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Evaluating the ADM3252E Isolated, Dual Channel, RS-232 Line Driver/Receiver

FEATURES

2.5 kV fully isolated (power and data) RS-232 transceiver
Convenient connections for power and signal via screw terminal blocks
3.3 V or 5 V operation
Test points for measuring all signals
All external components required included for correct operation

EVALUATION KIT CONTENTS

ADM3252E evaluation board

GENERAL DESCRIPTION

The EVAL-ADM3252EEBZ evaluation board can be used for easy evaluation of the ADM3252E isolated RS-232 transceiver. Screw terminal blocks provide convenient connections for the power and signal connections. Test points are included on the power and signal lines on both sides of the isolation barrier. All required external components are included on the evaluation board.

RADIATED EMISSIONS

The EVAL-ADM3252EEBZ shown in Figure 1 uses some of the techniques described in the AN-0971 Application Note, *Recommendations for Control of Radiated Emissions with isoPower Devices*, to reduce radiated emissions. These emissions are generated by the high frequency switching elements used by the *iso*Power® technology to transfer power through its transformer. The evaluation board is designed to meet the EN55022 Class B emission standard (results pending).

EVAL-ADM3252EEBZ EVALUATION BOARD

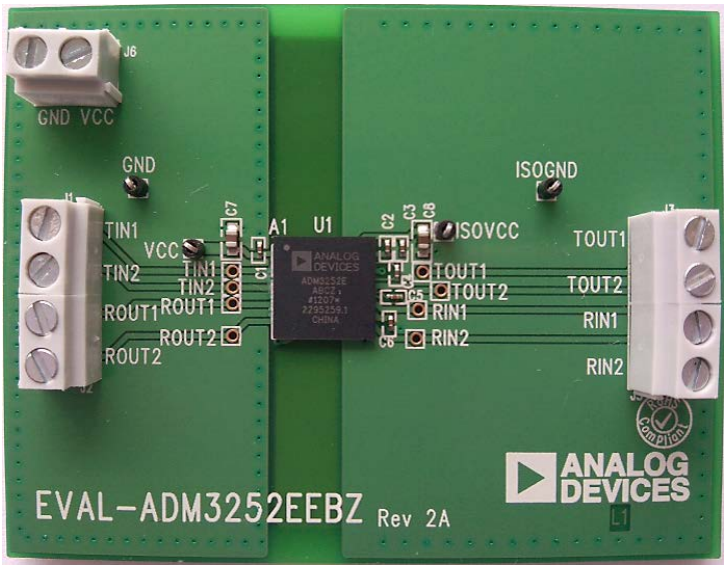

Figure 1.

TABLE OF CONTENTS

REVISION HISTORY

7/12—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

CONNECTOR AND TEST POINT FUNCTIONS

Table 1. Connector Functions

Connector	Name	Function
J6	Power connector	J6-1 (VCC) connects positive supply of bench supply to the V_{CC} plane J6-2 (GND) connects ground terminal of bench supply to the GND plane
J1	Signal connector	J1-1 (TIN1) connects to T_{IN1} pin of ADM3252E J1-2 (TIN2) connects to T_{IN2} pin of ADM3252E
J2	Signal connector	J2-1 (ROUT1) connects to R_{OUT1} pin of ADM3252E J2-2 (ROUT2) connects to R_{OUT2} pin of ADM3252E
J3	Signal connector	J3-1 (TOUT1) connects to T_{OUT1} pin of ADM3252E J3-2 (TOUT2) connects to T_{OUT2} pin of ADM3252E
J5	Signal connector	J5-1 (RIN1) connects to R_{IN1} pin of ADM3252E J5-2 (RIN2) connects to R_{IN2} pin of ADM3252E

Table 2. Test Point Functions

Test Point	Function
GND	Connects to GND plane at logic side
VCC	Connects to V_{CC} plane at logic side
TIN1	Connects to T_{IN1} pin of ADM3252E
TIN2	Connects to T_{IN2} pin of ADM3252E
ROUT1	Connects to R_{OUT1} pin of ADM3252E
ROUT2	Connects to R_{OUT2} pin of ADM3252E
ISOVCC	Connects to V_{ISO} plane at RS-232 side
ISOGND	Connects to GND plane at RS-232 side
TOUT1	Connects to T_{OUT1} pin of ADM3252E
TOUT2	Connects to T_{OUT2} pin of ADM3252E
RIN1	Connects to R_{IN1} pin of ADM3252E
RIN2	Connects to R_{IN2} pin of ADM3252E

EVALUATION BOARD SCHEMATICS AND ARTWORK

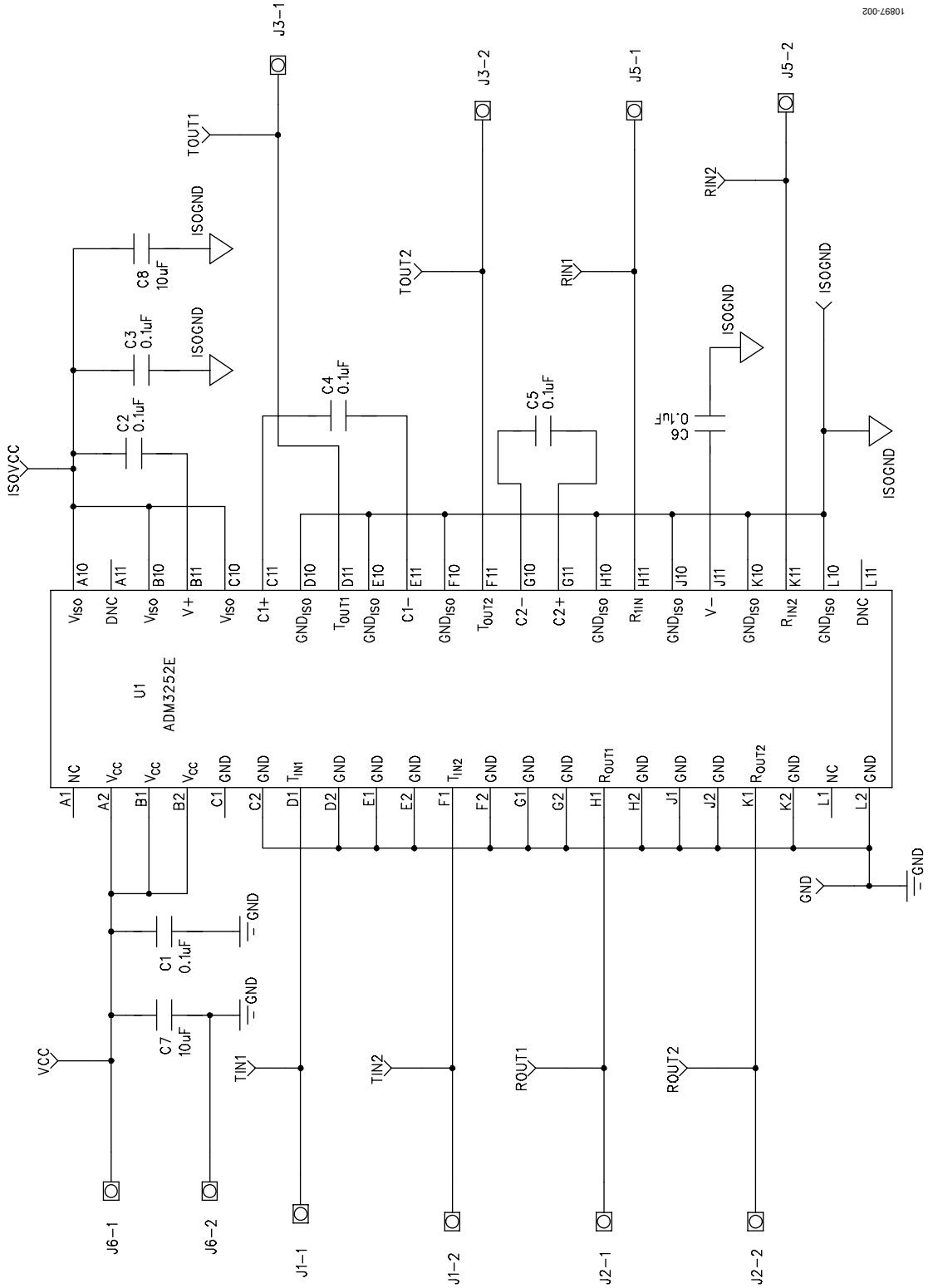

Figure 2. ADM3252E Evaluation Board Schematic

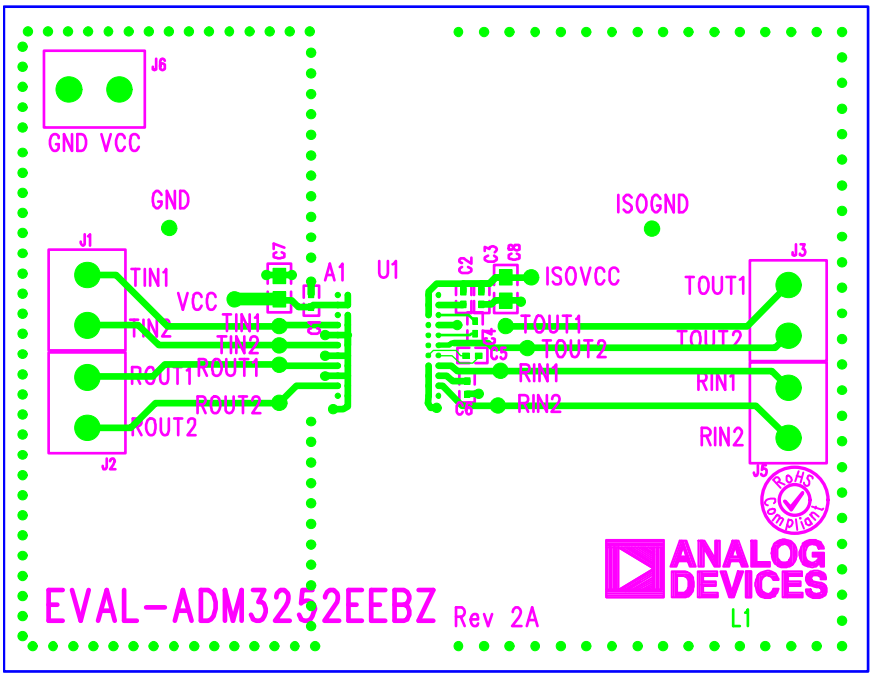

Figure 3. EVAL-ADM3252EEBZ Silkscreen 1

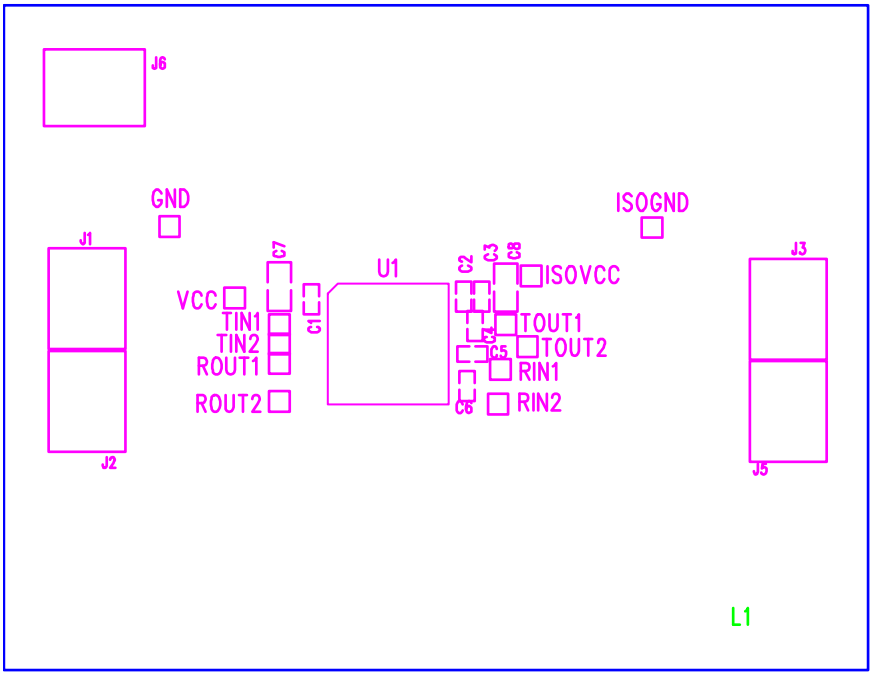

Figure 4. EVAL-ADM3252EEBZ Silkscreen 2

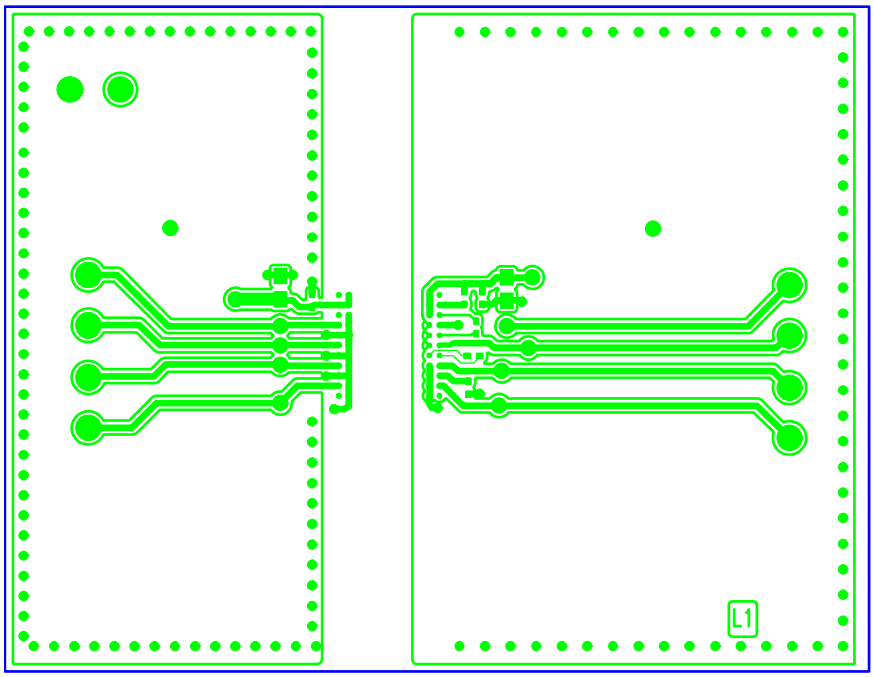

Figure 5. EVAL-ADM3252EEBZ Top Layer

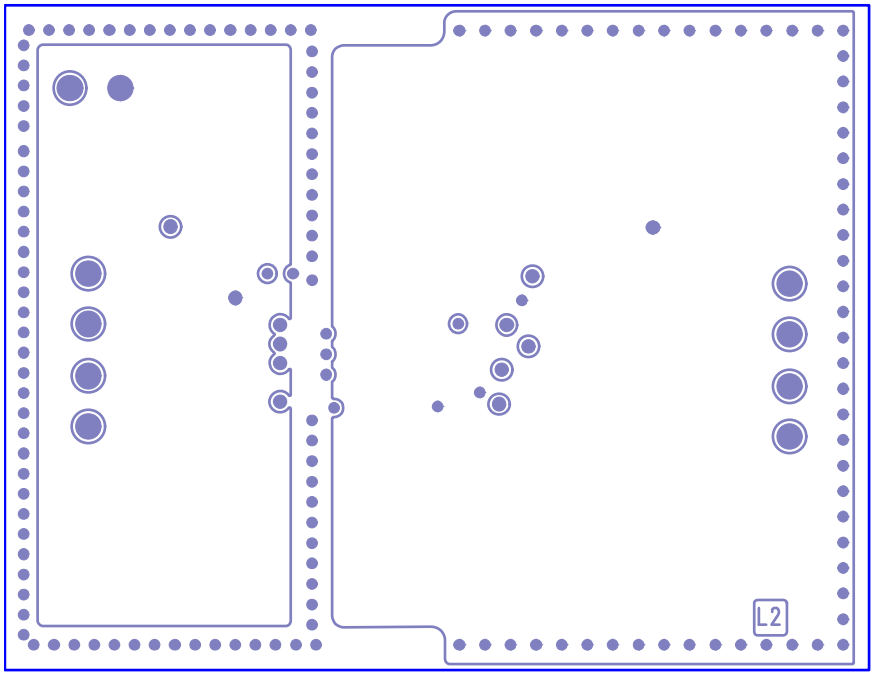

Figure 6. EVAL-ADM3252EEBZ Internal Layer 2

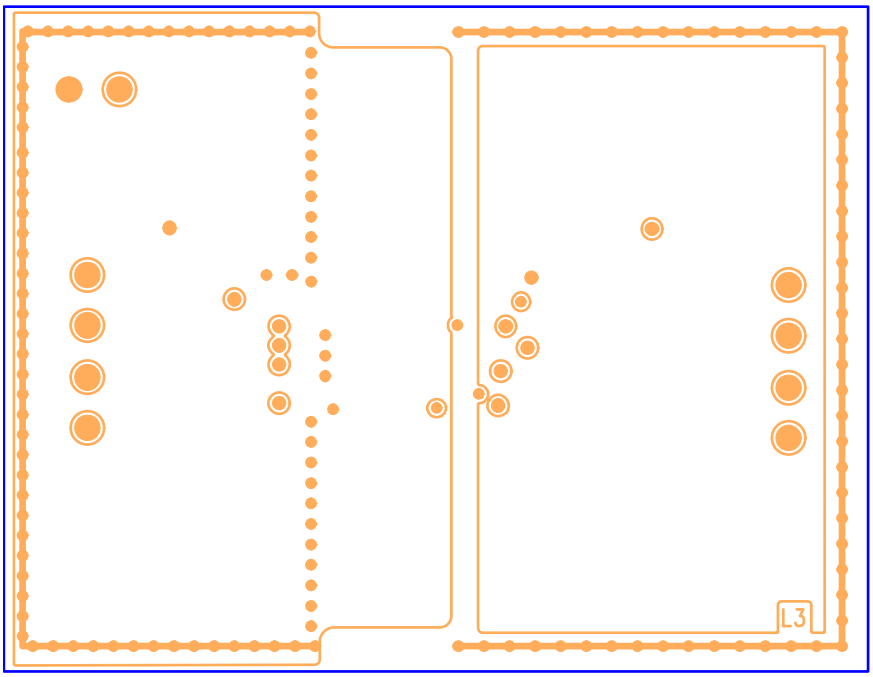

Figure 7. EVAL-ADM3252EEBZ Internal Layer 3

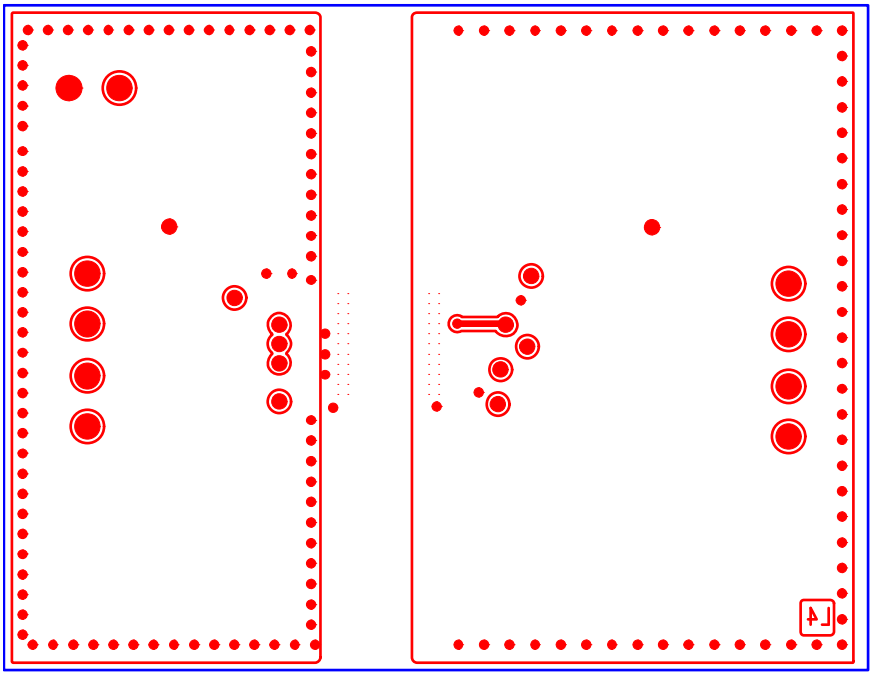

Figure 8. EVAL-ADM3252EEBZ Bottom Layer

ORDERING INFORMATION

BILL OF MATERIALS

Table 3.

Reference Designator	Description	Supplier Part Number
C1, C2, C3, C4, C5, C6	Capacitor, 0.1 µF, 16 V, 0402	Farnell 1288252
C7, C8	Capacitor, 10 µF, 35 V, 0805	Farnell 146-3361
GND, ISOGND, ISOVCC	Test point, black	Farnell 240-333
J1, J2, J3, J5, J6	2-pin terminal block (5 mm pitch)	Farnell 151789
U1	ADM3252E, 44-ball CSP_BGA	Analog Devices, Inc., ADM3252E

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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