

Evaluation Board for the **ADM2486** High Speed, Half-Duplex *iCoupler* Isolated RS-485 Transceiver

FEATURES

Half-duplex, isolated RS-485 transceiver
PROFIBUS compliant
Suitable for 5 V or 3 V operation on V_{DD1}
Suitable for 5 V operation on V_{DD2}
20 Mbps data rate
50 nodes on bus
 $V_{IORM} = 560$ V peak

ADM2486 APPLICATIONS

Isolated RS-485/RS-422 interfaces
PROFIBUS networks
Industrial field networks
Multipoint data transmission systems

EVALUATION KIT CONTENTS

EVAL-ADM2486EBZ

GENERAL DESCRIPTION

The EVAL-ADM2486EBZ allows the isolated **ADM2486** 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.

The **ADM2486** differential bus transceiver is an integrated, galvanically isolated component designed for bidirectional data communication on multipoint bus transmission lines.

The device employs Analog Devices, Inc., *iCoupler*® technology to combine 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 a 3 V supply, and the bus side uses an isolated 5 V supply.

EVALUATION BOARD DIGITAL PHOTOGRAPH

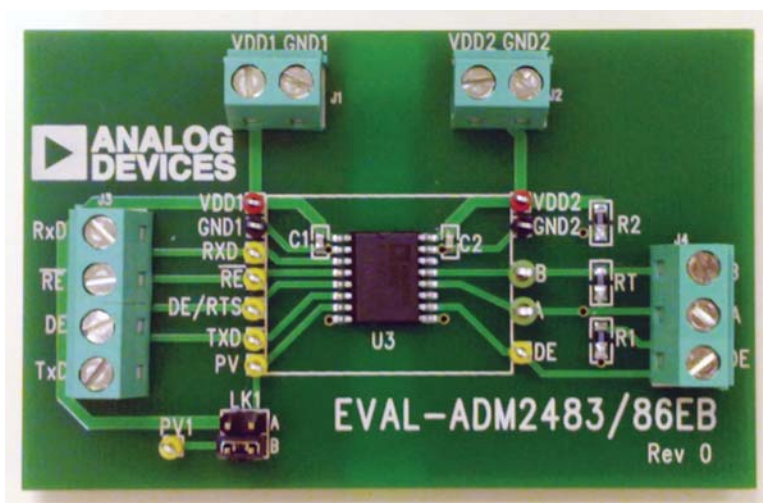


Figure 1.

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REVISION HISTORY

6/11—Revision 0: Initial Version

EVALUATION BOARD CONFIGURATIONS

SETTING UP THE EVALUATION BOARD

The EVAL-ADM2486EBZ allows the isolated [ADM2486](#) 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, is fitted on the receiver inputs; this can be changed or removed if necessary. The value of the termination resistor should be equal to the characteristic impedance of the cable used. The 220 Ω resistor fitted is for standard PROFIBUS® operation. Remove RT if the board is connected to a bus that is already terminated at both ends.

The logic side is suitable for 5 V or 3 V operation on VDD1. There is a 0.1 μ 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 μ F decoupling capacitor, C2, fitted between VDD2 and GND2.

Bus biasing resistors, R1 and R2, are fitted on the receiver inputs with 390 Ω resistors for a standard PROFIBUS biasing network. If additional EVAL-ADM2486EBZ boards are connected together, remove these resistors from all but one board.

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

EVALUATION BOARD SCHEMATIC AND ARTWORK

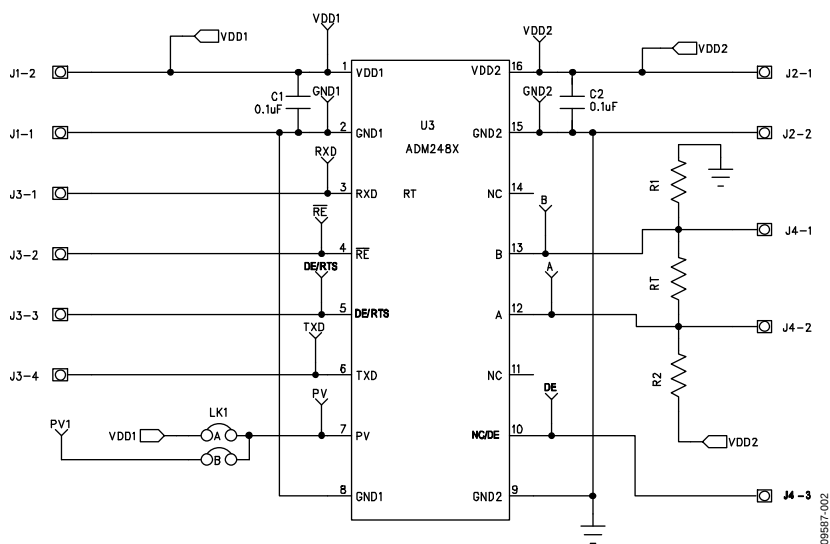


Figure 2. EVAL-ADM2486EBZ Evaluation Board Circuit Diagram

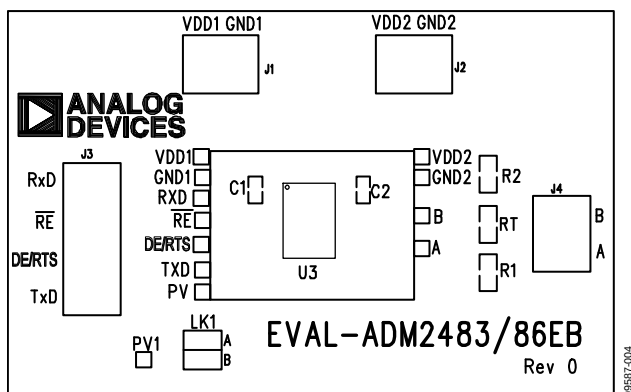


Figure 3. EVAL-ADM2486EBZ Evaluation Board Silkscreen

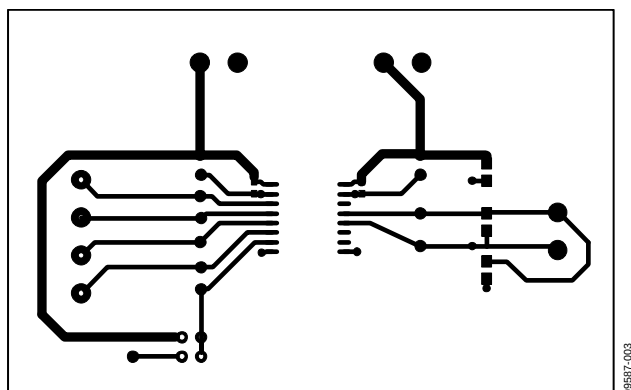


Figure 4. EVAL-ADM2486EBZ Evaluation Board Component Side

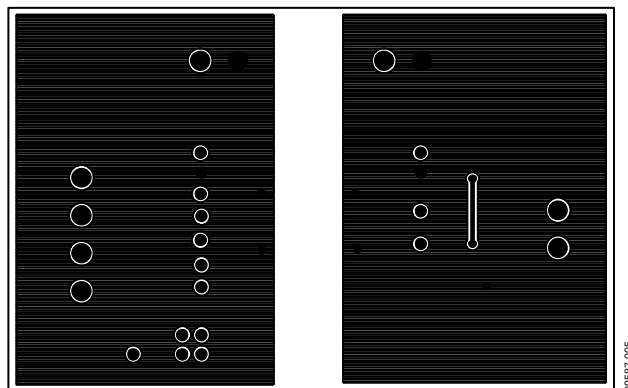


Figure 5. EVAL-ADM2486EBZ Evaluation Board Solder Side

ORDERING INFORMATION

BILL OF MATERIALS

Table 1.

Quantity	Reference Designator	Description	Supplier/Part Number
2	R1, R2	Resistor, 390 Ω , 0805	Vishay Dale/CRCW0805390RJNEA
1	RT	Resistor, 220 Ω , 0805	Yageo/RC0805JR-07220RL
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\POWER, terminal block, PCB, 3-way	Lumberg/KRM 03
1	J4	CON\POWER4, 4-pin terminal block	Lumberg/KRM 04
1	LK1	Board-to-board connector header, 4-way, 2-row and Jumper x2	SPC Technology/SPC20499 HARWIN/M7566-05
1	U3	SO16WB	Analog Devices/ADM2486BRWZ
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, $\overline{RE}$, PV, TXD, PV1, DE/RTS	Test point, yellow	Vero Technologies/20-313140

RELATED LINKS

Resource	Description
ADM2486	Product Page, 2.5 kV Signal Isolated, High Speed (20 Mbps), Half Duplex RS-485 Transceiver
AN-960	RS-485/RS-422 Circuit Implementation Guide

NOTES

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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