

CERTIFICATE OF COMPLIANCE

Certificate Number 20170207-E151738
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Issued to: LINEAR TECHNOLOGY PTE LTD
507 Yishun Industrial Park A
Singapore 768734 SINGAPORE

**This is to certify that
representative samples of**

COMPONENT - NONOPTICAL ISOLATING DEVICES


Single Protection Non-Optical Isolators, Models LTM2881, LTM2882, LTM2883, LTM2884, LTM2886, LTM2887, LTM2889, and LTM2892 may be followed by wx-yz; where w can be C, I, H or MP (temperature grade), x can be Y(BGA) or V(LGA) (package option); y can be 3 or 5(input voltage), and z can be I or S (part option).

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: Standard for Optical Isolators UL 1577
Canadian Component Acceptance Service Notice, CAN/CSA No. 5A

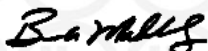
Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification 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 Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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DESCRIPTION

PRODUCT COVERED:

*USR, CNR - Single Protection Non-Optical Isolators, Models LTM2881, LTM2882, LTM2883, LTM2884, **LTM2886, LTM2887, LTM2889**, and LTM2892 may be followed by **wx-yz**; where w can be C, I, H or MP (temperature grade), x can be Y(BGA) or V(LGA) (package option); y can be 3 or 5(input voltage), **and z can be I or S (part option)**.

MAXIMUM RATINGS (at nominal operating temperature):

Model	Current (mA)		Power (W)		Isolation Voltage	Max Operating (Ambient) Temp (°C)	Max Junction Temp (°C)	Max Storage Temp (°C)
	Logic	Isolated	Logic	Isolated				
LTM2881 wx-3	430	130	1.3 (20 Mbps)	0.65 (20 Mbps)	2500	105	125	125
LTM2881 wx-5	370	200	1.7 (20 Mbps)	1 (20 Mbps)	2500	105	125	125
LTM2882 wx-3	430	130	1.3 (1 Mbps)	0.65 (1 Mbps)	2500	105	125	125
LTM2882 wx-5	370	200	1.7 (1 Mbps)	1 (1 Mbps)	2500	105	125	125
LTM2883 wx-3z	430	75	1.3 (20 Mbps)	0.65 (20 Mbps)	2500	105	125	125
LTM2883 wx-5z	370	75	1.7 (20 Mbps)	1 (20 Mbps)	2500	105	125	125
LTM2884 wx	370	500	4.170 (12 Mbps)	2.500 (12 Mbps)	2500	105	125	125
LTM2886 wx-3z	430	130	1.3 (20 Mbps)	0.65 (20 Mbps)	2500	125	125	125
LTM2886 wx-5z	370	200	1.7 (20 Mbps)	1 (20 Mbps)	2500	125	125	125
LTM2887 wx-3z	430	130	1.3 (20 Mbps)	0.65 (20 Mbps)	2500	125	125	125
LTM2887 wx-5z	370	200	1.7 (20 Mbps)	1 (20 Mbps)	2500	125	125	125
LTM2889 wx-3	430	130	1.3 (10 Mbps)	0.65 (10 Mbps)	2500	125	125	125
LTM2889 wx-5	370	200	1.7 (10 Mbps)	1 (10 Mbps)	2500	125	125	125
LTM2892 wx-y	4.5	4.5	0.025 (20 Mbps)	0.025 (20 Mbps)	3500	125	125	125

GENERAL:

The device LTM2881wx-y is an isolated full-duplex RS485/RS422 μ Module transceiver with isolated power. Logic and Isolated side common are separated by galvanic isolation. Internal "chips" are connected to a PCB substrate (leadframe) that is molded into the enclosure.

The device LTM2882wx-y is an isolated full-duplex RS232 μ Module transceiver with isolated power. Logic and Isolated side common are separated by galvanic isolation. Internal "chips" are connected to a PCB substrate (leadframe) that is molded into the enclosure.

The devices LTM2883wx-yz, LTM2886wx-yz, and LTM2887wx-yz are complete Serial Peripheral Interface Bus (SPI) or Inter-IC Bus (I2C) μ Module isolators with isolated power. Logic and Isolated side common are separated by galvanic isolation. Internal "chips" are connected to a PCB substrate (leadframe) that is molded into the enclosure.

The device LTM2889wx-y is an isolated CAN Bus μ Module transceiver with isolated power. Logic and Isolated side common are separated by galvanic isolation. Internal "chips" are connected to a PCB substrate (leadframe) that is molded into the enclosure.

The device LTM2884wx is an Isolated USB Transceiver with Isolated Power. Logic and Isolated side common are separated by galvanic isolation. Internal "chips" are connected to a PCB substrate (leadframe) that is molded into the enclosure.

The device LTM2892wx-y is a Serial Peripheral Interface Bus (SPI) or Inter-IC Bus (I2C) μ Module® isolator. Logic and Isolated side common are separated by galvanic isolation. Internal "chips" are connected to a PCB substrate (leadframe) that is molded into the enclosure.

*MODEL **LTM2881wx-y** - FIG. 1

General - Full-duplex RS485/RS422 µModule transceiver Model **LTM2881wx-y** represents models **LTM2882wx-y**, **LTM2883wx-y**, **LTM2886wx-yz**, **LTM2887wx-yz**, and **LTM2889wx-y**.

1. Body - Epoxy Molding Compound. R/C (QMFZ2/8) Model GE-100 by Hitachi Chemical Co. Ltd (E42956). Overall dimension 15 mm by 11.25 mm. Molded using high temperature and high pressure process.
2. PWB - Top of PWB - Model CCL-HL832NX-A, by Mitsubishi Gas Chemical Co Inc Electronics Material Div. Overall dimension 15 mm by 11.25 mm 0.27-0.37 mm substrate thickness with a through insulation of 60µm.
3. Lead Frame - Metal employed for current carrying parts shall be of stainless steel, silver, gold, copper, nickel, aluminum, an alloy of the same, or an equivalent material.
4. Wire - Metal employed for current carrying parts shall be of stainless steel, silver, gold, copper, nickel, aluminum, an alloy of the same, or an equivalent material.
5. Isolation barrier between Logic & Isolation chip designations -
Model LTM2889 = Chip M550-CH
Models LTM2881, LTM2882 = Chip M550-PH
Model LTM2883, **LTM2886**, **LTM2887** = Chip M550-SH or M550-IH.
- * Transformer Isolation - (Basic and supplemental insulation) R/C (OBJT2), D-AA-X-XX-P-XX-R by Rubadue Wire Co Inc. (E206198) for basic and supplemental insulation Grade insulation 440 by Dupont PFA Teflon Coating for one winding and R/C (OBMW2), magnet wire, rated minimum 180°C for the second winding. Thickness 76µm.
- * Alternate - (Supplementary Insulation) R/C (OBJT2), UTWA-2X by Great Leoflon Industrial Co Ltd (E211989) for supplementary insulation Grade designation 340J by Dupont rated 180°C PFA Teflon coating for one winding and R/C (OBMW2), magnet wire, rated minimum 180°C for the second winding. Thickness 76µm
- * Data Isolation - Printed circuit material CCL-HL832NX-A by Mitsubishi Gas & Chemical. Thickness 60µm.
6. Logic Side - CMOS Isolated DC/DC Converter.
7. Isolated Side - CMOS RS485/RS422 interface.

Model **LTM2892wx-y** is the same as Model **LTM2881wx-y**, except as noted below.

1. Body - Epoxy Molding Compound. R/C (QMFZ2/8) Model GE-100 by Hitachi Chemical Co. Ltd (E42956). Overall dimension 6.2 mm by 9.0 mm. Molded using high temperature and high pressure process.
2. PWB - Top of PWB -Model CCL-HL832NX-A, by Mitsubishi Gas Chemical Co Inc Electronics Material Div. Overall dimension 6.2 mm by 9.0 mm. 0.37-0.47 mm substrate thickness with a through insulation of 100µm.
5. Isolation barrier between Logic & Isolation **Chip - Chip M550-SH or M550-IH**

Transformer Isolation - Not applicable for Model LTM2892, which only has data isolation.

Data Isolation - Printed circuit material CCL-HL832NX-A by Mitsubishi Gas & Chemical. Thickness 100µm.

MODEL LTM2884wx same as Model LTM2881wx-y, except for below.

1. Body - Epoxy Molding Compound. R/C (QMFZ2/8) Model GE-100 by Hitachi Chemical Co. Ltd (E42956). Overall dimension 15 mm by 15 mm. Molded using high temperature and high pressure process.
2. PWB - Top of PWB -Model CCL-HL832NX-A, by Mitsubishi Gas Chemical Co Inc Electronics Material Div. Overall dimension 15 mm by 15 mm. 0.3-0.4 mm substrate thickness with a through insulation of 100µm.
5. Isolation barrier between Logic & Isolation Chip - Chip M551

Transformer Isolation - (Reinforced Insulation) R/C (OBJT2), TCA3 by Rubadue Wire Co Inc. (E206198) by Dupont ETFE Teflon Coating for one winding and R/C (OBMW2), magnet wire, rated minimum 180°C for the second winding. Thickness 114µm.

- * Data Isolation - Printed circuit material CCL-HL832NX-A by Mitsubishi Gas & Chemical. Thickness 100µm.