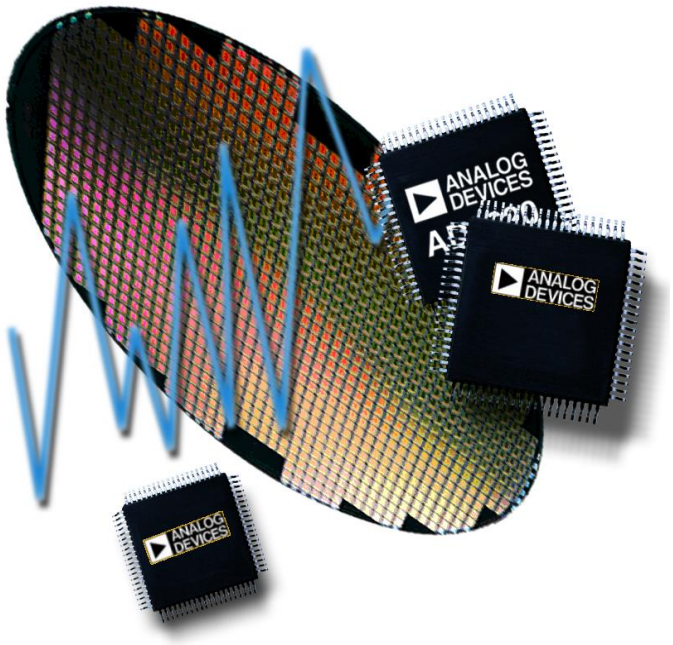


# Reliability Report

**Report Title:** Qualification of ADI Camas Wafer Fab HVBP1 Processes for Non-Automotive Products

**Report Number:** 24457

**Revision:** C

**Date:** 15 September 2025

## Summary

This report documents the reliability qualification requirements for the release of the HVBP1 wafer fabrication process for non-automotive products at Analog Devices Camas Wafer Fabrication Facility. The products listed below were selected to cover the technology being released.

The products are:

The AD8512 is a dual precision JFET amplifiers that feature low offset voltage, input bias current, input voltage noise, and input current noise.

The AD8672 is a very high precision amplifiers featuring very low noise, very low offset voltage and drift, low input bias current, 10 MHz bandwidth, and low power consumption. Output is stable with capacitive loads of over 1000 pF. Supply current is less than 3 mA per amplifier at 30 V.

## Die/Fab Product Characteristics

**Table 1: Die/Fab Product Characteristics- HVBP1**

| Product Characteristics | Product(s) used to be qualified | |
|---|---|---|
| Generic/Root Part # | AD8512 | AD8672 |
| Die Id | 6W8512ARV 01 | 6W8672RV 01 |
| Die Size (mm) | 1.80 x 2.29 | 1.35 x 1.94 |
| Wafer Fabrication Site | ADI-Camas | ADI-Camas |
| Wafer Fabrication Process | HVBP1 | HVBP1 |
| Die Substrate | Si | Si |
| Polyimide | No | No |
| Passivation | doped-oxide/SiN | doped-oxide/SiN |

## Die/Fab Test Results

**Table 2: Die/Fab Test Results - HVBP1 at ADI-Camas**

| Test Name | Spec | Conditions | Generic/Root Part # | Lot # | Fail/SS |
|---|---|---|---|---|---|
| High Temperature Operating Life (HTOL)[1] | JESD22-A108 | 125°C<Tj<135°C, Biased, 1,000 Hours | AD8512 | Q21237.1.HO1_RES | 0/77 |
| | | | | Q21237.2.HO2_RES | 0/77 |
| | | | | Q21237.3.HO3_RES | 0/77 |
| | | | AD8672 | Q21248.1.HO1_RES | 0/77 |
| | | | | Q21248.3.HO3_RES | 0/77 |
| High Temperature Storage Life (HTSL) | JESD22-A103 | 150°C, 1,000 Hours | AD8512 | Q21237.1.HT1_RES | 0/77 |
| | | | AD8672 | Q21248.1.HT1_RES | 0/77 |
| Highly Accelerated Temperature and Humidity Stress Test (HAST)[1] | JESD22-A110 | 130C 85%RH 33.3 psia, Biased, 96 Hours | AD8512 | Q21237.1.HA1_RES | 0/77 |
| | | | | Q21237.2.HA2_RES | 0/77 |
| | | | | Q21237.3.HA3_RES | 0/77 |
| | | 110C 85%RH 17.7 psia, PWR CYC, P264 | AD8672 | Q21248.1.HA1_RES | 0/77 |
| Unbiased HAST (UHST)[1] | JESD22-A118 | 130C 85%RH 33.3 psia, 96 Hours | AD8512 | Q21237.1.UH1_RES | 0/77 |
| | | | | Q21237.2.UH2_RES | 0/77 |
| | | | | Q21237.3.UH3_RES | 0/77 |
| | | | AD8672 | Q21248.1.UH1_RES | 0/77 |
| | | | | Q21248.2.UH2_RES | 0/77 |
| | | | | Q21248.3.UH3_RES | 0/77 |
| Temperature Cycling (TC)[1] | JESD22-A104 | -65°C/+150°C, 500 Cycles | AD8512 | Q21237.1.TC1_RES | 0/77 |
| | | | | Q21237.2.TC2_RES | 0/77 |
| | | | | Q21237.3.TC3_RES | 0/77 |
| | | | AD8672 | Q21248.1.TC1_RES | 0/77 |
| | | | | Q21248.2.TC2_RES | 0/77 |
| | | | | Q21248.3.TC3_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 3: Package/Assembly Product Characteristics - 8-SOIC_N at AMKOR (AP1)**

| Product Characteristics | Product(s) to be qualified | |
|---|---|---|
| Generic/Root Part # | AD8512 | AD8672 |
| Package | 8-SOIC_N | 8-SOIC_N |
| Body Size (mm) | 4.90 x 3.90 x 1.375 | 4.90 x 3.90 x 1.375 |
| Assembly Location | AMKOR (AP1) | AMKOR (AP1) |
| MSL/Peak Reflow Temperature(°C) | MSL 1 / 260°C | MSL 1 / 260°C |
| Mold Compound | Sumitomo G600 | Sumitomo G600 |
| Die Attach | Ablestik 84-1 LMISR4 conductive | Ablestik 84-1 LMISR4 conductive |
| Leadframe Material | Copper | Copper |
| Lead Finish | 100 Sn | 100 Sn |
| Wire Bond Material/Diameter (mils) | Gold / 1.20 | 2N Gold / 1.20 |

## Package/Assembly Test Results

**Table 4: Package/Assembly Product Characteristics - 8-SOIC_N at AMKOR (AP1)**

| Test Name | Spec | Conditions | Generic | Lot # | Fail/SS |
|---|---|---|---|---|---|
| Solder Heat Resistance (SHR) | J-STD-020 | MSL1 | AD8512 | Q21237.1.SH1_RES | 0/15 |
| | | | | Q21237.2.SH2_RES | 0/15 |
| | | | | Q21237.3.SH3_RES | 0/15 |
| | | | AD8672 | Q21248.1.SH1_RES | 0/15 |
| | | | | Q21248.2.SH2_RES | 0/15 |
| | | | | Q21248.3.SH3_RES | 0/15 |
| Highly Accelerated Temperature and Humidity Stress Test (HAST)[1] | JESD22-A110 | 130C 85%RH 33.3 psia, Biased, 96 Hours | AD8512 | Q21237.1.HA1_RES | 0/77 |
| | | | | Q21237.2.HA2_RES | 0/77 |
| | | | | Q21237.3.HA3_RES | 0/77 |
| | | 110C 85%RH 17.7 psia, PWR CYC, P264 | AD8672 | Q21248.1.HA1_RES | 0/77 |
| Unbiased HAST (UHST)[1] | JESD22-A118 | 130C 85%RH 33.3 psia, 96 Hours | AD8512 | Q21237.1.UH1_RES | 0/77 |
| | | | | Q21237.2.UH2_RES | 0/77 |
| | | | | Q21237.3.UH3_RES | 0/77 |
| | | | AD8672 | Q21248.1.UH1_RES | 0/77 |
| | | | | Q21248.2.UH2_RES | 0/77 |
| | | | | Q21248.3.UH3_RES | 0/77 |
| Temperature Cycling (TC)[1] | JESD22- A104 | -65°C/+150°C, 500 Cycles | AD8512 | Q21237.1.TC1_RES | 0/77 |
| | | | | Q21237.2.TC2_RES | 0/77 |
| | | | | Q21237.3.TC3_RES | 0/77 |
| | | | AD8672 | Q21248.1.TC1_RES | 0/77 |
| | | | | Q21248.2.TC2_RES | 0/77 |
| | | | | Q21248.3.TC3_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 5: ESD Test Result**

| ESD Model | Generic/Root Part # | Package | ESD Test Spec | RC Network | Highest Pass Level | Class |
|---|---|---|---|---|---|---|
| FICDM | AD8512 | 8-SOIC_N | JS-002 | 1Ω, Cpkg | ±1250V | C3 |
| | AD8672 | | | | ±1500V | C3 |
| HBM | AD8512 | 8-SOIC_N | JS-001 | 1.5kΩ, 100pF | ±4000V | 3A |
| | AD8672 | | | | ±4000V | 3A |

**Table 6: Latch Up Test Result**

| LU Test Spec | Generic/Root Part # | Passing Current | Passing Over-Voltage | Temperature ($T_A$) | Class |
|---|---|---|---|---|---|
| JESD78 | AD8512 | +100mA, -100mA | +22.5V | 25°C | I |
| JESD78 | AD8672 | +100mA, -100mA | +22.5V | 25°C | I |

# Approvals

Reliability Engineer: Jenny Lou Sagisi