PCN Number:	20240502002.1	PCN Date:	May 02, 2024
Title:	Qualification of RFAB as an additional Fab site option, Die Revision and Assembly Site (HFTF, TIPI) options for select devices		
Customer Contact:	Change Management Team	Dept:	Quality Services
Proposed 1st Ship Date:	July 31, 2024	Sample requests accepted until:	June 01, 2024*

*Sample requests received after June 01, 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 its RFAB fabrication facility as an additional Wafer Fab option in addition to an additional Assembly Site (HFTF, TIPI) options for the devices listed below.

Current Fab Site			Additional Fab site		
Current Fab Site	**Process**	**Wafer Diameter**	**Additional Fab site**	**Process**	**Wafer Diameter**
FR-BIP-1	BCB8	200mm	RFAB	LBC9	300mm

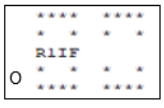
The die was also changed as a result of the process change to accommodate the change in Assembly technology

Construction differences are as follows:

Group 1 Device:

	TFME	HNA	HFTF
Bond wire composition, diam.	Au, 1.0 mil	Au, 1.0 mil	Cu, 0.8 mil
Mount Compound	A-03	400180	A-18
Mold Compound	R-07	450179	R-27
Pin 1 ID marking	Stripe	Stripe	Dot

Group 2 Device:

	TFME	HNC	TIPI
Bond wire composition, diam.	Au, 1.0 mil	Au, 1.0 mil	Cu, 0.8 mil
Mount Compound	A-03	400154	8095733
Mold Compound	R-13	450228	4222198
Marking appearance	 **** = BINARY DATECODE	 **** = BINARY DATECODE	 **** **** = SECONDARY CODE **** = BINARY DATECODE

Reason for Change:

Supply Continuity
1) To align with world technology trends and use wiring with enhanced mechanical and electrical properties
2) Maximize flexibility within our Assembly/Test production sites.
3) Cu is easier to obtain and stock

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
FR-BIP-1	TID	DEU	Freising
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

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

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
HNA	HNT	THA	Ayutthaya
HNC	CHS	CHN	Jiaxing
TFME	CDA	CHN	Chengdu
TIPI	**PHI**	**PHL**	**Baguio City**
HFTF	**HFT**	**CHN**	**Hefei**

Sample product shipping label (not actual product label):

Group 1 Product Affected: Fab site, Assembly site

LMV331IDCKR	LMV331IDCKRE4	LMV331IDCKRG4

Group 2 Product Affected: Fab site, Assembly site

LMV331IDBVR	LMV331IDBVRE4	LMV331IDBVRG4

Group 1 Qualification Report

Approve Date 05-SEPTEMBER-2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LMV331IDCKR	QBS Reference: TLV1805QDBVRQ1	QBS Reference: TLV7031QDCKRQ1	QBS Reference: TLV9022QDRQ1	QBS Reference: TLV9021DCKR
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	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	-	3/231/0	3/231/0	-
ESD	E2	ESD CDM	-	500 Volts	1/3/0	-	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	-	1/3/0	-
LU	E4	Latch-Up	Per JESD78	-	-	-	-	1/6/0	1/6/0
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	1/30/0	-	-	3/90/0	-

QBS: Qual By Similarity
Qual Device LMV331IDCKR 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/

Group 2 Qualification Report

Approve Date 20-OCTOBER -2023

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LMV331IDBVR TLV9020DBVR TLV9021DBVR	QBS Reference: TLV1805QDBVRQ1	QBS Reference: TL331BIDBVR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	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
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	3/135/0	-
HTOL	B1	Life Test	125C	1000 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
ESD	E2	ESD CDM	-	1000 Volts	1/3/0	-	-
ESD	E2	ESD HBM	-	2000 Volts	1/3/0	-	-
LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	-
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	-	-

QBS: Qual By Similarity
Qual Device LMV331IDBVR 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/

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