PCN Number:	20170417000	PCN Date:	Apr 18, 2017
Title:	Qualification of TI Chengdu (CDAT) as an additional Assembly & Test site for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	July 18, 2017	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:

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

Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly Site City
TI Clark	QAB	PHL	Angeles City, Pampanga
TI Malaysia	MLA	MYS	Kuala Lumpur
TI Chengdu	**CDA**	**CHN**	**Chengdu**

Material Differences:

	TI Clark	TI Malaysia	TI Chengdu
Mount compound	4207768	4205846	4207123
Mold compound	4208625	4208625	4222198

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

Anticipated impact on Material Declaration

☐	No Impact to the Material Declaration	☒	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 TI Eco-Info website. There is no impact to the material meeting current regulatory compliance requirements with this PCN change.

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
TI Chengdu	Assembly Site Origin (22L)	ASO: CDA

Sample product shipping label (not actual product label)

ASSEMBLY SITE CODES: QAB = I , MLA = K, CDA =8

Product Affected: Group 1

BQ24072RGTR	BQ24074RGTR	BQ24230RGTR	TPS65262-2RHBR
BQ24072RGTT	BQ24074RGTT	BQ24230RGTT	TPS65262-2RHBT
BQ24072TRGTR	BQ24075RGTR	BQ24232HARGTR	TPS7A8300RGWR
BQ24072TRGTT	BQ24075RGTT	BQ24232HARGTT	TPS7A8300RGWT
BQ24073RGTR	BQ24079TRGTR	SN1501005RHBR	
BQ24073RGTT	BQ24079TRGTT	SN1501005RHBT	

Product Affected: Group 2

BQ24259RGER	BQ29209DRBT	DRV8837DSGT	SN10548DPUR
BQ24259RGET	BQ76925RGER	DRV8837LDSGR	SN1409049DPUR
BQ27411DRZR-G1D	BQ76925RGET	DRV8838DSGR	SN1509006RHLR
BQ29200DRBR	DRV401AIRGWR	DRV8838DSGT	SN1509006RHLT
BQ29200DRBT	DRV401AIRGWT	OPA2314AIDRBR	TPS61088RHLR
BQ29209DRBR	DRV8837DSGR	OPA2314AIDRBT	TPS61088RHLT

Group 1: Qualification Report

Chengdu A/T Enterprise Qualification of VQFN/VSON 3x3, 4x4, 5x5 packages

Approve Date 17-Apr-2015

Product Attributes

Attributes	Qual Device: BQ24196RGER	Qual Device: TPS40192DRCR	Qual Device: TPS51200DRCR	Qual Device: TPS51622RSMR	Qual Device: TPS62140RGTR	Qual Device: TPS65262RHBR	Qual Device: TPS7A8001DRBR
Assembly Site	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	VQFN	VSON	VSON	VQFN	VQFN	VQFN	VSON
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Site	RFAB	DFAB 200MM	RFAB	RFAB	MIHO8	RFAB	RFAB
Wafer Fab Process	LBC7	LBC4	LBC7	LBC7	LBC7	LBC7	LBC7

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

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: BQ24196RGER	Qual Device: TPS40192DRCR	Qual Device: TPS51200DRCR	Qual Device: TPS51622RSMR	Qual Device: TPS62140RGTR	Qual Device: TPS65262RHBR	Qual Device: TPS7A8001DRBR
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	-	-	3/230/0	-	-
AC	Autoclave 121C	96 Hours	3/231/0	-	3/231/0	3/230/0	3/231/0	-	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	-	3/231/0	3/231/0	3/231/0	-	3/231/0
WBS	Ball Bond Shear	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0
SD	Solderability	Pb Free	3/66/0	-	-	-	3/66/0	3/66/0	-
PD	Physical Dimensions	(per mechanical drawing)	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0	3/15/0
ED	Electrical Characterization, side by side	Per Datasheet Parameters	Pass	Pass	Pass	Pass	Pass	Pass	Pass
MECH	Visual / Mechanical	(per mfg. Site specification)	3/984/0	3/984/0	3/984/0	3/984/0	3/984/0	3/984/0	3/984/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
MSL	Thermal Path Integrity	Level 2-260C	3/36/0	-	-	-	3/36/0	-	-
VM	Visual Quality Reliability Inspection	Post HAST	-	-	-	-	3/6/0	-	-
VM	Visual Quality Reliability Inspection	Post Autoclave	3/6/0	-	3/6/0	3/6/0	3/6/0	-	3/6/0
VM	Visual Quality Reliability Inspection	Post Temp Cycle	3/6/0	-	3/6/0	3/6/0	3/6/0	3/6/0	3/6/0

- 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

Qualification Report

TPS7A8300RGW CDAT secondary site qual

Approve Date 24-Mar-2017

Product Attributes

Attributes	Qual Device: TPS7A8300RGWR	QBS Product Reference: TPS7A8300RGR	QBS Product Reference: TPS7A8300RGW	QBS Product Reference: TPS7A8300RGW	QBS Process Reference: TLS2602DCA (CARDINAL)	QBS Process Reference: TPA6140A2YFF	QBS Process Reference: TPIC2020RTQ
Assembly Site	CHENGDU A/T	CLARK AT	CLARK AT	CLARK AT	TAI	CLARK-AT	CLARK-AT
Package Family	QFN 5 x 5 MM	QFN	QFN	QFN	HTSSOP	DSBGA	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB	RFAB
Wafer Process	LBC7	LBC7X (DCU)	LBC7X (DCU)	LBC7X (DCU)	LBC7	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device TPS7A8300RGWR is qualified at LEVEL2-260CG

Attributes	QBS Process Reference: TPS62620YFF	QBS Process Reference: TPS65170RHD (DANGERMOUSE)	QBS Process Reference: TPS65830YFF (JET)	QBS Package Reference: BQ24196RGER	QBS Package Reference: TPS62140RGTR	QBS Package Reference: TRS3122ERGER
Assembly Site	CLARK-AT	CLARK-AT	CLARK-AT	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	DSBGA - 0.625 thick	QFN	DSBGA	VQFN	VQFN	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	MIHO8	RFAB
Wafer Process	LBC7	LBC7	LBC7	LBC7	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device TPS7A8300RGWR is qualified at LEVEL2-260CG

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: TPS7A8300RGWR	QBS Product Reference: TPS7A8300RGR	QBS Product Reference: TPS7A8300RGW	QBS Product Reference: TPS7A8300RGW	QBS Process Reference: TLS2602DCA (CARDINAL)
AC	Autoclave 121C	96 Hours	-	-	-	-	1/77/0
ED	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0	-
EDR	EEPROM Data Retention, 170C	420 Hours	-	1/77/0	1/77/0	1/77/0	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	-	-	-
FLAM	Flammability (UL 94V-0)	--	-	-	-	-	-
FLAM	Flammability (UL-1694)	--	-	-	-	-	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	1/77/0	-	1/77/0	-	-
HBM	ESD - HBM	2500 V	-	1/9/0	1/9/0	1/9/0	-
CDM	ESD - CDM	1000V	2/6/0	1/3/0	1/3/0	1/3/0	-
HTOL	Life Test, 140C	480 Hours	-	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	3/231/0
HTOL	Life Test, 150C	300 Hours	-	1/77/0	1/77/0	1/77/0	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	1/77/0	1/77/0	1/77/0	1/77/0	-
LU	Latch-up	(per JESD78)	-	1/6/0	1/6/0	1/6/0	3/18/0
PD	Physical Dimensions	--	1/30/0	-	-	-	-
SD	Surface Mount Solderability	Pb Free	1/22/0	-	-	-	-
TC	Temperature Cycle, -55/125C	700 Cycles	-	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	1/77/0	1/77/0	1/77/0	1/77/0
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-	-	-
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	1/77/0	-	-	-	-
WBP	Bond Pull	Wires	1/228/0	-	-	-	-
WBS	Ball Bond Shear	Wires	1/228/0	-	-	-	-

Type	Test Name / Condition	Duration	QBS Process Reference: TPA6140A2YFF	QBS Process Reference: TPIC2020RTQ	QBS Process Reference: TPS62620YFF	QBS Process Reference: TPS65170RHD (DANGERMOUSE)
AC	Autoclave 121C	96 Hours	-	1/77/0	-	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-
EDR	EEPROM Data Retention, 170C	420 Hours	-	-	-	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	-	-
FLAM	Flammability (UL 94V-0)	--	-	-	-	-
FLAM	Flammability (UL-1694)	--	-	-	-	-
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	1/77/0	-	-
HBM	ESD - HBM	2500 V	-	-	-	-
CDM	ESD - CDM	1000V	-	-	-	-
HTOL	Life Test, 140C	480 Hours	3/231/0	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	3/231/0	-	-
HTOL	Life Test, 150C	300 Hours	-	-	-	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	1/77/0	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	-
LU	Latch-up	(per JESD78)	3/18/0	3/18/0	3/18/0	-
PD	Physical Dimensions	--	-	-	-	-
SD	Surface Mount Solderability	Pb Free	-	-	-	-
TC	Temperature Cycle, -55/125C	700 Cycles	3/231/0	-	3/231/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	-	3/231/0
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-	3/231/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	3/231/0	-	3/231/0	-
WBP	Bond Pull	Wires	-	-	-	-
WBS	Ball Bond Shear	Wires	-	-	-	-

Type	Test Name / Condition	Duration	QBS Process Reference: TPS65830YFF (JET)	QBS Package Reference: BQ24196RGER	QBS Package Reference: TPS62140RGTR	QBS Package Reference: TRS3122ERGER
AC	Autoclave 121C	96 Hours	-	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	1/30/0
EDR	EEPROM Data Retention, 170C	420 Hours	-	-	-	-
FLAM	Flammability (IEC 695-2-2)	--	-	-	-	3/15/0
FLAM	Flammability (UL 94V-0)	--	-	-	-	3/15/0
FLAM	Flammability (UL-1694)	--	-	-	-	3/15/0
HAST	Biased HAST, 110C/85%RH	264 Hours	-	-	3/231/0	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	3/231/0
HBM	ESD - HBM	2500 V	-	-	-	-
CDM	ESD - CDM	1000V	-	-	-	-
HTOL	Life Test, 140C	480 Hours	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-
HTOL	Life Test, 150C	300 Hours	3/231/0	-	-	1/77/0
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	-	-	3/231/0
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	3/231/0	3/231/0	-
LU	Latch-up	(per JESD78)	3/18/0	-	-	1/6/0
PD	Physical Dimensions	--	-	3/15/0	3/15/0	3/30/0
SD	Surface Mount Solderability	Pb Free	-	3/66/0	3/66/0	1/22/0
TC	Temperature Cycle, -55/125C	700 Cycles	3/229/0	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-	-
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	3/228/0	-	-	-
WBP	Bond Pull	Wires	-	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	-	3/228/0	3/228/0	3/228/0

- 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 Plan

Phase 2 QFN Offload from Clark-AT and MLA to CDAT

(Qualification is On-going)

Product Attributes

Attributes	Qual Device: BQ27411DRZRG1D	Qual Device: BQ29200DRBR	Qual Device: DRV401AIRGWR	Qual Device: OPA2314AIDRBR	Qual Device: SN1509006RHLR
Assembly Site	CDAT	CDAT	CDAT	CDAT	CDAT
Package Family	VSON	VSON	VQFN	VSON	QFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	DFAB -200	AIZU	DP1-DM5	RFAB
Wafer Fab Process	LBC8LV	LBC4	50HPA07	50HPA07	LBC7

Attributes	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TPS22966DPUR	QBS Package Reference: TPS53641RSBR	QBS Package Reference: TPS62140RGTR	QBS Package Reference: TRS3122ERGER
Assembly Site	CHENGDU A/T	CHENGDU A/T	CDAT	CHENGDU A/T	CHENGDU A/T	CHENGDU A/T
Package Family	VQFN	WQFN	QFN	WQFN	VQFN	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	RFAB	RFAB	MIHO-8	RFAB
Wafer Fab Process	LBC7	LBC7	LBC7	LBC7X	LBC7X	LBC7

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: SN1509006RHLR, BQ29200DRBR, OPA2314AIDRBR, BQ27411DRZRG1D, DRV401AIRGWR

Qualification Results

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

(Results expected Oct 31, 2017)

Type	Test Name / Condition	Duration	Qual Device: BQ27411DRZRG1D	Qual Device: BQ29200DRBR	Qual Device: DRV401AIRGWR	Qual Device: OPA2314AIDRBR	Qual Device: SN1509006RHLR
AC	Autoclave 121C	96 Hours	-	3/231/TBD	3/231/TBD	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	TBD	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	3/231/TBD	3/231/TBD	-	-

Type	Test Name / Condition	Duration	Qual Device: BQ27411DRZRG1D	Qual Device: BQ29200DRBR	Qual Device: DRV401AIRGWR	Qual Device: OPA2314AIDRBR	Qual Device: SN1509006RHLR
PD	Physical Dimensions	(per mechanical drawing)	1/5/TBD	-	-	-	1/5/TBD
SD	Solderability	Steam age, 8 hours	1/22/TBD	-	-	3/66/TBD	1/22/TBD
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/TBD	3/231/TBD	3/231/TBD	-
WBP	Bond Pull	76 Wires, 3 units min	3/228/TBD	3/228/TBD	3/228/TBD	3/228/TBD	3/228/TBD
WBS	Ball Bond Shear	76 balls, 3 units min	3/228/TBD	3/228/TBD	3/228/TBD	3/228/TBD	3/228/TBD

Type	Test Name / Condition	Duration	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TPS22966DPUR	QBS Package Reference: TPS53641RSBR	QBS Package Reference: TPS62140RGTR	QBS Package Reference: TRS3122ERGER
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	Pass	Pass
FLAM	Flammability (IEC 695-2-2)	-	-	-	-	-	-	3/15/0
FLAM	Flammability (UL 94V-0)	-	-	-	-	-	-	3/15/0
FLAM	Flammability (UL-1694)	-	-	-	-	-	-	3/15/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-	-	-	3/231/0
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	1/77/0
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	-	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	-	-	3/231/0	3/231/0	-	-
PD	Physical Dimensions	(per mechanical drawing)	-	-	3/15/0	-	-	3/30/0
SD	Solderability	Steam age, 8 hours	-	-	-	-	-	1/22/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
WBP	Bond Pull	76 Wires, 3 units min	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	76 balls, 3 units min	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0

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