

<b>PCN Number:</b>	20230228008.1	<b>PCN Date:</b>	March 07, 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 7, 2023	<b>Sample requests accepted until:</b>	Apr 7, 2023*

**\*Sample requests received after April 7, 2023 will not be supported.**

**Change Type:**

<input type="checkbox"/>	Assembly Site	<input 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 (MLA) 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:

	Current	Additional
Wire Type	1.2 mil Au	1.0 mil Cu
Mount compound	4205846	4147858
Mold compound	4209640	4226323
Die coat step	TI Malaysia	Bump Site

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:**

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

Sample product shipping label (not actual product label)

**Product Affected:**

OPA2277UA	OPA2277UA/2K5E4	OPA2277UAE4	OPA2277UAG4
OPA2277UA/2K5			

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

**Qualification Report**

**Approve Date 01-Jul-2022**

**Qualification Results**

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

Type	Test Name / Condition	Duration	Qual Device: OPA2277U	QBS Process Reference: OPA1637DGKR	QBS Package Reference: INA849D
HTOL	Life Test, 100C <sup>B</sup>	300 Hours	-	-	1/77/0
HTOL	Life Test, 150C	300 Hours	-	3/231/0	-
ELFR	Early Life Failure Rate, 150C	24 Hours	-	3/2400/1 <sup>A</sup>	-
HBM	ESD - HBM	2000V	1/3/0	3/9/0	1/3/0
HBM	ESD - HBM	2500V	1/3/0	3/9/0	1/3/0
HBM	ESD - HBM	3000V	1/3/0	-	-
HBM	ESD - HBM	4000V	1/3/0	-	-
CDM	ESD - CDM	1000V	1/3/0	3/9/0	1/3/0
CDM	ESD - CDM	1500V	1/3/0	3/9/0	1/3/0
LU	Latch-up	Per JESD78, Class 2	1/6/0	3/18/0	1/6/0
LU	Latch-up	Per JESD78, Class 1	1/6/0	3/30/0	1/6/0
ED	Electrical Characterization	Per Datasheet Parameters	1/30/0	3/90/0	1/30/0
HAST	Biased HAST, 130C/85%RH	96 Hours	-	3/231/0	-
HTSL	High Temp Storage Bake 170C	420 Hours	-	3/231/0	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	1/77/0	3/231/0	3/231/0
THB	Biased Temperature and Humidity, 85C/85%RH	1000 Hours	-	-	3/231/0
UHAST	Unbiased HAST 130C/85%RH	96 Hours	-	3/231/0	3/231/0

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

A - Crack at die corner under bond pad. Not stress related. See attached 8D in qualification plan.

B - Tj of device at 150C

- 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

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>

**IMPORTANT NOTICE AND DISCLAIMER**

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disdaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale ([www.ti.com/legal/termsofsale.html](http://www.ti.com/legal/termsofsale.html)) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products.