Isolated RS232 + 1W Power

Complete 1Mbps µModule® Transceiver Includes 2500V_{RMS} Isolated Power—No External Components Required

The LTM®2882 is an isolated RS232 transceiver that guards against large ground-to-ground differentials. The LTM2882's internal inductive isolation barrier breaks ground loops by isolating the logic level interface and line transceiver. An onboard DC/DC converter provides power to the transceiver, with an isolated 5V supply output for powering additional system circuitry. With 2500V_{RMS} galvanic isolation, onboard secondary power and two RS232 drivers and receivers, the LTM2882 requires no external components and provides a small, complete µModule solution for isolated serial data communications.

Features

- Isolator µModule Technology
- Isolated RS232 Transceiver: 2500V_{RMS}
- UL Recognized, File #E151738
- Integrated Isolated, 1W DC/DC Converter
  - Good Efficiency (Up to 65%)
  - Low EMI
- 1.62V to 5.5V Logic Supply
- High Speed Operation
  - 1Mbps for 250pF/3kΩ Load
  - 250kbps for 1nF/3kΩ Load
  - 100kbps for 2.5nF/3kΩ TIA/EIA-232-F Load
- 3.3V (LTM2882-3) or 5V (LTM2882-5) Operation
- No Damage or Latchup to ±10kV ESD HBM on Isolated RS232 Interface and Across Isolation Barrier
- High Common Mode Transient Immunity: >30kV/µs
- Low Profile Surface Mount (15mm × 11.25mm × 2.8mm) LGA and (15mm × 11.25mm × 3.7mm) BGA Packages

LTM2882 Demo Board
Isolator µModule Technology
To achieve greater than 2500V<sub>rms</sub> isolation, the LTM2882 utilizes Isolator µModule Technology, which uses coupled signal inductors embedded in the µModule substrate. This technique ensures consistent ruggedness and reliability, and will be certified by UL, CSA and IEC to guarantee the isolation barrier’s effectiveness. The µModule package integrates several technologies to deliver a cost-effective, advanced solution that minimizes board space and improves electrical and thermal performance.

Isolated Supply Voltage Output
The LTM2882 is self-powered and provides a well regulated 5V, up to 1W, isolated supply for powering any supporting components on the isolated bus side. This regulated power is continuously available over the operating temperature range, even while driving RS232 compliant signal levels.

Common Mode Transient Immunity
Unlike other isolated solutions, the LTM2882 allows communication through common mode transient events greater than 30kV/µs, unaffected by the transient and without introducing any priority data jitter or data corruption.

RF & Magnetic Field Immunity
The LTM2882 passes independent RF and magnetic field immunity test requirements per European Standard EN50524, in accordance with the following test standards: EN 61000-4-3 for radiated, radio frequency, electromagnetic field immunity; EN 61000-4-8 for power frequency magnetic field immunity; EN 61000-4-9 for pulsed magnetic field immunity.

<table>
<thead>
<tr>
<th>TEST</th>
<th>FREQUENCY</th>
<th>FIELD STRENGTH</th>
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</thead>
<tbody>
<tr>
<td>EN 61000-4-3</td>
<td>80MHz to 1GHz</td>
<td>10V/m</td>
</tr>
<tr>
<td>EN 61000-4-3</td>
<td>1.4MHz to 2GHz</td>
<td>3V/m</td>
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<tr>
<td>EN 61000-4-3</td>
<td>2MHz to 2.7GHz</td>
<td>1V/m</td>
</tr>
<tr>
<td>EN 61000-4-8</td>
<td>50Hz to 60Hz</td>
<td>30A/m</td>
</tr>
<tr>
<td>EN 61000-4-8</td>
<td>60Hz</td>
<td>100A/m*</td>
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<tr>
<td>EN 61000-4-9</td>
<td>Pulse</td>
<td>1000A/m</td>
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</tbody>
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*non-IEC method