12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20180625000
Qualify TI Chengdu (CDAT) as an additional Assembly & Test site for select devices
Change Notification / Sample Request

Date: June 29, 2018
To: Newark/Farnell 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 proposed first ship date is indicated on page 3 of this notification, unless customer agreement has been reached on an earlier implementation of the change.

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

20180625000
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
BQ4050RSMT	null
BQ40Z50RSMT	null
BQ40Z50RSMT-R1	null
BQ40Z50RSMT-R2	null
INA300AIDSQT	null
TPS51206DSQT	null
TPS65651RTET	null
TPS51206DSQR	null

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

PCN Number:	20180625000	PCN Date:	June 29, 2018
Title:	Qualify TI Chengdu (CDAT) as an additional Assembly & Test site for select devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Proposed 1st Ship Date:	Sept 29, 2018	Estimated Sample Availability:	Provided upon 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 is pleased to announce the qualification of TI Chengdu (CDAT) as an additional Assembly & Test site for the list of devices shown below. Material differences between sites are as follows.

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

Material Differences:

Group 1 Device:

	TI Clark	TI Chengdu
Mount Compound	4207768	4207123
Mold Compound	4208625	4222198

Group 2 Device:

	TI Clark/ TI Malaysia	TI Chengdu
Mold Compound	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 Fit, Form, 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 Philippines	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)

Group 1 Product Affected

TPS22968DPUR	TPS53317RGBT	TPS54428DRCR	TPS65281RGVR
TPS22968DPUT	TPS54427DRCR	TPS54428DRCT	TPS65281RGVT
TPS53317RGBR	TPS54427DRCT	TPS65281-1RGVR	TS3A225ERTER

Group 2 Product Affected

BQ40320RSMR	BQ40Z50RSMR-R1	BQ40Z696ARSMR	INA300AIDSQR
BQ40320RSMR-R1	BQ40Z50RSMR-R2	BQ40Z795ARSMR	INA300AIDSQT
BQ40320RSMT	BQ40Z50RSMT	BQ40Z795ARSMT	MSP430FR2310IRGYR
BQ40320RSMT-R1	BQ40Z50RSMT-R1	BQ9000RSMR	MSP430FR2310IRGYT
BQ40370RSMR	BQ40Z50RSMT-R2	BQ9000RSMR-D1	MSP430FR2311IRGYR
BQ40370RSMT	BQ40Z551RSMR	BQ9000RSMR-D2	MSP430FR2311IRGYT
BQ4050RSMR	BQ40Z551RSMT	BQ9000RSMR-L1	SN1604033RTER
BQ4050RSMT	BQ40Z552RSMR	BQ9000RSMT	SN9000RSMR
BQ40696ARSMR	BQ40Z552RSMT	BQ9000RSMT-D1	SN9000RSMT
BQ40696ARSMT	BQ40Z555RSMR	BQ9000RSMT-D2	TPS51206DSQR
BQ40Z40RSMT	BQ40Z557RSMR	BQ9000RSMT-L1	TPS51206DSQT
BQ40Z453RSMR	BQ40Z557RSMT	BQ9003RSMR	TPS65651ARTER
BQ40Z453RSMT	BQ40Z695ARSMR	BQ9003RSMR-L1	TPS65651RTER
BQ40Z50RSMR	BQ40Z695ARSMT	BQ9003RSMT	TPS65651RTET

Group 1: Qualification Report

Phase 3 QFN Offload from Clark-AT and MLA to CDAT

Approval Date: 06/13/2018

Product Attributes

Attributes	Qual Device: INA300AIDSQR	Qual Device: TPS51206DSQR	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TRS3122ERGER
Assembly Site	CDAT	CDAT	CDAT	CDAT	CHENGDU A/T
Package Family	WSON	WSON	VQFN	WSON	VQFN
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	AIZU	FR-BIP-1	RFAB	RFAB	RFAB
Wafer Fab Process	50HVHPA07	LBC7T	LBC7	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device INA300AIDSQR and TPS51206DSQR are qualified at LEVEL2-260CG

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA300AIDSQR	Qual Device: TPS51206DSQR	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TRS3122ERGER
AC	Autoclave 121C	96 Hours	-	-	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	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
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	3/231/0
SD	Surface Mount Solderability	Pb Free	-	-	-	-	1/22/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	3/231/0	3/231/0	-	-	-
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	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

Qualification Report

TPS22966DPUR Qual at CDAT

Approval Date: 03/18/2016

Product Attributes

Attributes	Qual Device: TPS22966DPUR	QBS Package Reference: BQ294504DRVR	QBS Package Reference: MSP430F5528IRGC
Assembly Site	CDAT	CDAT	UTAC
Package Family	QFN	QFN	QFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	RFAB	TSMC F11
Wafer Fab Process	LBC7	LBC7	TSMC.018 EMB FLASH

- QBS: Qual By Similarity
- Qual Device TPS22966DPUR 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: TPS22966DPUR	QBS Package Reference: BQ294504DRVR	QBS Package Reference: MSP430F5528IRGC
AC	Autoclave 121C	96 Hours	3/231/0	3/231/0	
FLAM	Flammability (UL 94V-0)	-	-	-	1/5/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	420 Hours	3/231/0	-	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	-
MSL	Thermal Path Integrity	Level 1-260C	-	3/36/0	-
MSL	Thermal Path Integrity	Level 2-260C	3/36/0	-	-
PD	Physical Dimensions	(per mechanical drawing)	3/15/0	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	3/231/0	-

- 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

CDAT Offload of SN1604033RTER/TPS65651RTER/TPS65651ARTER

Approval Date: 05/21/2016

Product Attributes

Attributes	Qual Device: SN1604033RTER	Qual Device: TPS65651ARTER	Qual Device: TPS65651RTER	QBS Product Reference: SN1604033RTE	QBS Product Reference: TPS65633RTE
Assembly Site	CDAT	CDAT	CDAT	TI-CLARK	TI-CLARK
Package Family	QFN	QFN	QFN	QFN	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	FFAB	RFAB	RFAB	FFAB	RFAB
Wafer Process	LBC7X	LBC7X	LBC7X	LBC7	LBC7

Attributes	QBS Product Reference: TPS65651ARTE	QBS Process Reference: TCA6416PW	QBS Process Reference: TPS65830YFF (JET)	QBS Package Reference: TPS65633BKRTER
Assembly Site	TI-CLARK	MLA	CLARK-AT	CHENGDU A/T
Package Family	QFN	TSSOP	DSBGA	WQFN
Flammability Rating	UL 94 V-0	UL 94 V 0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	RFAB	FFAB	RFAB	RFAB
Wafer Process	LBC7	LBC7	LBC7	LBC7X

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260CG: TPS65651ARTER, SN1604033RTER, and TPS65651RTER

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: SN1604033RTER	Qual Device: TPS65651ARTER	Qual Device: TPS65651RTER	QBS Product Reference: SN1604033RTE	QBS Product Reference: TPS65633RTE
AC	Autoclave 121C	96 Hours	-	-	-	-	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	Pass	Pass
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-
HBM	ESD - HBM	4000 V	-	-	-	1/3/0	1/3/0
CDM	ESD - CDM	2000 V	-	-	-	-	1/3/0
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	-	-
LU	Latch-up	(per JESD78)	-	-	-	1/6/0	1/6/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	-
TC	Temperature Cycle, -55/125C	700 Cycles	-	-	-	-	-

TC	Temperature Cycle, -65/150C	500 Cycles	-	-	-	-	1/77/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	-	-	-	-
YLD	FTY and Bin Summary	--	Pass	Pass	Pass	Pass	-

Type	Test Name / Condition	Duration	QBS Product Reference: TPS65651ARTE	QBS Process Reference: TCA6416PW	QBS Process Reference: TPS65830YFF (JET)	QBS Package Reference: TPS65633BKRTER
AC	Autoclave 121C	96 Hours	-	3/231/0	-	-
ED	Electrical Characterization	Per Datasheet Parameters	Pass	Pass	-	Pass
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-	-
HBM	ESD - HBM	4000 V	-	-	-	-
CDM	ESD - CDM	2000 V	-	-	-	-
HTOL	Life Test, 150C	300 Hours	-	3/231/0	3/231/0	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	3/231/0	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	3/231/0
LU	Latch-up	(per JESD78)	-	1/6/0	318/0	-
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	-	-	-	Pass
TC	Temperature Cycle, -55/125C	700 Cycles	-	-	3/231/0	-
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	-	3/231/0
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	-	3/231/0	3/231/0
YLD	FTY and Bin Summary	--	-	-	-	-

- 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

THIS INFORMATION RELATING TO QUALITY AND RELIABILITY IS PROVIDED "AS IS." Product information detailed in this report may not accurately reflect TI's current product materials, processes and testing used in the construction of the TI products. Customers are solely responsible to conduct sufficient engineering and additional qualification testing to determine whether a device is suitable for use in their applications. Using TI products outside limits stated in TI's datasheet may void TI's warranty. See TI's Terms of Sale at http://www.ti.com/lsds/ti/legal/termsofsale.page

Group 2: Qualification Report

Qualification of TI Chengdu A/T Second Source QFN Assembly Site for MSP430FR2311 Device Family

Approved – 06/20/2018

Product Attributes

Attributes	Qual Device #1: MSP430FR2311IRGY	QBS Device #2: MSP430FR2100IRLL	QBS Device #3: MSP430FR2633IRHB
Assembly Site	CDAT	CDAT	CDAT
Package Family	VQFN	VQFN	VQFN
Flammability Rating	UL 94 V-0	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	DMOS6	DMOS6	DMOS6
Wafer Process	HPE035	HPE035	HPE035

- QBS: Qual By Similarity
- Qual Devices MSP430FR2311IRGY, MSP430FR2633IRHB, and MSP430FR2100IRLL are qualified at LEVEL2-260C.

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device #1: MSP430FR2311IRGY	QBS Device #2: MSP430FR2100IRLL	QBS Device #3: MSP430FR2633IRHB
AC	Autoclave 121C	96 Hours	-	N/A	3/231/0
HAST	Biased HAST, 110C/85%RH	264 Hours	-	N/A	3/231/0
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	N/A	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0
WBP	Bond Pull	Wires	1/76/0	1/76/0	3/228/0
WBS	Ball Bond Shear	Wires	1/76/0	1/76/0	3/228/0

- Preconditioning was performed for Autoclave, Biased HAST, Temperature Cycle, and HTSL.

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

Phase 3 QFN Offload from Clark-AT and MLA to CDAT

Approval Date: 06/13/2018

Product Attributes

Attributes	Qual Device: INA300AIDSQR	Qual Device: TPS51206DSQR	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TRS3122ERGER
Assembly Site	CDAT	CDAT	CDAT	CDAT	CHENGDU A/T
Package Family	WSON	WSON	VQFN	WSON	VQFN

Attributes	Qual Device: INA300AIDSQR	Qual Device: TPS51206DSQR	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TRS3122ERGER
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	AIZU	FR-BIP-1	RFAB	RFAB	RFAB
Wafer Fab Process	50HVHPA07	LBC7T	LBC7	LBC7	LBC7

- QBS: Qual By Similarity
- Qual Device INA300AIDSQR and TPS51206DSQR are qualified at LEVEL2-260CG

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: INA300AIDSQR	Qual Device: TPS51206DSQR	QBS Package Reference: BQ24196RGER	QBS Package Reference: BQ294504DRVR	QBS Package Reference: TRS3122ERGER
AC	Autoclave 121C	96 Hours	-	-	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	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
HTSL	High Temp Storage Bake 150C	1000 Hours	-	-	-	-	3/231/0
SD	Surface Mount Solderability	Pb Free	-	-	-	-	1/22/0
TC	Temperature Cycle, -65/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	3/231/0	3/231/0	-	-	-
WBP	Bond Pull	Wires	3/228/0	3/228/0	3/228/0	3/228/0	3/228/0
WBS	Ball Bond Shear	Wires	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

Qualification Report

Qual of BQ900xRSM (32-pin 4x4mm QFN) in CDAT

Approval Date: 06/13/2018

Product Attributes

Attributes	Qual Device: BQ9000RSM	Qual Device: BQ9003RSM	QBS Product Reference: BQ40Z50RSM-R1	QBS Product Reference: BQ9000RSM	QBS Product Reference: BQ9000RSM	QBS Process Reference: MSP430F5510IRGC	QBS Process Reference: MSP430F6638IPZ	QBS Process Reference: TLS2602DCA (CARDINAL)	QBS Process Reference: TPA6140A2YFF
Assembly Site	CDAT	CDAT	TIM (A) AND CLARK (T)	TIM (MAL)	CLARK	MLA (TIM)	TAI	TAI	CLARK-AT
Package Family	QFN	QFN	QFN	QFN	QFN	VQFN	LQFP	HTSSOP	DSBGA
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	UL 94 V-0	UL 94 V-0
Wafer Fab Supplier	MIHO, TSMC FAB 10	RFAB, TSMC FAB 3	MIHO8 OR RFAB, TSMC-FAB10 OR FAB3	MIHO8, TSMC FAB 3	RFAB, TSMC FAB 10	TSMC-10	TSMC-FAB3	RFAB	RFAB
Wafer Process	0.18UM-28L-EFLASH, LBC7	0.18UM-28L-EFLASH, LBC7	0.18UM-28L-EFLASH, LBC7	0.18UM-28L-EFLASH, LBC7	0.18UM-28L-EFLASH, LBC7	TSMC EMB FLASH	TSMC 2P5M EMB. FLASH 0.18UM	LBC7	LBC7

Attributes	QBS Process Reference: TPIC2020RTQ	QBS Process Reference: TPS62110RSA	QBS Process Reference: TPS62620YFF	QBS Process Reference: TPS65170RHD (DANGERMOUSE)	QBS Process Reference: TPS65830YFF (JET)	QBS Package Reference: 430F2132IRHBR	QBS Package Reference: BQ24196RGER	QBS Package Reference: TPS51285BRUKR
Assembly Site	CLARK-AT	CAR	CLARK-AT	CLARK-AT	CLARK-AT	CDAT	CDAT	CDAT
Package Family	VQFN	QFN	DSBGA - 0.625 thick	QFN	DSBGA	VQFN	VQFN	WQFN
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	UL 94 V-0
Wafer Fab Supplier	RFAB	MIHO8	RFAB	RFAB	RFAB	TSMC WFT	RFAB	RFAB
Wafer Process	LBC7	LBC7	LBC7	LBC7	LBC7	TSMC EMB FLASH	LBC7	LBC7X

- QBS: Qual By Similarity
- Qual Devices qualified at LEVEL2-260C: BQ9003RSM, BQ9000RSM
- Devices contain multiple dies: BQ9000RSM, BQ9003RSM

Qualification Results

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

Type	Test Name / Condition	Duration	Qual Device: BQ9000RSM	Qual Device: BQ9003RSM	QBS Product Reference: BQ40Z50RSM-R1	QBS Product Reference: BQ9000RSM	QBS Product Reference: BQ9000RSM	QBS Process Reference: MSP430F5510IRGC
-	Test SPQ	Program Validation	-	-	Pass	-	-	-
AC	Autoclave 121C	96 Hours	3/231/0	-	-	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet	Pass	Pass	-	Pass	Pass	-

		Parameters						
EDR	EEPROM Write /Erase, 105C	20K Cycles	-	-	-	-	-	-
EDR	EEPROM Write /Erase, 25C	20K Cycles	-	-	-	-	-	-
EDR	EEPROM Write /Erase, M40C	20K Cycles	-	-	-	-	-	-
EDR	Non Volatile Memory Endurance 105C	20K Cycles	-	-	-	-	-	3/42/0
EDR	Non Volatile Memory Endurance Room Temp	20K Cycles	-	-	-	-	-	3/84/0
ELFR	EFR BI 125C	8 Hours	-	-	-	-	-	3/2400/0
ELFR	EFR BI 125C	24 Hours	-	-	-	-	-	3/2400/0
ELFR	Early Life Failure Rate, 140C	48 Hours	-	-	-	-	-	-
FW	Firmware Validation	EVM or Customer	-	-	Pass	-	-	-
HAST	Biased HAST 130C/85%RH / Vddmax	96 Hours	-	-	-	-	-	3/231/0
HAST	Biased HAST, 130C/85%RH	96 Hours	1/77/0	-	-	3/78/0	4/112/0	-
HBM	ESD - HBM	4000 V	1/3/0	1/3/0	-	-	-	-
CDM	ESD - CDM	1500 V	1/3/0	1/3/0	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	1/77/0	-	-	-	-	-
HTOL	Life Test, 140C	480 Hours	-	-	-	3/231/0	3/231/0	-
HTOL	Life Test, 150C Tj	300 Hours	-	-	-	-	-	3/231/0
HTOL	Life Test, 150C	300 Hours	-	-	-	-	-	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	3/231/0	-	-	-	-	-
HTSL	High Temp. Storage Bake, 25C	0 Hr	-	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	3/231/0	3/231/0	3/231/0
LU	Latch-up	(per JESD78)	2/12/0	2/12/0	-	3/38/0	6/36/0	3/18/0
SD	Surface Mount Solderability	8 Hours Steam Age	-	-	-	3/66/0	6/132/0	-
SD	Surface Mount Solderability	Pb Free	-	-	-	2/44/0	-	-
TC	Temperature Cycle -55/125C	700 Cycles	-	-	-	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	-	-	3/231/0	3/231/0	3/231/0
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-	-	-	-
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	-	-	-	-	-
WBP	Bond Pull	Wires	3/228/0	1/76/0	-	-	-	-
WBP	Bond Strength	Wires	-	-	-	1/4/0	1/5/0	-
WBS	Ball Bond Shear	Wires	3/228/0	1/76/0	-	-	-	-

Type	Test Name / Condition	Duration	QBS Process Reference : MSP430F6638IPZ	QBS Process Reference : TLS2602DCA (CARDINAL)	QBS Process Reference : TPA6140A2YFF	QBS Process Reference : TPIC2020RTQ	QBS Process Reference : TPS62110RSA	QBS Process Reference : TPS62620YFF
-	Test SPQ	Program Validation	-	-	-	-	-	-
AC	Autoclave 121C	96 Hours	-	1/77/0	-	1/77/0	3/231/0	-
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	-	-
EDR	EEPROM Write /Erase, 105C	20K Cycles	3/36/0	-	-	-	-	-
EDR	EEPROM Write /Erase, 25C	20K Cycles	3/36/0	-	-	-	-	-
EDR	EEPROM Write /Erase, M40C	20K Cycles	3/36/0	-	-	-	-	-

EDR	Non Volatile Memory Endurance 105C	20K Cycles	-	-	-	-	-	-
EDR	Non Volatile Memory Endurance Room Temp	20K Cycles	-	-	-	-	-	-
ELFR	EFR BI 125C	8 Hours	-	-	-	-	-	-
ELFR	EFR BI 125C	24 Hours	-	-	-	-	-	-
ELFR	Early Life Failure Rate, 140C	48 Hours	-	-	-	-	3/1881/0	-
FW	Firmware Validation	EVM or Customer	-	-	-	-	-	-
HAST	Biased HAST 130C/85%RH / Vddmax	96 Hours	-	-	-	-	-	-
HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	1/77/0	3/231/0	-
HBM	ESD - HBM	4000 V	-	-	-	-	-	-
CDM	ESD - CDM	1500 V	-	-	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	3/231/0	-	5/320/0	-	-
HTOL	Life Test, 140C	480 Hours	-	-	6/235/0	-	3/231/0	-
HTOL	Life Test, 150C Tj	300 Hours	-	-	-	-	-	-
HTOL	Life Test, 150C	300 Hours	3/231/0	-	-	-	-	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	-	-	1/77/0	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	-	3/231/0	-
HTSL	High Temp. Storage Bake, 25C	0 Hr	1/12/0	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	5/264/0	-	-	-	-	-
LU	Latch-up	(per JESD78)	-	3/18/0	4/48/0	4/48/0	3/15/0	3/18/0
SD	Surface Mount Solderability	8 Hours Steam Age	-	-	-	-	-	-
SD	Surface Mount Solderability	Pb Free	-	-	-	-	-	-
TC	Temperature Cycle -55/125C	700 Cycles	-	-	7/273/0	-	-	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0	1/77/0	-	3/231/0	3/231/0	-
TS	Thermal Shock, -65/150C	500 Cycles	-	-	-	-	3/231/0	-
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	-	6/233/0	-	-	3/231/0
WBP	Bond Pull	Wires	-	-	-	-	-	-
WBP	Bond Strength	Wires	-	-	-	-	-	-
WBS	Ball Bond Shear	Wires	-	-	-	-	-	-

Type	Test Name / Condition	Duration	QBS Process Reference: TPS65170 RHD (DANGER MOUSE)	QBS Process Reference: TPS65830Y FF (JET)	QBS Package Reference: 430F2132I RHBR	QBS Package Reference: BQ24196R GER	QBS Package Reference: TPS51285 BRUKR
-	Test SPQ	Program Validation	-	-	-	-	-
AC	Autoclave 121C	96 Hours	7/261/0	-	3/231/0	3/231/0	3/231/0
ED	Electrical Characterization	Per Datasheet Parameters	-	-	-	-	-
EDR	EEPROM Write /Erase, 105C	20K Cycles	-	-	-	-	-
EDR	EEPROM Write /Erase, 25C	20K Cycles	-	-	-	-	-
EDR	EEPROM Write /Erase, M40C	20K Cycles	-	-	-	-	-
EDR	Non Volatile Memory Endurance 105C	20K Cycles	-	-	-	-	-
EDR	Non Volatile Memory Endurance Room Temp	20K Cycles	-	-	-	-	-
ELFR	EFR BI 125C	8 Hours	-	-	-	-	-
ELFR	EFR BI 125C	24 Hours	-	-	-	-	-
ELFR	Early Life Failure Rate, 140C	48 Hours	-	-	-	-	-
FW	Firmware Validation	EVM or Customer	-	-	-	-	-
HAST	Biased HAST 130C/85%RH / Vddmax	96 Hours	-	-	-	-	-

HAST	Biased HAST, 130C/85%RH	96 Hours	-	-	-	-	-
HBM	ESD - HBM	4000 V	-	-	-	-	-
CDM	ESD - CDM	1500 V	-	-	-	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	-
HTOL	Life Test, 140C	480 Hours	-	-	-	-	-
HTOL	Life Test, 150C Tj	300 Hours	-	-	-	-	-
HTOL	Life Test, 150C	300 Hours	-	6/239/0	-	-	-
HTSL	High Temp. Storage Bake, 150C	1000 Hours	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	-	-
HTSL	High Temp. Storage Bake, 25C	0 Hr	-	-	-	-	-
HTSL	High Temp. Storage Bake, 170C	420 Hours	-	-	-	-	-
LU	Latch-up	(per JESD78)	-	6/18/0	-	-	-
SD	Surface Mount Solderability	8 Hours Steam Age	-	-	-	-	-
SD	Surface Mount Solderability	Pb Free	-	-	-	-	-
TC	Temperature Cycle -55/125C	700 Cycles	-	6/229/0	-	-	-
TC	Temperature Cycle, -65/150C	500 Cycles	7/261/0	-	3/231/0	3/231/0	3/231/0
TS	Thermal Shock, -65/150C	500 Cycles	7/260/0	-	-	-	-
UHAST	Unbiased HAST, 130C/85%RH	96 Hours	-	6/228/0	-	-	-
WBP	Bond Pull	Wires	-	-	3/228/0	3/228/0	3/228/0
WBP	Bond Strength	Wires	-	-	-	-	-
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

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