Product/Process Change Notice - PCN 25_0091 Rev. -

Analog Devices, Inc. One Analog Way, Wilmington, MA 01887, USA

This notice is to inform you of a change that will be made to certain ADI products (see Appendix A) that you may have purchased in the last 2 years. An acceptance or concern response should be submitted to ADI promptly. Any requests for samples of changed material or additional information must be made within 30 days of the notification. In accordance with JEDEC Standard 046, customers should acknowledge receipt of the PCN within 30 days of the PCN delivery. ADI contact information is listed below. Note: Revised fields are indicated by a red field name. See Appendix B for revision history.

Lack of acknowledgment of the PCN within 30 days constitutes acceptance of the change. After the acknowledgment, a lack of additional requests within 90 days constitutes acceptance of the change.

PCN Title:	Qualification of Wafer Fabrication Site Analog Devices, Inc. Camas WA for (Bipolar) Products
Publication Date:	06-Jun-2025
Effectivity Date:	08-Sep-2025 *(the earliest date that a customer could expect to receive changed material)*
Revision Description:	Initial Release.

Description Of Change:

Qualification of Wafer Fabrication Site Analog Devices, Inc. Camas WA for Bipolar Products

Reason For Change:

Leveraging the existing qualified process at our Analog Devices Camas, WA Fab ensures a reliable and continuous supply for our customers securing their needs well into the future.

The affected products will be manufactured using ADI specified manufacturing flows, materials, process controls, and monitors ensuring no degradation of quality and reliability performance.

Impact of the change (positive or negative) on fit, form, function & reliability:

There is no expected impact to fit, form, function or reliability.

Product Identification: *(this section will describe how to identify the changed material)*

Traceability will be maintained via standard ADI lot traceability.

Summary of Supporting Information:

Qualification has been performed per Industry Standard Test Methods. See attached Qualification Results.

Supporting Documents:

Attachment 1: Type: Qualification Results Summary

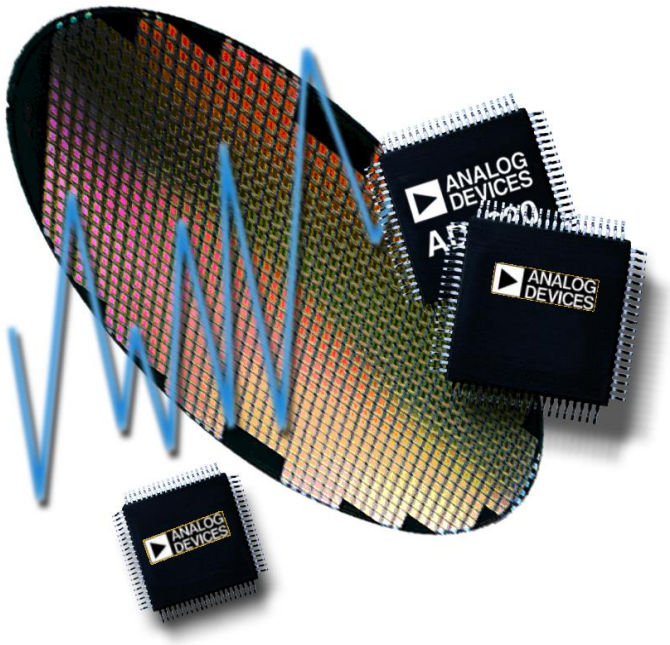
ADI_PCN_25_0091_Rev_-_Qualification of ADI Camas Wafer Fab Bipolar Process.pdf

Note: If applicable, the device material declaration will be updated due to material change.

ADI Contact Information:

For questions on this PCN, please send an email to the regional contacts below or contact your local ADI sales representatives.

Americas:	Europe:	Japan:	Korea:	Rest of Asia:



Reliability Report

Report Title: Qualification of ADI Camas Wafer Fab Bipolar Process for Non-Automotive Products

Report Number: 24165

Revision: A

Date: 30 May 2025

Summary

This report documents the reliability qualification requirements for the release of the BIPOLAR Process at Analog Devices Camas Wafer Fabrication Facility. The products listed below were selected to cover the technology being released.

The products are:

The AD624 is a high precision, low noise, instrumentation amplifier designed primarily for use with low level transducers.

The AD712 is a high speed, precision, monolithic operational amplifier. The very low offset voltage and offset voltage drift are the results of advanced laser wafer trimming technology.

The AD8221 is a gain programmable, high performance instrumentation amplifier. AD8221 maintains a minimum CMRR of 80 dB to 10 kHz for all grades at G = 1.

Die/Fab Product Characteristics

Table 1: Die/Fab Product Characteristics - Bipolar at ADI Camas

Product Characteristics	Product(s) to be qualified		
Generic/Root Part #	AD624	AD712	AD8221
Die Id	6W624DV*01 A	6W712DRV*01 A	6W8221ARV*01 A
Die Size (mm)	2.69 x 4.41	1.83 x 2.87	1.58 x 2.23
Wafer Fabrication Site	ADI-Camas	ADI-Camas	ADI-Camas
Wafer Fabrication Process	Bipolar	Bipolar	Bipolar
Die Substrate	Si	Si	Si
Metallization / # Layers	AlCu(0.5%)/1	AlCu(1.0%)/1	AlCu(1.0%)/2
Polyimide	Yes	Yes	Yes
Passivation	doped-oxide/SiN	doped-oxide/SiN	doped-oxide/SiN

Die/Fab Test Results

Table 1.1: Die/Fab Test Results – Bipolar at ADI Camas

Test Name	AEC #	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
High Temperature Operating Life (HTOL)	B1	JESD22-A108	125°C<Tj<135°C, Biased, 500 Hours	AD624	Q21497.1.HO1	0/77
					Q21497.2.HO2	0/77
					Q21497.3.HO3	0/77
				AD712[1]	Q21302.1.HO2_RES	0/77
					Q21302.2.HO3_RES	0/77
					Q21302.3.HO1_RES	0/77
High Temperature Storage Life (HTSL)	A6	JESD22-A103	150°C, 500 Hours	AD624	Q21497.1.HS1	0/77
			150°C, 1000 Hours	AD712	Q21302.1.HS1_RES	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST)	A2	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	AD712[1]	Q21302.1.HA2_RES	0/77
					Q21302.2.HA3_RES	0/77
					Q21302.3.HA1_RES	0/77
Unbiased HAST (UHST)	A3	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	AD712[1]	Q21302.1.UH2_RES	0/77
					Q21302.2.UH3_RES	0/77
					Q21302.3.UH1_RES	0/77
Temperature Cycling (TC)	A4	JESD22-A104	-65°C/+150°C, 500 Cycles	AD624	Q21497.1.TC1	0/77
					Q21497.2.TC2	0/77
					Q21497.3.TC3	0/77
				AD712[1]	Q21302.1.TC2_RES	0/77
					Q21302.2.TC3_RES	0/77
					Q21302.3.TC1_RES	0/77

[1]These samples were subjected to preconditioning at MSL 1 with 3x reflow peak temp of 260°C prior to the start of the stress test

Package/Assembly Product Characteristics

Table 2.1: Package/Assembly Product Characteristics - 16-SBDIP at ANALOG DEVICES (ADPI)

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	AD624
Package	16-SBDIP
Body Size (mm)	21.34 x 7.87 x 3.56
Assembly Location	ADPI
Substrate Material	B20255-5B
Lid Shield Material	B21242-C
Die Attach	Henkel JM7000 conductive
Leadframe Material	N/A
Lead Finish	Au
Wire Bond Material/Diameter (mils)	B2012M-04_Aluminum / 1.25

Table 2.2: Package/Assembly Product Characteristics - 8-SOIC_N at ASE (AET)

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	AD712
Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	ASE (AET)
MSL/Peak Reflow Temperature(°C)	MSL 1 / 260°C
Mold Compound	Hitachi CEL 9240HF10AK
Die Attach	Hitachi EN 4900GC conductive
Leadframe Material	Copper
Lead Finish	100 Sn
Wire Bond Material/Diameter (mils)	Heraeus AW7 4N Gold / 1.30

Package/Assembly Test Results

Table 3.1: Package/Assembly Product Characteristics - 16-SBDIP at ANALOG DEVICES (ADPI)

Test Name	AEC #	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
Temperature Cycling (TC)	A4	JESD22-A104	-65°C/+150°C, 500 Cycles	AD624	Q21497.1.TC1	0/77
					Q21497.2.TC2	0/77
					Q21497.3.TC3	0/77

Table 3.2: Package/Assembly Product Characteristics - 8-SOIC_N at ASE (AET)

Test Name	AEC #	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
Solder Heat Resistance (SHR)	A1	J-STD-020	MSL1	AD712	Q21302.1.SH2_RES	0/77
					Q21302.2.SH3_RES	0/77
					Q21302.3.SH1_RES	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST)[1]	A2	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	AD712	Q21302.1.HA2_RES	0/77
					Q21302.2.HA3_RES	0/77
					Q21302.3.HA1_RES	0/77
Unbiased HAST (UHST) [1]	A3	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	AD712	Q21302.1.UH2_RES	0/77
					Q21302.2.UH3_RES	0/77
					Q21302.3.UH1_RES	0/77
Temperature Cycling (TC)[1]	A4	JESD22-A104	-65°C/+150°C, 500 Cycles	AD712	Q21302.1.TC2_RES	0/77
					Q21302.2.TC3_RES	0/77
					Q21302.3.TC1_RES	0/77

[1]These samples were subjected to preconditioning at MSL 1 with 3x reflow peak temp of 260°C prior to the start of the stress test

ESD and Latch-Up Test Results

Table 4: ESD Test Result

ESD Model	Generic/Root Part #	Package	ESD Test Spec	RC Network	Highest Pass Level	Class
FICDM	AD624	16-SBDIP	JS-002	1Ω, Cpkg	1000V	C3
	AD712	8-SOIC	JS-002	1Ω, Cpkg	1250V	C3
	AD8221	8-SOIC	JS-002	1Ω, Cpkg	1250V	C3
HBM	AD624	16-SBDIP	JS-001	1.5kΩ, 100pF	500V	1B
	AD712	8-SOIC	JS-001	1.5kΩ, 100pF	1500V	1C
	AD8221	8-SOIC	JS-001	1.5kΩ, 100pF	1000V	1C

Table 5: Latch Up Test Result

LU Test Spec	Generic/Root Part #	Passing Current	Passing Over-voltage	Temperature (T_A)	Class
JESD78	AD624	± 200 mA	± 22.5V	25 °C	I
JESD78	AD712	± 200 mA	± 22.5V	25 °C	I
JESD78	AD8221	± 200 mA	± 22.5V	25 °C	I

Approvals

Reliability Engineer: