PCN Number:	20230608002.1	PCN Date:	June 09, 2023
Title:	Qualification of new Fab site (RFAB) using qualified Process Technology, Die Revision, and additional Assembly BOM options for select devices		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	Sep 9, 2023	Estimated Sample Availability:	Jul 9, 2023

***Sample requests received after July 9, 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 Materials
☒	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, LBC9) and additional Assembly BOM options for selected devices listed below in the product affected section.

Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
SFAB	JI1	150 mm	RFAB	LBC9	300 mm
DL-LIN	LINCMOS	150 mm			

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

Construction Differences are as follows:

	Current	Proposed
Wire type	0.96mil Au, 0.96mil Cu	0.8mil Cu

Qual details are provided in the Qual Data Section.

Reason for Change:

These changes are part of our multiyear plan to transition products from our 150-millimeter 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
DL-LIN	DLN	USA	Dallas
SH-BIP-1	SHE	USA	Sherman
RFAB	**RFB**	**USA**	**Richardson**

Die Rev:

Current / **New**

Die Rev [2P]	**Die Rev [2P]**
A, B, C, D, E	**A, B**

Sample product shipping label (not actual product label)

Product Affected:

LF411CP	TL052CP	TLC272ACP	TLC272CPE4
LF411CPE4	TL052IP	TLC272ACPE4	TLC272IP
LF412CP	TL072BCP	TLC272AIP	TLC272IPE4
TL051CP	TL082BCP	TLC272BCP	TLC277CP
TL051CPE4	TL082BCPE4	TLC272BCPE4	TLC277IP
TL052ACP	TL3472CP	TLC272BIP	
TL052AIP	TL3472IP	TLC272CP	

For alternate parts with similar or improved performance, please visit the product page on TI.com

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LF411CP	QBS Reference: OPA4990IDR	QBS Reference: LM2904BQDRQ1	QBS Reference: LT1013CP	QBS Reference: UCC37322P
HAST	A2	Biased HAST	130C	96 Hours	-	3/231/0	3/231/0	-	-
UHAST	A3	Autoclave	121C, 2 atm	96 Hours	-	3/231/5[1]	-	-	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	-	
UHAST	A3	Unbiased HAST	130C	192 Hours	-	-	3/231/0	-	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	3/231/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-	-	3/231/0
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	3/135/0	-	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/10[2,3]	-	-	-
HTOL	B1	Life Test	150C	408 Hours	-	-	3/231/0	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	1/800/0	3/2400/4[4,5]	-	-
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	-	-
SD	C3	PB-Free Solderability	8 Hours Steam Age	-	-	-	-	-	3/66/0
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	3/30/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	-	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	3/9/0	-	-
LU	E4	Latch-Up	Per JESD78	-	-	3/18/0	3/18/0	-	-
CHAR	E5	Electrical Characterization	Min, Typ, Max Temp	-	-	3/90/0	-	-	-
CHAR	E5	Electrical Distributions	Cpk>1.67 Room, hot, and cold	-	-	-	3/90/0	-	-

- QBS: Qual By Similarity
- Qual Device LF411CP is qualified at NOT CLASSIFIED NOT CLASSIFIED

- 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/

[1]-Mechanical damage -Discounted
[2]-Hardware - Discounted
[3]-Hardware - Discounted
[4]-Test Coverage Added
[5]-Test Coverage Added

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: TLC272CP	QBS Reference: OPA4990IDR	QBS Reference: LM2904BQDRQ1	QBS Reference: NE5532P	QBS Reference: UCC37322P	QBS Reference: OPA2991IDR
HAST	A2	Biased HAST	130C	96 Hours	-	3/231/0	-	-	-	-
HAST	A2	Biased HAST	130C	96 Hours	-	-	3/231/0	3/231/0	-	-
UHAST	A3	Autoclave	121C, 2 atm	96 Hours	-	-	-	-	3/231/0	-
UHAST	A3	Unbiased HAST	130C	192 Hours	-	-	3/231/0	-	-	-
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	3/231/0	3/231/0	-	3/231/0	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-	-	3/231/0	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	3/135/0	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/10[2,3]	-	3/231/0	-	-
HTOL	B1	Life Test	150C	408 Hours	-	-	3/231/0	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	1/800/0	-	-	-	-
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	-	3/2400/4[4,5]	-	-	-
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	-	-	-
SD	C3	PB-Free Solderability	8 Hours Steam Age	-	-	-	-	3/66/0	3/66/0	-
PD	C4	Physical Dimensions	Cpk>1.67	-	-	-	3/30/0	-	-	-
ESD	E2	ESD HBM	-	2000 Volts	-	-	3/9/0	-	-	-
LU	E4	Latch-Up	Per JESD78	-	-	3/18/0	-	-	-	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	Pass	3/90/0	-	-	-	1/30/0

- QBS: Qual By Similarity
-
- 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

[1]- Mechanical Damage and or handling

[2]-Mechanical Damage and or handling
[3]-Mechanical Damage and or handling
[4]-Precon and ELFR fails due to a defect screenable at production test.
[5]-Precon and ELFR fails due to a defect screenable at production test.

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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