



# MAX13485E Evaluation Kit

## General Description

The MAX13485E evaluation kit (EV kit) provides a proven design to evaluate the MAX13485E half-duplex RS-485/RS-422 transceivers in an 8-pin  $\mu$ DFN package.

The MAX13485E EV kit PCB comes with a MAX13485EELA+ installed. Contact the factory for free samples of the pin-compatible MAX13486EELA+ to evaluate this device.

## Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	0.1 $\mu$ F $\pm$ 10%, 16V X7R ceramic capacitor (0603) TDK C1608X7R1C104K
C2	1	1 $\mu$ F $\pm$ 20%, 10V X5R ceramic capacitor (0603) TDK C1608X5R1A105M
J1	1	2-position terminal block
JU1, JU2, JU3	3	2-pin headers
R1	1	120 $\Omega$ $\pm$ 5% resistor (1206)
R2, R3, R4, R5	4	Not installed, resistors (0603)
TP1, TP2	2	Not installed, test points
U1	1	RS-485 half-duplex transceiver (8 $\mu$ DFN) Maxim MAX13485EELA+
—	3	Shunts
—	1	PCB: MAX13485E Evaluation Kit+

## Component Supplier

SUPPLIER	PHONE	WEBSITE
TDK Corp.	847-803-6100	www.component.tdk.com

**Note:** Indicate that you are using the MAX13485E when contacting this component supplier.

## Features

- ◆ Lead(Pb)-Free and RoHS Compliant
- ◆ Proven PCB Layout
- ◆ Fully Assembled and Tested

## Ordering Information

PART	TYPE
MAX13485EEVKIT+	EV Kit

+ Denotes lead(Pb)-free and RoHS compliant.

## Quick Start

### Required Equipment

Before beginning, the following equipment is needed:

- MAX13485E EV kit
- 5V DC power supply
- Two digital voltmeters

### Procedure

The MAX13485E EV kit is fully assembled and tested. Follow the steps below to verify board operation:

- 1) Verify that the jumpers are in their default position, as shown in Table 1. JU1 connects the 120 $\Omega$  load resistor between A and B.
- 2) For testing purposes, remove the shunt from JU1.
- 3) Connect the positive terminal of the 5V supply to VCC and the negative terminal of the supply to GND.
- 4) Apply 5V on the  $\overline{RE}$  and DE pads. This is a logic to RS-485 DC test.
- 5) Apply 5V on the DI pad and check that A-B is positive.
- 6) Apply 0V on the DI pad and check that B-A is positive.
- 7) Apply 0V on  $\overline{RE}$  and DE. Apply 5V on A and 0V on B. This is an RS-485 to logic DC test.
- 8) Check the state of RO using a voltmeter. RO should be approximately 5V.

Evaluates: MAX13485E/MAX13486E



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Table 1. Jumper Table (JU1, JU2, JU3)

JUMPER	SHUNT POSITION	DESCRIPTION
JU1	Open	Does not connect the 120Ω resistor differentially between A and B
	Closed*	Connects the 120Ω resistor differentially between A and B
JU2	Open*	R2 and R5 not connected
	Closed	Connects A and B through R2 and R5 if populated for testing custom termination and common-mode
JU3	Open	Keeps DE and $\overline{RE}$ electrically separate
	Closed*	Shorts DE and $\overline{RE}$

\*Default position.

## Detailed Description of Hardware

The MAX13485E EV kit provides a proven layout for the MAX13485E. On-board pads are included for adding external fail-safe resistors. JU2 can be used to monitor the A and B lines with a differential probe. A terminal block is also included to easily connect a cable to the EV kit board.

An electrical grid with vias and GND vias are present on the board to enable prototyping.

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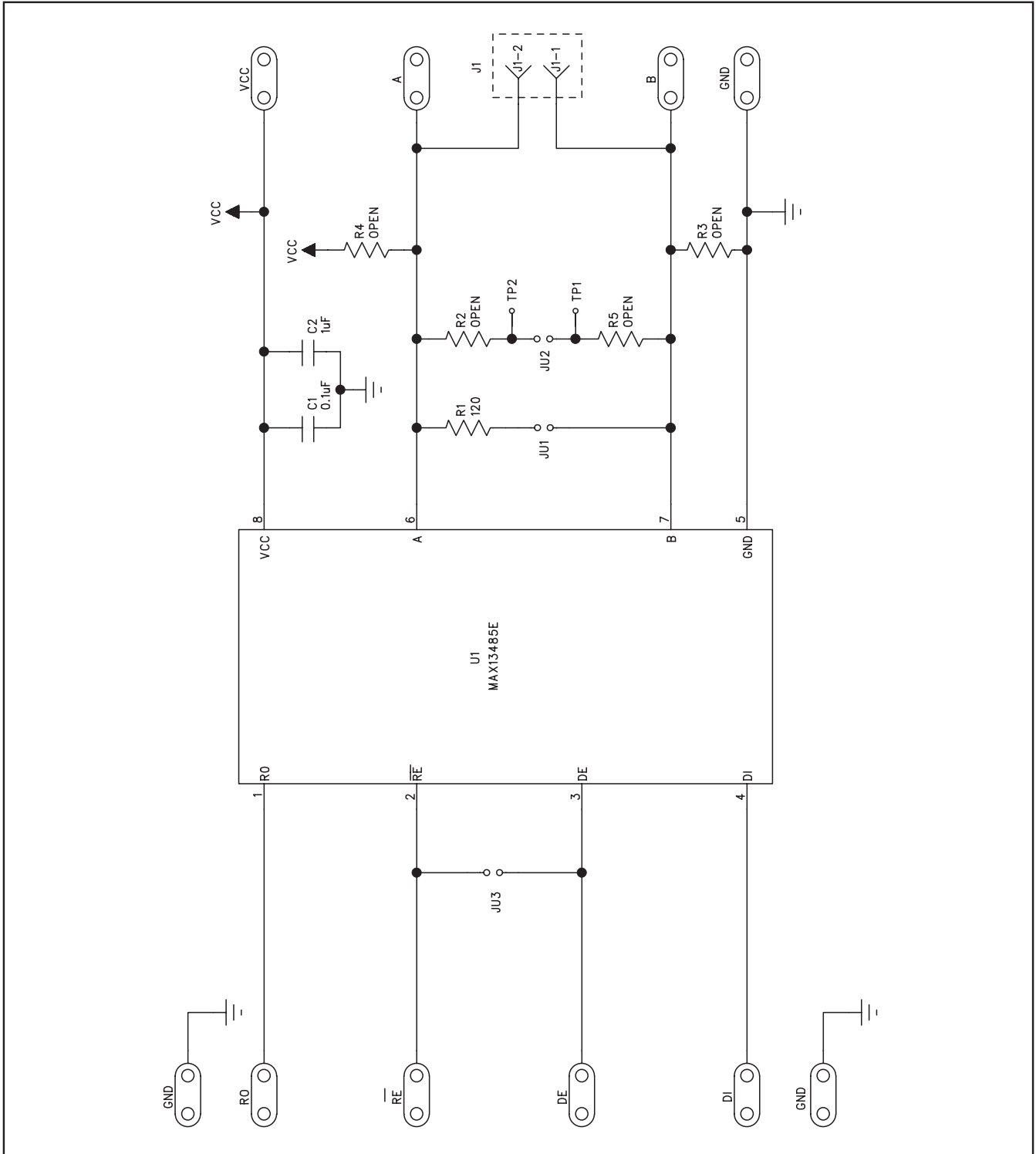


Figure 1. MAX13485E EV Kit Schematic

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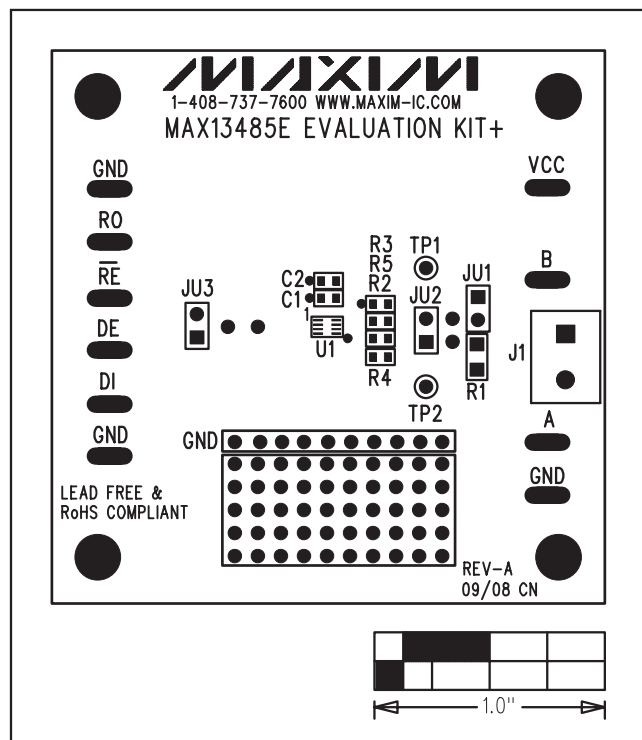


Figure 2. MAX13485E EV Kit Component Placement Guide—Component Side

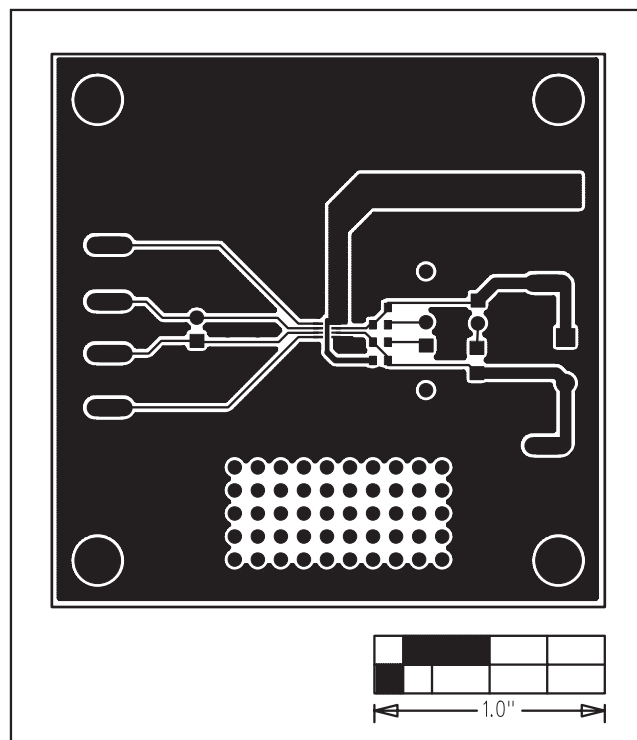


Figure 3. MAX13485E EV Kit PCB Layout—Component Side

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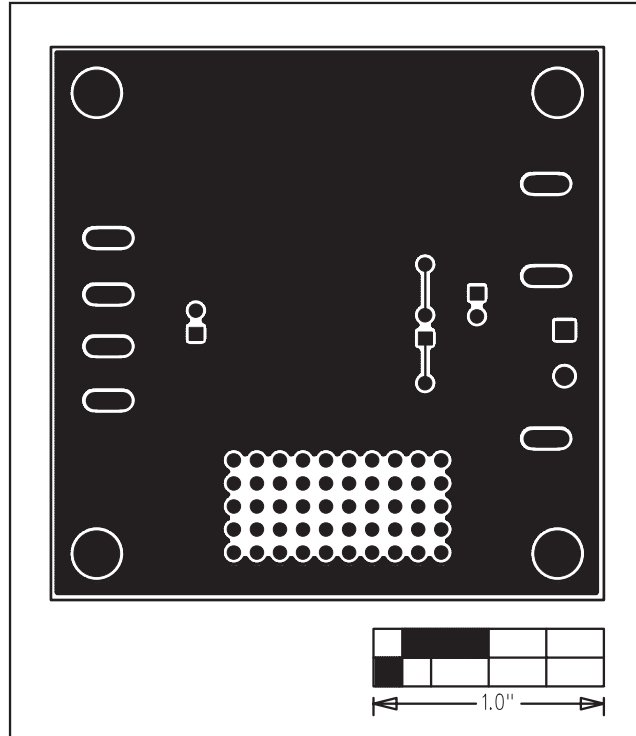


Figure 4. MAX13485E EV Kit PCB Layout—Solder Side

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