PCN Number:	20240221007.1	**PCN Date:**	February 21, 2024
Title:	Qualification of 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:	May 21, 2024	**Sample requests accepted until:**	March 22, 2024*

***Sample requests received after March 22, 2024 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:

	ASEWH	**HNA**	**TIPI**	**CDAT**
Lead finish	NiPdAu	NiPdAu	NiPdAu	Matte Sn
Mount Compound	SID#1120999A2	SID#400180	8095733	4207123
Mold Compound	SID#4020039A1	SID#450179	4222198	4222198
Bond wire composition, diameter	Au, 1.0 mil	Au, 1.0 mil	Cu, 0.8 mil	Cu, 0.8 mil
Die Thickness	7.5 mils	7.5 mils	5.9 mils	5.9 mils
Die Coat	none	none	PI	PI
ECAT	G4	G4	G4	G3

Upon expiry of this PCN, there will be a transition period where TI will combine lead free solutions in a single ***standard part number*** For example; ***ATL431AIDBZR*** – can ship with both Matte Sn and NiPdAu.

Example:

- Customer order for 7500 units of ATL431AIDBZR with 2500 units SPQ (Standard Pack Quantity per Reel).

- TI can satisfy the above order in one of the following ways.
  I. 3 Reels of NiPdAu finish.
  II. 3 Reels of Matte Sn finish
  III. 2 Reels of Matte Sn and 1 reel of NiPdAu finish.
  IV. 2 Reels of NiPdAu and 1 reel of Matte Sn finish.

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]**
B	**A**

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
ASEWH	AWH	CHN	Weihai
HNA	HNT	THA	Ayutthaya
TIPI	**PHI**	**PHL**	**Baguio City**
CDAT	**CDA**	**CHN**	**Chengdu**

Sample product shipping label (not actual product label)

Product Affected:

ATL432BQDBZR

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: ATL431BQDBZR	Qual Device: ATL432BQDBZR	QBS Reference: LM2902BQPWRQ1	QBS Reference: TL431BQDBZR	QBS Reference: TL431BQDBZRQ1	QBS Reference: TL432BQDBZRQ1	QBS Reference: OP07CP
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	1/77/0	2/160/0	1/80/0	-
UHAST	A3	Unbiased HAST	110C/85%RH	264 Hours	-	-	3/231/0	-	-	-	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	-	1/77/0	2/154/0	1/77/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	1/77/0	-	3/231/0	1/77/0	2/154/0	1/77/0	-
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/231/0	1/77/0	2/158/0	1/80/0	-
HTOL	B1	Life Test	150C	300 Hours	1/77/0	-	-	-	-	-	-
HTOL	B1	Life Test	150C	408 Hours	-	-	3/231/0	-	-	-	-
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)	-	-	-	-	-	2/30/0	1/15/0	-

Type	#	Test Name	Condition	Duration	Qual Device: ATL431BQDBZR	Qual Device: ATL432BQDBZR	QBS Reference: LM2902BQPWRQ1	QBS Reference: TL431BQDBZR	QBS Reference: TL431BQDBZRQ1	QBS Reference: TL432BQDBZRQ1	QBS Reference: OP07CP
SD	C3	PB-Free Solderability	Precondition w.155C Dry Bake (4 hrs +/- 15 minutes)	-	-	-	-	-	2/30/0	1/15/0	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	3/30/0	-	2/20/0	1/10/0	-
ESD	E2	ESD CDM	-	1000 Volts	-	-	-	-	-	-	1/3/0
ESD	E2	ESD CDM	-	1500 Volts	-	-	3/9/0	-	-	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-	-	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	-	-	-	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	3/9/0	-	-	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	3/18/0	-	-	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	-	-	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	3/90/0	-	2/60/0	1/30/0	-
FTY	E6	Final Test Yield	-	-	-	-	-	-	-	-	1/1

- QBS: Qual By Similarity
- Qual Device ATL431BQDBZR is qualified at MSL1 260C
- Qual Device ATL432BQDBZR 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-2302-089

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: ATL431BQDBZR	Qual Device: ATL432BQDBZR	QBS Process Reference: LM2902BQPWRQ1	QBS Package/Process Reference: DRV5013ADQDBZRQ1	QBS Process Reference: OP07CP	QBS Process/Product Reference: ATL431BQDBZR	QBS Package Reference: TL431BQDBZRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	3/231/0	-	-	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	-55C/150C	1000 Cycles	-	-	-	3/231/0	-	-	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	3/231/0	-	-	1/77/0	3/231/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	3/231/0	3/135/0	-	-	3/231/0
HTOL	B1	Life Test	150C	300 Hours	-	-	-	1/77/0	-	1/77/0	-
HTOL	B1	Life Test	150C	408 Hours	-	-	3/231/0	-	-	-	-
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	-	-	-

Type	#	Test Name	Condition	Duration	Qual Device: ATL431BQDBZR	Qual Device: ATL432BQDBZR	QBS Process Reference: LM2902BQPWRQ1	QBS Package/Process Reference: DRV5013ADQDBZRQ1	QBS Process Reference: OP07CP	QBS Process/Product Reference: ATL431BQDBZR	QBS Package Reference: TL431BQDBZRQ1
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	-	1000 Volts	-	-	-	-	1/3/0	1/3/0	-
ESD	E2	ESD CDM	-	250 Volts	-	-	-	-	-	1/3/0	-
ESD	E2	ESD HBM	-	1000 Volts	-	-	-	-	-	1/3/0	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	3/9/0	1/3/0	-	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	-	-	3/18/0	1/6/0	-	1/3/0	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-	-	-	1/30/0	-
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	-	1/1/0

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Quality and Environmental data is available at TI's external Web site: http://www.ti.com/

TI Qualification ID: R-NPD-2401-016

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