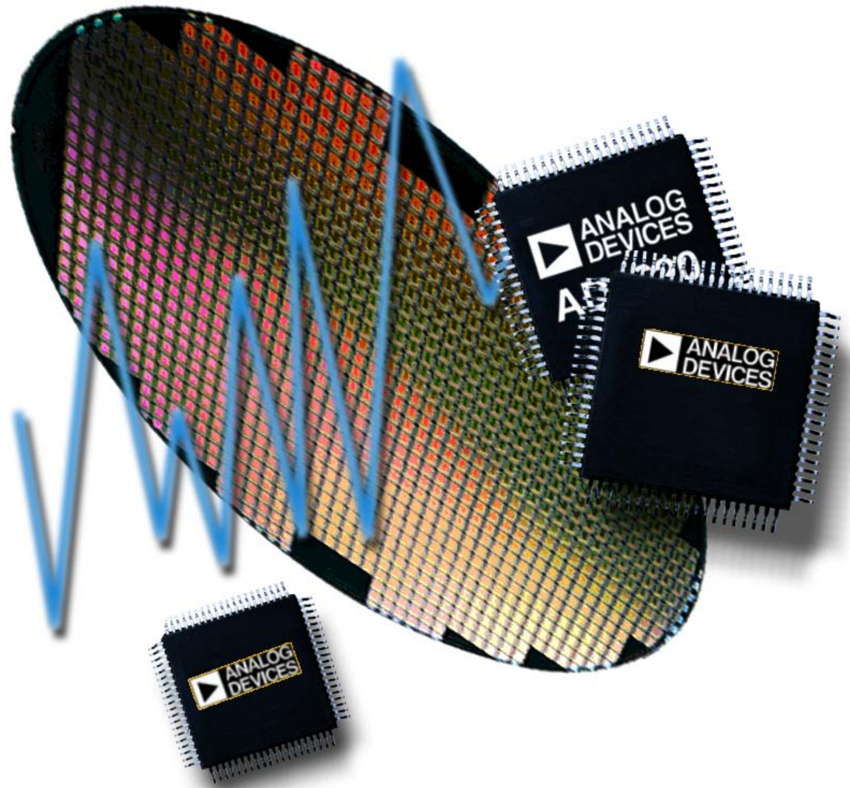
ANALOG DEVICES



Reliability Report

Report Title: Process Transfer from the 6inch to 8inch 3um SPSM 5V BiCMOS I Process at ADLK.

Report Number: 7104

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Analog Devices Reliability . Gateway Business Park, Special Economic Park, Javelera, Gen. Trias. Cavite, Philippines
Tel: 632.867.7030 Fax: 632.867.7200 www.analog.com

Summary

This report covers the qualification of the Process Transfer of the AD7884, ADM3485E, and ADM8660 from the 6” to 8” 3um SPSM 5V BiCMOS I Process.

This report all covers the qualification of the transfer of the ADM660, AD2S90, ADM3491 and AD79022 through substitute data.

Product Description

The AD7884 is a 16-bit monolithic analog-to-digital converter with a 16 bit parallel reading structure.

The ADM3485E is a low power differential line transceiver designed to operate using a single +3.3V power supply. Low power consumption makes it ideal for power sensitive applications. It is suitable for communications on multipoint bus transmission lines. Internal protection against electrostatic discharge (ESD) and electrical fast transient (EFT) allows operation in electrically harsh environments.

The ADM660 and ADM8660 are charge-pump voltage converters that can be used to either invert the input supply voltage giving VOUT = -Vin or double it (ADM660 only) giving VOUT = 2 x VIN. Input voltages ranging from +1.5V to +7V can be inverted into a negative –1.5V to – 7V output supply. This inverting scheme is ideal for generating a negative rail in single power supply systems.

AD7884 Product Characteristics

Die/Fab	
Maximum Power Dissipation (W)	0.325
Device / Die ID	L38B
Die Size (mm)	7.70 x 5.80
Wafer Fabrication Site	ADI-Limerick 8”
Wafer Fabrication Process	3.00M1P1M50.00
Transistor Count	5 thousand
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide Layer	No
Package/Assembly	
Available Package(s)	44-PLCC
Body Size (mm)	16.51 x 16.51 x 3.69
Assembly Location	Amkor-P
Die Attach	Sumitomo CRM1076E
Lead Frame Material	Copper
Bond Wire Type	Gold
Bond Wire Dia. (mils)	1.20
Mold Compound	Sumitomo G600C
Lead Finish	Tin Plate
Moisture Sensitivity Level	3
Maximum Peak Reflow (°C)	260C

ADM8660 Product Characteristics

Die/Fab

Maximum Power Dissipation (W)	.5
Device / Die ID	E60B
Die Size (mm)	1.81 x 2.68
Wafer Fabrication Site	ADI-Limerick 8”
Wafer Fabrication Process	3.00M1P1M50.00
Passivation Layer	doped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide Layer	No

Package/Assembly

Available Package(s)	8-PDIP
Body Size (mm)	6.55 x 9.91 x 3.30
Assembly Location	ADGT
Die Attach	Ablestik 84-1LMIS R4
Lead Frame Material	Copper Olin 194
Bond Wire Type	Gold
Bond Wire Dia. (mils)	1.20
Mold Compound	Sumitomo 6300H
Lead Finish	Tin / Lead Solder Plate

ADM3485E Product Characteristics

Die/Fab

Maximum Power Dissipation (W)	0.060
Device / Die ID	E891C
Die Size (mm)	2.10 x 3.20
Wafer Fabrication Site	ADI-Limerick 8"
Wafer Fabrication Process	3.00M1P1M50.00
Transistor Count	350
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu
Polyimide Layer	No

Package/Assembly

Available Package(s)	14-PDIP
Body Size (mm)	6.60 x 19.56 x 3.76
Assembly Location	ADGT
Die Attach	Ablestik 84-1LMIS R4
Lead Frame Material	Copper Olin 194
Bond Wire Type	Gold
Bond Wire Dia. (mils)	1.20
Mold Compound	Sumitomo 6300H
Lead Finish	Tin / Lead Solder Plate

Process Qualification Test Results

The below table provides a description of the process qualification tests conducted and the associated test results on the AD7884 as described in the product characteristics table.

Test Name	Conditions	Specification	Device	Fab Process	Lot #	Sample Size	Qty. Rejects
ELF	125C 48hrs	MIL-STD-883, Method 1015	AD7884	3.00M1P1 M50.00, ADLK 8"	AC28285.1	100	0
HTOL [1]	125C<Tj<135C, Biased 1000hrs	JESD22-A108	AD7884	3.00M1P1 M50.00, ADLK 8"	AC17553.1	77	0
HTOL	125C<Tj<135C, Biased 1000hrs	JESD22-A108	AD7884	3.00M1P1 M50.00, ADLK 8"	AC17807.1	77	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 @ 125ºC, Soak: Unbiased Soak: 192 hrs @ 30ºC, 60%RH, Reflow: 3 passes through an oven with a peak temperature of 260+0/-5ºC.

Samples of the many devices manufactured with these 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 Charge Device Model (FICDM) ESD testing are summarized in the ESD Results Table. ADI measures ESD results using stringent test procedures based on the specifications listed in the table below. 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 at http://www.analog.com/world/quality/manuals/.

Part Name	ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
ADM3485E	FICDM	14-PDIP	ESD Assoc. STM5.3.1-1999	1 Ohm, Cpkg	1500V	NA	C6
ADM8660	FICDM	8-PDIP	ESD Assoc. STM5.3.1-1999	1 Ohm, Cpkg	1500V	NA	C6
AD7884	FICDM	44-PLCC	ESD Assoc. STM5.3.1-1999	1 Ohm, Cpkg	250V	500V	C3
AD7884	HBM	44-PLCC	ESD Assoc. STM5.1-2001	1.5 kOhm, 100pF	1000V	1500V	1C
ADM8660	HBM	8-PDIP	ESD Assoc. STM5.1-2001	1.5 kOhm, 100pF	4000V	4500V	3A
ADM3485E	HBM	14-PDIP	ESD Assoc. STM5.1-2001	1.5 kOhm, 100pF	5000V	NA	3A

Latch-Up Test Results

Six samples of the AD7884 passed Latch-up testing at Ta=25ºC per JEDEC Standard JESD78, Class I.

Approvals

Reliability Engineer: Fergus Downey
This report has been approved by electronic means (3.6).

Additional Information

Data sheets and other additional information are available on Analog Devices' web site at the addresses shown below.

Home Page:	http://www.analog.com
Sales Info:	http://www.analog.com/world/corp_fin/sales_directory/distrib.html
Reliability Data:	http://www.analog.com/world/quality/read/1stpage.html
Reliability Handbook:	http://www.analog.com/corporate/quality/manuals/