Hot-Swappable I²C Isolator

Reliable I²C Performance Courtesy of Fully Bidirectional Isolation, Rise Time Acceleration and Stuck Bus Disconnect and Recovery

The LTC®4310 is a hot-swappable I²C isolator that provides fully bidirectional SCL and SDA communication between two I²C busses whose grounds are isolated from one another. The LTC4310 simplifies I²C isolation by encoding and transmitting I²C bus signals over an isolation barrier. The signals are decoded and recomposed on the other side of the barrier using a second LTC4310, while maintaining I²C signal integrity. The LTC4310 allows the signals to be bridged by an Ethernet transformer to achieve communications across voltage differences of more than 1500V RMS or capacitors for lower voltage differentials. Each I²C bus can be pulled up to a supply voltage ranging from 3V to 5.5V with respect to its local ground, independent of each other.

Features
- Fully Bidirectional SCL and SDA Communication Between Two Isolated Busses
- Full Isolation with Inexpensive Ethernet Transformers or Capacitors
- Low Voltage Level Shifting
- High Logic Low Noise Margin
- I²C Maximum Operating Frequency:
  - 100kHz for LTC4310-1
  - 400kHz for LTC4310-2
- I²C Specification Compliant V_{OL}, V_{IL}
- ±5kV Human Body Model ESD Protection
- Rise Time Accelerators
- SDA, SCL Hot-Swapping
- Very Low Shutdown Current
- Stuck Bus Disconnect and Recovery
- Thermal Shutdown
- 10-Lead MSOP and 3mm x 3mm DFN Packages

LTC4310 Operating Through 20kV/µs Transient*

**“Roundtrip” Configuration (SCL #2 Connected to SDA #2)**
The LTM®2883 is a complete digital µModule® galvanic isolator. The LTM2883’s internal inductive isolation barrier breaks ground loops by isolating the logic level interface for SPI, I²C or general purpose I/O. An onboard DC/DC converter provides power to the internal communications interface and to three adjustable isolated power supply outputs, nominally 5V, 12.5V and –12.5V. Each supply can be adjusted from its nominal value using a single external resistor. The LTM2883’s 2500V

Features
- 6-Channel Logic Isolator: 2500V_RMS
- UL Recognized File #E151738
- Isolated Adjustable DC Power: 3V to 5V at Up to 30mA ±12.5V at Up to 20mA
- No External Components Required
- High Speed Logic Isolation: 10MHz Digital (LTM2883-S) 4MHz Full Duplex SPI (LTM2883-S) 400kHz I²C (LTM2883-I)
- High Common Mode Transient Immunity: 30kV/µs 3.3V (LTM2883-3) or 5V (LTM2883-5) Operation 1.62V to 5.5V Logic Supply ±10kV HBM ESD Across the Isolation Barrier Common Mode Working Voltage: 560V PEAK Low Current Shutdown Mode (<10µA) 15mm × 11.25mm BGA Package

LTM2883 Operating Through 35kV/µs Common Mode Transients*

* LTM2883-S “Roundtrip” Configuration SCK2 Output Connected to SDO2 Input

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