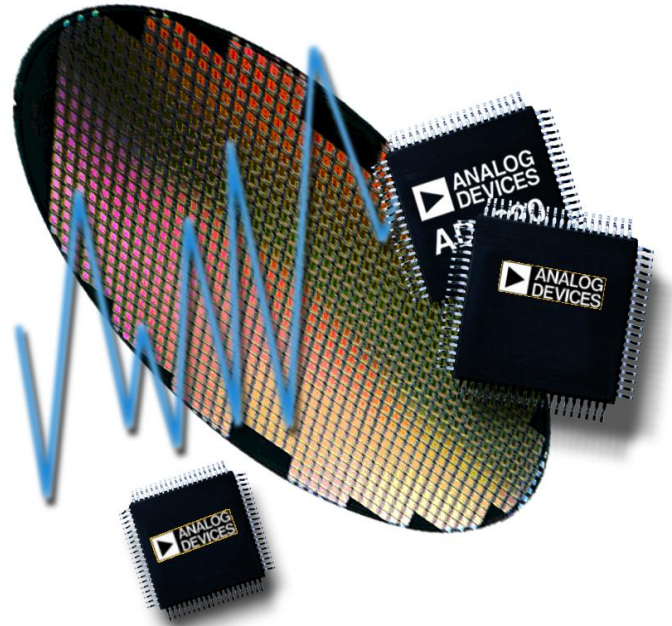




Reliability Report

Report Title:	Qualification of ADI Camas Wafer Fab 6um Bipolar Process for Non- Automotive Products
Report Number:	24360
Revision:	C
Date:	10 November 2025

Summary

This report documents the reliability qualification requirements for the release of the 6um Bipolar 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 OP07 has a very low input offset voltage (75 μ V maximum for OP07E) that is obtained by trimming at the wafer stage. These low offset voltages generally eliminate any need for external nulling.

The REF43 is a low power precision reference providing a stable 2.5 V output independent of variations in supply voltage, load conditions or ambient temperature. It is suitable as a reference level for 8-, 10- and 12-bit data acquisition systems, or wherever a stable, known voltage is required.

Die/Fab Product Characteristics

Table 1: Die/Fab Product Characteristics – 6um Bipolar

Product Characteristics	Product(s) to be qualified	
Generic/Root Part #	OP07	REF43
Die Id	6WOP77YV*01 A	6WREF43RV*01 A
Die Size (mm)	1.43 x 2.35	2.13 x 1.65
Wafer Fabrication Site	ADI Camas	ADI Camas
Wafer Fabrication Process	6um Bipolar	6um Bipolar
Die Substrate	Si	Si
Metallization / # Layers	AlCu(0.5%)/1	AlCu(1.0%)/1
Polyimide	No	Yes
Passivation	doped-oxide/SiN	doped-oxide/SiN

Die/Fab Test Results

Table 2: Die/Fab Test Results – 6um Bipolar at ADI Camas

Test Name	AEC#	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
High Temperature Operating Life (HTOL) ¹	B1	JESD22-A108	135°C<Tj<150°C, 1,000 Hours	OP07	Q21307.1.HO1_RES	0/77
				REF43	Q21263.1.HO1_RES	0/77
					Q21263.2.HO2_RES	0/77
					Q21263.3.HO3_RES	0/77
High Temperature Storage Life (HTSL)	A6	JESD22-A103	150°C, 1,000 Hours	OP07	Q21307.1.HS1_RES	0/77
				REF43	Q21263.1.HS1_RES	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST) ¹	A2	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	OP07	Q21307.1.HA2_RES	0/77
					Q21307.1.HA3_RES_130C	0/77
				REF43	Q21263.1.HA1_RES	0/77
					Q21263.2.HA2_RES	0/77
Unbiased HAST (UHST) ¹	A3	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	REF43	Q21263.1.UH1_RES	0/77
					Q21263.2.UH2_RES	0/77
				OP07	Q21307.1.UH1_RES	0/77
					Q21263.3.UH3_RES	0/77
Temperature Cycling (TC) ¹	A4	JESD22-A104	-65°C/+150°C, 500 Cycles	REF43	Q21263.1.TC1_RES	0/77
					Q21263.2.TC2_RES	0/77
					Q21263.3.TC3_RES	0/77
				OP07	Q21307.1.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 3.1: Package/Assembly Product Characteristics - SOIC_N at AMKOR (AP1)

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	OP07
Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	AMKOR (AP1)
MSL/Peak Reflow Temperature(°C)	1/ 260
Mold Compound	Sumitomo G600
Die Attach/Underfill/TIM	Ablestik 84-1 LMISR4 conductive
Leadframe Material	Copper
Lead Finish	100Sn
Wire Bond Material/Diameter (mils)	2N Gold / 1.20

Table 3.2: Package/Assembly Test Results - SOIC_N at ASE (AET)

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	REF43
Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.75
Assembly Location	ASE (AET)
MSL/Peak Reflow Temperature(°C)	1 / 260
Mold Compound	Hitachi CEL 9240HF10AK
Die Attach/Underfill/TIM	Hitachi EN4900GC conductive
Leadframe Material	Copper
Lead Finish	100Sn
Wire Bond Material/Diameter (mils)	Tanaka GPG 2N Gold / 1.20

Package/Assembly Test Results

Table 4: Package/Assembly Test Results - SOIC_N

Test Name		Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
High Temperature Storage Life (HTSL)	A6	JESD22-A103	150°C, 1,000 Hours	OP07	Q21307.1.HS1_RES	0/77
				REF43	Q21263.1.HS1_RES	0/77
Solder Heat Resistance (SHR) ¹	A1	J-STD-020	MSL-1	OP07	Q21307.1.SH1_RES	0/11
				REF43	Q21263.1.SH1_RES	0/11
					Q21263.2.SH2_RES	0/11
					Q21263.3.SH3_RES	0/11
Highly Accelerated Temperature and Humidity Stress Test (HAST) ¹	A2	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	OP07	Q21307.1.HA2_RES	0/77
					Q21307.1.HA3_RES_130C	0/77
				REF43	Q21263.1.HA1_RES	0/77
					Q21263.2.HA2_RES	0/77
					Q21263.3.HA3_RES	0/77
Unbiased HAST (UHST) ¹	A3	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	OP07	Q21307.1.UH1_RES	0/77
				REF43	Q21263.1.UH1_RES	0/77
					Q21263.2.UH2_RES	0/77
					Q21263.3.UH3_RES	0/77
Temperature Cycling (TC) ¹	A4	JESD22-A104	-65°C/+150°C, 500 Cycles	OP07	Q21307.1.TC1_RES	0/77
				REF43	Q21263.1.TC1_RES	0/77
					Q21263.2.TC2_RES	0/77
					Q21263.3.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	OP07	8-SOIC_N	JS-002	1Ω, Cpkg	±1250V	C3
	REF43	8-SOIC_N	JS-002	1Ω, Cpkg	±1000V	C3
HBM	OP07	8-SOIC_N	JS-001	1.5kΩ, 100pF	±500V	1B
	REF43	8-SOIC_N	JS-001	1.5kΩ, 100pF	±500V	1B

Table 6: Latch Up Test Result

LU Test Spec	Generic/Root Part #	Passing Current	Passing Over-Voltage	Temperature (T _A)	Class
JESD78	OP07	+200mA, -200mA	+27V	25°C	I
JESD78	REF43	+200mA, -200mA	+60V	25°C	I

Approvals

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