PCN Number:	20231031001.1	**PCN Date:**	October 31, 2023
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly sites & BOM options for select devices		
Customer Contact:	Change Management Team	**Dept:**	Quality Services
Proposed 1st Ship Date:	Jan 29, 2024	**Sample requests accepted until:**	Dec 1, 2023*

***Sample requests received after Dec 1, 2023 will not be supported.**

Change Type:

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

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new fab & process technology (RFAB, TIB) die revision, and Assembly & BOM option for selected devices as listed below in the product affected section. Construction differences are noted below:

Current Fab Site			Additional Fab Site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab Site**	**Process**	**Wafer Diameter**
SFAB	JI2	150 mm	RFAB	TIB	300 mm

The die was also changed as a result of the process change.

Additionally, there will be Assembly site & BOM options introduced for these devices as follows:

	TFME	ASEWH	HNA	UTL2	TIPI	CDAT
Lead finish	Matte Sn**	NiPdAu	NiPdAu	NiPdAu	NiPdAu or Matte Sn	Matte Sn**
Mount Compound	SID# A-03	SID#1120999A2	SID#400180	SID#PZ0001	8095733	4207123
Mold Compound	SID#R-27	SID#4020039A1	SID#450179	SID#CZ0096	4222198	4222198
Bond wire composition, diameter	Cu, 1.0 or 0.8 mil	Au, 1.0 mil	Au, 1.0 mil	Au, 1.0 mil	Cu, 0.8 mil	Cu, 0.8 mil

** G4 devices will not be built in TFME or CDAT

NOTE: All below listed devices are currently assembled in one or more of the following: TFME ASEWH, HNA, UTL2

Reason for Change:

These changes are part of our multiyear plan to transition products from our 150-milimeter factories to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

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

None

Impact on Environmental Ratings

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

RoHS	REACH	Green Status	IEC 62474
☒ No Change	☒ No Change	☒ No Change	☒ No Change

Changes to product identification resulting from this PCN:

Fab Site Information:

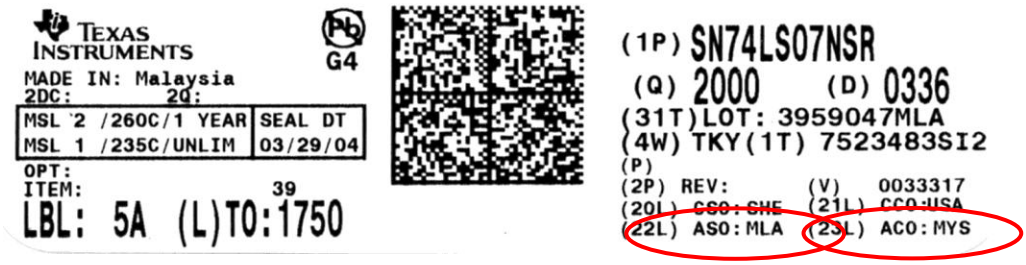
Chip Site	Chip Site Origin Code (20L)	Chip Site Country Code (21L)	Chip Site City
SH-BIP-1	SHE	USA	Sherman
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

Current	**New**
Die Rev [2P]	**Die Rev [2P]**
-	**A**

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TFME	NFM	CHN	Economic Development Zone
ASEWH	AWH	CHN	Weihai
HNA	HNT	THA	Ayutthaya
UTL2	NS2	THA	Bangpakong, Chachoengsao
TIPI	**PHI**	**PHL**	**Baguio City**
CDAT	**CDA**	**CHN**	**Chengdu**

Sample product shipping label (not actual product label)



Product Affected:

TLV431ACDBZR	TLV431IDBZRG4	TLVH431BIDBZTG4	TLVH432ACDBZT
TLV431ACDBZRG4	TLVH431ACDBZR	TLVH431BQDBZR	TLVH432AIDBZR
TLV431AIDBZR	TLVH431ACDBZRG4	TLVH431BQDBZRG4	TLVH432AQDBZR
TLV431AIDBZRG4	TLVH431ACDBZT	TLVH431BQDBZT	TLVH432AQDBZT
TLV431BCDBZR	TLVH431AIDBZR	TLVH431BQDBZTG4	TLVH432BCDBZR
TLV431BCDBZT	TLVH431AIDBZT	TLVH431CDBZR	TLVH432BCDBZRG4
TLV431BCDBZTG4	TLVH431AIDBZTG4	TLVH431CDBZT	TLVH432BIDBZR
TLV431BIDBZR	TLVH431AQDBZR	TLVH431CDBZTG4	TLVH432BQDBZR
TLV431BIDBZRG4	TLVH431AQDBZT	TLVH431IDBZR	TLVH432BQDBZT
TLV431BIDBZT	TLVH431AQDBZTG4	TLVH431IDBZT	TLVH432BQDBZTG4
TLV431BIDBZTG4	TLVH431BCDBZR	TLVH431QDBZR	TLVH432CDBZR
TLV431BQDBZR	TLVH431BCDBZT	TLVH431QDBZT	TLVH432CDBZT
TLV431BQDBZRG4	TLVH431BCDBZTG4	TLVH431QDBZTG4	TLVH432IDBZR
TLV431BQDBZT	TLVH431BIDBZR	TLVH432ACDBZR	TLVH432QDBZR
TLV431CDBZR	TLVH431BIDBZRG4	TLVH432ACDBZRG4	TLVH432QDBZT
TLV431IDBZR	TLVH431BIDBZT		

Qualification Report

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

Type	#	Test Name	Condition	Duration	Qual Device: TLVH432BQDBZR	QBS Process Reference: LM2902BQPWRQ1	QBS Package/Process/Product Reference: TL431BQDBZR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/231/0
HTOL	B1	Life Test	150C	300 Hours	1/77/0	-	3/231/0
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-
ESD	E2	ESD CDM	-	500 Volts	1/3/0	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	1/3/0	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/6/0	-	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	3/90/0

Type	#	Test Name	Condition	Duration	Qual Device: TLVH432BQDBZR	QBS Process Reference: LM2902BQPWRQ1	QBS Package/Process/Product Reference: TL431BQDBZR
CHAR	E5	Electrical Distributions	Per Datasheet Parameters	-	3/90/0	-	-
FTY	E6	Final Test Yield	-	-	1/PASS	-	-

- QBS: Qual By Similarity
- Qual Device TLVH432BQDBZR is qualified at MSL1 260C

- 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/

TI Qualification ID: R-NPD-2211-097

TI Information
Selective Disclosure

Qualification Report

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

Type	#	Test Name	Condition	Duration	Qual Device: TPS76933DBVR	Qual Device: TL331IDBVRG4	Qual Device: TLV9051SIDBVR	Qual Device: TPS2553DDBVR	Qual Device: LV3842XDBVR	QBS Reference: TLV9061IDBVR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	-	-	-	3/231/0
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	3/231/0	3/231/0	3/231/0	3/231/0	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	-	-	3/231/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	-	-	3/231/0
HTOL	B1	Life Test	150C	300 Hours	-	-	-	-	-	3/231/0
WBS	C1	Ball Shear	76 balls, 3 units min	Wires	-	-	-	-	-	3/228/0

WBP	C2	Bond Pull	76 Wires, 3 units min	Wires	-	-	-	-	-	3/228/0
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes); PB-Free Solder;	-	1/22/0	1/22/0	1/22/0	1/22/0	1/22/0	3/66/0
PD	C4	Physical Dimensions	(per mechanical drawing)	-	-	-	-	-	-	3/15/0
FTY	E6	Final Test Yield	-	-	-	-	-	-	-	3/3/0

- QBS: Qual By Similarity
- Qual Device TPS76933DBVR is qualified at MSL1 260C
- Qual Device TL331IDBVRG4 is qualified at MSL1 260C
- Qual Device TLV9051SIDBVR is qualified at MSL1 260C
- Qual Device TPS2553DDBVR is qualified at MSL1 260C
- Qual Device LV3842XDBVR is qualified at MSL1 260C

- 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

TI Qualification ID: R-CHG-2208-031

TI Information
Selective Disclosure

Qualification Report

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

Type	#	Test Name	Condition	Duration	Qual Device: TL431BQDBZR	Process QBS Reference: LM2902BQPWRQ1	Product QBS Reference: TL431BQDBZR	Package QBS Reference: TPS3840PH30DBVRQ1	Package, Process, and Product QBS Reference: TL431BQDBZRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/231/0	-
UHAST	A3	Unbiased HAST	110C/85%RH	264 Hours	-	3/231/0	-	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0	-	3/231/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/231/0	3/231/0	3/135/0	3/231/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	3/231/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	3/231/0	-	-
HTOL	B1	Life Test	150C	408 Hours	-	3/231/0	-	-	-

Type	#	Test Name	Condition	Duration	Qual Device: TL431BQDBZR	Process QBS Reference: LM2902BQPWRQ1	Product QBS Reference: TL431BQDBZR	Package QBS Reference: TPS3840PH30DBVRQ1	Package, Process, and Product QBS Reference: TL431BQDBZRQ1
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2400/0	-	-	-
SD	C3	PB Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	1/15/0	-
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	1/15/0	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	3/30/0	-	3/30/0	3/30/0
ESD	E2	ESD CDM	-	1500 Volts	-	3/9/0	-	-	-
ESD	E2	ESD CDM	-	500 Volts	-	-	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	3/9/0	1/3/0	-	-
LU	E4	Latch-Up	Per JESD78	-	-	3/18/0	1/6/0	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	-	-	3/90/0	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	3/90/0	-	3/90/0	3/90/0
FTY	E6	Final Test Yield	-	-	-	-	-	-	1/1/0

- QBS: Qual By Similarity
- Qual Device TL431BQDBZR is qualified at MSL1 260C

- 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/

TI Qualification ID: R-NPD-2309-050

For questions regarding this notice, e-mails can be sent to the Change Management team or your local Field Sales Representative.

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