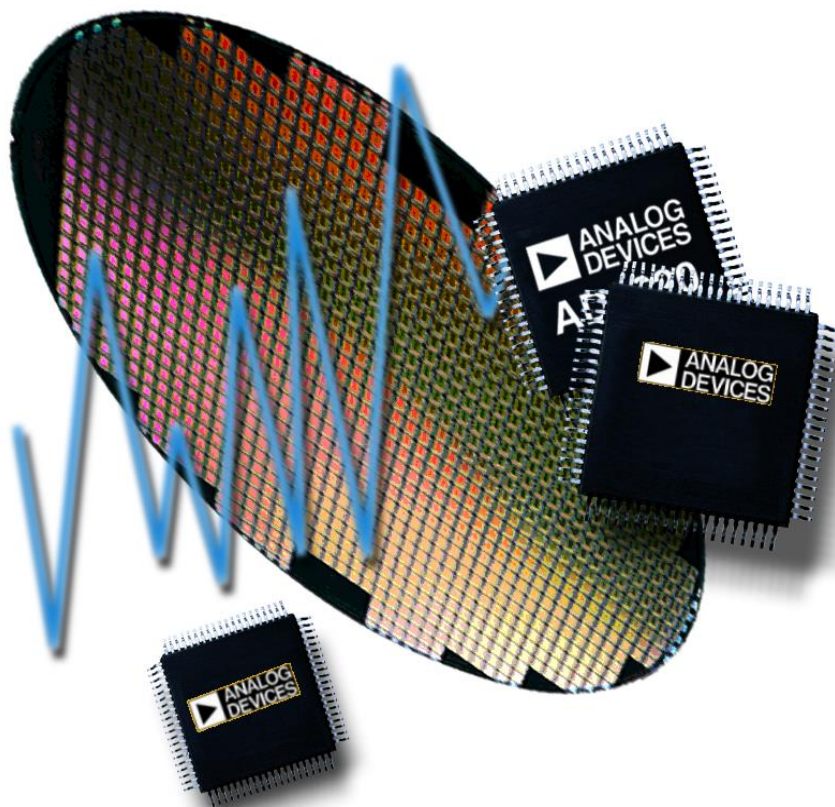




Reliability Report

Report Title: ADIS1654x IMU Package Internal
Dimension Change Qualification

Report Number: 22984

Revision: A

Date: 29 October 2025

Summary

This report documents the successful completion of the reliability qualification requirements for the release of ADIS16545 and ADIS16547 with an improved housing design and adhesive material, as described in PCN 25_0009. The ADIS1654x product family is a precision, miniature inertial measurement unit (IMU) with connector interface that includes a triaxial gyroscope and a triaxial accelerometer. The ADIS16545 and ADIS16547 modules have a $\pm 8g$ and $\pm 40g$ accelerometer range, respectively.

Package/Assembly Product Characteristics

Table 1: Package/Assembly Product Characteristics – 24-MCML at IMI

Product Characteristics	Product(s) to be Qualified
Generic/Root Part #	ADIS16545, ADIS16547
Package	24-MCML
Body Size (mm)	47.00 x 44.00 x 14.00
Assembly Location	IMI, Philippines
MSL/Peak Reflow Temperature (°C)	N/A
SMD Material	96.5Sn_3.0Ag_0.5Cu, w/Water Clean Flux
Adhesive Materials	Loctite 3563 (PCB to housing)
Underfill Material	Hysol FP4545FC
Lead Finish	Gold
Gyro Cores	Process Codes: 0.18 DMOS and MEMS Fab Sites: TSMC and ADI Wilmington
Accelerometer Cores	Process Codes: 0.18 DMOS and MEMS Fab Sites: TSMC and ADI Wilmington
Microcontroller	Process Code: 90nm CMOS Fab Site: TSMC

Package/Assembly Test Results

Table 2: ADIS16545 and ADIS16547 Test Results - 24-MCML at IMI

Test Name	Spec	Conditions	Generic Part #	Lot #	Fail/SS
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=105°C, Biased, 1,000 Hours	ADIS16547 ¹	Q20875.1.4	0/16
			ADIS16545	Q14373.4	0/16
			ADIS16547	Q14373.11	0/16
High Temperature Storage Life (HTSL)	JESD22-A103	125°C, 1,000 Hours	ADIS16545	Q14373.1	0/7
			ADIS16547-P ²	Q17697.1.3	0/5
Temperature Cycling (TC)	JESD22-A104	-40°C/+105°C, 1,000 Cycles	ADIS16545 ¹	Q20875.1.2	0/16
			ADIS16545	Q14373.5	0/16
			ADIS16545 ³	Q22984.1.2	0/26
			ADIS16547	Q14373.12	0/16
			ADIS16547-P	Q17697.1.4	0/16
Temperature Humidity Bias (THB)	JESD22-A101	85°C, 85%RH, Biased, 1,000 Hours	ADIS16545 ³	Q22984.1.1	0/32
			ADIS16547	Q14373.6	0/32
HAST, Biased (HAST)	JESD22-A110	110°C, 85%RH, Biased, 264 Hours	ADIS16547-P	Q17697.1.2	0/10
Temperature Humidity Storage, Unbiased (THS)	JESD22-A101	85°C, 85%RH Unbiased, 1000 Hours	ADIS16547	Q14373.7	0/32
			ADIS16547-P	Q17697.1.1	0/16
Mechanical Shock – Un-Powered	MIL-STD-883, M2002	Condition B, 1500g, 0.5ms	ADIS16547	Q14373.9	0/15
		Condition B, 1500g, 0.5ms	ADIS16545 ³	Q22984.1.4	0/16
Vibration (random)	MIL-STD-202, M214	Condition C, 9.26 rms G, 8 Hours	ADIS16545 ³	Q22984.1.3	0/16
			ADIS16547	Q14373.13	0/15
Physical Dimension	Per product OD	N/A	ADIS16547	Q14373.14	0/1

¹ The samples from lot# Q20875 use the ADXRS197 Gyro, a hermetic version of ADXR196. All others use the ADXRS196 Gyro.

² Generic # with -P extension has Parylene overcoat on the internal PCBA. These results are for information and not used or required for release of non-Parylene version.

³ These samples were built with the improved material set from PCN_25_0009.

ESD Test Results

Table 3: ESD Test Result

ESD Model	Generic/Root Part #	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FIDCM	ADIS16547	24-MCML	JS-002	1 Ω , Cpkg	$\pm 1000V$	N/A	C3
	ADIS16545 ³	24-MCML	JS-002	1 Ω , Cpkg	$\pm 1000V$	N/A	C3
HBM	ADIS16547	24-MCML	JS-001	1.5k Ω , 100pF	$\pm 2000V$	N/A	2

³ These samples were built with the improved material set from PCN_25_0009.

Approvals

Reliability Engineer: Michael Walornyj, Mike Aldrich