12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20141203001
Qualification of Carsem Suzhou as Additional Assembly/Test location for Select Devices in the QFN package
Change Notification / Sample Request

Date: 12/11/2014
To: MOUSER PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments. The details of this change are on the following pages.

We request you acknowledge receipt of this notification within **30** days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance of the change. If you require samples or additional data to support your evaluation, please request within 30 days.

The changes discussed within this PCN will not take effect any earlier than **90** days from the date of this notification, unless customer agreement has been reached on an earlier implementation of the change. This notification period is per TI's standard process.

This notice does not change the end-of-life status of any product. Should product affected be on a previously issued product withdrawal/discontinuance notice, this notification does not extend the life of that product or change the life time buy offering/discontinuance plan.

For questions regarding this notice, contact your local Field Sales Representative or the PCN Manager (PCN_ww_admin_team@list.ti.com).

Sincerely,

PCN Team
SC Business Services
Phone: +1(214) 480-6037
Fax: +1(214) 480-6659

20141203001
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, these are the devices that you have purchased within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
BQ24192RGET	null
BQ24195RGET	null
BQ24196RGET	null
BQ24292IRGET	null
BQ24707ARGRT	null
BQ24725ARGRT	null
BQ24735RGRT	null
TPS24720RGTR	null
TPS40304DRCR	null
TPS40304DRCT	null
TPS40305DRCR	null
TPS40305DRCT	null
TPS51217DSCT	null
TPS51220ARTVR	null
TPS51220ARTVT	null
TPS51427ARHBT	null
TPS51427RHBT	null
TPS53219RGTR	null
TPS60150DRVR	null
TPS60150DRVT	null
TPS61086DRCR	null
TPS61086DRCT	null
TPS61093DSKT	null
TPS62122DRVR	null
TPS62122DRVT	null
TPS63030DSKR	null
TPS63030DSKT	null
TPS63031DSKR	null
TPS63031DSKT	null
TPS63060DSCT	null
TPS63061DSCR	null
TPS63061DSCT	null
TPS71710DRVR	null

Technical details of this Product Change follow on the next page(s).

PCN Number:	20141203001	**PCN Date:**	12/11/2014
Title:	Qualification of Carsem Suzhou as Additional Assembly/Test location for Select Devices in the QFN package		
Customer Contact:	PCN Manager	**Phone:**	+1(214)480-6037
Dept:	Quality Services		
Proposed 1st Ship Date:	03/11/2015	**Estimated Sample Availability:**	Date provided upon request

Change Type:

☒	Assembly Site	☐	Assembly Process	☒	Assembly Materials
☐	Design	☐	Electrical Specification	☐	Mechanical Specification
☒	Test Site	☐	Packing/Shipping/Labeling	☐	Test Process
☐	Wafer Bump Site	☐	Wafer Bump Material	☐	Wafer Bump Process
☐	Wafer Fab Site	☐	Wafer Fab Materials	☐	Wafer Fab Process
		☐	Part number change		

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of Carsem Suzhou as an alternate Assembly and test site for the devices listed below. For the devices listed in Group 2, there are no BOM differences. Device construction differences are noted as follows for Group 1 devices:

What	TI Clark	Carsem
Mount Compound	4205846	SID#435143

or:

What	TI Malaysia	Carsem
Mount Compound	4207768	SID#435143

Test coverage, insertions, conditions will remain consistent with current testing and verified with test MQ.

Reason for Change:

Continuity of Supply

Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):

None

Changes to product identification resulting from this PCN:

Assembly Site		
TI Clark	Assembly Site Origin (22L)	ASO: QAB
TI Malaysia	Assembly Site Origin (22L)	ASO: MLA
CARZ	**Assembly Site Origin (22L)**	**ASO: CSZ**

Sample product shipping label (not actual product label)

Topside Device marking:
Assembly site code for QAB=I
Assembly site code for MLA=K
Assembly site code for CSZ=F

Product Affected

Group 1 Devices:

BQ24192HRGER	BQ24726RGRT	BQ24738RGRR	TPS51427ARHBT
BQ24192HRGET	BQ24727RGRR	BQ24738RGRT	TPS51427RHBR
BQ24192RGER	BQ24727RGRT	SN0608098RHBR	TPS51427RHBT
BQ24192RGET	BQ24728HRGRR	SN1001021DRCR	TPS51601DRBR
BQ24195RGER	BQ24728HRGRT	TPS24720RGTR	TPS51601DRBT
BQ24195RGET	BQ24728RGRR	TPS24720RGTT	TPS53219RGTR
BQ24196BRGER	BQ24728RGRT	TPS40304DRCR	TPS53219RGTT
BQ24196BRGET	BQ24735FRGRR	TPS40304DRCT	TPS60150DRVR
BQ24196RGER	BQ24735FRGRT	TPS40305DRCR	TPS60150DRVT
BQ24196RGET	BQ24735RGRR	TPS40305DRCT	TPS61093DSKR
BQ24292IRGER	BQ24735RGRT	TPS51211DSCR	TPS61093DSKT
BQ24292IRGET	BQ24735SRGRR	TPS51211DSCT	TPS62122DRVR
BQ24707ARGRR	BQ24735SRGRT	TPS51212DSCR	TPS62122DRVT
BQ24707ARGRT	BQ24736RGRR	TPS51212DSCT	TPS63030DSKR
BQ24707RGRR	BQ24736RGRT	TPS51217DSCR	TPS63030DSKT
BQ24707RGRT	BQ24737RGRR	TPS51217DSCT	TPS63031DSKR
BQ24725ARGRR	BQ24737RGRT	TPS51220ARTVR	TPS63031DSKT
BQ24725ARGRT	BQ24738HRGRR	TPS51220ARTVT	TPS71710DRVR
BQ24726RGRR	BQ24738HRGRT	TPS51427ARHBR	TPS71710DRVT

Group 2 Devices:

TPS51518RUKR	TPS61086DRCT	TPS63060DSCT	TPS63061DSCT
TPS51518RUKT	TPS63060DSCR	TPS63061DSCR	TPS65282RGER
TPS61086DRCR			

Group #1 Qualification Data:

Qualification Report

Qualification of BQ24190RGE BQ24192 BQ24192i bq24193 bq24192s bq24196 bq24195 bq24195L BQ24295 BQ24296 BQ24250 BQ24297 in Carsem Suzhou , built with RFAB/LBC7
Approved 10/16/2014

Product Attributes

Attributes	Qual Device: BQ24190RGE	QBS Product: BQ24190RGE
Qual ID	20140225-102305	20120717-62441
Assembly Site	CARSEM SUZHOU	TI-CLARK
Package Family	QFN	QFN
Flammability Rating	UL 94 V-0	UL 94 V-0
Wafer Fab Site	RFAB	RFAB
Wafer Fab Process	LBC7+1UM VIATOP+6DU SEAL	LBC7+1UM VIATOP+6DU SEAL

- QBS: Qual By Similarity
- Qual Device BQ24190RGE is qualified at LEVEL2-260C

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: BQ24190RGE	QBS Product: BQ24190RGE
PC	PreCon Level 2	Elec/25C	1/154/0	-
AC	Autoclave 121C	96 Hours	1/77/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	-
WBS	Bond Shear	Bond/Ball	1/5/0	-
WBP	Bond Pull	Bond/Pull	1/5/0	-
HBM	ESD - HBM	4000V*	1/3/0	-
CDM	ESD - CDM	1500V*	1/3/0	-
ED	Electrical Characterization	Full Temp & Voltage range	-	1/Pass

- 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

Qualification Report

CARSEM SZ 200MM 300MM Cu Wire On LBC7 Thin Al-Pad
Approved 09/16/2014

Cu-wirebond on LBC7 (Thin AlPad)
Thin Alpad assembly for both 200 and 300mm
Includes Au and Cu-wirebond devices
No-COL devices
No Downbonds

Product Attributes

Attributes	Qual Device: TPS51217DSCR	Qual Device: TPS51220RHBR	Qual Device: TPS720105DRVR	Package Qual Device: TPS53211RGTR
Assembly Site	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU	CARSEM SUZHOU
Package Family	WSON	VQFN	WSON	VQFN
Flammability Rating	-	-	UL 94 V-0	
Wafer Fab Site	RFAB	RFAB	FR-BIP-1	MIHO8
Wafer Fab Process	LBC7	LBC7X3	LBC7X3	LBC7

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: TPS51217DSCR, TPS51220RHBR
- Qual Device TPS720105DRVR 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: TPS51217DSCR	Qual Device: TPS51220RHBR	Qual Device: TPS720105DRVR	Package Qual Device: TPS53211RGTR
PC	Preconditioning	Level 2-260C	6/1155/0	1/100/0	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	-	3/230/0
AC	Autoclave 121C	96 Hours	3/231/0	-	-	3/231/0
TC	Temperature Cycle - 65C/150C	500 Cycles	3/231/0	-	-	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	-	-	3/231/0
HTOL	Life Test, 150C	300 Hours	3/231/0	-	-	-
CDM	ESD - CDM	500 Hours	-	-	1/3/0	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	Pass	-
DPA	Destructive Physical Analysis	x-section and deprocess to examine assembly robustness, particularly BG, die-saw and wirebond	3/6/0	-	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass
MSL	Thermal Path Integrity	Level 2-260C	3/36/0	-	-	1/12/0
YLD	FTY and Bin Summary	Compare against baseline	3/-/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

Group #2 Qualification Data:

Qualification Data #1: Approved January 2013

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.

Qualification Device: SN1010017RSAR2 (MSL 2-260C)

Package Construction Details

Assembly Site:	CARZ	Mold Compound:	SID#441086
# Pins-Designator, Family:	16-RSA, VQFN	Mount Compound:	SID#435143
Lead Finish:	NiPdAu	Bond Wire:	2.0 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size / Fail		
		Lot 1	Lot 2	Lot 3
Electrical Characterization	Per Datasheet	Pass	--	--
**High Temp. Storage Bake	170C (420 Hrs)	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

Notes: **Tests require preconditioning sequence: MSL2-260C

Qualification Data #2: Approved January 2013

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.

Qualification Device: TPS51123RGER (MSL 2-260C)

Package Construction Details

Assembly Site:	CARZ	Mold Compound:	SID#441086
# Pins-Designator, Family:	24-RGE, VQFN	Mount Compound:	SID#435143
Lead Finish:	NiPdAu	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	Per Datasheet	Pass	--	--
** High Temp Operating Life	125C (168, 500, 1000Hrs)	38/0	38/0	38/0
**High Temp. Storage Bake	170C (420 Hrs)	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

Notes: **Tests require preconditioning sequence: MSL2-260C

Qualification Data #3: Approved January 2013

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.

Qualification Device: TPS650240RHBR (MSL 2-260C)

Package Construction Details

Assembly Site:	CARZ	Mold Compound:	SID#441086
# Pins-Designator, Family:	32-RHB, VQFN	Mount Compound:	SID#435143
Lead Finish:	NiPdAu	Bond Wire:	1.3 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **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)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	77/0	77/0

Notes: **Tests require preconditioning sequence: MSL2-260C

Qualification Data #4: Approved September 2013

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.

Qualification Device: TPA3117D2RHBR (MSL 2-260C)

Package Construction Details

Assembly Site:	CARZ	Mold Compound:	SID#441086
# Pins-Designator, Family:	32-RHB, VQFN	Mount Compound:	SID#435143
Lead Finish:	NiPdAu	Bond Wire:	1.3 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size / Fail		
		Lot 1	Lot 2	Lot 3
Electrical Characterization	Per Datasheet	Pass	Pass	Pass
**High Temp. Storage Bake	170C (420 Hrs)	77/0	77/0	77/0
**Biased HAST	130C/85%RH (96 Hrs)	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
ESD CDM	+/- 250V	3/0	3/0	3/0

Notes: **Tests require preconditioning sequence: MSL2-260C

Qualification Data #5: Approved September 2013

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.

Qualification Device: TPA6132A2RTER (MSL 2-260C)

Package Construction Details

Assembly Site:	CARZ	Mold Compound:	SID#441086
# Pins-Designator, Family:	16-RTE, WQFN	Mount Compound:	SID#435143
Lead Finish:	NiPdAu	Bond Wire:	0.96 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size / Fail
**Autoclave 121C	121C, 2 atm (96 Hrs)	0/77
**T/C -65C/150C	-65C/+150C (500 Cyc)	0/77

Notes: **Tests require preconditioning sequence: MSL2-260C

Qualification Data #6: Approved September 2013

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.

Qualification Device: TPS2540RTER (MSL 2-260C)

Package Construction Details

Assembly Site:	CARZ	Mold Compound:	SID#441086
# Pins-Designator, Family:	16-RTE, WQFN	Mount Compound:	SID#435143
Lead Finish:	NiPdAu	Bond Wire:	1.98 Mil Dia., Cu

Qualification: ☐ **Plan** ☒ **Test Results**

Reliability Test	Conditions	Sample Size / Fail		
		Lot 1	Lot 2	Lot 3
High Temp Operating Life	125C (168 Hrs)	77/0	77/0	77/0
**T/C -65C/150C	-65C/+150C (500 Cyc)	77/0	--	--

Notes: **Tests require preconditioning sequence: MSL2-260C

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	PCNAmericasContact@list.ti.com
Europe	PCNEuropeContact@list.ti.com
Asia Pacific	PCNAsiaContact@list.ti.com
Japan	PCNJapanContact@list.ti.com