



12500 TI Boulevard, MS 8640, Dallas, Texas 75243

PCN#20231031001.1

Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly sites & BOM options for select devices

Change Notification / Sample Request

Date: October 31, 2023
To: PREMIER FARNELL PCN

Dear Customer:

This is an announcement of a change to a device that is currently offered by Texas Instruments (TI). The details of this change are on the following pages, and are in alignment with our standard product change notification (PCN) [process](#).

TI requires acknowledgement of receipt of this notification within 30 days of the date of this notice. Lack of acknowledgement of this notice within 30 days constitutes acceptance and approval of this change. If samples or additional data are required, requests must be received within 30 days of this notification, given that samples are not built ahead of the change.

The Proposed First Ship date in this PCN letter is the earliest possible date that customers could receive the changed material. It is our commitment that the changed device will not ship before that date. If samples are requested within the 30 day sample request window, customers will still have 30-days to complete their evaluation regardless of the proposed 1st ship date.

This particular PCN is related to TI's multiyear transition plan for our two remaining factories with 150-millimeter production (DFAB in Dallas, Texas, and SFAB in Sherman, Texas). DFAB will remain open, but will focus on 200-mm production, with a smaller set of technologies. SFAB will close no earlier than 2024 and no later than 2025. As referenced in the "reason for change" below, these changes are part of our multiyear plan to transition these products to newer, more efficient manufacturing processes and technologies, underscoring our commitment to product longevity and supply continuity.

For questions regarding this notice or to provide acknowledgement of this PCN, you may contact your local Field Sales Representative or the Change Management team. For sample requests or sample related questions, contact your local Field Sales Representative. As always, we thank you for your continued business.

Change Management Team
SC Business Services

20231031001.1
Attachment: 1

Products Affected:

The devices listed on this page are a subset of the complete list of affected devices. According to our records, you have recently purchased these devices. The corresponding customer part number is also listed, if available.

DEVICE	CUSTOMER PART NUMBER
TLV431ACDBZR	null
TLV431IDBZR	null

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

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:						
<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Wafer Bump Material	
<input checked="" type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet	<input type="checkbox"/>	Wafer Bump Process	
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change	<input checked="" type="checkbox"/>	Wafer Fab Site	
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site	<input checked="" type="checkbox"/>	Wafer Fab Material	
<input type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process	<input checked="" type="checkbox"/>	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	J12	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			
<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> No Change	<input checked="" type="checkbox"/> 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	Weihei
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)



(1P) SN74LS07NSR
(Q) 2000 (D) 0336
(31T) LOT: 3959047MLA
(4W) TKY (1T) 7523483SI2
(P)
(2P) REV: (V) 0033317
(20L) CSO: CHE (21L) CCO: USA
(22L) ASO: MLA (23L) ACO: MYS

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		

TI Information
Selective Disclosure

Qualification Report

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

Type	#	Test Name	Condition	Duration	Qual Device: <u>TLVH432BQDBZR</u>	QBS Process Reference: <u>LM2902BQPWRQ1</u>	QBS Package/Process/Product Reference: <u>TL431BQDBZR</u>
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
UHA	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/231/0	-
UHA	A3	Unbiased HAST	110C/85%RH	264 Hours	-	3/231/0	-	-	-
UHA	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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