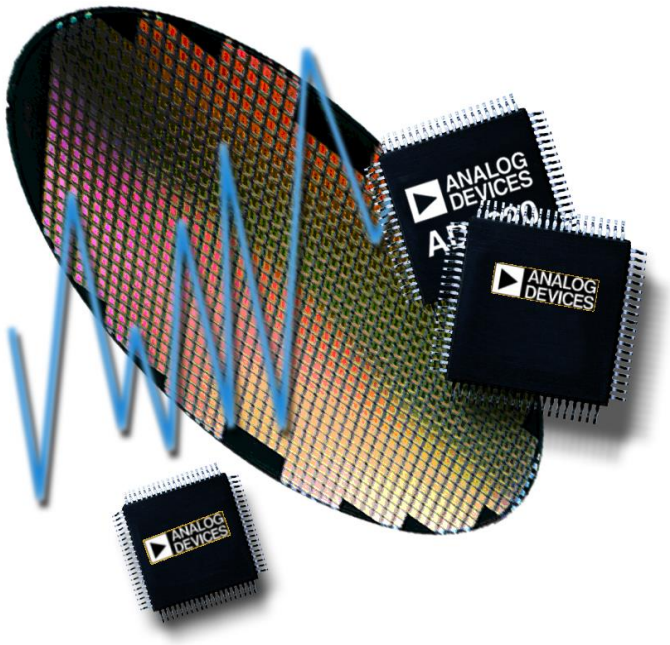

Reliability Report

Report Title: AD7859 MQFP at CRS Qualification

Report Number: 25044

Revision: A

Date: 14 April 2026

Summary

This report documents the successful completion of the reliability qualification requirements for the release of the assembly transfer at CARSEM (CRS) of AD7859 product in a 44-MQFP package. The AD7859 is high speed, low power, 8-channel, 12-bit ADCs which operate from a single 3 V or 5 V power supply.

Die/Fab Product Characteristics

Table 1: Die/Fab Product Characteristics- 1.0um CMOS

Product Characteristics	Product(s) to be qualified	Product(s) used for Substitution Data	
Generic/Root Part #	AD7859	AD7853	AD7854
Die Id	TM2916	P16B	P171A
Die Size (mm)	3.39 x 4.62	3.27 x 4.29	3.35 x 4.56
Wafer Fabrication Site	TSMC Fab-2A	TSMC Fab-2A	TSMC Fab-2A
Wafer Fabrication Process	1.0um CMOS	1.0um CMOS	1.0um CMOS
Die Substrate	Si	Si	Si
Metallization / # Layers	AlSi(1.0%)Cu(0.5%)/2	AlCu/2	AlCu/2
Polyimide	No	No	No
Passivation	undoped-oxide/SiN	undoped-oxide/SiN	undoped-oxide/SiN

Die/Fab Test Results

Table 2.1: Die/Fab Test Results - 1.0um CMOS at TSMC Fab-2A

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
Early Life Failure Rate (ELFR)	MIL-STD-883, M1015	125°C, 48 Hours	AD7853	Q8743.141	0/385
				Q8743.142	0/385
			AD7859	Q9113.228	0/250
				Q9113.229	0/250
				Q9113.230	0/250
				Q9113.231	0/250
				Q9113.232	0/250
				Q9113.233	0/250
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125°C, Biased, 1,000 Hours	AD7854	Q9626.126	0/45
				Q9626.127	0/45
			AD7859	Q10205.44	0/45
				Q10205.45	0/45
Highly Accelerated Temperature and Humidity Stress Test (HAST)[1]	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	AD7859	Q25044.1.HA1_PDN	0/45
				Q25044.2.HA2_PDN	0/45
				Q25044.3.HA3_PDN	0/45
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD7859	Q23715.1.HS1_PDN	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 - 44-MQFP at CARSEM (CRS)

Product Characteristics	Product(s) to be qualified
Generic/Root Part #	AD7859
Package	44-MQFP
Body Size (mm)	10.00 x 10.00 x 2.00
Assembly Location	CARSEM (CRS)
MSL/Peak Reflow Temperature(°C)	3 / 260°C
Mold Compound	Sumitomo G600C
Die Attach	Ablestik 84-1 LMISR4 conductive
Leadframe Material	C7025
Lead Finish	100Sn
Wire Bond Material/Diameter (mils)	2N Gold / 1.30

Package/Assembly Test Results

Table 4: Package/Assembly Test Results - MQFP at CARSEM (CRS)

Test Name	Spec	Conditions	Generic/Root Part #	Lot #	Fail/SS
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD7859	Q23715.1.HS1_PDN	0/77
Highly Accelerated Temperature and Humidity Stress Test (HAST)[1]	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	AD7859	Q25044.1.HA1_PDN	0/45
				Q25044.2.HA2_PDN	0/45
				Q25044.3.HA3_PDN	0/45
Solder Heat Resistance (SHR)	J-STD-020	MSL-3	AD7859	Q23715.1.SH1_PDN	0/11
				Q23715.2.SH2_PDN	0/11
				Q23715.3.SH3_PDN	0/11
Temperature Cycling (TC)[1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD7859	Q23715.1.TC1_PDN	0/77
				Q23715.2.TC2_PDN	0/77
				Q23715.3.TC3_PDN	0/77
Unbiased HAST (UHST)[1]	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	AD7859	Q23715.1.UH1_PDN	0/77
				Q23715.2.UH2_PDN	0/77
				Q23715.3.UH3_PDN	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 Test Result

Table 5: ESD Test Result

ESD Model	Generic/Root Part #	Package	ESD Test Spec	RC Network	Highest Pass Level	Class
FICDM	AD7859	44-MQFP	JS-002	1Ω, Cpkg	±1250V	C3

Approvals

Reliability Engineer: Lucille Jordan