

Automotive Qualification Results Summary for ADuM1200W/ADuM1201W Die Revision, Assembly Site Transfer, Test Platform Migration and MSL Rating Change

QUALIFICATION PLAN / STATUS			
TEST	SPECIFICATION	SAMPLE SIZE	RESULTS
High Temperature Operating Life (HTOL)* ²	JEDEC <i>JESD22-A108</i>	9 x 77	Pass
Highly Accelerated Stress Test (HAST)* ¹	JEDEC <i>JESD22-A110</i>	9 x 77	Pass
Temperature Cycle (TC)* ¹	JEDEC <i>JESD22-A104</i>	9 x 77	Pass
Unbiased HAST* ¹	JEDEC <i>JESD22-A118</i>	9 x 77	Pass
High Temperature Storage Life (HTSL) ¹	JEDEC <i>JESD22-A103</i>	2 x 77 7 x 45	Pass
Solder Heat Resistance (SHR)* ¹	JEDEC/IPC <i>J-STD-020</i>	3 x 10	Passed
Latch-Up ¹	JEDEC <i>JESD78</i>	1 x 18	Passed ±200mA @+8.25V
Electrostatic Discharge <i>Human Body Model</i> ¹	ESDA/JEDEC <i>JS-001</i>	3/voltage	Passed ±4000V
Electrostatic Discharge <i>Field-Induced Charged Device Model</i> ¹	JEDEC <i>JESD22-C101</i>	3/voltage	Passed ±1250V

*Pre- and post-stress electrical test was performed at room and hot temperatures. 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.

¹ Electrical test was performed at Room/Hot/HV First&Last.

² Electrical test was performed at Cold/Room/Hot/HV First&Last

TEST PRODUCT QUALIFICATION REPORT

TITLE:

ADUM1200W/ ADUM1201W SOIC_N High Voltage
Test Platform Migration from Harris-Tuvey to MPS at
ADGT

PCN NUMBER:

17_0146

REVISION:

A

DATE: May 28, 2016

SUMMARY

The ADuM1200W/ADuM1201W are dual-channel digital isolators based on Analog Devices, Inc., iCoupler® technology. Combining high speed CMOS and monolithic transformer technology, these isolation components provide outstanding performance characteristics superior to alternatives such as optocoupler devices. In accordance with UL and VDE standards these products are being high voltage tested on the Harris-Tuvey test platform in production. This is an aging and limited manufacturing test platform. The proposed change is to add new high voltage test capability using the MPS PD test platform manufactured by MPS Mess-& Prüfsysteme GmbH.

There is no change to the form, fit, function, quality or reliability of product when tested on the new test platform.

This report documents the result of the evaluation done to qualify the MPS PD tester as an additional high voltage test platform for the ADuM1200W/ ADuM1201W product family.

Test product qualification was performed according to Analog Devices Specifications (TST00094/TST00095 – Test Platform Migration Specification).

TEST AND PRODUCT INFORMATION

Devices(Generics):	ADuM1200W	ADuM1201W
Package:	SOIC_N	SOIC_N
Leads:	8	8
Parts Affected:	ADUM1200WSRZ ADUM1200WSRZ-RL7 ADUM1200WTRZ ADUM1200WTRZ-RL7 ADUM1200WTRZ55 ADUM1200WTRZ55-RL7	ADUM1201WSRZ ADUM1201WSRZ-RL7 ADUM1201WTRZ35 ADUM1201WTRZ35-RL7 ADUM1201WTRZ53 ADUM1201WTRZ53-RL7 ADUM1201WSRZ55 ADUM1201WSRZ55-RL7 ADUM1201WTRZ55 ADUM1201WTRZ55-RL7
Current Platform:	Harris-Tuvey with Atrium 5050FHV handler	Harris-Tuvey with Atrium 5050FHV handler
New Platform:	MPS with Atrium VMAX handler	MPS with Atrium VMAX handler

Description and Test Results

The Harris-Tuvey high voltage test platform does not provide data logs for tested units; only a pass or fail result is provided. The MPS test platform provides data logs for leakage current and partial discharge measurements that will be recorded and maintained over time.

The **ADuM1200W and ADuM1201W** dual-channel digital isolators are manufactured using the same package, the same transformer technology and on the same high voltage isolation process. The four lots listed below, along with additional test results from multiple products using the 8-lead SOIC_N package, were used to qualify the four generics on the MPS test platform.

Table 1: Shows results of the qualification lot run for the ADuM120xW. The qualification lots have undergone high voltage testing on both Harris-Tuvey and MPS test platforms. Any deviation on the lot qualification run criteria, without further analysis and data to prove a passing qualification, would be considered a failed qualification lot run.

As shown in Table 1, all units that passed on the Harris-Tuvey platform also passed on the MPS platform and all units rejected by the Harris-Tuvey platform were also rejected by the MPS test platform thereby demonstrating correlation of both good and bad units between platforms.

Table 1: Test Product Qualification Lot Run

Generic	Package	Lot number	Lot Size	Good units passed on both test platforms?	Reject units failed on the same test parameter for both test platforms?
ADUM1200	SOIC_N	AL37941.2	100	Yes	No Rejects
ADUM1200	SOIC_N	AL24684.2	100	Yes	No Rejects
ADUM1200	SOIC_N	AL23317.2	100	Yes	No Rejects
ADUM1200	SOIC_N	S969151.3	100	Yes	No Rejects
ADUM1200	SOIC_N	AL20227.2	100	Yes	No Rejects
ADUM1201	SOIC_N	AL37955.2	100	Yes	No Rejects

Approvals

Product Line Manager
Test Development Manager
Test Product Manager
Quality Manager

Supporting Document

Technical Review Board: TRB# 32531

Additional Information

ADI Homepage:

<http://www.analog.com/en/index.html>

ADI Datasheets:

http://www.analog.com/media/en/technical-documentation/data-sheets/ADuM1200_1201.pdf

TEST PRODUCT QUALIFICATION REPORT

TITLE:

ADuM1200W/ADuM1201W SOIC_N Test Platform
Migration from CTS5040 to Teradyne MicroFlex

PCN NUMBER:

17_0146

REVISION:

A

DATE:

August 14, 2017

SUMMARY

The ADuM1200W/ADuM1201W are dual-channel digital isolators based on Analog Devices, Inc., *iCoupler*® technology. Combining high-speed CMOS and monolithic air core transformer technology, these isolation components provide outstanding performance characteristics superior to alternatives such as optocoupler devices. This product is being tested on the CTS5040 which is a constrained ADI manufactured tester. The proposed change is to add a new test capability on MicroFlex which is being manufactured by Teradyne.

There is no change to the form, fit, function, quality or reliability of the transferred parts.

This report documents the result of the evaluations done to qualify the Teradyne MicroFlex as an additional platform for testing the ADuM1200W/ADuM1201W.

TEST AND PRODUCT INFORMATION

Devices(Generics):	ADuM1200W	ADuM1201W
Package:	SOIC_N	SOIC_N
Leads:	8	8
Parts Affected:	ADUM1200WSRZ ADUM1200WSRZ-RL7 ADUM1200WTRZ ADUM1200WTRZ-RL7 ADUM1200WTRZ55 ADUM1200WTRZ55-RL7 ADUM1200WURZ ADUM1200WURZ-RL7	ADUM1201WSRZ ADUM1201WSRZ-RL7 ADUM1201WTRZ35 ADUM1201WTRZ35-RL7 ADUM1201WTRZ53 ADUM1201WTRZ53-RL7 ADUM1201WSRZ55 ADUM1201WSRZ55-RL7 ADUM1201WTRZ55 ADUM1201WTRZ55-RL7 ADUM1201WURZ ADUM1201WURZ-RL7
Current Platform:	CTS5040 with MT9308_PB_RN handler	CTS5040 with MT9308_PB_RN handler
New Platform:	MicroFlex with MT9308_PB_RN handler	MicroFlex with MT9308_PB_RN handler

Description and Test Results (Taken from the Test Platform Migration Criteria)

Table 1 & Table 2 provide a description of the qualification tests conducted and corresponding test results for ADuM1200W/ADuM1201W. All the units have undergone electrical tests on both the CTS5040 and Teradyne MicroFlex test platforms. Any device that did not meet the electrical qualification requirements, without further analysis and data to prove passing the qualification would be considered failed.

Table 1: Test Product Correlation Criteria

Generic	Package	Testing Site	CTS5040 Test Lot Size	MicroFlex Test Lot Size	% Mean Shift Criteria =< 5
ADuM1200W	SOIC_N	ADGT	100	100	Reviewed and Passed
ADuM1201W	SOIC_N	ADGT	100	100	Reviewed and Passed

Table 2: Test Product Guard banding (GB) Criteria

Generic	Package	Testing Site	CTS5040 Test Lot Size	MicroFlex Test Lot Size	Sigma Spread Criteria =< 1.3
ADuM1200W	SOIC_N	ADGT	100	100	Reviewed and Passed
ADuM1201W	SOIC_N	ADGT	100	100	Reviewed and Passed

Table 3: Shows results of the qualification lot run for the ADuM1200W/ADuM1201W. The qualification lot has undergone electrical test on both CTS5040 and Teradyne MicroFlex test platforms. Any deviation on the lot qualification run criteria without further analysis and data to prove a passing qualification would be considered a failed qualification lot run.

Table 3: Test Product Qualification Lot Run

Generic	Package	Lot number	Lot Size	Good units passed on both test platforms?	Reject units failed on the same test parameter for both test platforms?
ADuM1200WS	SOIC_N	AN24092.1	100	Yes	Yes
ADuM1200WU	SOIC_N	AN24094.1	100	Yes	Yes
ADuM1200WT	SOIC_N	AN24093.1	100	Yes	Yes
ADuM1201WS	SOIC_N	AO31417.1	100	Yes	Yes
ADuM1201WT	SOIC_N	AN24096.1	100	Yes	Yes
ADuM1201WU	SOIC_N	AO31418.1	100	Yes	Yes

Approvals

Product Line Manager
 Test Development Manager
 Test Product Manager
 Quality Manager

Supporting Document

Technical Review Board: TRB# 42829

Additional Information

ADI Homepage:

<http://www.analog.com/en/index.html>

ADI Datasheets:

http://www.analog.com/media/en/technical-documentation/data-sheets/ADuM1200_1201.pdf

Material Set Change:

Package Material Set		Carsem	ASE Chungli
SOIC_N	Die Attach	Ablestik 84-1LMISR4	Hitachi EN4900GC
	Mold Compound	Sumitomo 6600H	Sumitomo G700LY
	Wire	1.3 mil Gold Wire	1.3mil Gold Wire