

<b>PCN Number:</b>	20230328001.1	<b>PCN Date:</b>	March 30, 2023
<b>Title:</b>	Qualification of new Fab site (FFAB) using qualified Process Technology, Die Revision and additional Assembly BOM options for select devices		
<b>Customer Contact:</b>	<a href="#">PCN Manager</a>	<b>Dept:</b>	Quality Services
<b>Proposed 1<sup>st</sup> Ship Date:</b>	Jun 30, 2023	<b>Sample requests accepted until:</b>	April 30, 2023*

**\*Sample requests received after April 30, 2023 will not be supported.**

**Change Type:**

<input type="checkbox"/>	Assembly Site	<input checked="" type="checkbox"/>	Assembly Process	<input checked="" type="checkbox"/>	Assembly Materials
<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	Electrical Specification	<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"/>	Wafer Bump Site	<input type="checkbox"/>	Wafer Bump Material	<input type="checkbox"/>	Wafer Bump Process
<input checked="" type="checkbox"/>	Wafer Fab Site	<input checked="" type="checkbox"/>	Wafer Fab Materials	<input checked="" type="checkbox"/>	Wafer Fab Process
		<input type="checkbox"/>	Part number change		

**PCN Details**

**Description of Change:**

Texas Instruments is pleased to announce the qualification of a new fab & process technology (FFAB, BICOM3XHV) and assembly BOM options for selected devices as 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	JIBB	150 mm	FFAB	BICOM3XHV	200 mm

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

Assembly BOM options are noted below for both Group 1 and Group 2 device:

	Current	Additional
Bond wire composition, diameter	Au, 1.2	Cu, 1.0 mil
Mold Compound	4209640	4226323
Mount Compound	4205846	4147858
Die coat step	TI Malaysia	Bump Site

For the devices in Group 2, they will also be subjected to the following changes in addition to above:

	Current	Additional
Die /Product Technology	Single die solution	Dual Die Solution
Bond	Single Bond (pins 4 & 11)	Double Bond (pins 4 & 11)

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
SH-BIP-1	SHE	USA	Sherman
<b>FR-BIP-1</b>	<b>TID</b>	<b>DEU</b>	<b>Freising</b>

**Die Rev:**

Current	New
Die Rev [2P] B, D	<b>Die Rev [2P]</b> <b>A</b>

Sample product shipping label (not actual product label)

TEXAS INSTRUMENTS  
 MADE IN: Malaysia  
 2DC: 20:  
 MSL 2 /260C/1 YEAR SEAL DT  
 MSL 1 /235C/UNLIM 03/29/04  
 OPT:  
 ITEM: 39  
 LBL: 5A (L)T0:1750  
 (1P) SN74LS07NSR  
 (Q) 2000 (D) 0336  
 (31T) LOT: 3959047MLA  
 (4W) TKY (1T) 7523483SI2  
 (P)  
 (2P) REV: (V) 0033317  
 (20L) 688: SHE (21L) CCO: USA  
 (22L) ASO: MLA (23L) ACO: MYS

**Product Affected:**

**Group 1 Device list:**

OPA277UA	OPA277UA/2K5E4	OPA277UAE4	OPA277UAG4
OPA277UA/2K5			

**Group 2 Device list:**

OPA4277UA	OPA4277UA/2K5E4	OPA4277UAE4	OPA4277UAG4
OPA4277UA/2K5			

For alternate parts with similar or improved performance, please visit the product page on [TI.com](http://TI.com)

**Qualification Report**  
**Approve Date 15-March-2023**

**Qualification Results**

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

Type	#	Test Name	Condition	Duration	Qual Device: <a href="#">OPA277UA</a>	QBS Process Reference: <a href="#">INA849DR</a>	QBS Package Reference: <a href="#">INA821ID</a>
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0
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
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	3/231/0
HTOL	B1	Life Test	100C <sup>A</sup>	300 Hours	-	1/77/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	3/231/0
ESD	E2	ESD CDM	-	500 Volts	1/3/0	-	-
ESD	E2	ESD CDM	-	750 Volts	-	1/3/0	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	1/3/0	1/3/0	-
ESD	E2	ESD HBM	-	1500 Volts	-	-	1/3/0
LU	E4	Latch-Up	Per JESD78	-	1/3/0	1/6/0	1/6/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	3/90/0

- QBS: Qual By Similarity
- Qual Device OPA277UA is qualified at MSL2 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

**Qualification Report**  
**Approve Date 14-NOVEMBER -2022**

**Qualification Results**

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

Type	#	Test Name	Condition	Duration	Qual Device: <a href="#">OPA4277UA</a>	QBS Process Reference: <a href="#">OPA202ID</a>	QBS Process Reference: <a href="#">INA828ID</a>	QBS Process Reference: <a href="#">INA821ID</a>	QBS Process Reference: <a href="#">OPA207ID</a>	QBS Package Reference: <a href="#">OPA4187ID</a>	QBS Package Reference: <a href="#">OPA4227UA</a>	QBS Package Reference: <a href="#">OPA4388ID</a>	QBS Product Reference: <a href="#">OPA2277U</a>
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	-	2/154/0	-
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	2/154/0	-
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	3/231/0	2/154/0	1/77/0
HTSL	A6	High Temperature Storage Life	150C	1000 Hours	-	3/231/0	3/231/0	-	-	-	3/231/0	-	-
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	-	3/231/0	3/231/0	3/231/0	-	-	-
HTOL	B1	Life Test	125C	1000 Hours	-	3/231/0	3/231/0	-	-	-	-	-	-
HTOL	B1	Life Test	150C	300 Hours	-	-	-	3/231/0	3/231/0	-	-	-	-
ESD	E2	ESD CDM	-	1000 Volts	-	-	-	-	-	-	1/3/0	-	1/3/0
ESD	E2	ESD CDM	-	1750 Volts	-	-	-	-	-	-	-	1/3/0	-
ESD	E2	ESD CDM	-	500 Volts	1/3/0	-	1/3/0	1/3/0	1/3/0	1/3/0	-	-	1/3/0
ESD	E2	ESD HBM	-	2000 Volts	-	-	1/3/0	1/3/0	1/3/0	1/3/0	1/3/0	-	1/3/0

LU	E4	Latch-Up	Per JESD78	-	1/3/0	-	1/6/0	1/6/0	1/3/0	1/6/0	1/3/0	1/3/0	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	3/90/0	3/90/0	3/90/0	1/30/0	1/30/0	1/30/0	1/30/0	1/30/0

- QBS: Qual By Similarity
- Qual Device OPA4277UA is qualified at MSL2 260C

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**Green/Pb-free Status:**

Qualified Pb-Free(SMT) and Green

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

Location	E-Mail
WW Change Management Team	<a href="mailto:PCN_ww_admin_team@list.ti.com">PCN_ww_admin_team@list.ti.com</a>

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