



## Product/Process Change Notice - PCN 22\_0048 Rev. -

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

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:** Addition of ASE Korea as an Alternate Assembly Site for Select LFCSP Products

**Publication Date:** 19-Apr-2022

**Effectivity Date:** 22-Jul-2022 *(the earliest date that a customer could expect to receive changed material)*

**Revision Description:**

Initial Release.

**Description Of Change:**

- 1) Assembly site for selected LFCSP parts are moving from UNISEM MALAYSIA (UG1) to ASE KOREA (AEK).
- 2) Change in Mold compound from Sumitomo G770HCD to Sumitomo G700LYT.
- 3) Change in Die Attached from Hysol QMI 519 conductive, Sumitomo CRM 1076NS conductive, Sumitomo CRM 1076DJ conductive to EN4900GC conductive.

Existing qualified BOM in AEK will be used.

Copy Exact LF and Same Package Outline Drawing

**Reason For Change:**

ASE KOREA (AEK) is being utilized as an additional assembly site for LFCSP products. ADI's assembly subcontractors manufacture products using Analog Devices specified manufacturing flows, materials, process controls and monitors, ensuring the same level of quality and reliability on products they receive from the new site.

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

No impact on form, fit and function or reliability.

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

Parts assembled at AET will be identified by Assembly Lot number and Date Code.

**Summary of Supporting Information:**

See attached Qualification Result.

**Supporting Documents**

**Attachment 1: Type:** Detailed Change Description

ADI\_PCN\_22\_0048\_Rev\_-\_Material Set for 16L 3x3x0.85 and 24L 4x4x0.85 LFCSP.pdf

**Attachment 2: Type:** Qualification Results Summary

ADI\_PCN\_22\_0048\_Rev\_-\_ASE Korea Qualification Report.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 (382)**

ADH939S / HMC8465LP4E	ADRF5040 / ADRF5040BCPZ	ADRF5040 / ADRF5040BCPZ-R7	ADRF5130 / ADRF5130BCPZ	ADRF5130 / ADRF5130BCPZ-R7
HMC1010 / HMC1010LP4E	HMC1010 / HMC1010LP4ETR	HMC1013 / HMC1013LP4E	HMC1013 / HMC1013LP4ETR	HMC1013 / HMC1013LP4ETR-R1
HMC1018A / HMC1018ALP4E	HMC1018A / HMC1018ALP4ETR	HMC1019A / HMC1019ALP4E	HMC1019A / HMC1019ALP4ETR	HMC1020 / HMC1020LP4E
HMC1020 / HMC1020LP4ETR	HMC1021 / HMC1021LP4E	HMC1021 / HMC1021LP4ETR	HMC1040 / HMC1040LP3CE	HMC1040 / HMC1040LP3CETR
HMC1044 / HMC1044LP3E	HMC1044 / HMC1044LP3ETR	HMC1045 / HMC1045LP3E	HMC1045 / HMC1045LP3ETR	HMC1063 / HMC1063LP3E
HMC1063 / HMC1063LP3ETR	HMC1065 / HMC1065LP4E	HMC1065 / HMC1065LP4ETR	HMC1082 / HMC1082LP4E	HMC1082 / HMC1082LP4ETR
HMC1094 / HMC1094LP3E	HMC1094 / HMC1094LP3ETR	HMC1095 / HMC1095LP4E	HMC1095 / HMC1095LP4ETR	HMC1096 / HMC1096LP3E
HMC1096 / HMC1096LP3ETR	HMC1097 / HMC1097LP4E	HMC1097 / HMC1097LP4ETR	HMC1118 / HMC1118LP3DE	HMC1118 / HMC1118LP3DETR
HMC1119 / HMC1119LP4ME	HMC1119 / HMC1119LP4METR	HMC1120 / HMC1120LP4E	HMC1120 / HMC1120LP4ETR	HMC1122 / HMC1122LP4ME
HMC1122 / HMC1122LP4METR	HMC263G / HMC263LP4E	HMC263G / HMC263LP4ETR	HMC2991 / HMC2991LP4E	HMC2991 / HMC2991LP4ETR
HMC305S / HMC305SLP4E	HMC305S / HMC305SLP4ETR	HMC322AG / HMC322ALP4E	HMC322AG / HMC322ALP4ETR	HMC3410 / HMC3410LP4E
HMC3410 / HMC3410LP4ETR	HMC3411 / HMC3411LP4E	HMC3411 / HMC3411LP4ETR	HMC346A / HMC346ALP3E	HMC346A / HMC346ALP3ETR
HMC346G / HMC346LP3E	HMC346G / HMC346LP3ETR	HMC347AG / HMC347ALP3E	HMC347AG / HMC347ALP3ETR	HMC348 / HMC348LP3ETR
HMC356 / HMC356LP3E	HMC356 / HMC356LP3ETR	HMC368 / HMC368LP4E	HMC368 / HMC368LP4ETR	HMC369 / HMC369LP3E
HMC369 / HMC369LP3ETR	HMC370 / HMC370LP4E	HMC370 / HMC370LP4ETR	HMC3716 / HMC3716LP4E	HMC3716 / HMC3716LP4ETR
HMC372 / HMC372LP3E	HMC372 / HMC372LP3ETR	HMC373 / HMC373LP3E	HMC373 / HMC373LP3ETR	HMC375 / HMC375LP3E
HMC375 / HMC375LP3ETR	HMC376 / HMC376LP3E	HMC376 / HMC376LP3ETR	HMC382 / HMC382LP3E	HMC382 / HMC382LP3ETR
HMC384 / HMC384LP4E	HMC384 / HMC384LP4ETR	HMC385 / HMC385LP4E	HMC385 / HMC385LP4ETR	HMC386 / HMC386LP4E
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HMC394 / HMC394LP4ETR	HMC4069 / HMC4069LP4E	HMC4069 / HMC4069LP4ETR	HMC408 / HMC408LP3E	HMC408 / HMC408LP3ETR
HMC409 / HMC409LP4E	HMC409 / HMC409LP4ETR	HMC415 / HMC415LP3E	HMC415 / HMC415LP3ETR	HMC416 / HMC416LP4E
HMC416 / HMC416LP4ETR	HMC4202 / HMC4202LP3E	HMC4202 / HMC4202LP3ETR	HMC4203 / HMC4203LP3E	HMC4203 / HMC4203LP3ETR
HMC427A / HMC427ALP3E	HMC427A / HMC427ALP3ETR	HMC429 / HMC429LP4E	HMC429 / HMC429LP4ETR	HMC430 / HMC430LP4E
HMC430 / HMC430LP4ETR	HMC431 / HMC431LP4E	HMC431 / HMC431LP4ETR	HMC441G / HMC441LP3E	HMC441G / HMC441LP3ETR
HMC443 / HMC443LP4E	HMC443 / HMC443LP4ETR	HMC444 / HMC444LP4E	HMC444 / HMC444LP4ETR	HMC445 / HMC445LP4E
HMC445 / HMC445LP4ETR	HMC451G / HMC451LP3E	HMC451G / HMC451LP3ETR	HMC455 / HMC455LP3E	HMC455 / HMC455LP3ETR
HMC4623 / HMC4623LP3E	HMC4623 / HMC4623LP3ETR	HMC466 / HMC466LP4E	HMC466 / HMC466LP4ETR	HMC466A / HMC466ALP3E
HMC466A / HMC466ALP3ETR	HMC470A / HMC470ALP3E	HMC470A / HMC470ALP3ETR	HMC472A / HMC472ALP4E	HMC472A / HMC472ALP4ETR
HMC4865 / HMC4865LP3E	HMC4865 / HMC4865LP3ETR	HMC492 / HMC492LP3E	HMC492 / HMC492LP3ETR	HMC493 / HMC493LP3E
HMC493 / HMC493LP3ETR	HMC494 / HMC494LP3E	HMC494 / HMC494LP3ETR	HMC495 / HMC495LP3E	HMC495 / HMC495LP3ETR
HMC500 / HMC500LP3E	HMC500 / HMC500LP3ETR	HMC5011A / HMC5011ALP4E	HMC5011A / HMC5011ALP4ETR	HMC5015 / HMC5015LP4E
HMC5015 / HMC5015LP4ETR	HMC505 / HMC505LP4E	HMC505 / HMC505LP4ETR	HMC506 / HMC506LP4E	HMC506 / HMC506LP4ETR
HMC5202 / HMC5202LP4E	HMC5202 / HMC5202LP4ETR	HMC532 / HMC532LP4E	HMC532 / HMC532LP4ETR	HMC533 / HMC533LP4E
HMC533 / HMC533LP4ETR	HMC535 / HMC535LP4E	HMC535 / HMC535LP4ETR	HMC539A / HMC539ALP3E	HMC539A / HMC539ALP3ETR
HMC540S / HMC540SLP3E	HMC540S / HMC540SLP3ETR	HMC5449 / HMC5449LP3E	HMC5449 / HMC5449LP3ETR	HMC547A / HMC547ALP3E
HMC547A / HMC547ALP3ETR	HMC561G / HMC561LP3E	HMC561G / HMC561LP3ETR	HMC566G / HMC566LP4E	HMC566G / HMC566LP4ETR
HMC5688A / HMC5688ALP4E	HMC5688A / HMC5688ALP4ETR	HMC575 / HMC575LP4E	HMC575 / HMC575LP4ETR	HMC5869B / HMC5869BLP3E
HMC5869B / HMC5869BLP3ETR	HMC593 / HMC593LP3ETR	HMC596 / HMC596LP4E	HMC596 / HMC596LP4ETR	HMC600 / HMC600LP4E
HMC600 / HMC600LP4ETR	HMC602 / HMC602LP4E	HMC602 / HMC602LP4ETR	HMC611G / HMC611LP4E	HMC611G / HMC611LP4ETR
HMC615 / HMC615LP4ETR	HMC6153 / HMC6153LP4E	HMC6153 / HMC6153LP4ETR	HMC6154 / HMC6154LP4E	HMC6154 / HMC6154LP4ETR
HMC6182 / HMC6182LP3CE	HMC6182 / HMC6182LP3CETR	HMC6187G / HMC6187LP4E	HMC6187G / HMC6187LP4ETR	HMC629A / HMC629ALP4E
HMC629A / HMC629ALP4ETR	HMC630 / HMC630LP3E	HMC630 / HMC630LP3ETR	HMC631 / HMC631LP3E	HMC631 / HMC631LP3ETR
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HMC662 / HMC662LP3ETR	HMC6627A / HMC6627ALP4E	HMC6627A / HMC6627ALP4ETR	HMC6628 / HMC6628LP4E	HMC6628 / HMC6628LP4ETR
HMC6657 / HMC6657LP4E	HMC6657 / HMC6657LP4ETR	HMC666 / HMC666LP4E	HMC666 / HMC666LP4ETR	HMC668 / HMC668LP3E
HMC668 / HMC668LP3ETR	HMC669 / HMC669LP3E	HMC669 / HMC669LP3ETR	HMC674 / HMC674LP3E	HMC674 / HMC674LP3ETR
HMC675 / HMC675LP3E	HMC675 / HMC675LP3ETR	HMC680 / HMC680LP4E	HMC6811 / HMC6811CLP3E	HMC6811 / HMC6811CLP3ETR

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HMC686 / HMC686LP4ETR	HMC687 / HMC687LP4E	HMC687 / HMC687LP4ETR	HMC688 / HMC688LP4E	HMC688 / HMC688LP4ETR
HMC689 / HMC689LP4E	HMC689 / HMC689LP4ETR	HMC694G / HMC694LP4E	HMC694G / HMC694LP4ETR	HMC695 / HMC695LP4E
HMC695 / HMC695LP4ETR	HMC696 / HMC696LP4E	HMC696 / HMC696LP4ETR	HMC697 / HMC697LP4E	HMC697 / HMC697LP4ETR
HMC703 / HMC703LP4E	HMC703 / HMC703LP4ETR	HMC704 / HMC704LP4E	HMC704 / HMC704LP4ETR	HMC705 / HMC705LP4E
HMC705 / HMC705LP4ETR	HMC712A / HMC712ALP3CE	HMC712A / HMC712ALP3CETR	HMC713 / HMC713LP3E	HMC713 / HMC713LP3ETR
HMC715 / HMC715LP3E	HMC715 / HMC715LP3ETR	HMC7150 / HMC7150LP3DE	HMC7150 / HMC7150LP3DETR	HMC716 / HMC716LP3E
HMC716 / HMC716LP3ETR	HMC717A / HMC717ALP3E	HMC717A / HMC717ALP3ETR	HMC720 / HMC720LP3E	HMC720 / HMC720LP3ETR
HMC721 / HMC721LP3E	HMC721 / HMC721LP3ETR	HMC722 / HMC722LP3E	HMC722 / HMC722LP3ETR	HMC723 / HMC723LP3E
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HMC7366 / HMC7366LP3E	HMC7366 / HMC7366LP3ETR	HMC738 / HMC738LP4E	HMC738 / HMC738LP4ETR	HMC739 / HMC739LP4E
HMC739 / HMC739LP4ETR	HMC750 / HMC750LP4E	HMC750 / HMC750LP4ETR	HMC7516 / HMC7516LP4ME	HMC7516 / HMC7516LP4METR
HMC7517 / HMC7517LP4ME	HMC7517 / HMC7517LP4METR	HMC753 / HMC753LP4E	HMC753 / HMC753LP4ETR	HMC759 / HMC759LP3E
HMC759 / HMC759LP3ETR	HMC7799 / HMC7799LP3E	HMC7799 / HMC7799LP3ETR	HMC7836 / HMC7836LP4E	HMC7836 / HMC7836LP4ETR
HMC785 / HMC785LP4E	HMC785 / HMC785LP4ETR	HMC786 / HMC786LP4E	HMC786 / HMC786LP4ETR	HMC7903 / HMC7903LP4E
HMC7903 / HMC7903LP4ETR	HMC792A / HMC792ALP4E	HMC792A / HMC792ALP4ETR	HMC794 / HMC794LP3E	HMC794 / HMC794LP3ETR
HMC799 / HMC799LP3E	HMC799 / HMC799LP3ETR	HMC7992 / HMC7992LP3DE	HMC7992 / HMC7992LP3DETR	HMC802A / HMC802ALP3E
HMC802A / HMC802ALP3ETR	HMC8073 / HMC8073LP3DE	HMC8073 / HMC8073LP3DETR	HMC8207 / HMC8207LP3E	HMC8207 / HMC8207LP3ETR
HMC860 / HMC860LP3E	HMC860 / HMC860LP3ETR	HMC862A / HMC862ALP3E	HMC862A / HMC862ALP3ETR	HMC863G / HMC863LP4E
HMC863G / HMC863LP4ETR	HMC898 / HMC898LP4E	HMC899G / HMC899LP4E	HMC902G / HMC902LP3E	HMC902G / HMC902LP3ETR
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HMC909 / HMC909LP4ETR	HMC914 / HMC914LP4E	HMC914 / HMC914LP4ETR	HMC921 / HMC921LP4E	HMC921 / HMC921LP4ETR
HMC939AG / HMC939ALP4E	HMC939AG / HMC939ALP4ETR	HMC941AG / HMC941ALP4E	HMC941AG / HMC941ALP4ETR	HMC942 / HMC942LP4E
HMC942 / HMC942LP4ETR	HMC948 / HMC948LP3E	HMC948 / HMC948LP3ETR	HMC951A / HMC951ALP4E	HMC951A / HMC951ALP4ETR
HMC951B / HMC951BLP4E	HMC951B / HMC951BLP4ETR	HMC966 / HMC966LP4E	HMC966 / HMC966LP4ETR	HMC967 / HMC967LP4E
HMC967 / HMC967LP4ETR	HMC973A / HMC973ALP3E	HMC973A / HMC973ALP3ETR	HMC977G / HMC977LP4E	HMC977G / HMC977LP4ETR
HMC980G / HMC980LP4E	HMC980G / HMC980LP4ETR	HMC981G / HMC981LP3E	HMC981G / HMC981LP3ETR	HMC984 / HMC984LP4E
HMC984 / HMC984LP4ETR	HMC985AG / HMC985ALP4KE	HMC985AG / HMC985ALP4KETR	HMC988 / HMC988LP3E	HMC988 / HMC988LP3ETR
HMC996 / HMC996LP4E	HMC996 / HMC996LP4ETR			

**Appendix B - Revision History**

<b>Rev</b>	<b>Publish Date</b>	<b>Effectivity Date</b>	<b>Rev Description</b>
Rev. -	19-Apr-2022	22-Jul-2022	Initial Release.

Analog Devices, Inc.

DocId:8824 Parent DocId:None Layout Rev:8



## Analog Devices, Inc. PCN Material Report (Proprietary Information)

Existing Material		Material Added		Material Removed	
GENERICNUMBER	MATERIALNUMBER	GENERICNUMBER	MATERIALNUMBER	GENERICNUMBER	MATERIALNUMBER
		ADH939S	HMC8465LP4E		
		ADRF5040	ADRF5040BCPZ		
		ADRF5040	ADRF5040BCPZ-R7		
		ADRF5130	ADRF5130BCPZ		
		ADRF5130	ADRF5130BCPZ-R7		
		HMC1010	HMC1010LP4E		
		HMC1010	HMC1010LP4ETR		
		HMC1013	HMC1013LP4E		
		HMC1013	HMC1013LP4ETR		
		HMC1013	HMC1013LP4ETR-R1		
		HMC1018A	HMC1018ALP4E		
		HMC1018A	HMC1018ALP4ETR		
		HMC1019A	HMC1019ALP4E		
		HMC1019A	HMC1019ALP4ETR		
		HMC1020	HMC1020LP4E		
		HMC1020	HMC1020LP4ETR		
		HMC1021	HMC1021LP4E		
		HMC1021	HMC1021LP4ETR		
		HMC1040	HMC1040LP3CE		
		HMC1040	HMC1040LP3CETR		
		HMC1044	HMC1044LP3E		
		HMC1044	HMC1044LP3ETR		
		HMC1045	HMC1045LP3E		
		HMC1045	HMC1045LP3ETR		
		HMC1063	HMC1063LP3E		
		HMC1063	HMC1063LP3ETR		
		HMC1065	HMC1065LP4E		
		HMC1065	HMC1065LP4ETR		
		HMC1082	HMC1082LP4E		
		HMC1082	HMC1082LP4ETR		
		HMC1094	HMC1094LP3E		
		HMC1094	HMC1094LP3ETR		
		HMC1095	HMC1095LP4E		
		HMC1095	HMC1095LP4ETR		
		HMC1096	HMC1096LP3E		
		HMC1096	HMC1096LP3ETR		
		HMC1097	HMC1097LP4E		
		HMC1097	HMC1097LP4ETR		
		HMC1118	HMC1118LP3DE		
		HMC1118	HMC1118LP3DETR		
		HMC1119	HMC1119LP4ME		
		HMC1119	HMC1119LP4METR		
		HMC1120	HMC1120LP4E		
		HMC1120	HMC1120LP4ETR		
		HMC1122	HMC1122LP4ME		
		HMC1122	HMC1122LP4METR		
		HMC263G	HMC263LP4E		
		HMC263G	HMC263LP4ETR		
		HMC2991	HMC2991LP4E		
		HMC2991	HMC2991LP4ETR		
		HMC305S	HMC305SLP4E		
		HMC305S	HMC305SLP4ETR		
		HMC322AG	HMC322ALP4E		
		HMC322AG	HMC322ALP4ETR		
		HMC3410	HMC3410LP4E		
		HMC3410	HMC3410LP4ETR		
		HMC3411	HMC3411LP4E		
		HMC3411	HMC3411LP4ETR		
		HMC346A	HMC346ALP3E		
		HMC346A	HMC346ALP3ETR		
		HMC346G	HMC346LP3E		
		HMC346G	HMC346LP3ETR		
		HMC347AG	HMC347ALP3E		
		HMC347AG	HMC347ALP3ETR		
		HMC348	HMC348LP3ETR		
		HMC356	HMC356LP3E		
		HMC356	HMC356LP3ETR		
		HMC368	HMC368LP4E		
		HMC368	HMC368LP4ETR		
		HMC369	HMC369LP3E		
		HMC369	HMC369LP3ETR		
		HMC370	HMC370LP4E		
		HMC370	HMC370LP4ETR		
		HMC3716	HMC3716LP4E		

		HMC3716	HMC3716LP4ETR		
		HMC372	HMC372LP3E		
		HMC372	HMC372LP3ETR		
		HMC373	HMC373LP3E		
		HMC373	HMC373LP3ETR		
		HMC375	HMC375LP3E		
		HMC375	HMC375LP3ETR		
		HMC376	HMC376LP3E		
		HMC376	HMC376LP3ETR		
		HMC382	HMC382LP3E		
		HMC382	HMC382LP3ETR		
		HMC384	HMC384LP4E		
		HMC384	HMC384LP4ETR		
		HMC385	HMC385LP4E		
		HMC385	HMC385LP4ETR		
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		HMC394	HMC394LP4E		
		HMC394	HMC394LP4ETR		
		HMC4069	HMC4069LP4E		
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		HMC408	HMC408LP3ETR		
		HMC409	HMC409LP4E		
		HMC409	HMC409LP4ETR		
		HMC415	HMC415LP3E		
		HMC415	HMC415LP3ETR		
		HMC416	HMC416LP4E		
		HMC416	HMC416LP4ETR		
		HMC4202	HMC4202LP3E		
		HMC4202	HMC4202LP3ETR		
		HMC4203	HMC4203LP3E		
		HMC4203	HMC4203LP3ETR		
		HMC427A	HMC427ALP3E		
		HMC427A	HMC427ALP3ETR		
		HMC429	HMC429LP4E		
		HMC429	HMC429LP4ETR		
		HMC430	HMC430LP4E		
		HMC430	HMC430LP4ETR		
		HMC431	HMC431LP4E		
		HMC431	HMC431LP4ETR		
		HMC441G	HMC441LP3E		
		HMC441G	HMC441LP3ETR		
		HMC443	HMC443LP4E		
		HMC443	HMC443LP4ETR		
		HMC444	HMC444LP4E		
		HMC444	HMC444LP4ETR		
		HMC445	HMC445LP4E		
		HMC445	HMC445LP4ETR		
		HMC451G	HMC451LP3E		
		HMC451G	HMC451LP3ETR		
		HMC455	HMC455LP3E		
		HMC455	HMC455LP3ETR		
		HMC4623	HMC4623LP3E		
		HMC4623	HMC4623LP3ETR		
		HMC466	HMC466LP4E		
		HMC466	HMC466LP4ETR		
		HMC4661A	HMC4661ALP3E		
		HMC4661A	HMC4661ALP3ETR		
		HMC470A	HMC470ALP3E		
		HMC470A	HMC470ALP3ETR		
		HMC472A	HMC472ALP4E		
		HMC472A	HMC472ALP4ETR		
		HMC4865	HMC4865LP3E		
		HMC4865	HMC4865LP3ETR		
		HMC492	HMC492LP3E		
		HMC492	HMC492LP3ETR		
		HMC493	HMC493LP3E		
		HMC493	HMC493LP3ETR		
		HMC494	HMC494LP3E		

		HMC494	HMC494LP3ETR		
		HMC495	HMC495LP3E		
		HMC495	HMC495LP3ETR		
		HMC500	HMC500LP3E		
		HMC500	HMC500LP3ETR		
		HMC5011A	HMC5011ALP4E		
		HMC5011A	HMC5011ALP4ETR		
		HMC5015	HMC5015LP4E		
		HMC5015	HMC5015LP4ETR		
		HMC505	HMC505LP4E		
		HMC505	HMC505LP4ETR		
		HMC506	HMC506LP4E		
		HMC506	HMC506LP4ETR		
		HMC5202	HMC5202LP4E		
		HMC5202	HMC5202LP4ETR		
		HMC532	HMC532LP4E		
		HMC532	HMC532LP4ETR		
		HMC533	HMC533LP4E		
		HMC533	HMC533LP4ETR		
		HMC535	HMC535LP4E		
		HMC535	HMC535LP4ETR		
		HMC539A	HMC539ALP3E		
		HMC539A	HMC539ALP3ETR		
		HMC540S	HMC540SLP3E		
		HMC540S	HMC540SLP3ETR		
		HMC5449	HMC5449LP3E		
		HMC5449	HMC5449LP3ETR		
		HMC547A	HMC547ALP3E		
		HMC547A	HMC547ALP3ETR		
		HMC561G	HMC561LP3E		
		HMC561G	HMC561LP3ETR		
		HMC566G	HMC566LP4E		
		HMC566G	HMC566LP4ETR		
		HMC5688A	HMC5688ALP4E		
		HMC5688A	HMC5688ALP4ETR		
		HMC575	HMC575LP4E		
		HMC575	HMC575LP4ETR		
		HMC5869B	HMC5869BLP3E		
		HMC5869B	HMC5869BLP3ETR		
		HMC593	HMC593LP3ETR		
		HMC596	HMC596LP4E		
		HMC596	HMC596LP4ETR		
		HMC600	HMC600LP4E		
		HMC600	HMC600LP4ETR		
		HMC602	HMC602LP4E		
		HMC602	HMC602LP4ETR		
		HMC611G	HMC611LP4E		
		HMC611G	HMC611LP4ETR		
		HMC615	HMC615LP4ETR		
		HMC6153	HMC6153LP4E		
		HMC6153	HMC6153LP4ETR		
		HMC6154	HMC6154LP4E		
		HMC6154	HMC6154LP4ETR		
		HMC6182	HMC6182LP3CE		
		HMC6182	HMC6182LP3CETR		
		HMC6187G	HMC6187LP4E		
		HMC6187G	HMC6187LP4ETR		
		HMC629A	HMC629ALP4E		
		HMC629A	HMC629ALP4ETR		
		HMC630	HMC630LP3E		
		HMC630	HMC630LP3ETR		
		HMC631	HMC631LP3E		
		HMC631	HMC631LP3ETR		
		HMC641AG	HMC641ALP4E		
		HMC641AG	HMC641ALP4ETR		
		HMC6499	HMC6499LP3E		
		HMC6499	HMC6499LP3ETR		
		HMC662	HMC662LP3E		
		HMC662	HMC662LP3ETR		
		HMC6627A	HMC6627ALP4LE		
		HMC6627A	HMC6627ALP4LETR		
		HMC6628	HMC6628LP4E		
		HMC6628	HMC6628LP4ETR		
		HMC6657	HMC6657LP4E		
		HMC6657	HMC6657LP4ETR		
		HMC666	HMC666LP4E		
		HMC666	HMC666LP4ETR		
		HMC668	HMC668LP3E		

		HMC668	HMC668LP3ETR		
		HMC669	HMC669LP3E		
		HMC669	HMC669LP3ETR		
		HMC674	HMC674LP3E		
		HMC674	HMC674LP3ETR		
		HMC675	HMC675LP3E		
		HMC675	HMC675LP3ETR		
		HMC680	HMC680LP4E		
		HMC6811	HMC6811CLP3E		
		HMC6811	HMC6811CLP3ETR		
		HMC684	HMC684LP4E		
		HMC684	HMC684LP4ETR		
		HMC685	HMC685LP4E		
		HMC685	HMC685LP4ETR		
		HMC686	HMC686LP4E		
		HMC686	HMC686LP4ETR		
		HMC687	HMC687LP4E		
		HMC687	HMC687LP4ETR		
		HMC688	HMC688LP4E		
		HMC688	HMC688LP4ETR		
		HMC689	HMC689LP4E		
		HMC689	HMC689LP4ETR		
		HMC694G	HMC694LP4E		
		HMC694G	HMC694LP4ETR		
		HMC695	HMC695LP4E		
		HMC695	HMC695LP4ETR		
		HMC696	HMC696LP4E		
		HMC696	HMC696LP4ETR		
		HMC697	HMC697LP4E		
		HMC697	HMC697LP4ETR		
		HMC703	HMC703LP4E		
		HMC703	HMC703LP4ETR		
		HMC704	HMC704LP4E		
		HMC704	HMC704LP4ETR		
		HMC705	HMC705LP4E		
		HMC705	HMC705LP4ETR		
		HMC712A	HMC712ALP3CE		
		HMC712A	HMC712ALP3CETR		
		HMC713	HMC713LP3E		
		HMC713	HMC713LP3ETR		
		HMC715	HMC715LP3E		
		HMC715	HMC715LP3ETR		
		HMC7150	HMC7150LP3DE		
		HMC7150	HMC7150LP3DETR		
		HMC716	HMC716LP3E		
		HMC716	HMC716LP3ETR		
		HMC717A	HMC717ALP3E		
		HMC717A	HMC717ALP3ETR		
		HMC720	HMC720LP3E		
		HMC720	HMC720LP3ETR		
		HMC721	HMC721LP3E		
		HMC721	HMC721LP3ETR		
		HMC722	HMC722LP3E		
		HMC722	HMC722LP3ETR		
		HMC723	HMC723LP3E		
		HMC723	HMC723LP3ETR		
		HMC7353	HMC7353LP4E		
		HMC7353	HMC7353LP4ETR		
		HMC736	HMC736LP4E		
		HMC736	HMC736LP4ETR		
		HMC7366	HMC7366LP3E		
		HMC7366	HMC7366LP3ETR		
		HMC738	HMC738LP4E		
		HMC738	HMC738LP4ETR		
		HMC739	HMC739LP4E		
		HMC739	HMC739LP4ETR		
		HMC750	HMC750LP4E		
		HMC750	HMC750LP4ETR		
		HMC7516	HMC7516LP4ME		
		HMC7516	HMC7516LP4METR		
		HMC7517	HMC7517LP4ME		
		HMC7517	HMC7517LP4METR		
		HMC753	HMC753LP4E		
		HMC753	HMC753LP4ETR		
		HMC759	HMC759LP3E		
		HMC759	HMC759LP3ETR		
		HMC7799	HMC7799LP3E		
		HMC7799	HMC7799LP3ETR		



		HMC7836	HMC7836LP4E		
		HMC7836	HMC7836LP4ETR		
		HMC785	HMC785LP4E		
		HMC785	HMC785LP4ETR		
		HMC786	HMC786LP4E		
		HMC786	HMC786LP4ETR		
		HMC7903	HMC7903LP4E		
		HMC7903	HMC7903LP4ETR		
		HMC792A	HMC792ALP4E		
		HMC792A	HMC792ALP4ETR		
		HMC794	HMC794LP3E		
		HMC794	HMC794LP3ETR		
		HMC799	HMC799LP3E		
		HMC799	HMC799LP3ETR		
		HMC7992	HMC7992LP3DE		
		HMC7992	HMC7992LP3DETR		
		HMC802A	HMC802ALP3E		
		HMC802A	HMC802ALP3ETR		
		HMC8073	HMC8073LP3DE		
		HMC8073	HMC8073LP3DETR		
		HMC8207	HMC8207LP3E		
		HMC8207	HMC8207LP3ETR		
		HMC860	HMC860LP3E		
		HMC860	HMC860LP3ETR		
		HMC862A	HMC862ALP3E		
		HMC862A	HMC862ALP3ETR		
		HMC863G	HMC863LP4E		
		HMC863G	HMC863LP4ETR		
		HMC898	HMC898LP4E		
		HMC899G	HMC899LP4E		
		HMC902G	HMC902LP3E		
		HMC902G	HMC902LP3ETR		
		HMC903G	HMC903LP3E		
		HMC903G	HMC903LP3ETR		
		HMC905	HMC905LP3E		
		HMC905	HMC905LP3ETR		
		HMC909	HMC909LP4E		
		HMC909	HMC909LP4ETR		
		HMC914	HMC914LP4E		
		HMC914	HMC914LP4ETR		
		HMC921	HMC921LP4E		
		HMC921	HMC921LP4ETR		
		HMC939AG	HMC939ALP4E		
		HMC939AG	HMC939ALP4ETR		
		HMC941AG	HMC941ALP4E		
		HMC941AG	HMC941ALP4ETR		
		HMC942	HMC942LP4E		
		HMC942	HMC942LP4ETR		
		HMC948	HMC948LP3E		
		HMC948	HMC948LP3ETR		
		HMC951A	HMC951ALP4E		
		HMC951A	HMC951ALP4ETR		
		HMC951B	HMC951BLP4E		
		HMC951B	HMC951BLP4ETR		
		HMC966	HMC966LP4E		
		HMC966	HMC966LP4ETR		
		HMC967	HMC967LP4E		
		HMC967	HMC967LP4ETR		
		HMC973A	HMC973ALP3E		
		HMC973A	HMC973ALP3ETR		
		HMC977G	HMC977LP4E		
		HMC977G	HMC977LP4ETR		
		HMC980G	HMC980LP4E		
		HMC980G	HMC980LP4ETR		
		HMC981G	HMC981LP3E		
		HMC981G	HMC981LP3ETR		
		HMC984	HMC984LP4E		
		HMC984	HMC984LP4ETR		
		HMC985AG	HMC985ALP4KE		
		HMC985AG	HMC985ALP4KETR		
		HMC988	HMC988LP3E		
		HMC988	HMC988LP3ETR		
		HMC996	HMC996LP4E		
		HMC996	HMC996LP4ETR		

# BOM CHANGE SUMMARY

- ▶ From 4 BOM at UG1 to 1 BOM at AEK.
  - 4 different Adhesive material at UG1 will become 1 Adhesive material at AEK

Assembly Site	From - UNISEM Malaysia (UG1)	To - ASE Korea (AEK)
Wire	Au/1.0	Au/1.0
Die Attach	<b>Ablestik 2815A conductive</b> <b>Hysol QMI 519 conductive</b> <b>Sumitomo CRM 1076NS conductive</b> <b>Sumitomo CRM 1076DJ conductive</b>	Hitachi EN 4900GC conductive
Mold Compound	Sumitomo G770HCD	Sumitomo G700LYT
Plating	100Sn	100Sn

# BOM CHANGE SUMMARY

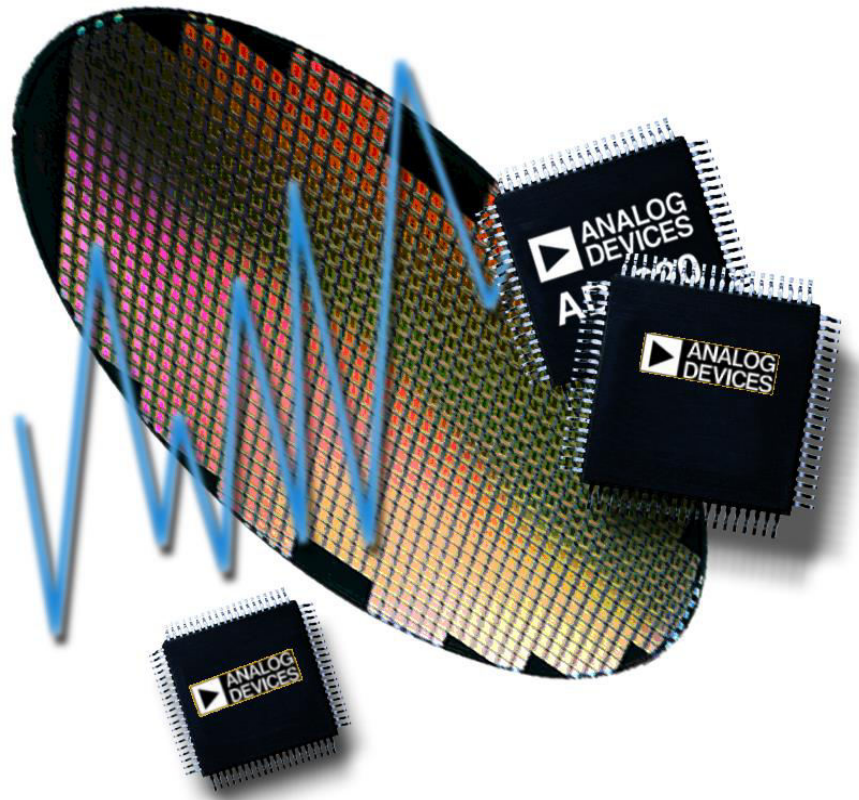
## ► BOM for 0.8 mil wire

Assembly Site	From - UNISEM Malaysia (UG1)	To - ASE Korea (AEK)
Wire	Au/0.8	Au/0.8
Die Attach	Hysol QMI 519 conductive	Hitachi EN 4900GC conductive
Mold Compound	Sumitomo G770HCD	Sumitomo G700LYT
Plating	100Sn	100Sn

# BOM CHANGE SUMMARY

## ► BOM for NiPdAu Terminal Finish Composition

<b>Assembly Site</b>	<b>From - UNISEM Malaysia (UG1)</b>	<b>To - ASE Korea (AEK)</b>
Wire	Au/1.0	Au/1.0
Die Attach	Hysol QMI 519 conductive	Hitachi EN 4900GC conductive
Mold Compound	Sumitomo G770HCD	Sumitomo G700LYT
Plating	Ni_Pd_Au	Ni_Pd_Au



# ***Reliability Report***

**Report Title:** LFCSP at ASE Korea Qualification

**Report Number:** 19670

**Revision:** A

**Date:** 25 March 2022

## Summary

This report summarizes the reliability qualification data for sawn lead frame chip scale package (LFCSP) assembled at ASE Korea (AEK).

The AD9695, AD9512, AD7689, ADF41513, SSM3302, ADF4157, HMC637ALP5E, ADF7250, ADF5902, ADAU1979W, and ADV7380 at ASE Korea (AEK) are used as device vehicles for this qualification.

- The AD9695 is a dual, 14-bit, 1300 MSPS/625 MSPS analog-to-digital converter (ADC). The device has an on-chip buffer and a sample-and-hold circuit designed for low power, small size, and ease of use. Table 1 describes the AD9695 product characteristics.
- The AD9512 provides a multi-output clock distribution function for input signals up to 1.6 GHz. The design emphasizes low jitter and low phase noise in order to maximize data converter clocking performance. Table 2 describes the AD9512 product characteristics.
- The AD7689 are 4-channel/8-channel, 16-bit, charge redistribution successive approximation register (SAR) analog-to-digital converters (ADCs) that operate from a single power supply, VDD. Table 3 describes the AD7689 product characteristics.
- The ADF41513 is an ultralow noise frequency synthesizer that can be used to implement local oscillators (LOs) as high as 26.5 GHz in the upconversion and downconversion sections of wireless receivers and transmitters. Table 4 describes the AD7689 product characteristics.
- The SSM3302 is a fully integrated, high efficiency, stereo Class-D audio amplifier. The application circuit requires minimal external components and operates from a single 7 V to 18 V supply. The device is capable of delivering  $2 \times 10$  W of continuous output power into a  $4 \Omega$  load (or  $2 \times 8$  W into  $8 \Omega$ ) with  $<1\%$  THD + N from a 12 V supply. Table 5 describes the SSM3302 product characteristics.
- The ADF4157 is a 6 GHz fractional-N frequency synthesizer with a 25-bit fixed modulus, allowing subhertz frequency resolution at 6 GHz. It consists of a low noise digital phase frequency detector (PFD), a precision charge pump, and a programmable reference divider. There is a  $\Sigma$ - $\Delta$  based fractional interpolator to allow programmable fractional-N division. Table 6 describes the ADF4157 product characteristics.
- The HMC637ALP5E is a gallium arsenide (GaAs), monolithic microwave integrated circuit (MMIC), pseudomorphic high electron mobility transistor (pHEMT) distributed power amplifier which operates between 0.1 GHz and 6 GHz. The amplifier provides 13 dB of gain, 44 dBm output third-order intercept (IP3), and 29 dBm of output power at 1 dB gain compression while requiring 400 mA from a 12 V supply. Table 7 describes the HMC637ALP5E product characteristics.

- The ADF7250 is a low power integrated radio transceiver that supports Bluetooth low energy and other GFSK signaling modes. Key features include ultralow power operation, and best in class sensitivity. Table 8 describes the ADF7250 product characteristics.
- The ADF5902 is a 24 GHz transmitter (Tx) monolithic microwave integrated circuit (MMIC) with an on-chip, 24 GHz voltage controlled oscillator (VCO). The VCO features a fractional-N frequency synthesizer with waveform generation capability with programmable grid array (PGA) and dual transmitter channels for radar systems. Table 9 describes the ADF5902 product characteristics.
- The ADAU1979 incorporates four high performance, analog-to-digital converters (ADCs) with 4.5 V rms capable ac-coupled inputs. The ADCs use a multibit sigma-delta ( $\Sigma$ - $\Delta$ ) architecture with continuous time front end for low EMI. Table 10 describes the ADAU1979W product characteristics.
- The ADV7380 is a point-to-point Camera Link chip developed to enable the transmission of high definition (HD) video from a remote camera module to an Electronic Camera Unit (ECU) or a Head Unit in an automotive vehicle. Table 11 describes the ADV7380 product characteristics.

**Table 1: AD9695 Product Characteristics**
**Die/Fab**

Die Id	TMIB72 A3 /B
Die Size (mm)	3.91 x 3.91
Wafer Fabrication Site	TSMC Fab15
Wafer Fabrication Process	28nm CMOS
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	Yes
Maximum Power Dissipation (W)	3.000

**Package/Assembly**

Package	64-LFCSP
Body Size (mm)	9.00 x 9.00 x 0.75
Assembly Location	ASE-AEK
Molding Compound	Sumitomo G700LYT
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (C)	260



**Table 2: AD9512 Product Characteristics**
**Die/Fab**

Die Id	TML838 / C
Die Size (mm)	3.14 x 3.21
Wafer Fabrication Site	TSMC Fab-3C
Wafer Fabrication Process	0.35 $\mu$ m CMOS
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	No
Maximum Power Dissipation (W)	0.70

**Package/Assembly**

Package	48-LFCSP
Body Size (mm)	7.00 x 7.00 x 0.75
Assembly Location	ASE (AEK)
Molding Compound	Sumitomo G700LYT
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	NiPdAu
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (C)	260

**Table 3: AD7689 Product Characteristics**
**Die/Fab**

Die Id	TMX307/E
Die Size (mm)	2.43 x 2.43
Wafer Fabrication Site	TSMC Fab-9
Wafer Fabrication Process	0.5 $\mu$ m CMOS
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	No
Maximum Power Dissipation (W)	0.013

**Package/Assembly**

Package	20-LFCSP
Body Size (mm)	4.00 x 4.00 x 0.85
Assembly Location	ASE-AEK
Molding Compound	Sumitomo G700
Wire Type	4N Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 8290
Lead Frame Material	Copper Alloy 194
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature ( $^{\circ}$ C)	260

**Table 4: ADF41513 Product Characteristics**
**Die/Fab**

Die Id	TMJK97/A
Die Size (mm)	1.63 x 1.63
Wafer Fabrication Site	TSMC Fab 4
Wafer Fabrication Process	0.18 $\mu$ m BiCMOS
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	No
Maximum Power Dissipation (W)	0.300

**Package/Assembly**

Package	24-LFCSP
Body Size (mm)	4.00 x 4.00 x 0.75
Assembly Location	ASE-AEK
Molding Compound	Sumitomo G700
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (C)	260

**Table 5: SSM3302 Product Characteristics**
**Die/Fab**

Die Id	TMX307 F
Die Size (mm)	3.23 x 3.23
Wafer Fabrication Site	E_TSMC1008
Wafer Fabrication Process	0.35 $\mu$ m DMOS
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	Yes
Maximum Power Dissipation (W)	3.0

**Package/Assembly**

Package	40-LFCSP
Body Size (mm)	6X6X0.75
Assembly Location	ASE (AEK)
Molding Compound	Sumitomo G700
Wire Type	4N Gold
Wire Diameter (mils)	1.3
Die Attach	Hitachi EN 4900GC conductive
Lead Frame Material	Copper
Lead Finish	100Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (C)	260

**Table 6: ADF4157 Product Characteristics**
**Die/Fab**

Die Id	ADF4156
Die Size (mm)	1.39 x 1.47
Wafer Fabrication Site	TSMC 3C 8"
Wafer Fabrication Process	0.35 $\mu$ m BiCMOS DPTM 5.0/3.3V
Approximate Transistor Count	32 thousand
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	No
Maximum Power Dissipation (W)	0.050

**Package/Assembly**

Package	20-LFCSP
Body Size (mm)	4.00 x 4.00 x 0.75
Operating Temperature Range	-40°C to +85°C
Assembly Location	ASE-AEK
Molding Compound	Sumitomo G700
Wire Type	Gold MKE-R
Wire Diameter (mils)	0.80
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

## Table 7: HMC637ALP5E Product Characteristics

### Die/Fab

Die Id	E5901
Die Size (mm)	2.78 x 2.98
Wafer Fabrication Site	E_WINS0106
Wafer Fabrication Process	0.15 $\mu$ m GaAs pHEMT
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	Au

### Package/Assembly

Package	32-LFCSP
Body Size (mm)	5.00 x 5.00 x 0.75
Assembly Location	ASE (AEK)
Molding Compound	Sumitomo G700LYT
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	NiPdAu
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature ( $^{\circ}$ C)	260

**Table 8: ADF7250 Product Characteristics**
**Die/Fab**

Die Id	TMJC62B
Die Size (mm)	3.30 x 2.72
Wafer Fabrication Site	TSMC 14
Wafer Fabrication Process	90nm CMOS
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

**Package/Assembly**

Package	40-LFCSP
Body Size (mm)	6.00 x 6.00 x 0.75
Assembly Location	ASE (AEK)
Molding Compound	Sumitomo G700LYT
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

**Table 9: ADF5902 Product Characteristics**
**Die/Fab**

Die Id	TMFW14 / B-T1
Die Size (mm)	1.97 x 2.63
Wafer Fabrication Site	TSMC Fab 4
Wafer Fabrication Process	0.18 $\mu$ m BiCMOS
Approximate Transistor Count	150,000
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

**Package/Assembly**

Package	32-LFCSP
Body Size (mm)	5.00 x 5.00 x 0.75
Operating Temperature Range	-40°C < TA < 105°C
Assembly Location	ASE (AEK)
Molding Compound	Sumitomo G700
Die Attach Material	Hitachi EN-4900GC
Wire Type	MKE R 2N Gold
Wire Diameter (mills)	1.00
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260



**Table 10: ADAU1979W Product Characteristics**
**Die/Fab**

Die Id	TMDS48 / B0002B
Die Size (mm)	3.46 x 2.63
Wafer Fabrication Site	TSMC Fab-8B
Wafer Fabrication Process	0.18 $\mu$ m CMOS
Approximate Transistor Count	368,000
Passivation Layer	doped-oxide/OxyNitride
Bond Pad Metal Composition	AlCu
Polyimide	Yes
Maximum Power Dissipation (W)	0.060

**Package/Assembly**

Package	40-LFCSP
Body Size (mm)	6.00 x 6.00 x 0.75
Operating Temperature Range	-40°C to +105°C
Assembly Location	ASE-AEK
Molding Compound	Sumitomo G700
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper Alloy 194
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

**Table 11: ADV7380 Product Characteristics**
**Die/Fab**

Die Id	TMJW69 / A
Die Size (mm)	4.82 x 4.00
Wafer Fabrication Site	TSMC Fab-6
Wafer Fabrication Process	0.16 $\mu$ m CMOS
Approximate Transistor Count	6.00 million
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide	Yes
Maximum Power Dissipation (W)	0.800

**Package/Assembly**

Package	48-LFCSP
Body Size (mm)	7.00 x 7.00 x 0.75
Operating Temperature Range	-40°C to +105°C
Assembly Location	ASE-AEK
Molding Compound	Sumitomo G700LYT
Wire Type	MKE R 2N Gold
Wire Diameter (mils)	0.80
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

## Description / Results of Tests Performed

Table 12 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 and 2. 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 12: LFCSP at ASE (AEK) Package Qualification Test Results**

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) <sup>1</sup>	JESD22-A102	121C 100%RH 33.3 psia, 96 Hours	ADF4157	Q8667.PC4	77	0
				Q8667.PC5	77	0
				Q8667.PC6	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD7689	Q13940.HS1	77	0
			AD9512	Q12863.HS1	77	0
			ADAU1979W	Q12963.HS1	77	0
			ADF41513	Q12163.18	45	0
			ADF4157	Q8667.HS2	32	0
			ADV7380	Q13235.HS1	32	0
Solder Heat Resistance (SHR) <sup>1</sup>	J-STD-020	MSL-3	AD7689	Q13940.SH1	11	0
				Q13940.SH2	11	0
				Q13940.SH3	11	0
			AD9512	Q12863.SH1	11	0
				Q12863.SH2	11	0
				Q12863.SH3	11	0
			AD9695	Q11437.SH1	11	0
				Q11437.SH2	11	0
				Q11437.SH3	11	0
			ADF41513	Q12163.10	11	0
				Q12163.17	11	0
				Q12163.6	11	0
			ADF4157	Q8667.SH4	11	0
				Q8667.SH5	11	0
				Q8667.SH6	11	0
SSM3302	Q12461.SH1	11	0			
	Q12461.SH2	11	0			
	Q12461.SH3	11	0			
Temperature Cycling (TC) <sup>1</sup>	JESD22-A104	65°C/+150°C, 1,000 Cycles	AD9512	Q12863.TC1	77	0
				Q12863.TC2	77	0
				Q12863.TC3	77	0
			HMC637ALP5E	Q16109.TC1	77	0
				Q16109.TC2	77	0
				Q16109.TC3	77	0
		SSM3302	Q12461.TC1	77	0	
			Q12461.TC2	77	0	
			Q12461.TC3	77	0	
		AD7689	Q13940.TC1	77	0	
Q13940.TC2	77		0			

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
		- 65°C/+150°C, 500 Cycles	ADF41513	Q13940.TC3	77	0
				Q12163.12	77	0
				Q12163.5	77	0
				Q12163.7	77	0
			ADF4157	Q8667.TC4	77	0
				Q8667.TC5	77	0
Q8667.TC6	77	0				
Unbiased HAST (UHST) 1	JESD22-A118	130C 85%RH 33.3 psia, 96 Hours	AD7689	Q13940.UH1	77	0
				Q13940.UH2	77	0
				Q13940.UH3	77	0
			ADF41513	Q12163.13	77	0
				Q12163.15	77	0
				Q12163.9	77	0
			ADF5902	Q13626.UH2	77	0
				Q13626.UH3	77	0
				Q13626.UH4	77	0
			ADF7250	Q13825.11	77	0
				Q13825.6	77	0
				Q13825.9	77	0
			SSM3302	Q12461.UH1	77	0
				Q12461.UH2	77	0
				Q12461.UH3	77	0

<sup>1</sup> 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.

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 13. All parts were electrically tested at room and hot temperatures pre- and post-stress. 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 13: FICDM ESD Results**

Device	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
ADAU1979W	40-LFCSP	JS-002	1Ω, Cpkg	±1250V	NA	C3
ADF41513	24-LFCSP	JS-002	1Ω, Cpkg	±1250V	NA	C3
ADF7250	40-LFCSP	JS-002	1Ω, Cpkg	±500V	±1000V	C2a
AD9695	64-LFCSP	JS-002	1Ω, Cpkg	±500V	±750V	III
ADF4157	20-LFCSP	JS-002	1Ω, Cpkg	±1500V	NA	IV
AD9512	48-LFCSP	JS-002	1Ω, Cpkg	±1250V	NA	C3
AD7689	20-LFCSP	JS-002	1Ω, Cpkg	±1250V	NA	C3
ADV7380	48-LFCSP	JS-002	1Ω, Cpkg	±1250V	NA	C3

## Approvals

Reliability Engineer: Pernell Mosuela

## Additional Information

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