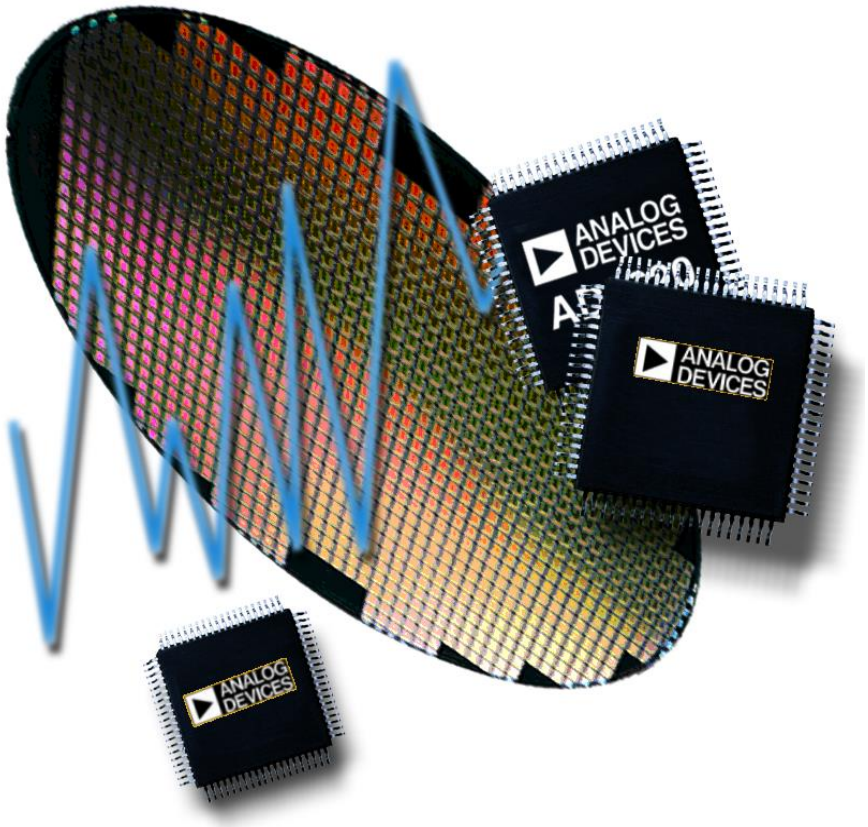

Reliability Report

Report Title: L56 transfer to EP230 at ADLK

Report Number: 10524

Revision: K

Date: 04 March 2019

Summary

This report documents the successful completion of the reliability qualification requirements for the release of the ADM487E, ADM213E, ADM207E, ADM1486, ADM485, ADM3202, ADM202E, ADM3485, ADM3490 and ADM3491 products on the 0.6um process at ADLK.

The ADM487E, ADM483E, ADM1487E and ADM485E are 5V low power data transceivers with ±15 kV ESD protection suitable for halfduplex communication on multipoint bus transmission lines.

The ADM213E is one in a family of robust RS-232 and V.28 interface devices which operates from a single +5 V power supply. The other generics of this family are ADM213 and ADM560.

The ADM207E is one of a family of robust RS-232 and V.28 interface devices which operate from a single +5V power supply. The other generics of this family are ADM207, ADM208, ADM208E, ADM237L, ADM211, ADM211E and ADM561.

The ADM1486 is a differential line transceiver suitable for high speed bidirectional data communication on multipoint bus transmission lines. It is designed for balanced data transmission, complies with EIA Standards RS-485 and RS-422 and is recommended for PROFIBUS applications.

The ADM485 and ADM1485 are differential line transceiver suitable for high speed bidirectional data communication on multipoint bus transmission lines. It is designed for balanced data transmission and complies with both EIA Standards RS-485 and RS-422.

This qualification also covers ADM2485 and ADM2486 as these devices use the ADM485 die. The ADM2485 and ADM2486 are isolated RS-485 transceivers. It is designed with balanced transmission lines and complies with ANSI/TIA/EIA RS485-A-98 and ISO 8482:1987 (E).

The ADM3202 and AMD3232E are high speed, 2-channel RS-232 interface devices that operate from a single 3.3V power supply. It conforms to the EIA-232E and CCITT V.28 specifications and operates at data rates up to 460 kbps.

The ADM202E and ADM1181A are high speed, 2- channel RS-232/V.28 interface devices that operate from a single 5V power supply. It conforms to the EIA-232E and CCITT V.28 specifications and operates at data rates up to 230 kbps.

The ADM232A, ADM232L and ADM202 are high-speed RS-232 line drivers/receivers offering transmission rates up to 200 kbps and operates from a single 5V power supply.

The ADM3483, ADM3485, ADM3488, ADM3490, ADM3491 and ADM3493 are 3.3 V, Low Power, RS-485/RS-422 Transceivers. The ADM3485 is a half-duplex while the ADM3491 is a full-duplex

variant. Low power consumption coupled with a shutdown mode make it ideal for power sensitive applications.

The ADM3307E is a high speed, five - driver, three - receiver EIA-232 interface device that operates from a single 2.7V to 3.6V power supply. The on-board charge pump consisting of a voltage tripler and inverter generates positive and negative supplies, eliminating the need for external dual power supplies. The product is suitable for operation in harsh electrical environments and contains ESD protection up to +/-15kV on all I/O lines, both RS232 and CMOS, to comply with IEC 1000-4-2 requirements.

The ADM3310E, ADM3311E, ADM3312E and ADM3315E are high speed, driver / receiver EIA-232 interface devices that operate from a single 2.7V to 3.6V power supply. The ADM3312E and ADM3315E has three drivers and three receivers. The ADM3310E and ADM3311E has three drivers and five receivers. The on-board charge pump consisting of a voltage tripler and inverter generates positive and negative supplies, eliminating the need for external dual power supplies. These products are suitable for operation in harsh electrical environments and contain ESD protection up to +/-15kV on their RS232 lines, to comply with IEC 1000-4-2 requirements.

The ADM3485E is a 3.3V, low power data transceiver with ±15 kV ESD protection, suitable for half-duplex communication on multipoint bus transmission and complies with TIA/EIA standards RS485 and RS-422.

Table 1: ADM487E and ADM483E Product Characteristics

Die/Fab

Die Id	C36C
Die Size (mm)	1.57 x 1.58
Wafer Fabrication Site	ADI - Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	192
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	JCET
Molding Compound	Sumitomo EME-G600F-B
Wire Type	Gold Heraeus HA6
Wire Diameter (mils)	1.00
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 2: ADM1487E and ADM485E Product Characteristics

Die/Fab

Die Id	C3601C
Die Size (mm)	1.57 x 1.58
Wafer Fabrication Site	ADI - Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	192
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	JCET
Molding Compound	Sumitomo EME-G600F-B
Wire Type	Gold Heraeus HA6
Wire Diameter (mils)	1.00
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 3: ADM213E Product Characteristics

Die/Fab

Die Id	E802H
Die Size (mm)	2.00 x 2.32
Wafer Fabrication Site	ADI - Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	163
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	28-SOIC_W
Body Size (mm)	7.50 x 17.90 x 2.50
Assembly Location	Amkor-P
Molding Compound	Sumitomo G600
Wire Type	2N Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 84-1LMIS R4
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 4: ADM207E Product Characteristics

Die/Fab

Die Id	E801H
Die Size (mm)	2.00 x 2.32
Wafer Fabrication Site	ADI - Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	163
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	24-SOIC_W
Body Size (mm)	7.50 x 15.40 x 2.50
Assembly Location	Amkor-P
Molding Compound	Sumitomo G600
Wire Type	2N Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 84-1LMIS R4
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 5: ADM485 & ADM1485 Product Characteristics

Die/Fab

Die Id	P15D
Die Size (mm)	1.38 x 1.08
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	184
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	JCET
Molding Compound	Sumitomo EME-G600F-B
Wire Type	Gold Heraeus HA6
Wire Diameter (mils)	1.20
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 6: ADM1486 Product Characteristics

Die/Fab

Die Id	P151D
Die Size (mm)	1.38 x 1.08
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	184
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	JCET
Molding Compound	Sumitomo EME-G600F-B
Wire Type	Gold Heraeus HA6
Wire Diameter (mils)	1.20
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 7: ADM2485 Product Characteristics

Die/Fab

Die Id	ADM2485C	ADM2485TC	P152D	ADM2485
Die Size (mm)	0.70 x 1.75	1.13 x 2.83	1.38 x 1.08	1.08 x 2.00
Wafer Fabrication Site	TSMC Fab-9	ADI-Limerick	ADI-Limerick	ADI-Limerick
Wafer Fabrication Process	0.6µm CMOS	0.6µm CMOS	0.6µm BiCMOS	0.6µm DMOS
Passivation Layer	undoped-oxide/SiN	undoped-oxide/SiN	undoped-oxide/SiN	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu	AlCu	AlCu	AlCu
Polyimide Layer	None	Polyimide	None	None

Package/Assembly

Package	16-SOIC_W
Body Size (mm)	10.00 x 7.60 x 2.35
Assembly Location	Carsem-M
Molding Compound	Sumitomo 6600H
Wire Type	Gold Tanaka M3
Wire Diameter (mils)	1.30
Die Attach	Ablestik 84 -1LMIS R4
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

Table 8: ADM2486 Product Characteristics

Die/Fab

Die Id	P152D	ADM2486IC	ADM485TC
Die Size (mm)	1.38 x 1.08	0.70 x 1.58	1.13 x 2.58
Wafer Fabrication Site	ADI-Limerick	TSMC Fab-9	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS	0.6µm CMOS	0.6µm CMOS
Passivation Layer	undoped-oxide/SiN	undoped-oxide/SiN	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu	AlCu	AlCu
Polyimide Layer	None	None	Polyimide

Package/Assembly

Package	16-SOIC_W
Body Size (mm)	10.00 x 7.60 x 2.35
Assembly Location	Carsem-M
Molding Compound	Sumitomo 6600H
Wire Type	Gold Tanaka M3
Wire Diameter (mils)	1.30
Die Attach	Ablestik 84 -1LMIS R4
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	3
Maximum Peak Reflow Temperature (°C)	260

Table 9: ADM3202 and ADM3232E Product Characteristics

Die/Fab

Die Id	E871G
Die Size (mm)	1.36 x 1.67
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	184
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	16-SOIC_N
Body Size (mm)	5.00 x 4.40 x 1.50
Assembly Location	AMKOR-P
Molding Compound	Sumitomo G700K
Wire Type	Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 10: ADM202E, ADM1181A, ADM232L, ADM232A and ADM202 Product Characteristics

Die/Fab

Die Id	E87G
Die Size (mm)	1.36 x 1.67
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	184
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	16-SOIC_N
Body Size (mm)	10.00 x 4.00 x 1.50
Assembly Location	AMKOR P
Molding Compound	Sumitomo G600
Wire Type	Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 84-1LMIS R4
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 11: ADM3483 and ADM3485 Product Characteristics

Die/Fab

Die Id	C801C
Die Size (mm)	1.40 x 2.08
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	620
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	ASE Taiwan
Molding Compound	Hitachi CEL9240HF10AK
Wire Type	Gold
Wire Diameter (mils)	1.30
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 12: ADM3488 and ADM3490 Product Characteristics

Die/Fab

Die Id	C80C
Die Size (mm)	1.40 x 2.08
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	620
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	ASE Taiwan
Molding Compound	Hitachi CEL9240HF10AK
Wire Type	Gold
Wire Diameter (mils)	1.30
Die Attach	Hitachi EN-4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 13: ADM3491 Product Characteristics

Die/Fab

Die Id	C802C
Die Size (mm)	1.40 x 2.08
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	620
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	14-SOIC_N
Body Size (mm)	8.75 x 4.00 x 1.50
Assembly Location	ASE-Taiwan
Molding Compound	Hitachi CEL 9240HF10AK
Wire Type	Gold
Wire Diameter (mils)	1.30
Die Attach	Hitachi EN4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 14: ADM3493 Product Characteristics

Die/Fab

Die Id	C803C
Die Size (mm)	1.40 x 2.08
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	620
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8-SOIC_N
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	ASE-Taiwan
Molding Compound	Hitachi CEL 9240HF10AK
Wire Type	Gold
Wire Diameter (mils)	1.30
Die Attach	Hitachi EN4900GC
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 15: ADM3307E Product Characteristics

Die/Fab

Die Id	E77C
Die Size (mm)	2.60 x 2.69
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	415
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	28-TSSOP
Body Size (mm)	9.70 x 4.40 x 1.05
Assembly Location	AMKOR - P
Molding Compound	Sumitomo G700K
Wire Type	Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 16: ADM3485E Product Characteristics

Die/Fab

Die Id	Z24B_r0p1
Die Size (mm)	1.66 x 2.275
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	644
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	8 - SOICN
Body Size (mm)	5.00 x 4.00 x 1.50
Assembly Location	JCET
Molding Compound	Sumitomo G600FB
Wire Type	Gold
Wire Diameter (mils)	1.00
Die Attach	Ablestik 8290
Lead Frame Material	Copper
Lead Finish	Matte Sn
Moisture Sensitivity Level	1
Maximum Peak Reflow Temperature (°C)	260

Table 17: ADM3311E Product Characteristics

Die/Fab

Die Id	E83F
Die Size (mm)	2.415 x 2.425
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	415
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	32 - LFCSP	28-TSSOP	28-SSOP
Body Size (mm)	5.00 x 5.00 x 0.75	4.00 x 4.00 x 1.00	10.20 x 5.30 x 1.75
Assembly Location	AEK	Amkor1	Amkor1
Molding Compound	Sumitomo G700	Sumitomo G700K	Sumitomo G600
Wire Type	Gold	Gold	Gold
Wire Diameter (mils)	0.80	1.0	1.0
Die Attach	Hitachi EN 4900 GC	Ablestik 8290	Ablestik 84-1LMIS R4
Lead Frame Material	Copper	Copper	Copper
Lead Finish	Matte Sn	Matte Sn	Matte Sn
Moisture Sensitivity Level	3	1	1
Maximum Peak Reflow Temperature (°C)	260	260	260

Table 18: ADM3310E Product Characteristics

Die/Fab

Die Id	E83F
Die Size (mm)	2.415 x 2.425
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	415
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	32 - LFCSP	28-TSSOP
Body Size (mm)	5.00 x 5.00 x 0.75	4.00 x 4.00 x 1.00
Assembly Location	AEK	Amkor1
Molding Compound	Sumitomo G700	Sumitomo G700K
Wire Type	Gold	Gold
Wire Diameter (mils)	0.80	1.0
Die Attach	Hitachi EN 4900 GC	Ablestik 8290
Lead Frame Material	Copper	Copper
Lead Finish	Matte Sn	Matte Sn
Moisture Sensitivity Level	3	1
Maximum Peak Reflow Temperature (°C)	260	260

Table 19: ADM3315E Product Characteristics

Die/Fab

Die Id	E83F
Die Size (mm)	2.415 x 2.425
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	415
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	32 - LFCSP	24-TSSOP
Body Size (mm)	5.00 x 5.00 x 0.75	4.00 x 4.00 x 1.00
Assembly Location	AET	Amkor1
Molding Compound	Sumitomo G700	Hitachi CEL 9240HF10AK
Wire Type	Gold	Gold
Wire Diameter (mils)	0.80	1.0
Die Attach	Hitachi EN 4900 GC	Hitachi EN 4900GC
Lead Frame Material	Copper	Copper
Lead Finish	Matte Sn	Matte Sn
Moisture Sensitivity Level	3	1
Maximum Peak Reflow Temperature (°C)	260	260

Table 20: ADM3312E Product Characteristics

Die/Fab

Die Id	E83F
Die Size (mm)	2.415 x 2.425
Wafer Fabrication Site	ADI-Limerick
Wafer Fabrication Process	0.6µm BiCMOS
Approximate Transistor Count	415
Passivation Layer	undoped-oxide/SiN
Bond Pad Metal Composition	AlCu

Package/Assembly

Package	32 - LFCSP	24-TSSOP
Body Size (mm)	5.00 x 5.00 x 0.75	4.00 x 4.00 x 1.00
Assembly Location	AEK	Amkor1
Molding Compound	Sumitomo G700	Hitachi CEL 9240HF10AK
Wire Type	Gold	Gold
Wire Diameter (mils)	0.80	1.0
Die Attach	Hitachi EN 4900 GC	Hitachi EN 4900GC
Lead Frame Material	Copper	Copper
Lead Finish	Matte Sn	Matte Sn
Moisture Sensitivity Level	3	1
Maximum Peak Reflow Temperature (°C)	260	260

Description / Results of Tests Performed

Tables 21 through 29 provide a description of the qualification tests conducted and the associated test results for products manufactured on the same technologies as described in Tables 1 through 20. 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 21: SOIC_N at JCET Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD712	Q9499.PC1	77	0
				Q9499.PC2	77	0
				Q9808.PC1	77	0
			AD8307	Q8704.PC1	77	0
				Q8704.PC2	77	0
				Q8704.PC3	77	0
			ADM3485E	Q10280.PC1	77	0
				Q10280.PC2	77	0
				Q10280.PC3	77	0
				Q8971.PC1	77	0
			ADM483	Q10204.136	45	0
				Q9985.112	45	0
			ADM485	Q10097.104	45	0
				Q9185.175	45	0
				Q9321.228	45	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD712	Q9499.HS1	77	0
				Q9499.HS2	77	0
				Q9808.HS1	77	0
			AD8307	Q8704.HS1	77	0
			ADM3485E	Q10280.HS1	77	0
				Q10280.HS2	77	0
				Q10280.HS3	77	0
			ADM487E	Q10524.HS1	45	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD712	Q9499.HA1	77	0
				Q9499.HA2	77	0
				Q9808.HA1	77	0
			AD8307	Q8704.HA3	77	0
			ADM483	Q10204.137	45	0
				Q9985.113	45	0
			ADM485	Q10097.105	45	0
				Q9185.176	45	0
				Q9321.229	45	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	AD712	Q9499.SH1	29	0
				Q9499.SH2	30	0
				Q9808.SH1	30	0
			AD8307	Q8704.SH1	11	0
			ADM3485E	Q8971.SH1	30	0
			ADM483	Q9985.115	11	0
			ADM485	Q10097.107	11	0
				Q9185.178	11	0
				Q9321.231	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD712	Q9499.TC1	77	0
				Q9499.TC2	77	0
				Q9808.TC1	77	0
			AD8307	Q8704.TC1	77	0
				Q8704.TC2	77	0
				Q8704.TC3	77	0
			ADM3485E	Q8971.TC1	77	0
			ADM483	Q10204.138	45	0
				Q9985.114	45	0
			ADM485	Q10097.106	45	0
				Q9185.177	45	0
				Q9321.230	45	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.

Table 22: SOIC_N at Amkor-P Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	ADM487E	Q10436.PC1	77	0
				Q10436.PC2	77	0
				Q10436.PC3	77	0
			OP291	Q10627.PC1	77	0
				Q10627.PC2	77	0
				Q10627.PC3	77	0
			ADM4853	Q9411.PC1	77	0
				Q9411.PC2	77	0
				Q9411.PC3	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADM487E	Q10436.HS1	77	0
			OP291	Q10627.HS1	77	0
			ADM4853	Q9411.HS1	77	0
			ADM487E	Q10524.HS1	45	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	ADM487E	Q10436.HA1	77	0
				Q10436.HA2	77	0
				Q10436.HA3	77	0
			OP291	Q10627.HA1	77	0
				Q10627.HA2	77	0
				Q10627.HA3	77	0
			ADM4853	Q9411.HA1	77	0
				Q9411.HA2	77	0
				Q9411.HA3	77	0
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	ADM487E	Q10436.SH1	11	0
				Q10436.SH2	11	0
				Q10436.SH3	11	0
			OP291	Q10627.SH1	11	0
				Q10627.SH2	11	0
				Q10627.SH3	11	0
			ADM4853	Q9411.SH1	11	0
				Q9411.SH2	11	0
				Q9411.SH3	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	ADM487E	Q10436.TC1	77	0
				Q10436.TC2	77	0
				Q10436.TC3	77	0
			OP291	Q10627.TC1	77	0
				Q10627.TC2	77	0
				Q10627.TC3	77	0
			ADM4853	Q9411.TC1	77	0
				Q9411.TC2	77	0
				Q9411.TC3	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.

Table 23: SOIC_N at ASE-Shanghai Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD8544	Q8793.PC1	77	0
			AD8659	Q9015.1	77	0
			AD8694	Q9114.7	77	0
			ADA4610-4	Q9861.1	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADA4610-4	Q9861.7	77	0
			AD8694	Q9114.9	77	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	ADA4610-4	Q9861.2	77	0
				Q9861.12	77	0
			ADA4610-4	Q9114.10	77	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	AD8544	Q8793.SH3	11	0
				Q8793.SH4	11	0
				Q8793.SH5	11	0
			ADN4697E	Q9375.SH1	11	0
				Q9375.SH2	11	0
				Q9375.SH3	11	0
			ADA4610-4	Q9861.4	11	0
			AD8548	Q9218.SH1	11	0
			AD8659	Q9015.5	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD8544	Q8793.TC6	77	0
				Q8793.TC7	77	0
				Q8793.TC8	77	0
			ADA4610-4	Q9861.3	77	0
			AD8694	Q9114.8	77	0
			AD8659	Q9015.6	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.

Table 24: SSOP at AMKOR AP1 Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD5544	Q11284.39	45	0
				Q10986.25	45	0
				Q10689.11	45	0
			ADM3311E	Q10842.206	45	0
				Q9811.46	45	0
				Q9520.198	45	0
			AD9826	Q8570.7	77	0
			AD974	Q7558.15	77	0
			AD974	Q7558.1	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	ADM213	Q8639.200	77	0
			AD974	Q7558.13	77	0
			AD9826	Q8570.9	45	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD5544	Q11284.40	45	0
				Q10986.26	45	0
				Q10689.12	45	0
			ADM3311E	Q10842.207	45	0
				Q9811.47	45	0
				Q9520.199	45	0
			AD80066	Q8570.1	77	0
				Q8570.2	77	0
				Q8570.3	77	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	AD5544	Q11284.42	11	0
				Q10986.28	11	0
				Q10689.14	11	0
			ADM3311E	Q10842.209	11	0
				Q9811.49	11	0
				Q9520.201	11	0
			AD974	Q7558.9	11	0
				Q7558.10	11	0
				Q7558.12	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD5544	Q11284.41	45	0
				Q10986.27	45	0
				Q10689.13	45	0
			ADM3311E	Q10842.209	45	0
				Q9811.49	45	0
				Q9520.201	45	0
			AD974	Q10064.TC1	45	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.

Table 25: LFCSP at ASE-Korea Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD5750-1	Q10511.PC1	77	0
				Q10511.PC2	77	0
				Q10511.PC3	77	0
			ADF7020	Q8667.1P	77	0
				Q8667.2P	77	0
				Q8667.3P	77	0
			ADM1275-3	Q13605.HA1	77	0
				Q13605.HA2	77	0
				Q13605.HA3	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD5750-1	Q10511.HS1	45	0
			ADF7020	Q8667.1H	45	0
			ADF5902	Q13626.HS3	45	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD5750-1	Q10511.HA1	77	0
				Q10511.HA2	77	0
				Q10511.HA3	77	0
			ADF5902	Q13626.HA1	77	0
				Q13626.HA2	77	0
				Q13626.HA3	77	0
			ADF7020	Q8667.1A	77	0
				Q8667.2A	77	0
				Q8667.3A	77	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-3	ADF7020	Q8667.1SH	11	0
				Q8667.2SH	11	0
				Q8667.3SH	11	0
			ADF5902	Q13626.SH1	11	0
				Q13626.SH2	11	0
				Q13626.SH3	11	0
			AD5750-1	Q10511.SH1	30	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD5750-1	Q10511.TC1	77	0
				Q10511.TC2	77	0
				Q10511.TC3	77	0
			ADF5902	Q13626.TC1	77	0
				Q13626.TC2	77	0
				Q13626.TC3	77	0
			ADF7020	Q8667.1A	77	0
				Q8667.2A	77	0
				Q8667.3A	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 @ 125°C, Unbiased Soak: 192 hrs @ 30°C, 60%RH, Reflow: 3 passes through an oven with a peak temperature of 260°C.

Table 26:TSSOP at AMKOR AP1 Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD7190	Q9935.PC1	77	0
				Q9935.PC2	77	0
				Q9935.PC3	77	0
			AD9203W	Q8692.PC1	77	0
				Q8692.PC2	77	0
				Q8692.PC3	77	0
			AD7490	Q8293.100	77	0
				Q8293.101	77	0
				Q8293.102	77	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD7190	Q9935.HA1	77	0
				Q9935.HA2	77	0
				Q9935.HA3	77	0
			AD9203W	Q8692.HA1	77	0
				Q8692.HA2	77	0
				Q8692.HA3	77	0
			ADG5412F	Q10718.HA1	77	0
				Q10718.HA2	77	0
				Q10718.HA3	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD7190	Q9935.HS1	77	0
			AD9203W	Q8692.HS1	45	0
			AD7490	Q8293.202	77	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	AD9203W	Q8692.SH1	11	0
				Q8692.SH2	11	0
				Q8692.SH3	11	0
			AD7190	Q9935.SH1	11	0
				Q9935.SH2	11	0
				Q9935.SH3	11	0
			AD7490	Q8293.400	11	0
				Q8293.401	11	0
				Q8293.402	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD9203W	Q8692.TC1	77	0
				Q8692.TC2	77	0
				Q8692.TC3	77	0
			AD7190	Q9935.TC1	77	0
				Q9935.TC2	77	0
				Q9935.TC3	77	0
			ADG904	Q11530.TC1	77	0
				Q11530.TC2	77	0
				Q11530.TC3	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.

Table 27: SOIC_N at ASE-Taiwan Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	OP496	Q11150.PC1	77	0
				Q11150.PC2	77	0
				Q11150.PC3	77	0
			AD823	Q10542.PC1	77	0
				Q10542.PC2	77	0
				Q10542.PC3	77	0
			AD548	Q11304.PC1	77	0
				Q11304.PC2	77	0
				Q11304.PC3	77	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD548	Q11304.HS1	77	0
			AD823	Q10542.HS1	77	0
			ADP3050	Q10542.HS2	77	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD620	Q10542.HA1	77	0
			AD620	Q10542.HA2	77	0
			AD620	Q10542.HA3	77	0
			ADP3050	Q10542.HA4	77	0
			ADP3050	Q10542.HA5	77	0
			ADP3050	Q10542.HA6	77	0
			AD7893	Q10542.HA8	77	0
			AD7893	Q10542.HA9	77	0
			ADA4622-4	Q12470.HA1	77	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	AD548	Q11304.SH1	11	0
				Q11304.SH2	11	0
				Q11304.SH3	11	0
			ADA4622-4	Q12470.SH1	11	0
				Q12470.SH2	11	0
				Q12470.SH3	11	0
			AD823	Q10524.SH1	11	0
				Q10524.SH2	11	0
				Q10524.SH3	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD548	Q11304.TC1	77	0
				Q11304.TC2	77	0
				Q11304.TC3	77	0
			OP496	Q11150.TC1	77	0
				Q11150.TC2	77	0
				Q11150.TC3	77	0
			AD823	Q10542.TC1	77	0
				Q10542.TC2	77	0
				Q10542.TC3	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

Table 28: SOIC_W at Amkor-P Package Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Autoclave (AC) [1]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD7707	Q10204.159	45	0
			AD8403W	Q9155.PC1	77	0
				Q9155.PC2	77	0
				Q9155.PC3	77	0
Autoclave (AC) [2]	JESD22-A102	121°C, 100%RH, 2atm, 96 Hours	AD7834	Q7732.1	77	0
				Q7732.2	77	0
				Q7732.3	77	0
			AD7874	Q10097.167	45	0
				Q10405.35	45	0
				Q10689.100	45	0
			AD7880	Q10842.52	45	0
High Temperature Storage Life (HTSL)	JESD22-A103	150°C, 1,000 Hours	AD660	AC14925.1	77	0
			AD7849	AC47170.1	77	0
			AD8403W	Q9155.HS1	45	0
			ADM213E	Q10524.HS2	45	0

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD7707	Q10204.160	45	0
			AD8403W	Q9155.HA3	77	0
				Q9155.HA2	77	0
				Q9155.HA1	77	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [2]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	AD7874	Q10097.168	45	0
				Q10405.36	45	0
Solder Heat Resistance (SHR) [1]	J-STD-020	MSL-1	AD7707	Q10204.162	11	0
			AD8403W	Q9155.SH1	11	0
				Q9155.SH2	11	0
				Q9155.SH3	11	0
Solder Heat Resistance (SHR) [2]	J-STD-020	MSL-3	AD7849	Q8718.100	11	0
				Q8718.101	11	0
				Q8718.102	11	0
			AD7874	Q10097.170	11	0
				Q10405.38	11	0
				Q10689.103	11	0
Temperature Cycling (TC) [1]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD7707	Q10204.161	45	0
			AD8403W	Q9155.TC1	77	0
				Q9155.TC2	77	0
				Q9155.TC3	77	0
Temperature Cycling (TC) [2]	JESD22-A104	-65°C/+150°C, 500 Cycles	AD7834	Q7732.5	77	0
				Q7732.6	77	0
				Q7732.7	77	0
			AD7874	Q10097.169	45	0
				Q10405.37	45	0
				Q10689.102	45	0
			AD7880	Q10842.54	45	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.

[2] 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.

Table 29: 0.6µm BiCMOS at ADI-Limerick Fab Qualification Test Results

Test Name	Specification	Conditions	Device	Lot #	Sample Size	Qty. Failures
Early Life Failure Rate (ELFR) [1]	MIL-STD-883, M1015 MIL-STD-883, M1015	125°C, 48 Hours	ADM487E	Q10524.EL1A	195	0
				Q10524.EL1B	190	0
				Q10524.EL1C	195	0
				Q10524.EL1D	76	0
				Q10524.EL2A	195	0
				Q10524.EL2B	195	0
				Q10524.EL2C	195	0
				Q10524.EL2D	82	0
				Q10524.EL3A	195	0
				Q10524.EL3B	195	0
				Q10524.EL3C	195	0
				Q10524.EL3D	82	0
			ADM483E	Q11384.5	2000	0
Early Life Failure Rate (ELFR) [3]	AECQ-100-008	125°C, 48 Hours	ADM487E	Q10436.EL1a	400	0
				Q10436.EL1b	400	0
				Q10436.EL2a	400	0
				Q10436.EL2b	400	0
				Q10436.EL3a	400	0
				Q10436.EL3b	400	0
High Temperature Operating Life (HTOL) [1,4]	JESD22-A108	125°C<Tj<135°C, Biased, 1,000 Hours	ADM213E	Q10524.HO2	77	0
			ADM483E	Q11383.9	77	0
High Temperature Operating Life (HTOL) [3,4]	JESD22-A108	125°C<Tj<135°C, Biased, 1,000 Hours	ADM487E	Q10436.HO1	77	0
				Q10436.HO2	77	0
				Q10436.HO3	77	0
High Temperature Storage Life (HTSL) [1]	JESD22-A103	150°C, 1,000 Hours	ADM213E	Q10524.HS2	45	0
			ADM487E	Q10524.HS1	45	0
			ADUM1233	Q11317.HS1	77	0
High Temperature Storage Life (HTSL) [2]	JESD22-A103	150°C, 1,000 Hours	ADM487E	Q10436.HS1	45	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [1,4]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	ADUM1233	Q11317.HA1	77	0
				Q11317.HA2	77	0
				Q11317.HA3	77	0
			ADM485	Q12848.82	45	0
			ADM483E	Q11382.97	45	0
Highly Accelerated Temperature and Humidity Stress Test (HAST) [2,4]	JESD22-A110	130°C, 85%RH, 2atm, Biased, 96 Hours	ADM487E	Q10436.HA1	77	0
				Q10436.HA2	77	0
				Q10436.HA3	77	0

[1] Pre- and post-stress electrical test was performed at room temperature.

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

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

[4] 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.

ESD Test Results

The results of Human Body Model (HBM), Machine Model (MM), and Field-Induced Charged Device Model (FICDM) ESD testing are summarized in Tables 30 through 48. 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 30: ADM487E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	8-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	8-SOIC_N	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±1500V	±2000V	1C
MM	8-SOIC_N	JESD22-A115	0Ω, 200pF	±200V	±400V	M3
ESD-15kV HBM Model - LK00590	8-SOIC_N	LK00590	1.5kΩ, 100pF	±8KV Contact ±15KV Air	NA	4

Table 31: ADM213E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	28-SOIC_W	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	28-SOIC_W	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±4000V	NA	3A
MM	28-SOIC_W	JESD22-A115	0Ω, 200pF	±100V	±200V	M2
ESD-System Level	28-SOIC_W	IEC 61000-4-2	330Ω, 150pF	±8KV Contact ± 15KV Air	NA	4

Table 32: ADM207E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	24-SOIC_W	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	24-SOIC_W	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±3500V	4000V	2
MM	24-SOIC_W	JESD22-A115	0Ω, 200pF	±200V	±400V	M3

Table 33: ADM485 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	8-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	8-SOIC_N	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±4000V	NA	3A

Table 34: ADM1486 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	8-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	8-SOIC_N	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±2500V	NA	2

Table 35: ADM3202 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	16-SOIC_N	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±3500V	±4000V	2
MM	16-TSSOP_4.4	JESD22-A115	0Ω, 200pF	±200V	±400V	M3

Table 36: ADM202E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	16-SOIC_N	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±4000V	NA	3A

Table 37: ADM3483 and ADM3485 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	16-SOIC_N	ANSI/ESDA/JEDEC JS-001-2010 (Standard HBM)	1.5kΩ, 100pF	±2500V	±3000V	2

Table 38: ADM3488 and ADM3490 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV

Table 39: ADM3491 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV
HBM	16-SOIC_N	ANSI/ESDA/JEDEC JS-001-2010 (Standard HBM)	1.5kΩ, 100pF	±2000V	±2500V	2

Table 40: ADM3493 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_N	JESD22-C101	1Ω, Cpkg	±1250V	NA	IV

Table 41: ADM2485 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_W	JESD22-C101	1Ω, Cpkg	±1250V	NA	C
HBM	16-SOIC_W	ANSI/ESDA/JEDEC JS-001-2010 (Standard HBM)	1.5kΩ, 100pF	±2000V	±2500V	2

Table 42: ADM2486 ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_W	JESD22-C101	1Ω, Cpkg	±1250V	NA	C
HBM	16-SOIC_W	ANSI/ESDA/JEDEC JS-001-2010 (Standard HBM)	1.5kΩ, 100pF	±1500V	±2000V	1C

Table 43: ADM3307E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_W	JESD22-C101	1Ω, Cpkg	±1250V	NA	C
HBM	16-SOIC_W	ANSI/ESDA/JEDEC JS-001-2010 (Standard HBM)	1.5kΩ, 100pF	±4000V	NA	3A
ESD-15kV IEC	8-SOIC_N	IEC 1000-4-2	330Ω, 150pF	±8KV Contact ±15KV Air	NA	4

Table 44: ADM3485E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	16-SOIC_W	JESD22-C101	1Ω, Cpkg	±1500V	NA	C
HBM	16-SOIC_W	ANSI/ESDA/JEDEC JS-001-2010 (Standard HBM)	1.5kΩ, 100pF	±4000V	NA	3A
ESD-15kV HBM Model - LK00590	8-SOIC_N	LK00590	1.5kΩ, 100pF	±8KV Contact ±15KV Air	NA	4

Table 45: ADM3311E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	32-LFCSP	JESD22-C101	1Ω, Cpkg	±1250V	NA	C3
	28-TSSOP			±1250V	NA	C3
	28-SSOP			±1250V	NA	C3
HBM	28-TSSOP	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±2500V	±3000V	2
ESD-15kV IEC	28-TSSOP	IEC 1000-4-2	330Ω, 150pF	±8KV Contact ±15KV Air	NA	4

Table 46: ADM3310E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	32-LFCSP	JESD22-C101	1Ω, Cpkg	±1250V	NA	C3
	28-TSSOP			±1250V	NA	C3
HBM	32-LFCSP	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±2500V	±3000V	2

Table 47: ADM3315E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	32-LFCSP	JESD22-C101	1Ω, Cpkg	±1250V	NA	C3
	24-TSSOP			±1250V	NA	C3
HBM	24-TSSOP	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±3000V	±3500V	2

Table 48: ADM3312E ESD Test Results

ESD Model	Package	ESD Test Spec	RC Network	Highest Pass Level	First Fail Level	Class
FICDM	32-LFCSP	JESD22-C101	1Ω, Cpkg	±1250V	NA	C3
	24-TSSOP			±1250V	NA	C3
HBM	24-TSSOP	ESDA/JEDEC JS-001-2011	1.5kΩ, 100pF	±2500V	±3000V	2

Latch-Up Test Results

Three samples of the ADM213E, ADM487E, ADM1486, ADM485, ADM3202 and ADM202E, ADM207E, ADM3485 , ADM3491, ADM2485, ADM3311E, ADM3307E and ADM3485E were latch-up tested at T_A=25°C per JEDEC Standard JESD78, Class I. All pins passed.

Table 49: ADM487E, ADM1486, ADM485, ADM207E, ADM213E, ADM3202, ADM202E, ADM3485, ADM3491, ADM2485, ADM3311E, ADM3307E and ADM3485E LU Test Results

Device	Passing Positive Current	Passing Negative Current	Passing Over-Voltage
ADM487E	+150mA	-150mA	+6.0V
ADM213E	+200mA	-200mA	+6.0V
ADM1486	+200mA	-200mA	+7.9V
ADM485	+200mA	-200mA	+7.9V
ADM207E	+200mA	-200mA	+8.25V
ADM3202	+200mA	-200mA	+8.25V
ADM202E	+200mA	-200mA	+8.25V
ADM3485	+200mA	-200mA	+5.4V
ADM3491	+200mA	-200mA	+5.4V
ADM2485	+200mA	-200mA	+8.25V / +7.87V
ADM3307E	+150mA	-150mA	+5.4V
ADM3485E	+200mA	-200mA	+5.4V
ADM3311E	+200mA	-200mA	+5.4V

Approvals

Reliability Engineer: Danilo Juinio Jr.

Additional Information

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