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# Evaluation Board User Guide

## UG-239

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## Evaluation Board for the **ADM2483** Half-Duplex *i*Coupler Isolated RS-485 Transceiver

### FEATURES

**RS-485 transceiver with electrical data isolation**  
**500 kbps data rate**  
**Slew rate-limited driver outputs**  
**Suitable for 5 V or 3 V operation on  $V_{DD1}$**   
**Suitable for 5 V operation on  $V_{DD2}$**   
 **$V_{ORM} = 560$  V peak**  
**256 nodes on bus**

### ADM2483 APPLICATIONS

**Low power RS-485/RS-422 networks**  
**Isolated interfaces**  
**Industrial field networks**  
**Multipoint data transmission systems**

### EVALUATION KIT CONTENTS

**EVAL-ADM2483EBZ**

### GENERAL DESCRIPTION

The EVAL-ADM2483EBZ allows easy and quick evaluation of the isolated **ADM2483** RS-485 transceiver. The evaluation board allows all of the input and output functions to be exercised without the need for external components.

The **ADM2483** differential bus transceiver is an integrated, galvanically isolated component designed for bidirectional data communication on balanced, multipoint bus transmission lines. Using Analog Devices, Inc., *i*Coupler® technology, the **ADM2483** combines a 3-channel isolator, a three-state differential line driver, and a differential input receiver into a single package. The logic side of the device is powered with either a 5 V or 3 V supply, and the bus side uses only a 5 V supply.

### EVALUATION BOARD DIGITAL PHOTOGRAPH



Figure 1.

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### REVISION HISTORY

6/11—Revision 0: Initial Version

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### EVALUATION BOARD CONFIGURATIONS

#### SETTING UP THE EVALUATION BOARD

The EVAL-ADM2483EBZ allows the isolated [ADM2483](#) RS-485 transceivers to be easily and quickly evaluated. The evaluation board allows all of the input and output functions to be exercised without the need for external components.

A termination resistor, RT, of 120  $\Omega$  is fitted on the receiver input. This can be removed if the board is connected to a bus already terminated at both ends. The value of the termination resistor should be equal to the characteristic impedance of the cable used.

The logic side is suitable for 5 V or 3 V operation on VDD1. There is a 0.1  $\mu$ F decoupling capacitor, C1, fitted between VDD1 and GND1. The bus side is suitable for 5 V operation on VDD2. There is a 0.1  $\mu$ F decoupling capacitor, C2, fitted between VDD2 and GND2.

If fail-safe biasing is required for other parts on the bus that do not have the offset receiver threshold of the ADM2483, bus biasing resistors can be fitted on the receiver input by inserting R1 and R2.

Refer to [AN-960 Application Note](#), *RS-485/RS-422 Circuit Implementation Guide*, for an explanation of bus termination and fail-safe biasing.

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### EVALUATION BOARD SCHEMATIC AND ARTWORK

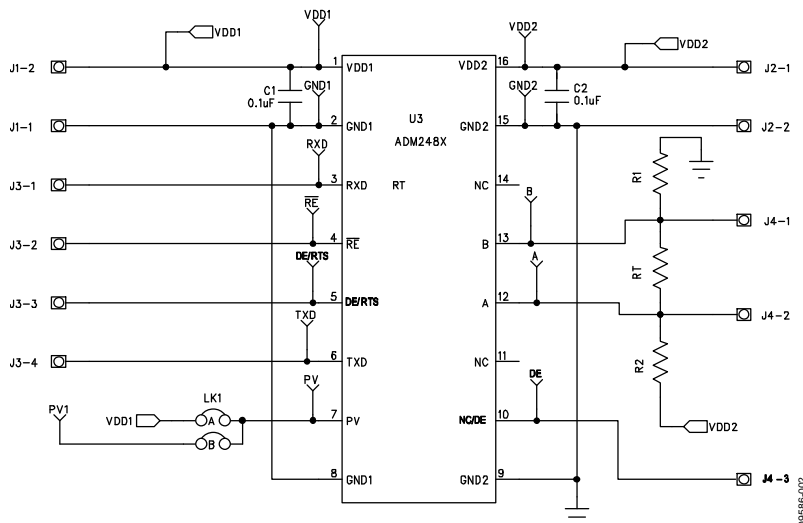


Figure 2. EVAL-ADM2483EBZ Evaluation Board Circuit Diagram

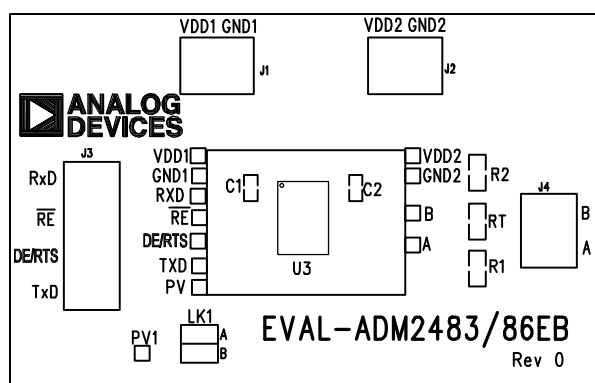


Figure 3. EVAL-ADM2483EBZ Evaluation Board Silkscreen

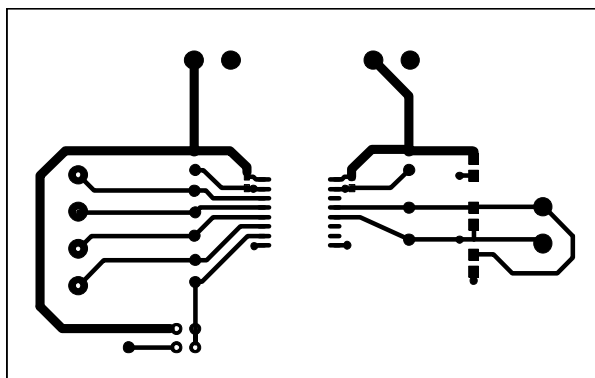


Figure 4. EVAL-ADM2483EBZ Evaluation Board Component Side

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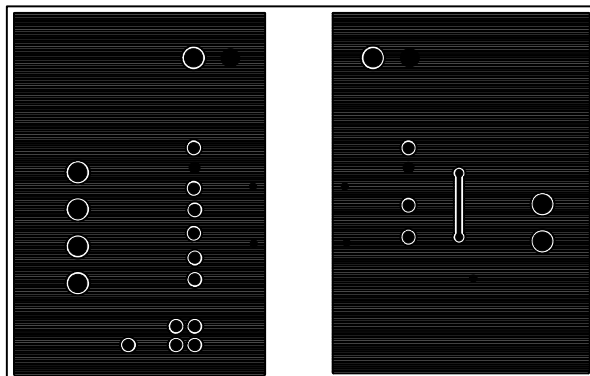


Figure 5. EVAL-ADM2483EBZ Evaluation Board Solder Side

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### ORDERING INFORMATION

#### BILL OF MATERIALS

Table 1.

Quantity	Reference Designator	Description	Supplier/Part Number
2	R1, R2	Resistor, do not insert	Not applicable
1	RT	Resistor, 120 $\Omega$ , 0805	Multicomp/MC 0.1W 0805 1% 120R
2	C1, C2	Capacitor, Size 0805, 100 nF	AVX Corp./08055C104KAT2A
2	J1, J2	CON\POWER, 2-pin terminal block (5 mm pitch)	Lumberg/KRM 02
1	J3	CON\POWER4, 4-pin terminal block	Lumberg/KRM 04
1	J4	CON\POWER, terminal block, PCB, 3-way	Lumberg/KRM 03
1	LK1	Board-to-board connector header, 4-way, 2-row and Jumper $\times 2$	SPC Technology/SPC20499, Harwin/M7566-05
1	U3	SO16WB	Analog Devices/ADM2483BRWZ
2	GND1, GND2	Test point, black	Vero Technologies/20-2137
2	VDD1, VDD2	Test point, red	Vero Technologies/20-313137
2	A, B	Test point, green	Vero Technologies/20-313138
7	RXD, DE, $\overline{\text{RE}}$ , PV, TXD, PV1, DE/RTS	Test point, yellow	Vero Technologies/20-313140

#### RELATED LINKS

Resource	Description
<a href="#">ADM2483</a>	Product Page, 2.5 kV Signal Isolated, 500 kbps, Half Duplex RS-485 Transceiver with Power Valid Input
<a href="#">AN-960</a>	RS-485/RS-422 Circuit Implementation Guide

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### NOTES



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### NOTES



#### ESD Caution

**ESD (electrostatic discharge) sensitive device.** Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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