

PCN Number:	20231114003.1	PCN Date:	November 15, 2023
Title:	Qualification of FFAB using qualified Process Technology, Die Revision, Datasheet update and additional Assembly Site/BOM options for select devices		
Customer Contact:	Change Management team	Dept:	Quality Services
Proposed 1st Ship Date:	Feb 14, 2024	Estimated Sample Availability:	Dec 14, 2023*

***Sample requests received after December 14, 2023 will not be supported.**

Change Type:

<input checked="" type="checkbox"/> Assembly Site	<input checked="" type="checkbox"/> Design	<input type="checkbox"/> Wafer Bump Material
<input checked="" type="checkbox"/> Assembly Process	<input checked="" type="checkbox"/> Data Sheet	<input type="checkbox"/> Wafer Bump Process
<input checked="" type="checkbox"/> Assembly Materials	<input type="checkbox"/> Part number change	<input checked="" type="checkbox"/> Wafer Fab Site
<input type="checkbox"/> Mechanical Specification	<input type="checkbox"/> Test Site	<input checked="" type="checkbox"/> Wafer Fab Materials
<input checked="" type="checkbox"/> Packing/Shipping/Labeling	<input type="checkbox"/> Test Process	<input checked="" type="checkbox"/> Wafer Fab Process

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of a new fab & process technology (FFAB, BICOM3XHV) and assembly site (MLA/CDAT) and 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 and Assembly site differences are noted below:

Group 1 BOM Table (FFAB/Process migration/BOM Option plus MLA as additional Assembly site)

	ASESH	MLA
Bond wire composition, diameter	Au, 1.0 mil	Cu, 1.0 mil
Mount Compound	SID#EY1000063	4147858
Mold Compound	SID#EN2000631	4226323

Group 2 BOM Table (FFAB/Process migration/BOM Option plus CDAT as additional Assembly site)

	MLA	CDAT
Bond wire composition, diameter	Au, 0.96 mil	Cu, 1.0 mil
Mount Compound	4205846	4207123
Mold Compound	4208625	4224115

The datasheets will be changing as a result of the above mentioned changes. The datasheet change details can be reviewed in the datasheet revision history. The links to the revised datasheets are available in the table below.

Changes from Revision C (May 2012) to Revision D (November 2023)	Page
• Updated the numbering format for tables, figures, and cross-references throughout the document.....	1
• Changed maximum recommended loop supply voltage range from 40 V to 36 V in <i>Features, Specifications</i> , and throughout the document.....	1
• Changed package name MSOP to VSSOP and DFN to VSON throughout the document.....	1
• Changed Device Information table title to Package Information and updated contents.....	1
• Added <i>Pin Configurations and Functions, ESD Ratings, Recommended Operating Conditions, Thermal Information, Detailed Description, Overview, Functional Block Diagram, Feature Description, Application and Implementation Typical Application, Device and Documentation Support, Related Documentation</i> , and <i>Mechanical, Packaging, and Orderable Information</i> sections.....	2
• Changed absolute maximum loop supply voltage range from 50 V to 40 V in <i>Absolute Maximum Ratings</i> and throughout the document.....	3
• Changed operating temperature minimum value from –55°C to –40°C in <i>Absolute Maximum Ratings</i> and <i>Electrical Characteristics</i>	3
• Moved thermal resistance content from <i>Electrical Characteristics</i> to new <i>Thermal Information</i>	3
• Changed thermal resistance from $\theta_{JA} = 150^{\circ}\text{C/W}$ (MSOP) and 53°C/W (DFN) to $R_{\theta JA} = 173.9^{\circ}\text{C/W}$ (VSSOP) and 60.7°C/W (VSON), respectively.....	3
• Changed bias current vs temperature from 150 pA/°C to 300 pA/°C in <i>Electrical Characteristics</i>	4
• Changed V_{REG} vs output current parameter name to Voltage accuracy vs V_{REG} current, in <i>Electrical Characteristics</i>	4
• Deleted redundant temperature range content already stated in the <i>Absolute Maximum Ratings</i> and new <i>Recommended Operating Conditions</i>	4
• Updated <i>Typical Characteristics</i> title to remove typo.....	5
• Changed Figure 7-1, <i>Basic Circuit Connections</i>	6
• Changed suggested Zener diode part numbers in Figure 7-2, <i>Reverse Voltage Operation and Overvoltage Surge Protection</i>	7
• Changed <i>External Transistor</i> applications information section to incorporate additional guidance regarding transistor power dissipation and thermal concerns.....	9
• Added <i>Circuit Stability</i> section.....	11

Product Folder	Current Datasheet Number	New Datasheet Number	Link to full datasheet
XTR117	SBOS344C	SBOS344D	http://www.ti.com/product/XTR117

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			

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
FR-BIP-1	TID	DEU	Freising

Assembly Site Information:

Assembly Site	Assembly Site Origin	Assembly Country Code	Assembly City
ASESH	ASH	CHN	Shanghai
TI Chengdu	CDA	CHN	Chengdu
TI Malaysia	MLA	MYS	Kuala Lumpur

Die Rev:

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

Sample product shipping label (not actual product label)

Product Affected:

Group 1 Device List:

XTR117AIDGKR

Group 2 Device list:

XTR117AIDRBR

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: XTR117AIDRBR	Qual Device: XTR117AIDGKR	QBS Process Reference: OPA1637DGKT	QBS Process/Package Reference: OPA2205ADGKR	QBS Process/Package Reference: OPA2206ADGKR	QBS Package Reference: OPA2210IDRGR	QBS Package Reference: INA821IDRGR
HAST	A2	Biased HAST	130C/85%RH	96 Hours	-	-	3/231/0	1/77/0	2/154/0	3/231/0	-
UHAST	A3	Unbiased HAST	130C/85%RH	96 Hours	-	-	3/231/0	1/77/0	2/154/0	3/231/0	2/154/0
TC	A4	Temperature Cycle	-65/150C	500 Cycles	-	-	-	1/77/0	2/154/0	3/231/0	2/154/0
TC	A4	Temperature Cycle	-65C/150C	500 Cycles	-	-	3/231/0	1/77/0	2/154/0	3/231/0	2/154/0
HTSL	A6	High Temperature Storage Life	170C	420 Hours	-	-	3/231/0	1/77/0	2/154/0	3/231/0	-
HTOL	B1	Life Test	150C	300 Hours	-	-	3/231/0	1/77/0	2/154/0	-	-
ELFR	B2	Early Life Failure Rate	150C	24 Hours	-	-	-	1/800/0	2/2000/0	-	-
ESD	E2	ESD CDM	-	250 Volts	1/3/0	1/3/0	3/9/0	1/3/0	2/6/0	1/3/0	1/3/0
ESD	E2	ESD HBM	-	1000 Volts	-	1/3/0	3/9/0	1/3/0	2/6/0	1/3/0	1/3/0
LU	E4	Latch-Up	Per JESD78	-	-	1/3/0	3/18/0	1/6/0	1/6/0	-	1/3/0
CHAR	E5	Electrical Characterization	Per Datasheet Parameters	-	1/30/0	1/30/0	3/90/0	1/30/0	2/60/0	1/30/0	1/30/0

- QBS: Qual By Similarity
- Qual Device XTR117AIDRBR is qualified at MSL2 260C
- Qual Device XTR117AIDGKR 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/>

TI Qualification ID: R-NPD-2109-021

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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