

PCN Number:	20240221001.1	PCN Date:	February 21, 2024		
Title:	Qualification of RFAB using qualified Process Technology, Die Revision and additional Assembly site/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:					
<input checked="" type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Design		
<input checked="" type="checkbox"/>	Assembly Process	<input type="checkbox"/>	Data Sheet		
<input checked="" type="checkbox"/>	Assembly Materials	<input type="checkbox"/>	Part number change		
<input type="checkbox"/>	Mechanical Specification	<input type="checkbox"/>	Test Site		
<input checked="" type="checkbox"/>	Packing/Shipping/Labeling	<input type="checkbox"/>	Test Process		
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Material		
<input type="checkbox"/>		<input type="checkbox"/>	Wafer Bump Process		
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Wafer Fab Site		
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Wafer Fab Material		
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	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 Assembly site/BOM options for the devices listed below.					
Current Fab Site			Additional Fab Site		
Current Fab Site	Process	Wafer Diameter	Additional Fab Site	Process	Wafer Diameter
GFAB6/8	P2CMOS	150/200 mm	RFAB	HPA9	300 mm
DL-LIN	P2CMOS	200 mm			
The die was also changed as a result of the process change.					
Construction differences are as follows:					
Group 1 Device					
	TIEMA	AP1	MLA		
Bond wire diam/type	0.96mil Cu	1.0mil Au	0.8mil Cu		
Mount compound	4213245	101375281	4147858		
Mold compound	8095179	101323397	4226323		
Lead finish	Matte Sn	Matte Sn	NiPdAu		
ECAT	G3	G3	G4		
Group 2 Device					
	TIEMA	MLA			
Bond wire diam/type	0.96mil Cu	0.8mil Cu			
Mount compound	4213245	4147858			
Mold compound	8095179	4226323			
Lead finish	Matte Sn	NiPdAu			
ECAT	G3	G4			
Marking difference	NS logo, pin 1 dot	TI letters, pin 1 dot			
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
<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
GFAB6	GF6	GBR	Greenock
GFAB8	GF8	GBR	Greenock
DL-LIN	DLN	USA	Dallas
RFAB	RFB	USA	Richardson

Die Rev:

Current	New
Die Rev [2P] B, C	Die Rev [2P] A

Assembly Site Information:

Assembly Site	Assembly Site Origin (22L)	Assembly Country Code (23L)	Assembly City
TIEMA	CU6	MYS	Melaka
AP1	AKR	PHL	Cupang, Muntinlupa City
MLA	MLA	MYS	Kuala Lumpur

Sample product shipping label (not actual product label):

Group 1 Product Affected:

LMC6082IMX/NOPB	LMC662AIMX/NOPB	LMC662CMX/NOPB	LMC6032IMX/NOPB
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Group 2 Product Affected:

LMC6484IMX/NOPB	LMC6494AEMX/NOPB	LMC6494BEMX/NOPB
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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: LMC6484IMX/NOPB	QBS Process Reference: OPA1671IDCKR	QBS Product Reference: LMC6482IMN/OPB	QBS Package Reference: ULQ2003AQDRQ1	QBS Package Reference: OPA4991QDRQ1
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	1/77/0	3/231/0	3/231/0
UHAST	A3	Autoclave	121C/15psig	96 Hours	-	-	-	3/231/0	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	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	-	-	3/135/0	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	3/231/0	-	-	-
HTSL	A6	High Temperature Storage Life	175C	500 Hours	-	-	-	-	1/45/0
HTOL	B1	Life Test	125C	1000 Hours	-	-	-	3/231/0	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/0	3/231/0	-	-
HTOL	B1	Life Test	150C	408 Hours	-	-	-	-	1/77/0

Type	#	Test Name	Condition	Duration	Qual Device: LMC6484IMX/NOPB	QBS Process Reference: OPA1671IDCKR	QBS Product Reference: LMC6482IMN/OPB	QBS Package Reference: ULQ2003AQDRQ1	QBS Package Reference: OPA4991QDRQ1
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2397/0 ¹	-	-	-
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	-
ESD	E2	ESD CDM	-	1500 Volts	-	-	-	-	1/3/0
ESD	E2	ESD CDM	-	250 Volts	1/3/0	3/9/0	1/3/0	-	-
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	3/9/0	1/3/0	-	-
ESD	E2	ESD HBM	-	4000 Volts	-	-	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	3/18/0	1/3/0	-	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	3/90/0	3/90/0	3/90/0

- QBS: Qual By Similarity
- Qual Device LMC6484IMX/NOPB 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-CHG-2301-063

Qualification Results

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

Type	#	Test Name	Condition	Duration	Qual Device: LMC6082IMX/NOPB	QBS Reference: OPA1671IDCKR	QBS Reference: INA849DR	QBS Reference: LMC6482IM/NOPB
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	-	1/77/0
HAST	A2	Temperature Humidity Bias	85C/85%RH	1000 Hours	-	-	3/231/0	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/231/0 ¹
TC	A4	Temperature Cycle	-65C/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	-
HTOL	B1	Life Test	100C ²	300 Hours	-	-	1/77/0	-
HTOL	B1	Life Test	150C	300 Hours	-	3/231/0	-	3/231/0
ELFR	B2	Early Life Failure Rate	125C	48 Hours	-	3/2397/0 ¹	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	3/9/0	1/3/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	1/3/0	3/9/0	1/3/0	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	3/18/0	1/6/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	1/30/0	3/90/0

- QBS: Qual By Similarity
- Qual Device LMC6082IMX/NOPB 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-CHG-2302-065

- [1] Lost 3 units.
[2] Tj=150C

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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