Dept:</b>	Quality Services															
<b>Proposed 1<sup>st</sup> Ship Date:</b>	10/17/2013	<b>Estimated Sample Availability:</b>	Date Provided at Sample request																	
<b>Change Type:</b>																				
<input checked="" type="checkbox"/>	Assembly Site	<input type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials															
<input type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<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 on QFN/SON package. Material differences are shown in the following table:																				
<b>Group 1: Assembly Site change only. No Assembly material differences.</b>																				
<b>Group 2: Assembly Site change and Cu wire Qualification</b>																				
	<b>NSE</b>	<b>MLA</b>	<b>TI Clark</b>	<b>CSZ</b>																
Wire	0.8, 1.0, 1.3 mil Au	1.0, 1.3mil Au	1.0, 1.3 mil Au	0.8, 1.0, 1.3 mil Cu																
Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.																				
<b>Reason for Change:</b>																				
Continuity of supply. 1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties 2) Maximize flexibility within our Assembly/Test production sites. 3) Cu is easier to obtain and stock																				
<b>Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):</b>																				
None																				
<b>Changes to product identification resulting from this PCN:</b>																				
<table border="1"> <tr> <td colspan="3">Assembly Site</td> </tr> <tr> <td>UTAC Thailand</td> <td>Assembly Site Origin (22L)</td> <td>ASO: NSE</td> </tr> <tr> <td>TI Malaysia</td> <td>Assembly Site Origin (22L)</td> <td>ASO: MLA</td> </tr> <tr> <td>TI Clark - Philippines</td> <td>Assembly Site Origin (22L)</td> <td>ASO: QAB</td> </tr> <tr> <td><a href="#">Carsem Suzhou</a></td> <td>Assembly Site Origin (22L)</td> <td>ASO: <a href="#">CSZ</a></td> </tr> </table>						Assembly Site			UTAC Thailand	Assembly Site Origin (22L)	ASO: NSE	TI Malaysia	Assembly Site Origin (22L)	ASO: MLA	TI Clark - Philippines	Assembly Site Origin (22L)	ASO: QAB	<a href="#">Carsem Suzhou</a>	Assembly Site Origin (22L)	ASO: <a href="#">CSZ</a>
Assembly Site																				
UTAC Thailand	Assembly Site Origin (22L)	ASO: NSE																		
TI Malaysia	Assembly Site Origin (22L)	ASO: MLA																		
TI Clark - Philippines	Assembly Site Origin (22L)	ASO: QAB																		
<a href="#">Carsem Suzhou</a>	Assembly Site Origin (22L)	ASO: <a href="#">CSZ</a>																		
Sample product shipping label (not actual product label)																				

TEXAS  
INSTRUMENTS

MADE IN: Malaysia  
2DC: 2Q:

MSL 2 /260C/1 YEAR	SEAL DT
MSL 1 /235C/UNLIM	03/29/04

OPT:  
ITEM:

LBL: 5A (L)T0:1750



(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

ASSEMBLY SITE CODES: NSE =J, TI-Malaysia = K , TI-Clark = I, Carsem Suzhou = F

**Product Affected: Group 1: Assembly Site Only**

BQ24010DRCR	BQ24087DRCR	TLV711285285DDSER	TPS72727DSER
BQ24010DRCRG4	BQ24087DRCRG4	TLV711285285DDSET	TPS72727DSET
BQ24012DRCR	BQ24087DRCT	TLV7113030DDSER	TPS727285DSER
BQ24012DRCRG4	BQ24087DRCTG4	TLV7113030DDSET	TPS727285DSET
BQ24013DRCR	BQ24088DRCR	TLV7113318DDSER	TPS72728DSER
BQ24013DRCRG4	BQ24088DRCRG4	TLV7113318DDSET	TPS72728DSET
BQ24014DRCR	BQ24088DRCT	TLV71133285DDSER	TPS72730DSER
BQ24014DRCRG4	BQ24088DRCTG4	TLV71133285DDSET	TPS72730DSET
BQ24026DRCR	BQ24312DSGR	TLV7113330DDSER	TPS72733DSER
BQ24026DRCRG4	BQ24312DSGT	TLV7113330DDSET	TPS72733DSET
BQ24027DRCR	BQ24314BDSGR	TLV7113333DDSER	TPS73501DRBR
BQ24027DRCRG4	BQ24314BDSGT	TLV7113333DDSET	TPS73501DRBT
BQ24027DRCT	BQ24380DSGR	TPS40195RGYR	TPS73525DRBR
BQ24027DRCTG4	BQ24380DSGRG4	TPS40195RGYRG4	TPS73525DRBRG4
BQ24060DRCR	BQ24380DSGT	TPS40195RGYT	TPS73525DRBT
BQ24060DRCRG4	BQ24380DSGTG4	TPS40195RGYTG4	TPS73525DRBTG4
BQ24060DRCT	HPA00073DRCR	TPS40197RGYR	TPS73533DRBR
BQ24060DRCTG4	HPA00102DRCR	TPS40197RGYT	TPS73533DRBT
BQ24061DRCR	HPA00145DRCR	TPS53819ARGTR	TPS73701DRBR
BQ24061DRCRG4	HPA00455DRCR	TPS53819ARGTT	TPS73701DRBRG4
BQ24061DRCT	HPA00583DRBR	TPS54260DRCR	TPS73701DRBT
BQ24061DRCTG4	HPA00614DRCR	TPS54260DRCT	TPS73701DRBTG4
BQ24064DRCR	HPA00777DRBR	TPS61028DRCR	TPS780180300DRVR
BQ24064DRCRG4	HPA02199DRVR	TPS61028DRCRG4	TPS780180300DRVT
BQ24064DRCT	TLV70028DSER	TPS61040DRVR	TPS780230300DRVR
BQ24064DRCTG4	TLV70028DSET	TPS61040DRVRG4	TPS780230300DRVT
BQ24080DRCR	TLV70033DSER	TPS61040DRVT	TPS780300250DRVR
BQ24080DRCRG4	TLV70033DSET	TPS61040DRVTG4	TPS780300250DRVT
BQ24080DRCT	TLV7111323DDSER	TPS61166DSKR	TPS780330220DRVR
BQ24080DRCTG4	TLV7111323DDSET	TPS61166DSKT	TPS780330220DRVRG4
BQ24081DRCR	TLV7111333DDSER	TPS62170DSGR	TPS780330220DRVT
BQ24081DRCRG4	TLV7111333DDSET	TPS62170DSGT	TPS780330220DRVTG4
BQ24081DRCT	TLV7111518DDSER	TPS72710DSER	TPS781330220DRVR
BQ24081DRCTG4	TLV7111518DDSET	TPS72710DSET	TPS781330220DRVRG4
BQ24085DRCR	TLV7111533DDSER	TPS72715DSER	TPS781330220DRVT
BQ24085DRCRG4	TLV7111533DDSET	TPS72715DSET	TPS781330220DRVTG4
BQ24085DRCT	TLV7111833DDSER	TPS72718DSER	TPS78228DRVR
BQ24085DRCTG4	TLV7111833DDSET	TPS72718DSET	TPS78228DRVRG4
BQ24086DRCR	TLV7112525DDSER	TPS72719DSER	TPS78228DRVT
BQ24086DRCRG4	TLV7112525DDSET	TPS72719DSET	TPS78228DRVTG4

BQ24086DRCT	TLV71128518DDSER	TPS72725DSER	TPS78230DRVR
BQ24086DRCTG4	TLV71128518DDSET	TPS72725DSET	TPS78230DRVT
<b>Product Affected: Group 2: Assembly Site and Devices being qualified for Cu Wire</b>			
TPS62160DSGR	TPS62173DSGT	TPS73515DRBR	TPS73533DRVT
TPS62160DSGT	TPS73501DRVR	TPS73515DRBT	TPS73534DRBR
TPS62173DSGR	TPS73501DRVT	TPS73533DRVR	TPS73534DRBT

### Group 1: Qualification Data

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

#### Qual Vehicle # 1: ADS8548SRGCR (MSL3-260C)

##### Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	64-RGC, VQFN	Mount Compound:	SID#435143
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.3 Mil Dia., Au

Qualification:  Plan  Test Results

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**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)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-

Notes \*\* - Preconditioning sequence: Level 3-260C.

#### Qual Vehicle #2: TLV70028DSER (MSL1-260C)

##### Package Construction Details

Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086
# Pins-Designator, Family:	6-DSE, WSON	Mount Compound:	SID#435933
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.8 Mil Dia., Au

Qualification:  Plan  Test Results

Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420hrs)	76/0	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
Salt Atmosphere	24 hrs	25/0	25/0	25/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Solderability	SnPb	22/0	22/0	22/0
Solderability	Pb-free	22/0	22/0	22/0
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	-	-

Notes \*\* - Preconditioning sequence: Level 1-260C.

<b>Qual Vehicle # 3: TLVDC3120IRHBR (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	32-RHB, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Au	
<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	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)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle # 4: TPA6130A2RTJR (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	20-RTJ, WQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Au	
<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	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
Solderability	SnPb	22/0	22/0	22/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Salt Atmosphere	24 Hrs	22/0	22/0	22/0
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle # 5: TPS51728RHAR (MSL3-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	40-RHA, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Au	
<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	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)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-
Notes ** - Preconditioning sequence: Level 3-260C.				

Qual Vehicle # 6: TPS62590DRVR (MSL1-260C)				
Package Construction Details				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	6-DRV, WSON	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.3 Mil Dia., Au	
<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
Electrical Characterization	-	30/0	-	-
**High Temp. Storage Bake	170C (420hrs)	76/0	76/0	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)	Pass	Pass	Pass
Moisture Sensitivity	(level 1 @ 260C peak +5/-0C)	12/0	-	-
Notes    ** - Preconditioning sequence: Level 1-260C.				

Qual Vehicle # 7: UCD9211RHAR (MSL3-260C)				
Package Construction Details				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	40-RHA, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Au	
<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	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
Solderability	SnPb	22/0	22/0	22/0
Solderability	Pb-free	22/0	22/0	22/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-
Notes    ** - Preconditioning sequence: Level 3-260C.				

### Group 2: Cu Wire Qualification Data

This qualification has been specifically developed for the validation of this change. The qualification data validates that the proposed change meets the applicable released technical specifications.				
Qual Vehicle # 1: 2ELVC412CDRTJR (MSL2-260C)				
Package Construction Details				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	20-RTJ, WQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 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	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)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle # 2: ONET8501PBRGTR (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	16-RGT, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 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	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 (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-
Notes ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle # 3: TPS51728RHAR (MSL3-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	20-RTJ, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 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 (420 Hrs)	77/0	77/0	77/0
**Autoclave 121C	121C, 2 atm (96 Hrs)	76/0	75/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0
Manufacturability	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-
Notes ** - Preconditioning sequence: Level 3-260C.				

<b>Qual Vehicle # 4: TPS53211RGTR (MSL2-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	16-RGT, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	1.0 Mil Dia., Cu	
<b>Qualification:</b> <input type="checkbox"/> Plan <input checked="" type="checkbox"/> <b>Test Results</b>				
Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**Biased HAST	130C/85%RH (96hrs)	77/0	76/0	77/0
**High Temp. Storage Bake	170C (420hrs)	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 (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 2 @ 260C peak +5/-0C)	12/0	-	-
Notes    ** - Preconditioning sequence: Level 2-260C.				
<b>Qual Vehicle # 5: UCD9211RHAR (MSL3-260C)</b>				
<b>Package Construction Details</b>				
Assembly Site:	CARSEM SUZHOU	Mold Compound:	SID#441086	
# Pins-Designator, Family:	40-RHA, VQFN	Mount Compound:	SID#435143	
Lead frame (Finish, Base):	NiPdAu, Cu	Bond Wire:	0.8 Mil Dia., Cu	
<b>Qualification:</b> <input type="checkbox"/> Plan <input checked="" type="checkbox"/> <b>Test Results</b>				
Reliability Test	Conditions	Sample Size/Fail		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C (420hrs)	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
Salt Atmosphere	24 hrs	22/0	22/0	22/0
Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass
Moisture Sensitivity	(level 3 @ 260C peak +5/-0C)	12/0	-	-
Notes    ** - Preconditioning sequence: Level 3-260C.				

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

<b>Location</b>	<b>E-Mail</b>
USA	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
Europe	<a href="mailto:PCNEuropeContact@list.ti.com">PCNEuropeContact@list.ti.com</a>
Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>