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Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue Date	Vol	Sec	Pages	Revised Date
	1		Revised Index Page(s) 2	2013/08/17
2011/03/05	1	7	Cert of Compliance	
2011/03/05	1	7	New Description Page(s) 1A,4	2013/08/17
2011/03/05	1	7	Revised Description Page(s) 1	2013/08/17
2011/03/05	1	7	New Test Record 3	2013/08/17

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at http://www.ul.com/global/eng/pages/corporate/contactus.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above.

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CAM File

INDEX

CERTIFICATE OF COMPLIANCE

Certificate Number	20130819-E214100
Report Reference	E214100-20110305
Issue Date	2013-AUGUST-19
Issued to:	ANALOG DEVICES INC 804 WOBURN ST WILMINGTON MA 01887
This is to certify that representative samples of	COMPONENT - NON-OPTICAL ISOLATING DEVICES See Addendum Page
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 1577 - Standard for Optical Isolators
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Mark should be considered as being covered by UL's Recognition and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Recognized Component Mark on the product.

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	20130819-E214100
Report Reference	E214100-20110305
Issue Date	2013-AUGUST-19

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Single Protection Non-Optical Isolator, Models ADuM148xARSZ, ADuM148xBRSZ, ADuM148xCRSZ, ADuM228x, ADuM347x, ADuM347xARWZ, ADuM347xCRWZ, ADuM348x, ADuM447x, ADuM521x, ADuM621x, ADuM764x, ADuM3070, ADuM3220, ADuM3221, ADuM3223, ADuM4070, ADuM4223, ADuM5010, ADuM6010, where “x” in the model number may be any alpha/numeric designation. All models may have additional suffixes

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

DESCRIPTION

PRODUCT COVERED:

* USR – Single Protection Non-Optical Isolator, Models ADuM148xARSZ, ADuM148xBRSZ, ADuM148xCRSZ, **ADuM228x**, **ADuM347x**, **ADuM347xARWZ**, **ADuM347xCRWZ**, **ADuM348x**, **ADuM447x**, **ADuM521x**, **ADuM621x**, **ADuM764x**, ADuM3070, ADuM3220, ADuM3221, ADuM3223, **ADuM4070**, ADuM4223, **ADuM5010**, **ADuM6010**, where "x" in the model number may be any alpha/numeric designation. All models may have additional suffixes.

ELECTRICAL RATINGS (at 25°C ambient) ($):

Model	Current (mA)		Power (mW)		Isolation Voltage (AC)	Max Operating Temp (Tmoa) (°C)	Max Junction Temp (Tj) (°C)	Max Storage Temp (Ts) (°C)
	Encoder	Decoder	Encoder	Decoder				
AduM148x ARSZ	5.5	1.6	27	8	2500	105	150	150
BRSZ	5.8	5.4	29	27	2500	105	150	150
CRSZ	25.4	7.3	127	36.5	2500	105	150	150
ADuM228x	**12**	**17**	**84**	**119 @100Mbps**	**5000**	**125**	**150**	**150**
ADuM348x	**3**	**14**	**21**	**98 @25Mbps**	**3750**	**125**	**150**	**150**
ADuM447x	**8.75**	**11**	**61**	**77 @25Mbps**	**5000**	**105**	**150**	**150**
ADuM521x (power)	**104**	**3.6**	**728**	**25**	**2500**	**105**	**150**	**150**
ADuM521x (data)	**0.8**	**12.3**	**5.6**	**61.5 @100Mbps**	**2500**	**105**	**150**	**150**
ADuM621x (power)	**104**	**3.6**	**728**	**25**	**3750**	**105**	**150**	**150**
ADuM621x (data)	**0.8**	**12.3**	**5.6**	**61.5 @100Mbps**	**3750**	**105**	**150**	**150**
ADuM764x	**9**	**12.2**	**63**	**85 @25Mbps**	**1000**	**105**	**150**	**150**
ADuM347x (Power)	570	4	489	20	2500	105	150	150
ARWZ	0.9	11	5	9 @ 1Mbps	5000	105	150	150
CRWZ	6	12	30	16 @ 25Mbps	5000	105	150	150

Model	Current (mA)		Power (mW)		Isolation Voltage (AC)	Max Operating Temp (Tmoa) (°C)	Max Junction Temp (Tj) (°C)	Max Storage Temp (Ts) (°C)
	Encoder	Decoder	Encoder	Decoder				
ADuM3070 CTRL	3	84	21	60	2500	125	150	150
(switches)	1400	84	980	60	2500	125	150	150
ADuM3220	1.7	17	8.5	306 @ 2Mbps	2500	105	150	150
ADuM3221	1.7	17	8.5	306	2500	105	150	150
ADuM3223	3	84	21 @ 1.7Mbps	1680 @ 1.7Mbps	3000	125	150	150
ADuM4070	5	8.5	35	60	5000	105	150	150
ADuM4223	3	84	21 @ 1.7Mbps	1680 @ 1.7Mbps	5000	125	150	150
ADuM5010	104	3.6	728	25	2500	105	150	150
ADuM6010	104	3.6	728	25	3750	105	150	150

($) - For ambient temperatures higher than 25°C and up to Tmoa, refer to manufacturer’s specifications and/or thermal derating curve data for complete electrical ratings.

MODEL ADuM228x

General – Model ADuM228x is representative of Models ADuM348x, ADuM447x, ADuM4070, and these models are similar to Models ADuM148xCRSZ, ADuM347x, and ADuM347xCRWZ, except as noted below.

4. Insulation Transformer Compound Coupling – Polyimide film Type I-8124HR by Asahi Kasei EMD with 0.017 mm minimum through insulation thickness. This material provides isolation between coils.

MODEL ADuM6010

General – Model ADuM6010 is representative of Models ADuM5010, and these models are similar to Models ADuM148xCRSZ, ADuM347x, and ADuM347xCRWZ, except as noted below.

4. Insulation Transformer Compound Coupling – Polyimide film Type BL-130B by Asahi Kasei EMD with 0.021 mm minimum through insulation thickness. This material provides isolation between coils.

MODELS ADuM521x and ADuM621x

General – Models ADuM521x and ADuM621x are represented by the combined results of Models ADuM228x and ADuM6010. They are also similar to Models ADuM148xCRSZ, ADuM347x, and ADuM347xCRWZ, except as noted below.

4. Insulation Transformer Compound Coupling – Polyimide film by Asahi Kasei EMD as noted in the following table.

Location	Material Model	Through Insulation Thickness, mm
Power coils	BL-130B	0.021
Data coils	I-8124HR	0.017

MODEL ADuM764x

General – Model ADuM764x is similar to Models ADuM148xCRSZ, ADuM347x, and ADuM347xCRWZ, except as noted below.

4. Insulation Transformer Compound Coupling – The isolation barrier is provided with 0.00238 mm thickness of silicon dioxide (SiO2) between the transformer coils. This device is located within the Decoder Chip.

TEST RECORD NO. 3

SAMPLES:

Samples of the Non-Optical Isolator as indicated below and constructed as described herein, were submitted by the manufacturer for examination and test.

Models ADuM228x, ADuM6010, and ADuM764x.

Models ADuM228x, ADuM6010, and ADuM764x were used for test purposes and considered representative of Models ADuM348x, ADuM447x, ADuM521x, ADuM621x, ADuM4070, and ADuM5010. The models tested are representative of all other models in this Test Record, with respect to the construction and ratings, for each test noted.

GENERAL:

Test results relate only to the items tested.

The following tests were conducted.

Test:	Standard:
Dielectric Voltage Withstand	UL 1577, Sec. 11
Overload	UL 1577, Sec. 11A
Limited Thermal Aging	UL 1577, Sec. 12

Model Tested	Outer Molding	Isolation Transformer Compound Coupling	Tests	Representative of the following construction types (as applicable)
ADuM228x	G600C	I-8124HR	Dielectric Voltage Withstand, Overload, Limited Thermal Aging	FET input/output circuit, 0.017 mm minimum through insulation thickness, 84/119 mW input/output power, 150°C max junction temp, 150°C max storage temp, 5000 Vac isolation.
ADuM6010	G600C	BL-130B		FET input/output circuit, 0.021 mm minimum through insulation thickness, 728/25 mW input/output power, 150°C max junction temp, 150°C max storage temp, 3750 Vac isolation.
ADuM764x	G600C	Si02		FET input/output circuit, 0.00238 mm minimum through insulation thickness, 63/85 mW input/output power, 150°C max junction temp, 150°C max storage temp, 1000 Vac isolation.

The models tested are representative of all models with similar construction types.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements in Standard for Optical Isolators UL 1577, Fourth Edition, last revised January 23, 2013, and CSA Component Acceptance Service No. 5A dated January 23, 1998 and, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Test Record by:

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