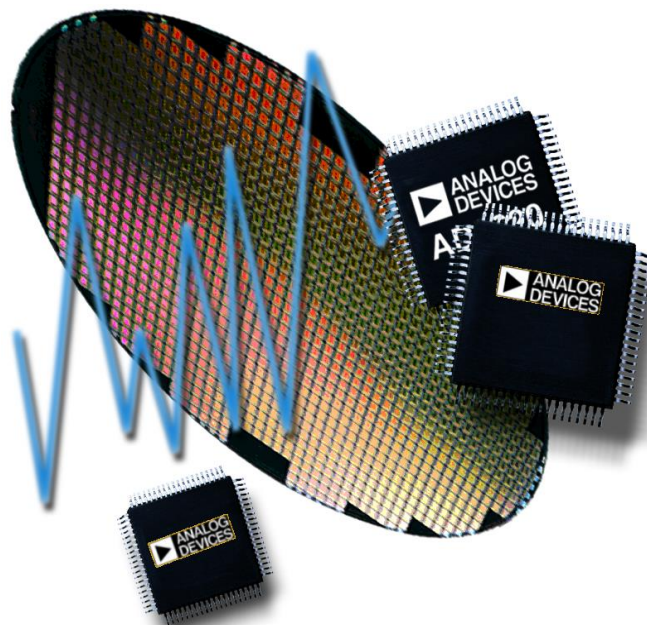




Reliability Report

Report Title: ADM1266 LFCSP Material Set
Change at UT2 Qualification

Report Number: 22777

Revision: A

Date: 11 June 2025

Summary

This report documents the successful completion of the reliability qualification requirements of bonding wire change from gold to copper for the release of the ADM1266 product in a 64-LFCSP package at UT2. The ADM1266 is a Cascadable Super Sequencer with Margin Control and Fault Recording.

Die/Fab Product Characteristics

Table 1: Die/Fab Product Characteristics- 0.18µm CMOS

Product Characteristics	Product(s) to be qualified	Product(s) used for Substitution Data		
Generic/Root Part #	ADM1266	AD81005	AD81007	AD81007-003
Die Id	TMIH87 A	TMGP46 / A	TMIR81 / A	TMIR81 / B00001A
Die Size (mm)	2.28 x 4.01	3.40 x 3.80	4.00 x 4.40	4.00 x 4.40
Wafer Fabrication Site	TSMC Fab-3	E_TSMC3C08	E_TSMC3C08	E_TSMC3C08
Wafer Fabrication Process	0.18µm CMOS	0.18µm CMOS	0.18µm CMOS	0.18µm CMOS
Die Substrate	Si	Si	Si	Si
Metallization / # Layers	AlCu(0.5%)/5	AlCu/5	AlCu/5	AlCu/5
Polyimide	No	No	Yes	Yes
Passivation	HDPundoped oxide/Oxide&Nitride	doped-oxide/OxyNitride	doped-oxide/OxyNitride	doped-oxide/OxyNitride

Table 1.2: Die/Fab Product Characteristics- 0.18µm DMOS

Product Characteristics	Product(s) to be qualified	Product(s) used for Substitution Data
Generic/Root Part #	ADM1266	ADP7183
Die Id	TMIH86 D	TMHN06 B
Die Size (mm)	3.02 x 4.88	0.95 x 1.47
Wafer Fabrication Site	TSMC Fab-8B	TSMC Fab-8B
Wafer Fabrication Process	0.18µm DMOS	0.18µm DMOS
Die Substrate	Si	Si
Metallization / # Layers	AlCu(0.5%)/5	AlCu(0.5%)/5
Polyimide	No	No
Passivation	undoped-oxide/SiN	undoped-oxide/SiN

Die/Fab Test Results

Table 2.1: Die/Fab Test Results - 0.18um CMOS at TSMC Fab-3

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	125°C, 48 Hours	AD81007	Q13268.EL1x	0/882
				Q13268.EL2x	0/1008
				Q13268.EL3x	0/882
High Temperature Operating Life (HTOL)	JESD22-A108	125°C<Tj<135°C, Biased, 1,000 Hours	AD81005	Q11965.1	0/20
			AD81007	Q13268.CHO1	0/45
				Q13268.CHO2	0/32
				Q13268.CHO3	0/32
			AD81007-003	Q14663.HO1	0/77
				Q14663.HO1_1	0/77
				Q14663.HO2	0/77
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADM1266	Q22572.1.HO1	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST) ¹	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	ADM1266	Q22777.1.HA1_CuW	0/77
				Q22777.2.HA2_CuW	0/77
				Q22777.3.HA3_CuW	0/77

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

Table 2.2: Die/Fab Test Results - 0.18um DMOS at TSMC Fab-8B

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
Early Life Failure Rate (ELFR)	AEC Q100-008	Ta=125°C, 48 Hours	ADP7183	Q17782.1.EL1x	0/800
				Q17782.1.EL2x	0/800
				Q17782.1.EL3x	0/800
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125°C, 1,000 Hours	ADP7183	Q17782.1.HO4REP	0/77
				Q17782.2.HO5REP	0/77
				Q17782.3.HO6REP	0/77
		125°C<Tj<135°C, Biased, 1,500 Hours	ADM1266	Q22572.1.HO1	0/77
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADM1266	Q22777.1.HS1_CuW	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST) ¹	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	ADM1266	Q22777.1.HA1_CuW	0/77
				Q22777.2.HA2_CuW	0/77
				Q22777.3.HA3_CuW	0/77

¹ These samples were subjected to preconditioning at MSL 3 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 - 64-LFCSP at UTAC (UT2)

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	ADM1266
Package	64-LFCSP
Body Size (mm)	9.00 x 9.00 x 0.75
Assembly Location	UTAC (UT2)
MSL/Peak Reflow Temperature(°C)	3 / 260°C
Mold Compound	Sumitomo G700LTD
Die Attach	Ablestik 8600 conductive
Leadframe Material	Copper
Lead Finish	100Sn
Wire Bond Material/Diameter (mils)	PdCuAu 2N / 1.00

Package/Assembly Test Results

Table 4: Package/Assembly Test Results - LFCSP at UTAC (UT2)

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADM1266	Q22777.1.HS1_CuW	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST) ¹	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	ADM1266	Q22777.1.HA1_CuW	0/77
				Q22777.2.HA2_CuW	0/77
				Q22777.3.HA3_CuW	0/77
Solder Heat Resistance (SHR)	J-STD-020	MSL-3	ADM1266	Q22777.1.SH1_CuW	0/11
				Q22777.2.SH2_CuW	0/11
				Q22777.3.SH3_CuW	0/11
Temperature Cycling (TC) ¹	JESD22-A104	-65°C/+150°C, 500 Cycles	ADM1266	Q22777.1.TC1_CuW	0/77
				Q22777.2.TC2_CuW	0/77
				Q22777.3.TC3_CuW	0/77
Unbiased HAST (UHST) ¹	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	ADM1266	Q22777.1.UH1_CuW	0/77
				Q22777.2.UH2_CuW	0/77
				Q22777.3.UH3_CuW	0/77

¹ These samples were subjected to preconditioning at MSL 3 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 #	ESD Test Spec	RC Network	Highest Pass Level	Class
FICDM	ADM1266	JS-002	1Ω, Cpkg	±750V	C2b
HBM		ESDA/JEDEC JS-001	1.5kΩ, 100pF	±2000V	2

Table 6: Latch Up Test Result

LU Test Spec	Generic/Root Part #	Passing Current	Temperature (T _A)	Class
JESD78	ADM1266	+100mA, -100mA	25°C	I

Approvals

Reliability Engineer: Lucille Jordan