America

CERTIFICATE

No. U8V 077311 0019 Rev. 00

Holder of Certificate: **Texas Instruments Incorporated**
13570 North Central Expressway, MS 3928
Dallas TX 75243
USA

Certification Mark:

Product: Information Technology Equipment
Digital Isolator

This product was voluntarily tested to the relevant safety requirements referenced on this certificate. It can be marked with the certification mark above. The mark must not be altered in any way. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC 17067. Certification is based on the TÜV SÜD "Testing and Certification Regulations". TÜV SÜD America Inc. is an OSHA recognized NRTL and a Standards Council of Canada accredited Certification body.

Test report no.: 090-1107157-200

Date, 2019-10-11

(William J. Stinson)

TÜV SÜD America Inc. • 10 Centennial Drive • Peabody • MA 01960 • USA

America

CERTIFICATE

No. U8V 077311 0019 Rev. 00

Model(s): ISO1050

Brand Name: TI

Tested according to:
CAN/CSA C22.2 No.60950-1:2007/A2:2014
UL 60950-1:2007/R:2014-10
EN 60950-1:2006/A2:2013

CAN/CSA C22.2 No. 62368-1:2014
UL 62368-1:2014
EN 62368-1:2014

Production Facility(ies): 077314, 077320, 105715

Parameters:
Rated Input Voltage: 5700 VRMS or 2500 VRMS
Reinforced isolation at a working voltage of 400 VRMS
Basic isolation at a working voltage of 600Vrms

Models and Accessories:

The ISO1050 is a galvanically isolated CAN transceiver. The device has the logic input and output buffers separated by a silicon oxide (SiO2) insulation barrier that provides galvanic isolation of up to 5000 VRMS for ISO1050DW and 2500 VRMS for ISO1050LDW and ISO1050DUB.

These devices may be followed by suffixes such as:
DUB – SOP-8 pin package
DW – SOIC-16 pin package
LDW – SOIC-16 pin package
R – Tape & Reel Packing option

TÜV SÜD America Inc. • 10 Centennial Drive • Peabody • MA 01960 • USA

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Technical Report No. 090-1107157-200
Rev. 00
Dated 2019-07-19

Client:

Texas Instruments Incorporated **(#77311)**
13570 North Central Expressway
M/S 3928
Dallas, TX 75243

Saleem Marwat (marwat@ti.com)

Manufacturing place:

Texas Instruments Taiwan Limited (#77320)
#142, Sec 1, Hsin-Nan Rd, Chung-Ho,
235 New Taipei, Taiwan R.O.C

[redacted]

Texas Instruments Malaysia Sdn Bhd (#105715)
No. 1, Lorong Engang 33, Ampang /Ulu, Klang Free Trade Zone, Kuala Lumpur, 54200, Kuala Lumpur, WP Kuala Lumpur, 54200, Malaysia

Test subject:

Product: Digital Isolator
Type: ISO1050

The ISO1050 is a galvanically isolated CAN transceiver. The device has the logic input and output buffers separated by a silicon oxide (SiO2) insulation barrier that provides galvanic isolation of up to 5000 VRMS for ISO1050DW and 2500 VRMS for ISO1050LDW and ISO1050DUB. These devices may be followed by suffixes such as:
DUB – SOP-8 pin package, DW – SOIC-16 pin package, LDW – SOIC-16 pin package, R – Tape & Reel Packing option.....

Test specification:

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
CAN/CSA C22.2 No. 60950-1/A2:2014
UL60950-1/A2:2014

EN 62368-1:2014,
CAN/CSA C22.2 No. 62368-1:2014
UL 62368-1:2014

Purpose of examination:

Test Report 090-1107157-100 dated 2016-10-20 was modified to Test Report 090-1107157-200 dated 2019-7-19. Add manufacturing site Texas Instruments Malaysia Sdn Bhd, add alt. approved mold compound CEL-8240HF-10GK by Hitachi. No Additional Testing deemed necessary.

Test result:

The test subject was found to be in compliance with the mentioned test specification.

1 Description of the test subject

1.1 Function

The ISO1050 is a galvanically isolated CAN transceiver. The device has the logic input and output buffers separated by a silicon oxide (SiO2) insulation barrier that provides galvanic isolation of up to 5000 VRMS for ISO1050DW and 2500 VRMS for ISO1050LDW and ISO1050DUB. These devices may be followed by suffixes such as:

DUB – SOP-8 pin package

DW – SOIC-16 pin package

LDW – SOIC-16 pin package

R – Tape & Reel Packing option

1.2 Consideration of the foreseeable misuse

☐ Not applicable
☒ Covered through the applied standard
☐ Covered by the following comment
☐ Covered by attached risk analysis

1.3 Technical Data

The ISO1050 is a galvanically isolated CAN transceiver. The device has the logic input and output buffers separated by a silicon oxide (SiO2) insulation barrier that provides galvanic isolation of up to 5000 VRMS for ISO1050DW and 2500 VRMS for ISO1050LDW and ISO1050DUB. These devices may be followed by suffixes such as:

DUB – SOP-8 pin package

DW – SOIC-16 pin package

LDW – SOIC-16 pin package

R – Tape & Reel Packing option

These are component level devices intended for building-in. They are not directly connected to mains. The entire package is molded over. This molding does not provide internal distance through insulation so TÜV SÜD America has performed 30 day thermal cycling as required by the applicable standard. The reinforced isolation voltage is 5000VRMS based on a working voltage of 400Vrms (with a DW suffix) or 2500VRMS based on a working voltage of 400Vrms (with a LDW or DUB suffix). The basic isolation voltage is 5000VRMS based on a working voltage of 600Vrms (with a DW suffix) or 2500VRMS based on a working voltage of 600Vrms (with a LDW or DUB suffix). These isolation barrier specifications have been verified by TÜV SÜD America.

2. Date

2.1 Date of Purchase Order, Customer's Reference

TUV Quote 5172105.0, Dated 2019-02-04
TI Purchase order 4513734326; dated: 2019-03-12
TUV Reference No: 72147328

2.2 Receipt of Test Sample, Location

N/A

2.3 Date of Testing

N/A

2.4 Location of Testing

N/A

2.5 Points of Non-compliance or Exceptions of the Test Procedure

None

3. Test Results

3.1 Positive Test Results

- Electrical safety

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
CAN/CSA C22.2 No. 60950-1/A2:2014
UL60950-1/A2:2014

EN 62368-1:2014,
CAN/CSA C22.2 No. 62368-1:2014
UL 62368-1:2014

3.2 Points of non-compliance according to the test specification

None

4. Remark

The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

4.1 Remarks to Factory

The assembly of the product has to comply with the documentation (CDF).

Before the implementation of safety relevant modifications to the product into the ongoing production the product must be assessed for acceptance. The results must be implemented to the documentation and if necessary the certificate must be updated.

The final inspections in the production are described in EN 50514, IEC 62911. If fluctuations in production quality in a production facility are to be expected it has to be pondered whether a shorter cycle of factory inspections must be applied. Causes therefore may be up directly to the manufacturer or arise from the environment in the country.

5. Documentation

* CDF …
* Photo documentation

6. Summary

"The test specifications are met"

TÜV SÜD America, Inc.

Engineer: Steven Skoropowski

Technical Report checked: William Stinson

Aufbauübersicht für Elektrogeräte und Maschinen
Data form for electrical equipment and machinery

America

U8V 077311 0019 Rev. 00
(standard: 60950-1, 62368-1)

Applicant / Auftraggeber:
(#077311)

Texas Instruments Incorporated,
13570 North Central Expressway M/S 3928, Dallas, Texas 75243

Manufacturer / Hersteller:
(#077311)

Texas Instruments Incorporated
13570 North Central Expressway M/S 3928, Dallas, Texas 75243

Authorized Person / Bevollmächtigter:

Saleem Marwat (marwat@ti.com)

Factory / Fertigungsstätte**:**
(#077320, #77314, #105715)

Texas Instruments Taiwain Limited,
#142, Sec 1, Shin-Nan Rd, Chung-Ho, 235 New Taipei, Taiwan, R.O.C.

[redacted]

Texas Instruments Malaysia Sdn Bhd. **(#105715)**
No. 1, Lorong Engang 33, Ampang /Ulu, Klang Free Trade Zone, Kuala Lumpur, 54200, Kuala Lumpur, WP Kuala Lumpur, 54200, Malaysia

Type of Equipment / Geräteart:

Digital Isolator

Type/model / Typenbezeichnung:

ISO1050
may be followed by suffixes such as:
DUB – SOP-8 pin package
DW – SOIC-16 pin package
LDW – SOIC-16 pin package
R – Tape & Reel Packing option

Serial no. / Seriennr.:--

Rated voltage/frequency / Nennspannung/Frequenz

5700 VRMS or 2500 VRMS
Reinforced isolation at a working voltage of 400 VRMS
Basic isolation at a working voltage of 600Vrms

(see certificate attachment for additional rating information)

Rated input power/current / Nennaufnahme/Nennstrom:

Connection to water installation / Anschlussdaten-Wasser n/a

Dimensions / Abmessungen [HxWxD / HxBxT]: n/a

Weight / Gewicht: n/a

Noise emission / Lärmemission: n/a

Ambient temperature / Umgebungstemperatur min.: -55 °C max.: 105 °C ☒

Operation / Einsatz: < 2,000 m above sea level/< 2.000 m üNN ☒
up to m / bis zu m ☐

Test Report No **/ Prüfbericht Nr. :** 090-1107157-200

Place/ Ort /: Peabody, MA Date/ **Datum /**: 2019-10-11

/ Name of Project manager/ **Projektleiter**: Steven Skoropowski

Stempel und Unterschrift /
Seal and signature

Aufbauübersicht für Elektrogeräte und Maschinen
Data form for electrical equipment and machinery

America

Classification of installation and use /: Installation und Nutzung		Stationary	Ortsfest	☐
		Portable	Ortsveränderlich	☐
		Hand-held	Handgerät	☐
		Open-frame	Einbaugerät	☐
		For Building-in		☒
Protection class / Schutzklasse:	I:	PE-connection	Schutzleiteranschluss	n/a
	II:	Double insulation	Schutzisoliert	n/a
	III:	SELV / internally powered	Schutzkleinspannung / interne Stromversorgung	n/a
Degree of protection / Schutzart /:	IP	X0		☒

Degree of pollution / Verschmutzungsgrad:	**1** ☐	**2** ☒	**3** ☐	**4** ☐
Overvoltage category / Überspannungskategorie:	**I** ☐	**II** ☒	**III** ☐	**IV** ☐

Supply connection / Anschlussart:	Nondetachable cord	Feste Anschlussleitung	☐
	Permanent connection	Fester Anschluss	☐
	Appliance inlet	Gerätesteckvorrichtung	☐
	Not directly connected to mains		☒
Rated operation / Netzbetriebsart:	Continuous operation	Dauerbetrieb	☒
	Intermittent operation	Aussetzbetrieb	☐
	Short time operation	Kurzzeitbetrieb	☐

Additional information for Laser equipment, classification according to IEC/EN 60825
Zusätzliche Angaben für Laser, Klassifizierung nach IEC/EN 60825

Class / Klasse: --
Wavelength / Wellenlänge: --
Pulse duration / Pulsdauer: --

Aufbauübersicht für Elektrogeräte und Maschinen
Data form for electrical equipment and machinery

America

Safety relevant components: (switches, temperature regulators, heating elements, plugs, sockets, wiring, capacitors, motors and other components with windings e.g. transformers, coils, emergency off devices, 2-hand-control-devices, interlock switches, safety light barriers, safety valves, programmable electronic controllers -PLC, hydraulic controllers, pneumatic controllers, Software (Revision), housing parts, materials with contact to food etc.

Components for Functional Safety shall be listed in appropriate table.

The entry of safety relevant components into this table documents and confirms review of suitability and acceptance by the product specialist.

Sicherheitsrelevante Bauteile: (Schalter, Temperaturregler, Heizkörper, Stecker, Fassungen, Leitungen, Kondensatoren, Motoren und sonstige Wicklungen z.B. Transformatoren, Magnetspulen, Not-Aus Geräte, 2-Handsteuerungen, Verriegelungsschalter, Sicherheits-Lichtschranken, Sicherheitsventile, Programmierbare Steuerungen-SPS, hydraulische Steuerungen, pneumatische Steuerungen , Software (Revisionsstand), Gehäuseteile, Materialien mit Kontakt zu Lebensmitteln usw.
Komponenten für Funktionale Sicherheit müssen in die entsprechende Tabelle eingetragen werden.
Der Eintrag sicherheitsrelevanter Komponenten in die Übersicht dokumentiert und bestätigt die Überprüfung der Eignung und Freigabe durch den „Product Specialist“.

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
Case (Outer Compund)	[redacted]	[redacted]	Epoxy Molding Compound UL94V-0	UL 94	UL
Alternate Case (Outer Compound)	[redacted]	[redacted]	Epoxy Molding Compound, UL94V-0 min.	UL 94	UL
Insulation Compound (Provides isolation between driver and receiver circuits)	—	—		Tested in device.	Insulation Compound (Provides isolation between driver and receiver circuits)
Lead Frame	—	—	Solder Plated Copper Alloy	IEC 60950-1 2nd Edition	Tested in device.

Supplementary information:

[1]) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

Aufbauübersicht für Elektrogeräte und Maschinen
Data form for electrical equipment and machinery

America

Label / Typenschild

Aufbauübersicht für Elektrogeräte und Maschinen
Data form for electrical equipment and machinery

General example for electrical testing:

Final inspection requirements for production are described in: EN 50514:2014

☒ Required ☐ Not Required

Reason:
☐ Class III product
☐ Other:

Test Details:	**Test Points:**	**Test Values:**
☒ Dielectric Strength	BI: L/N – Chassis	4000 Vac / Vdc
☐ Ground Continuity	RI: L/N – Secondary	5000 Vac / Vdc
☐ Insulation Resistance	AC-Inlet – Chassis	A, 1s, <0.1 Ohm (Ω)
☐ Leakage Current		
☒ Other: Hipot value is model dependent		

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