Product/Process Change Notice - PCN 22_0221 Rev. -

Analog Devices, Inc. One Analog Way, Wilmington, MA 01887, USA

This notice is to inform you of a change that will be made to certain ADI products (see Appendix A) that you may have purchased in the last 2 years. **Any inquiries or requests with this PCN (additional data or samples) must be sent to ADI within 30 days of publication date.** ADI contact information is listed below.

PCN Title: Qualification of Alternate Fab Site for MEMS Products

Publication Date: 26-Sep-2022

Effectivity Date: 29-Dec-2022 *(the earliest date that a customer could expect to receive changed material)*

Revision Description:
Initial Release.

Description Of Change:

Analog Devices is adding Analog Devices, Wilmington, MA (ADWL) as an alternate wafer fab site to TSMC, USA for MEMS Products.

Reason For Change:

This change will ensure continuity of supply.

Impact of the change (positive or negative) on fit, form, function & reliability:

There is no impact to fit, form, function, or reliability.

Product Identification *(this section will describe how to identify the changed material)*

Date Code will be used for product identification.

Summary of Supporting Information:

Qualification has been performed per Industry Standard Test Methods. See attached Qualification Results Summary.

Supporting Documents

Attachment 1: Type: Qualification Results Summary

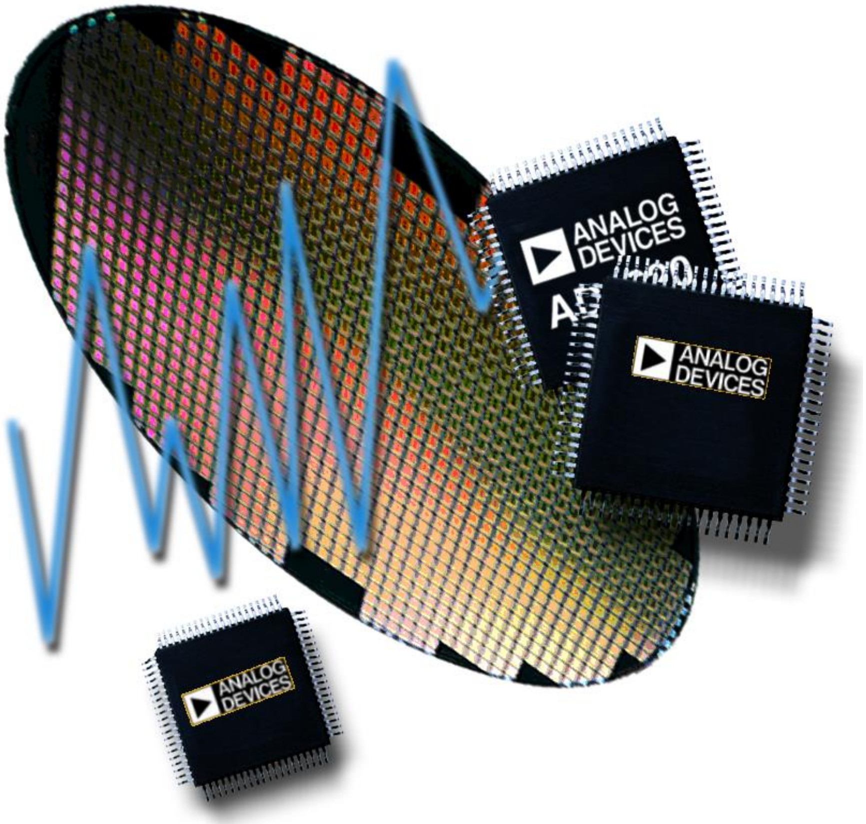
ADI_PCN_22_0221_Rev_-_Reliability Report 19926.pdf

For questions on this PCN, please send an email to the regional contacts below or contact your local ADI sales representatives.			
Americas: PCN_Americas@analog.com	**Europe:** PCN_Europe@analog.com	**Japan:** PCN_Japan@analog.com	**Rest of Asia:** PCN_ROA@analog.com

Appendix A - Affected ADI Models				
Added Parts On This Revision - Product Family / Model Number (12)				
ADXL325 / ADXL325BCPZ	ADXL325 / ADXL325BCPZ-RL	ADXL325 / ADXL325BCPZ-RL7	ADXL326 / ADXL326BCPZ	ADXL326 / ADXL326BCPZ-RL
ADXL326 / ADXL326BCPZ-RL7	ADXL327 / ADXL327BCPZ	ADXL327 / ADXL327BCPZ-RL	ADXL327 / ADXL327BCPZ-RL7	ADXL335 / ADXL335BCPZ
ADXL335 / ADXL335BCPZ-RL	ADXL335 / ADXL335BCPZ-RL7			

Appendix B - Revision History			
Rev	**Publish Date**	**Effectivity Date**	**Rev Description**
Rev. -	26-Sep-2022	29-Dec-2022	Initial Release.

ANALOG DEVICES



Reliability Report

Report Title: ADXL335 XC335 Sensor Die Transfer to Wilmington Qualification

Report Number: 19926

Revision: A

Date: 8 July 2022

Summary

This report documents the successful completion of the reliability qualification requirements for the release of the ADXL325, ADXL326, ADXL327, ADXL335 product in a 16-LFCSP package for XC335 sensor die transfer to Wilmington. The ADXL325, ADXL326, ADXL327, ADXL335 are a small, thin, low power 3-axis low-g accelerometers with signal conditioned voltage outputs. The ADXL335 used in this qualification measures acceleration with a full-scale range of +/- 3g.

Table 1: ADXL325, ADXL326, ADXL327 and ADXL335 Product Characteristics

Die/Fab

Die Id	TMW672 B-T1	XC335	XC335+C
Die Size (mm)	2.44 x 1.22	1.51 x 1.29	1.51 x 1.29
Wafer Fabrication Site	E_TSMC1108	I_WILM1B06	I_WILM1B06
Wafer Fabrication Process	0.35C2P3M33.00	MEMS0WL1M00.R0Q	MEMS0WL1M00.R0Q
Approximate Transistor Count	220000	0	0
Passivation Layer	undoped-oxide/SiN	NA	NA
Bond Pad Metal Composition	AlCu(0.5%)	AlCu(0.5%)	AlCu(0.5%)

Package/Assembly

Package	16-LFCSP
Body Size (mm)	4.00 x 4.00 x 1.45
Assembly Location	ASE (AEK)
Molding Compound	Sumitomo G770HCD
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	1.0
Lead Frame Material	Copper
Lead Finish	NA
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

Description / Results of Tests Performed

Table 2 provides a description of the qualification tests conducted and the associated test results for products manufactured on the same technologies as described in Table 1. All devices were electrically tested before and after each stress. Any device that did not meet all electrical data sheet limits following stressing would be considered a valid (stress-attributable) failure unless there was conclusive evidence to indicate otherwise.

Table 2: ADXL335 Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Early Life Failure Rate (ELFR)	JESD22-A108	125°C, 48 Hours	ADXL335	Q10554.243	130	0
				Q10554.244	130	0
				Q10554.245	125	0
				Q10554.246	125	0
				Q10554.247	125	0
				Q10554.248	125	0
				Q10554.249	125	0
				Q10554.250	125	0
				Q10554.251	125	0
				Q10554.252	125	0
				Q10554.253	125	0
				Q10554.254	125	0
				Q10554.255	125	0
				Q10554.256	125	0
				Q10554.257	125	0
				Q10554.258	125	0
High Temperature Operating Life (HTOL)	JESD22-A108	125°C<Tj<135°C, Biased, 1,000 Hours	ADXL335	Q7942.300	77	0
				Q7942.301	77	0
				Q7942.302	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADXL335	Q9169.HS1	77	0
				Q9169.HS2	77	0
				Q9169.HS3	77	0
				Q9169.HS4	77	0
Highly Accelerated Temperature and Humidity Stress Test (HAST)[1]	JESD22-A110	130C 85%RH 33.3 psia, Biased, 96 Hours	ADXL335	Q7849.10	77	0
				Q7849.11	77	0
				Q7849.12	77	0
Low Temperature Operating Life Test (LTOL)	JESD22-A108	-40C, 500hrs	ADXL335	Q7465.10	77	0
				Q7465.11	77	0
				Q7465.12	77	0

Solder Heat Resistance (SHR)	MSL-3	ADI-0049	ADXL335	Q9169.SH1	16	0
				Q9169.SH2	16	0
				Q9169.SH3	16	0
				Q9169.SH4	16	0
Temperature Cycling (TC) [1,2]	JESD22-A104	-65C/+150C, 1,000 Cycles	ADXL313	Q10157.TC1	77	0
				Q10157.TC2	77	0
				Q10157.TC3	77	0
Unbiased HAST (UHST) [1,2]	JESD22-A118	130C, 85%RH, 2atm, 96 Hours	ADXL313	Q10157.UH1	77	0
				Q10157.UH2	77	0
				Q10157.UH3	77	0
Group D	MIL-STD-883, M5005	Sub 4, Shock/Vib./Cent., Single Duration	ADXL316	Q11514.GD1	15	0
Guided Drop	IEC 60068-2-32	1x6 axes- 1.2m concrete, Single Duration	ADXL316	Q11514.GDR1	5	0
Mechanical Shock - Powered	IEC 60068-2-27	10,000g, 5 Shock Pulses, 0.1ms, Single Duration	ADXL316	Q11514.MS1	15	0

[1] These samples were subjected to preconditioning (per J-STD-020 Level 3) prior to the start of the stress test. Level 3 preconditioning consists of the following: Bake: 24 hrs @ 125°C, Unbiased Soak: 192 hrs @ 30°C, 60%RH, Reflow: 3 passes through an oven with a peak temperature of 260°C.

[2] Pre- and post-stress electrical test was performed at room and hot temperatures.

Samples of the many devices manufactured with these package and process technologies are continuously undergoing reliability evaluation as part of the ADI Reliability Monitor Program. Additional qualification data is available on Analog Devices' web site.

ESD Test Results

The results of Human Body Model (HBM) and Field-Induced Charged Device Model (FICDM) ESD testing are summarized in Table 3. ADI measures ESD results using stringent test procedures based on the specifications listed. Any comparison with another supplier's results should ensure that the same ESD test procedures have been used. For further details, please see the EOS/ESD chapter of the ADI Reliability Handbook (available via the 'Quality and Reliability' link on Analog Devices' web site).

Table 3: ADXL335 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-LFCSP	JESD22-C101	1Ω, Cpkg	±250V	±500V	2

HBM	16-LFCSP	ANSI/ESD STM5.1-2007	1.5kΩ, 100pF	±2000V	NA	2

Latch-Up Test Results

Three samples of the ADXL335 were latch-up tested at T_A=25°C per JEDEC Standard JESD78, Class I. All pins passed.

Passing Positive Current	Passing Negative Current	Passing Over-Voltage
+125mA	-100mA	+5.25V

Approvals

Reliability Engineer: Michael Walornyj

Additional Information

Data sheets and other additional information are available on Analog Devices' web site