



# 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)<br>TDK C1608X7R1C104K |
| C2             | 1   | 1 $\mu$ F $\pm$ 20%, 10V X5R ceramic capacitor (0603)<br>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)<br>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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Evaluates: MAX13485E/MAX13486E

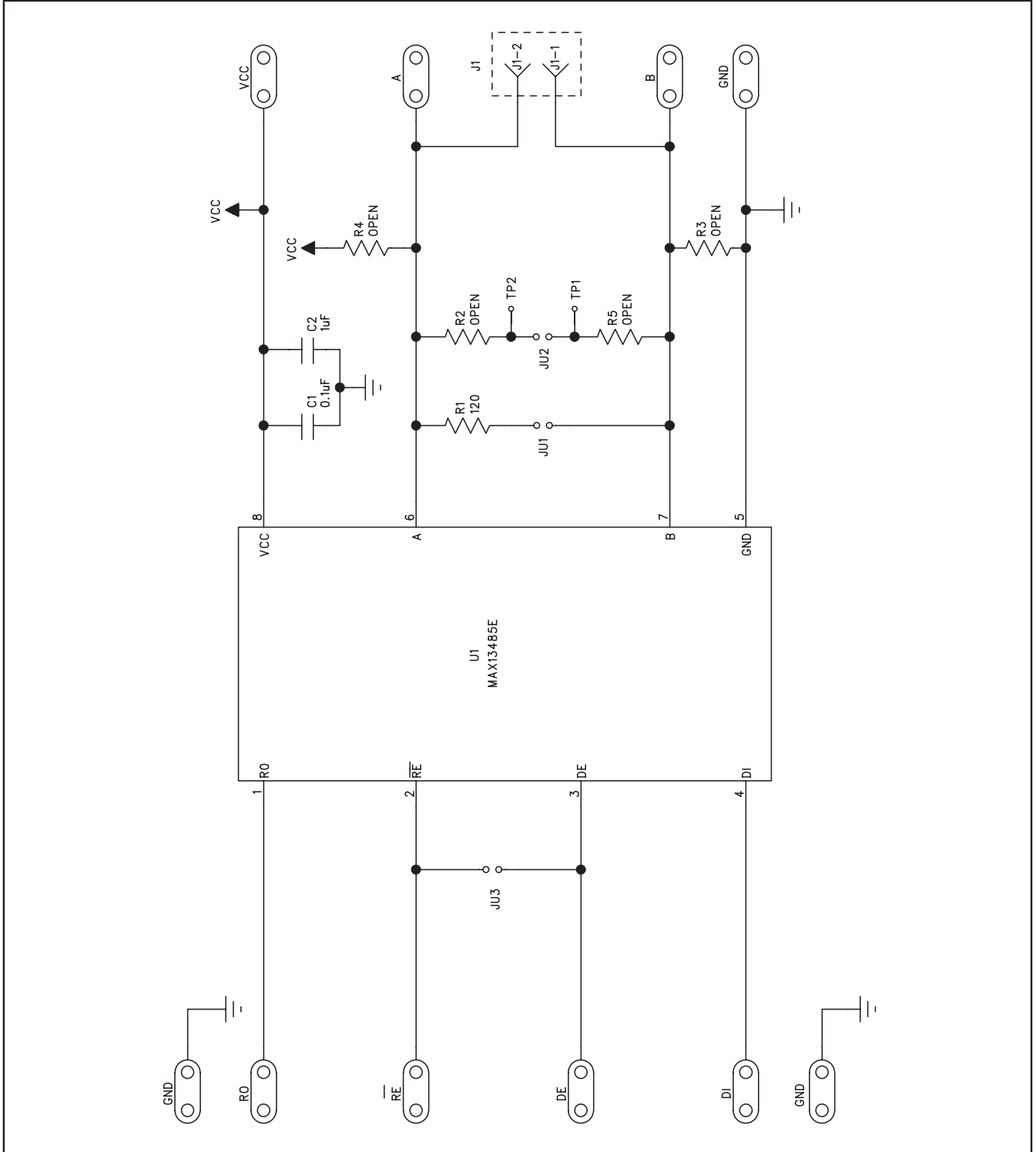


Figure 1. MAX13485E EV Kit Schematic

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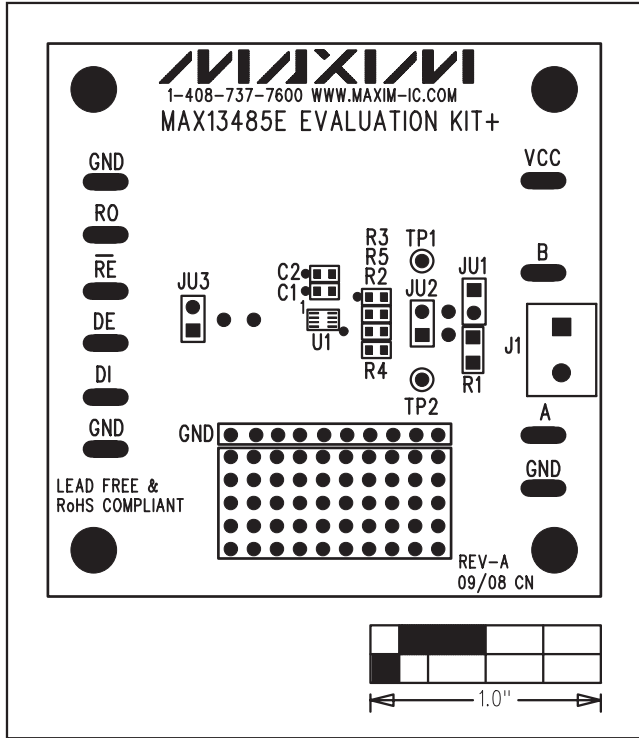


Figure 2. MAX13485E EV Kit Component Placement Guide—Component Side

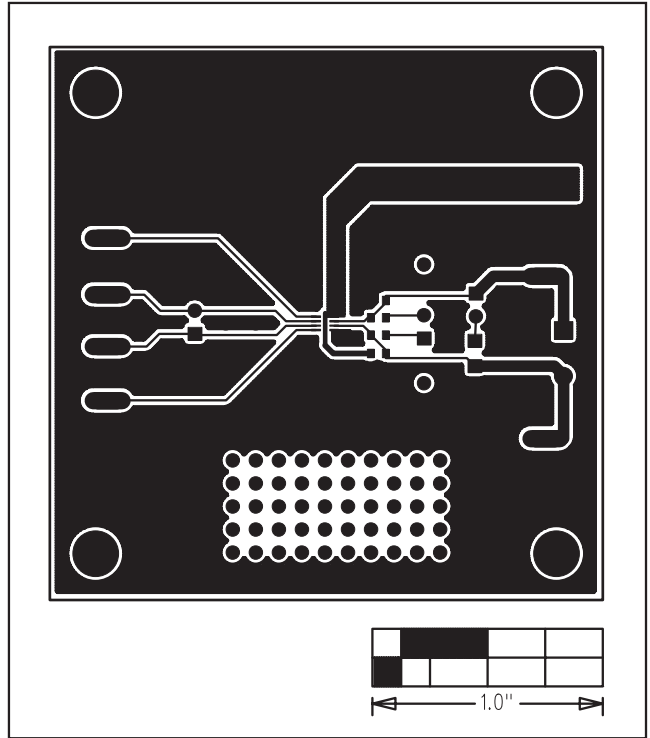


Figure 3. MAX13485E EV Kit PCB Layout—Component Side

# MAX13485E Evaluation Kit

Evaluates: MAX13485E/MAX13486E

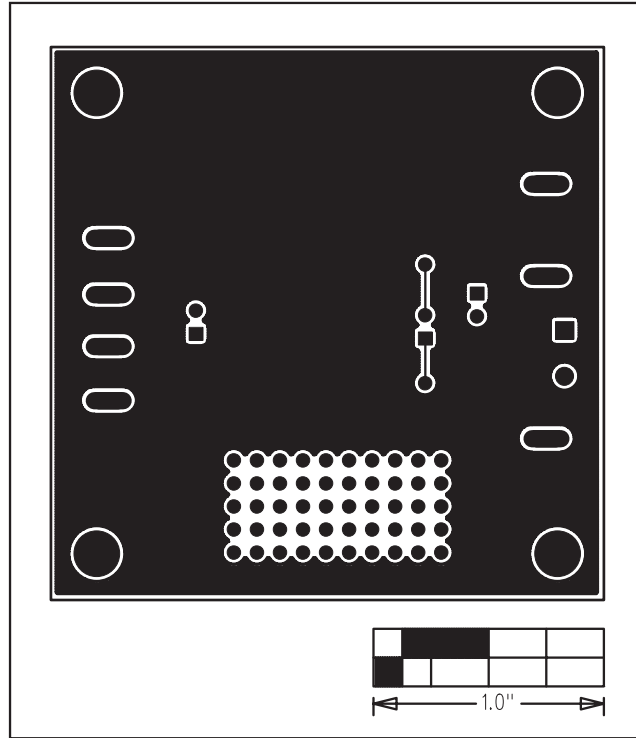


Figure 4. MAX13485E EV Kit PCB Layout—Solder Side

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