



Product/Process Change Notice - PCN 22_0192 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 an Alternate Adhesive Material and Molding Compound for Select LFCSP Packages

Publication Date: 08-Aug-2022

Effectivity Date: 10-Nov-2022 *(the earliest date that a customer could expect to receive changed material)*

Revision Description:

Initial Release.

Description Of Change:

Qualification of an alternative adhesive material and molding compound for select LFCSP packages (smaller than 3x3).

1. For Ag-plating lead frame, new adhesive material: Hitachi EN4900 GC; new mold compound: Sumitomo G700LA.
2. For NiPdAu-plating lead frame, new mold compound: Hitachi CEL 9240HF10.

No change on package outline dimension.

Reason For Change:

Additional adhesive material and molding compound for increased capability.

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

The devices' fit, form, function or reliability as specified by the product data sheet will be unaffected by these changes. The Lead Foot Print Dimension will remain the same for LFCSP packages.

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

Date Code and Lot number 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_0192_Rev_-_Qualification Report (2x2).pdf

Attachment 2: Type: Detailed Change Description

ADI_PCN_22_0192_Rev_-_Detailed Change Description.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

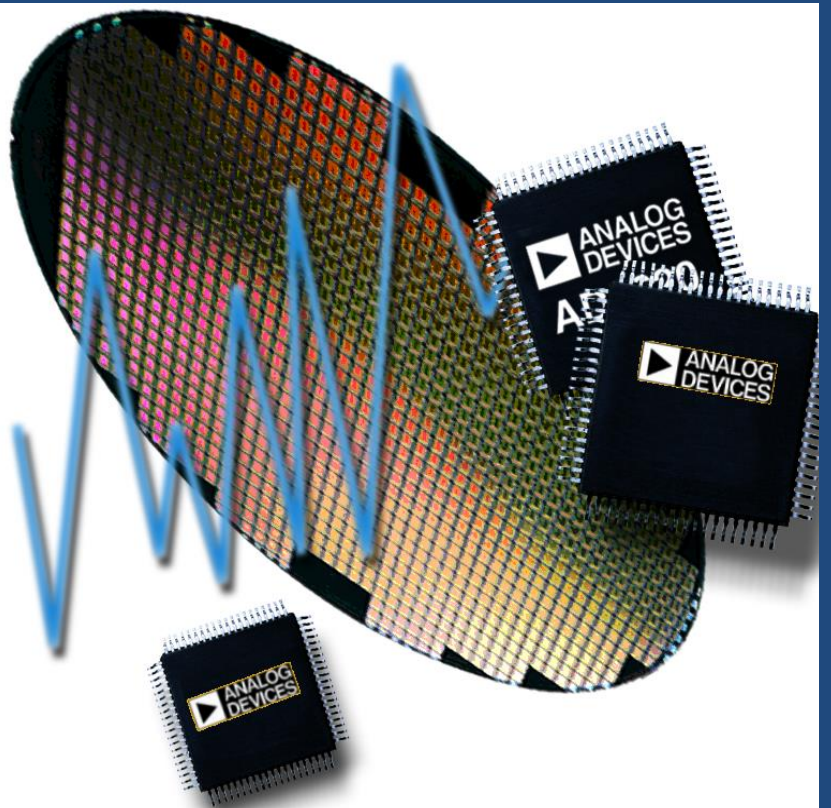
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Appendix A - Affected ADI Models				
Added Parts On This Revision - Product Family / Model Number (161)				
AD5110 / AD5110BCPZ10-1-RL7	AD5110 / AD5110BCPZ10-500R7	AD5110 / AD5110BCPZ10-RL7	AD5110 / AD5110BCPZ80-1-RL7	AD5110 / AD5110BCPZ80-500R7
AD5110 / AD5110BCPZ80-RL7	AD5111 / AD5111BCPZ10-500R7	AD5111 / AD5111BCPZ10-RL7	AD5111 / AD5111BCPZ80-500R7	AD5111 / AD5111BCPZ80-RL7
AD5112 / AD5112BCPZ10-1-RL7	AD5112 / AD5112BCPZ10-500R7	AD5112 / AD5112BCPZ10-RL7	AD5112 / AD5112BCPZ5-1-RL7	AD5112 / AD5112BCPZ5-500R7
AD5112 / AD5112BCPZ5-RL7	AD5112 / AD5112BCPZ80-1-RL7	AD5112 / AD5112BCPZ80-500R7	AD5112 / AD5112BCPZ80-RL7	AD5113 / AD5113BCPZ10-500R7
AD5113 / AD5113BCPZ10-RL7	AD5113 / AD5113BCPZ5-500R7	AD5113 / AD5113BCPZ5-RL7	AD5113 / AD5113BCPZ80-500R7	AD5113 / AD5113BCPZ80-RL7
AD5114 / AD5114BCPZ10-1-RL7	AD5114 / AD5114BCPZ10-500R7	AD5114 / AD5114BCPZ10-RL7	AD5114 / AD5114BCPZ80-1-RL7	AD5114 / AD5114BCPZ80-500R7
AD5114 / AD5114BCPZ80-RL7	AD5115 / AD5115BCPZ10-500R7	AD5115 / AD5115BCPZ10-RL7	AD5115 / AD5115BCPZ80-500R7	AD5115 / AD5115BCPZ80-RL7
AD5116 / AD5116BCPZ10-500R7	AD5116 / AD5116BCPZ10-RL7	AD5116 / AD5116BCPZ5-500R7	AD5116 / AD5116BCPZ5-RL7	AD5116 / AD5116BCPZ80-500R7
AD5116 / AD5116BCPZ80-RL7	AD5601 / AD5601BCPZ-RL7	AD5611 / AD5611ACPZ-RL7	AD5612 / AD5612ACPZ-2-RL7	AD5621 / AD5621ACPZ-RL7
AD5681R / AD5681RBCPZ-1RL7	AD5681R / AD5681RBCPZ-RL7	AD5682R / AD5682RBCPZ-RL7	AD5683 / AD5683BCPZ-RL7	AD5683R / AD5683RACPZ-1RL7
AD5683R / AD5683RACPZ-2RL7	AD5683R / AD5683RACPZ-RL7	AD5683R / AD5683RBCPZ-1RL7	AD5683R / AD5683RBCPZ-RL7	AD5691R / AD5691RACPZ-1RL7
AD5691R / AD5691RBCPZ-RL7	AD5692R / AD5692RACPZ-RL7	AD5693 / AD5693BCPZ-RL7	AD5693R / AD5693RACPZ-1RL7	AD5693R / AD5693RACPZ-RL7
AD5693R / AD5693RBCPZ-2RL7	AD7091 / AD7091BCPZ-RL	AD7091 / AD7091BCPZ-RL7	AD7091R / AD7091RBCPZ-RL	AD7091R / AD7091RBCPZ-RL7
AD8218 / AD8218BCPZ-RL	AD8218 / AD8218BCPZ-WP	ADA4096-2 / ADA4096-2ACPZ-R7	ADA4096-2 / ADA4096-2ACPZ-RL	ADA4800 / ADA4800ACPZ-R7
ADA4800 / ADA4800ACPZ-RL	ADG1401 / ADG1401BCPZ-REEL7	ADG1419 / ADG1419BCPZ-REEL7	ADG721 / ADG721ACPZ-REEL7	ADL5903 / ADL5903ACPZ-N-R7
ADL5903 / ADL5903SCPZ-N-R7	ADL6010 / ADL6010SCPZ-N	ADL6010 / ADL6010SCPZ-N-R2	ADL6010 / ADL6010SCPZ-N-R7	ADL6010S / HMC8498
ADM7160 / ADM7160ACPZ-N1.8-R2	ADM7160 / ADM7160ACPZ-N1.8-R7	ADM7160 / ADM7160ACPZ-N2.5-R2	ADM7160 / ADM7160ACPZ-N2.5-R7	ADM7160 / ADM7160ACPZ-N3.3-R2
ADM7160 / ADM7160ACPZ-N3.3-R7	ADP122 / ADP122ACPZ-1.8-R7	ADP122 / ADP122ACPZ-3.0-R7	ADP122 / ADP122ACPZ-3.3-R7	ADP123 / ADP123ACPZ-R7
ADP124 / ADP124ACPZ-1.8-R7	ADP124 / ADP124ACPZ-2.8-R7	ADP124 / ADP124ACPZ-2.9-R7	ADP124 / ADP124ACPZ-3.0-R7	ADP124 / ADP124ACPZ-3.3-R7
ADP125 / ADP125ACPZ-R7	ADP151 / ADP151ACPZ-1.2-R7	ADP151 / ADP151ACPZ-1.5-R7	ADP151 / ADP151ACPZ-1.8-R7	ADP151 / ADP151ACPZ-2.5-R7
ADP151 / ADP151ACPZ-2.7-R7	ADP151 / ADP151ACPZ-2.8-R7	ADP151 / ADP151ACPZ-3.0-R7	ADP151 / ADP151ACPZ-3.3-R7	ADP1606 / ADP1606ACPZ-N1.8-R7
ADP1607 / ADP1607ACPZ-N-R7	ADP1607 / ADP1607ACPZ-N001-R7	ADP165 / ADP165ACPZ-N1.2-R7	ADP165 / ADP165ACPZ-N1.8-R7	ADP165 / ADP165ACPZ-N2.3-R7
ADP165 / ADP165ACPZ-N3.0-R7	ADP165 / ADP165ACPZ-N3.3-R7	ADP165 / ADP165ACPZ-N-R7	ADP166 / ADP166ACPZ-N1.2-R7	ADP166 / ADP166ACPZ-N1.8-R7
ADP166 / ADP166ACPZ-N2.3-R7	ADP166 / ADP166ACPZ-N3.0-R7	ADP166 / ADP166ACPZ-N3.3-R7	ADP166 / ADP166ACPZ-N-R7	ADP195 / ADP195ACPZ-R7
ADP196 / ADP196ACPZ-N01-R7	ADP196 / ADP196ACPZ-N-R7	ADP197 / ADP197ACPZ-N01-R7	ADP197 / ADP197ACPZ-N02-R7	ADP198 / ADP198ACPZ-R7
ADP222 / ADP222ACPZ-1218-R7	ADP222 / ADP222ACPZ-1228-R7	ADP222 / ADP222ACPZ-1233-R7	ADP222 / ADP222ACPZ-1528-R7	ADP222 / ADP222ACPZ-1533-R7
ADP222 / ADP222ACPZ-1815-R7	ADP222 / ADP222ACPZ-1825-R7	ADP222 / ADP222ACPZ-1827-R7	ADP222 / ADP222ACPZ-1833-R7	ADP222 / ADP222ACPZ-2725-R7
ADP222 / ADP222ACPZ-2818-R7	ADP222 / ADP222ACPZ-2827-R7	ADP222 / ADP222ACPZ-3325-R7	ADP222 / ADP222ACPZ-3328-R7	ADP222 / ADP222ACPZ-3330-R7
ADP223 / ADP223ACPZ-R7	ADP224 / ADP224ACPZ-2818-R7	ADP225 / ADP225ACPZ-R7	ADP7118 / ADP7118ACPZ-N-R7	ADP7118 / ADP7118ACPZ-N1.8-R7
ADP7118 / ADP7118ACPZ-N2.5-R7	ADP7118 / ADP7118ACPZ-N3.3-R7	ADP7118 / ADP7118ACPZ-N5.0-R7	ADP7142 / ADP7142ACPZ-N-R7	ADP7142 / ADP7142ACPZ-N1.8-R7
ADP7142 / ADP7142ACPZ-N2.5-R7	ADP7142 / ADP7142ACPZ-N3.3-R7	ADP7142 / ADP7142ACPZ-N3.8-R7	ADP7142 / ADP7142ACPZ-N5.0-R7	ADP7182 / ADP7182ACPZ-N1.2R7
ADP7182 / ADP7182ACPZ-N1.5R7	ADP7182 / ADP7182ACPZ-N2.5R7	ADP7182 / ADP7182ACPZ-N5.0R7	ADP7182 / ADP7182ACPZ-N-R7	ADPD2210 / ADPD2210ACPZ-R7
ADPD2210 / ADPD2210ACPZ-RL				

Appendix B - Revision History			
Rev	Publish Date	Effectivity Date	Rev Description
Rev. -	08-Aug-2022	10-Nov-2022	Initial Release.



Reliability Report

Report Title: 2x2 LFCSP at JC2 Qualification

Report Number: 19661

Revision: A

Date: 18 July 2022

Summary

This report documents the successful completion of the reliability qualification requirements for the release of the 2x2 LFCSP package assembled at JC2. The ADP123 is the device vehicle used for this qualification. The ADP123 is a low quiescent current, low dropout linear regulator. It is designed to operate from an input voltage between 2.3 V and 5.5 V and to provide up to 300 mA of output current. The low 85 mV dropout voltage at a 300 mA load improves efficiency and allows operation over a wide input voltage range. Table 1 describes the ADP123 product characteristics.

Table 1: ADP123 Product Characteristics

Die/Fab

Die Id	TMAC80 A
Die Size (mm)	0.99 x 1.15
Wafer Fabrication Site	E_TSMC0308
Wafer Fabrication Process	0.35um CMOS
Approximate Transistor Count	3,130
Passivation Layer	undoped-oxide/OxyNitride
Bond Pad Metal Composition	AlCu(0.5%)

Package/Assembly

Package	6-LFCSP
Body Size (mm)	2.00 x 2.00 x 0.55
Assembly Location	JCET (JC2)
Molding Compound	Hitachi CEL 9240HF10
Die Attach	Hitachi EN 4900GC conductive
Wire Type	4N Gold
Wire Diameter (mils)	1.0
Lead Frame Material	Copper
Lead Finish	NiPdAu
Moisture Sensitivity Level	1
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: LFCSP at JCET (JC2) Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADP123	Q19661.1.HS1	77	0
Solder Heat Resistance (SHR) ¹	J-STD-020	MSL-1	ADP123	Q19661.1.SH1	11	0
				Q19661.2.SH2	11	0
				Q19661.3.SH3	11	0
Temperature Cycling (TC) ¹	JESD22-A104	- 65°C/+150°C, 500 Cycles	ADP123	Q19661.1.TC1	77	0
				Q19661.2.TC2	77	0
				Q19661.3.TC3	77	0
Unbiased HAST (UHST) ¹	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	ADP123	Q19661.1.UH1	77	0
				Q19661.2.UH2	77	0
				Q19661.3.UH3	77	0

¹ These samples were subjected to preconditioning (per J-STD-020 Level 1) prior to the start of the stress test. Level 1 preconditioning consists of the following: Bake: 24 hrs @ 125°C, Unbiased Soak: 168 hrs @ 85°C, 85%RH, Reflow: 3 passes through an oven with a peak temperature of 260°C.

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 Field-Induced Charged Device Model (FICDM) ESD testing is 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: ADP123 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	6-LFCSP	JS-002	1 Ω , Cpkg	$\pm 1000V$	$\pm 1250V$	C3

Approvals

Reliability Engineer: Pernell Marc Mosuela

Additional Information

Data sheets and other additional information are available on [Analog Devices' web site](#)

Qualification of New Adhesive Material and Molding Compound for Select LFCSP Packages

Detailed Change Description

Qualification of New Adhesive Material and Molding Compound for Select LFCSP Packages

► For NiPdAu-Plating lead frame

BOM	Current	Newly added
Adhesive	Hitachi 4900GC	/
Molding Compound	Hitachi CEL 9220HF13	Hitachi CEL 9240HF10

Qualification of New Adhesive Material and Molding Compound for Select LFCSP Packages

► For Ag-plating lead frame

BOM	Current	Newly added
Adhesive	Ablestik 8290	Hitachi 4900GC
Molding Compound	Sumitomo G770	Sumitomo G700LA