PCN Number:	20141204000A	**PCN Date:**	01/15/2015
Title:	Qualification of TI Chengdu (CDAT) as Additional Assembly and Test Site for Select VQFN/WQFN Package Devices		
Customer Contact:	PCN Manager	**Phone:**	
Dept:	Quality Services		
Proposed 1st Ship Date:	04/15/2015	**Estimated Sample Availability:**	Date Provided at Sample request

Change Type:

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

PCN Details

Description of Change:

This is an amended notification. Additional devices have been added to the 'Product Affected' list and are highlighted in yellow. They were inadvertently omitted in the original list. These devices will begin shipping no sooner than 90 days from the date of this notice. The proposed first ship date applies only to the highlighted devices.

Texas Instruments Incorporated is announcing the qualification of TI Chengdu (CDAT) as Additional Assembly and Test Site for select devices listed in the "Product Affected" Section. Current assembly sites are as follows.

	Existing Sites	**Additional Site**
Assembly/Test Sites	TI-CLARK, CARZ, NSE	CDAT

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

Reason for Change:

Continuity of supply.

Anticipated impact on Form, Fit, 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
CARZ	Assembly Site Origin (22L)	ASO: CSZ
NSE	Assembly Site Origin (22L)	ASO: NSE
TI Chengdu (CDAT)	Assembly Site Origin (22L)	ASO: CDA

ASSEMBLY SITE CODES: TI-CLARK = I , CARZ = F , NSE = J, CDAT = 8

Sample product shipping label (not actual product label)

Product Affected: Group 1 – VQFN Package

BQ24190RGER	MSP430F2132TRHBT	SN2808RGER	TPS62131RGTR
BQ24190RGET	MSP430G2113IRHB32R	SN2808RGET	TPS62131RGTT
BQ24192HRGER	MSP430G2113IRHB32T	SN2816RGER	TPS62132RGTR
BQ24192HRGET	MSP430G2153IRHB32R	SN2816RGET	TPS62132RGTT
BQ24192IRGER	MSP430G2153IRHB32T	SN2910RGER	TPS62133RGTR
BQ24192IRGET	MSP430G2203IRHB32R	SN2910RGET	TPS62133RGTT
BQ24192RGER	MSP430G2203IRHB32T	TLV62065DSGR	TPS62140RGTR
BQ24192RGET	MSP430G2213IRHB32R	TLV62065DSGT	TPS62140RGTRF0
BQ24193HRGER	MSP430G2213IRHB32T	TLV62130ARGTR	TPS62140RGTT
BQ24193HRGET	MSP430G2233IRHB32R	TLV62130ARGTT	TPS62141RGTR
BQ24193RGER	MSP430G2233IRHB32T	TLV62130RGTR	TPS62141RGTT
BQ24193RGET	MSP430G2253IRHB32R	TLV62130RGTT	TPS62142RGTR
BQ24195LRGER	MSP430G2253IRHB32T	TLV62150ARGTR	TPS62142RGTT
BQ24195LRGET	MSP430G2303IRHB32R	TLV62150ARGTT	TPS62143RGTR
BQ24196RGER	MSP430G2303IRHB32T	TLV62150RGTR	TPS62143RGTT
BQ24196RGET	MSP430G2313IRHB32R	TLV62150RGTT	TPS62150ARGTR
BQ24232HRGTR	MSP430G2313IRHB32T	TPS22965DSGR	TPS62150ARGTT
BQ24232HRGTT	MSP430G2333IRHB32R	TPS22965DSGT	TPS62150RGTR
BQ24232RGTR	MSP430G2333IRHB32T	TPS40192DRCR	TPS62150RGTRF0
BQ24232RGTT	MSP430G2353IRHB32R	TPS40192DRCT	TPS62150RGTT
BQ24232RGTTG4	MSP430G2353IRHB32T	TPS40192DRCTG4	TPS62151RGTR
BQ24295RGER	MSP430G2403IRHB32R	TPS40193DRCR	TPS62151RGTT
BQ24295RGET	MSP430G2403IRHB32T	TPS40193DRCRG4	TPS62152RGTR
BQ24296MRGER	MSP430G2413IRHB32R	TPS40193DRCT	TPS62152RGTT
BQ24296MRGET	MSP430G2413IRHB32T	TPS40193DRCTG4	TPS62153RGTR
BQ24296RGER	MSP430G2433IRHB32R	TPS51200DRCR	TPS62153RGTT
BQ24296RGET	MSP430G2433IRHB32T	TPS51200DRCRG4	TPS65262-1RHBR
BQ24297RGER	MSP430G2453IRHB32R	TPS51200DRCT	TPS65262-1RHBT
BQ24297RGET	MSP430G2453IRHB32T	TPS51200DRCTG4	TPS65262RHBR
FX018	MSP430G2513IRHB32R	TPS51220RHBR	TPS65262RHBT
HPA00351DRCR	MSP430G2513IRHB32T	TPS51220RHBRG4	TPS74201RGWR
HPA01186RGER	MSP430G2533IRHB32R	TPS51220RHBT	TPS74201RGWRG4
HPA01197RGER	MSP430G2533IRHB32T	TPS51220RHBTG4	TPS74201RGWT
HPA02150RGER	MSP430G2553IRHB32R	TPS51220RRHBR	TPS74201RGWTG4
HPA02163RGER	MSP430G2553IRHB32T	TPS51311RGTR	TPS74401RGWR
MSP430A151IRHBT	MSP430TCH5ERHBR	TPS51622ARSMR	TPS74401RGWRG4
MSP430F2112IRHBR	MSP430TCH5ERHBT	TPS51622ARSMT	TPS74401RGWT
MSP430F2112IRHBT	MSP430V258IRHBR	TPS51622RSMR	TPS74401RGWTG4
MSP430F2112TRHBR	MSP430V386IRHB32R	TPS51622RSMT	TPS74701DRCR
MSP430F2112TRHBT	MSP430V402IRHB32R	TPS51624RSMR	TPS74701DRCRG4
MSP430F2122IRHBR	MSP430V592IRHB32R	TPS51624RSMT	TPS74701DRCT
MSP430F2122IRHBT	SN0774401RGWR	TPS51631RSMR	TPS74701DRCTG4
MSP430F2122TRHBR	SN0774401RGWT	TPS51631RSMT	TPS7A8001DRBR

MSP430F2122TRHBT	SN2806RGER	TPS53310RGTR	TPS7A8001DRBT
MSP430F2132IRHBR	SN2806RGET	TPS53310RGTT	
MSP430F2132IRHBT	SN2807RGER	TPS53311RGTR	
MSP430F2132TRHBR	SN2807RGET	TPS53311RGTT	

Product Affected: Group 2 – WQFN package

BQ24040DSQR	SN1304057RSBT	TPA6132A2RTER	TPS53640ARSBT
BQ24040DSQT	TPA2012D2RTJR	TPA6132A2RTET	TPS53640RSBR
HPA00874RTER	TPA2012D2RTJRG4	TPA6133A2RTJR	TPS53640RSBT
HPA00929RTJR	TPA2012D2RTJT	TPA6133A2RTJT	TPS53641RSBR
HPA01081RTJR	TPA2012D2RTJTG4	TPS51220ARSNR	TPS53641RSBT
HPA022642RTJR	TPA6130A2RTJR	TPS51220ARSNT	TPS53661RSBR
SN1304056RSBR	TPA6130A2RTJRG4	TPS53631RSBR	TPS53661RSBT
SN1304056RSBT	TPA6130A2RTJT	TPS53631RSBT	
SN1304057RSBR	TPA6130A2RTJTG4	TPS53640ARSBR	

Group 1: Qualification Status Report

Chengdu A/T Qualification of VQFN/VSON packages

Product Attributes

Attributes	Qual Device 1: BQ24196RGER	Qual Device 2: TPS40192DRCR	Qual Device: 3 TPS51200DRCR	Qual Device 4: TPS51622RSMR
Assembly Site	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	VQFN	VSON	VSON	VQFN
Die Attributes				
Die Revision	A	A	B	A
Wafer Fab Site	RFAB	DFAB 200MM	RFAB	RFAB
Wafer Fab Process	LBC7	LBC4	LBC7	LBC7
Package Attributes				
Package Designator	RGE	DRC	DRC	RSM
Package Size (mils)	157.48 X 157.48	118.11 X 118.11	118.11 X 118.11	157.48 X 157.48
Body Thickness (mils)	35.43	35.43	35.43	35.43
Pin Count	24	10	10	32
Lead Frame Material	Cu	Cu	Cu	Cu
Lead Finish	NIPDAU	NiPdAu	NiPdAu	NiPdAu
Lead Pitch (mils)	19.68	19.68	19.68	15.75
Mount Compound	4207123	4207768	4207768	4207768
Mold Compound	4208625	4208625	4208625	4208625
Bond Wire Composition	Cu	Cu	Cu	Cu
Bond Wire Diameter (mils)	1.98	0.96	0.96	0.96
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0

Attributes	Qual Device 5: TPS62140RGTR	Qual Device 6: TPS65262RHBR	Qual Device 7: TPS7A8001DRBR	Qual Device 8: MSP430G2553IRHB
Assembly Site	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	VQFN	VQFN	VSON	VQFN
Die Attributes				
Die Revision	F	A2	A	C
Wafer Fab Site	MIHO8	RFAB	RFAB	TSMC FAB 10
Wafer Fab Process	LBC7	LBC7	LBC7	TSMC.035 EMB FLASH
Package Attributes				
Package Designator	RGT	RHB	DRB	RHB
Package Size (mils)	118.11 X 118.11	196.85 X 196.85	118.11 X 118.11	196.85 X 196.85
Body Thickness (mils)	35.43	35.43	35.43	35.43
Pin Count	16	32	8	32
Lead Frame Material	CU	CU	Cu	CU
Lead Finish	NiPdAu	NiPdAu	NiPdAu	NIPDAU
Lead Pitch (mils)	19.68	19.68	25.59	19.68
Mount Compound	4207768	4207768	4207768	4207768
Mold Compound	4208625	4208625	4208625	4208625
Bond Wire Composition	Cu	Cu	Cu	Cu
Bond Wire Diameter (mils)	1.3	1.98	0.96	0.96
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: BQ24196RGER, TPS40192DRCR, TPS51200DRCR, TPS51622RSMR, TPS62140RGTR, TPS65262RHBR, TPS7A8001DRBR, MSP430G2553IRHB

Qualification Plan

Type	Test Name / Condition	Duration	Qual Device 1: BQ24196RGER	Qual Device 2: TPS40192DRCR	Qual Device 3: TPS51200DRCR	Qual Device 4: TPS51622RSMR
AC	Autoclave 121C	96 Hours	2/8/2015		2/8/2015	2/8/2015
HAST	Biased HAST, 130C/85%RH	96 Hours				
TC	Temperature Cycle, -65/+150C	500 Cycles	2/24/2015		2/24/2015	2/24/2015
HTSL	High Temp Storage Bake 170C	420 Hours	2/19/2015		2/19/2015	2/19/2015
HTOL	Life Test 150C	300 Hours				
SD	Solderability	Pb free	1/30/2015			
PD	Physical Dimensions	(per mechanical drawing)	2/9/2015	2/9/2015	2/9/2015	2/9/2015
ED	Electrical Characterization	Per Datasheet Parameters	2/9/2015	2/9/2015	2/9/2015	2/9/2015
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	2/9/2015	2/9/2015	2/9/2015	2/9/2015

TIS	Thermal Integrity Sequence	Level 2 @260C	3/9/2015			
VM	Visual Quality Reliability Inspection	Post Autoclave 96 Hours	3/9/2015		3/9/2015	3/9/2015
VM	Visual Quality Reliability Inspection	Post Temp Cycle 500 Cycles	3/15/2015		3/15/2015	3/15/2015
MECH	Visual / Mechanical	(per mfg. Site specification)	2/9/2015	2/9/2015	2/9/2015	2/9/2015
WBS	Ball Bond Shear	76 wires	2/9/2015	2/9/2015	2/9/2015	2/9/2015
WBP	Wire Pull	76 wires	2/9/2015	2/9/2015	2/9/2015	2/9/2015

Type	Test Name / Condition	Duration	Qual Device 5: TPS62140RGTR	Qual Device 6: TPS65262RHBR	Qual Device 7: TPS7A8001DRBR	Qual Device 8: MSP430G2553IRHB
AC	Autoclave 121C	96 Hours	2/8/2015		2/8/2015	2/11/2015
HAST	Biased HAST, 130C/85%RH	96 Hours	2/8/2015			2/18/2015
TC	Temperature Cycle, -65/+150C	500 Cycles	2/24/2015	2/24/2015	2/24/2015	2/18/2015
HTSL	High Temp Storage Bake 170C	420 Hours	2/19/2015		2/19/2015	2/26/2015
HTOL	Life Test 150C	300 Hours				3/3/2015
SD	Solderability	Pb free	1/30/2015	1/30/2015		1/30/2015
PD	Physical Dimensions	(per mechanical drawing)	2/9/2015	2/9/2015	2/9/2015	1/30/2015
ED	Electrical Characterization	Per Datasheet Parameters	2/9/2015	2/9/2015	2/9/2015	
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	2/9/2015	2/9/2015	2/9/2015	1/15/2015
TIS	Thermal Integrity Sequence	Level 2 @260C	3/9/2015			1/23/2015
VM	Visual Quality Reliability Inspection	Post Autoclave 96 Hours	3/9/2015		3/9/2015	3/3/2015
VM	Visual Quality Reliability Inspection	Post Temp Cycle 500 Cycles	3/15/2015	3/15/2015	3/15/2015	3/3/2015
MECH	Visual / Mechanical	(per mfg. Site specification)	2/9/2015	2/9/2015	2/9/2015	1/30/2015
WBS	Ball Bond Shear	76 wires	2/9/2015	2/9/2015	2/9/2015	1/15/2015
WBP	Wire Pull	76 wires	2/9/2015	2/9/2015	2/9/2015	1/15/2015

- 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:

Group 2: Qualification Status Report

Chengdu A/T Qualification of WQFN packages

Product Attributes

Attributes	Qual Device 1: TPA2012D2RTJT	Qual Device 2: TPS51220ARSNR	Qual Device 3: TPS53641RSBR	QBS Qual Device 4: TPS51622RSMR
Assembly Site	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	WQFN	WQFN	WQFN	VQFN
Die Attributes				
Die Revision	A	B	A	A
Wafer Fab Site	FFAB	RFAB	RFAB	RFAB
Wafer Fab Process	3370A12X3	LBC7	LBC7	LBC7
Package Attributes				
Assembly Site	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	WQFN	WQFN	WQFN	VQFN
Package Designator	RTJ	RSN	RSB	RSM
Package Size (mils)	157.48 X 157.48	157.48 X 157.48	196.85 X 196.85	157.48 X 157.48
Body Thickness (mils)	29.53	29.53	29.53	35.43
Pin Count	20	32	40	32
Lead Frame Material	Cu	Cu	CU	Cu
Lead Finish	NiPdAu	NIPDAU	NIPDAU	NiPdAu
Lead Pitch (mils)	19.68	15.75	15.75	15.75
Mount Compound	4207123	4207123	4207123	4207123
Mold Compound	4208625	4208625	4208625	4208625
Bond Wire Composition	Cu	Cu	Cu	Cu
Bond Wire Diameter (mils)	0.96	0.96	0.96	0.96
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: TPA2012D2RTJT, TPS51220ARSNR, TPS53641RSBR, TPS51622RSMR

Qualification Plan

Type	Test Name / Condition	Duration	Qual Device 1: TPA2012D2RTJT	Qual Device 2: TPS51220ARSNR	Qual Device 3: TPS53641RSBR	QBS Qual Device 4: TPS51622RSMR
AC	Autoclave 121C	96 Hours			4/1/2015	2/8/2015
TC	Temperature Cycle, -65/+150C	500 Cycles			4/1/2015	2/24/2015
HTSL	High Temp Storage Bake 170C	420 Hours				2/19/2015
PD	Physical Dimensions	(per mechanical drawing)	4/1/2015	4/1/2015	4/1/2015	2/9/2015
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	4/1/2015	4/1/2015	4/1/2015	2/9/2015
TIS	Thermal Integrity Sequence	Level 2 @260C			3/15/2015	
VM	Visual Quality Reliability Inspection	Post Autoclave 96 Hours				3/9/2015
VM	Visual Quality Reliability Inspection	Post Temp Cycle 500 Cycles				3/15/2015

MECH	Visual / Mechanical	(per mfg. Site specification)	4/1/2015	4/1/2015	4/1/2015	2/9/2015
WBS	Ball Bond Shear	76 wires	4/1/2015	4/1/2015	4/1/2015	2/9/2015
WBP	Wire Pull	76 wires	4/1/2015	4/1/2015	4/1/2015	2/9/2015

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