Isolated RS-485 Transceiver with 1W Power

Features

► Isolator μModule technology
► Isolated RS-485/RS-422 transceiver: 2500 V rms
► UL recognized file #E157738
► Integrated isolated, 1 W dc-to-dc converter
  □ Good efficiency (up to 62%)
  □ Low EMI
► 3.3 V or 5 V input supply voltage (LTM2881-3/LTM2881-5)
► 20 Mbps or low EMI 250 kbps data rate
► High ESD: ±15 kV HBM
► Common-mode transient immunity: >30 kV/μs
► Integrated selectable 120 Ω termination
► Small footprint, low profile (11.25 mm × 15 mm × 2.8 mm) in surface-mount BGA and LGA packages

The LTM2881 is an isolated RS-485 transceiver that guards against large ground-to-ground differentials. The LTM2881’s internal inductive isolation barrier breaks ground loops by isolating the logic level interface and line transceiver. An onboard dc-to-dc converter provides power to the transceiver with an isolated 5 V supply output for powering additional system circuitry. With 2500 V rms galvanic isolation, onboard secondary power, and a fully compliant RS-485 transmitter and receiver, the LTM2881 requires no external components and provides a small, complete μModule® solution for isolated serial data communications.

Complete 20 Mbps μModule Transceiver Includes 2500 V rms Isolated Power—No External Components Required

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Isolated μModule Technology

To achieve greater than 2500 V rms isolation, the LTM2881 utilizes isolator μModule technology, which uses coupled signal inductors embedded in the μModule substrate. This technique ensures consistent ruggedness and reliability, and is certified by UL to guarantee the isolation barrier’s effectiveness. For the downloadable safety certification, visit analog.com/iCouplerSafety. The μModule package integrates several technologies to deliver a cost-effective, advanced solution that minimizes board space and improves electrical and thermal performance.

Common-Mode Transient Immunity

The galvanic isolation of the LTM2881 is rugged, reliable, and allows for continuous communication through common-mode transient events that are greater than 30 kV/μs.

Integriated Selectable 120 Ω Termination

A pin-selectable 120 Ω termination is available for minimizing reflections that may be present on an unterminated transmission line. RS-485 networks require 120 Ω termination resistors to be installed by the end-user based on the physical layout of the twisted-pair wires and the placement of the nodes. The LTM2881’s pin-selectable termination allows the proper nodes to be terminated by switching the integrated termination on or off, under software control, without the need for physical intervention by the user.