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# ADM3251E Evaluation Kit (EVAL-ADM3251EEB1Z) with Reduced EMI

## FEATURES

**2.5 kV fully isolated (power and data) RS-232 transceiver**
**Convenient connections for power and signal through screw terminal blocks**
**5 V operation**
**Easily configurable through jumper connections**
**Test points for measuring all signals**
**All external components required for correct operation**

## EVALUATION KIT CONTENTS

**ADM3251E evaluation board**
**2 ADM3251E samples**

## GENERAL DESCRIPTION

The ADM3251E evaluation board can be used for easy evaluation of the ADM3251E power and signal 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.

## RADIATED EMISSIONS

The ADM3251E evaluation board is designed to reduce emissions generated by the high frequency switching elements used by the *iso*Power® technology to transfer power through its transformer. Guidelines mentioned in the AN-0971 Application Note, *Recommendations for Control of Radiated Emissions with iso*Power *Devices*, were used to generate the layout. Guide guarding and a buried capacitive layer were implemented. The emissions of the evaluation board were measured by an independent test facility and passed the EN55022 (2001) Class B emissions standard.

## DIGITAL PICTURE OF EVALUATION BOARD

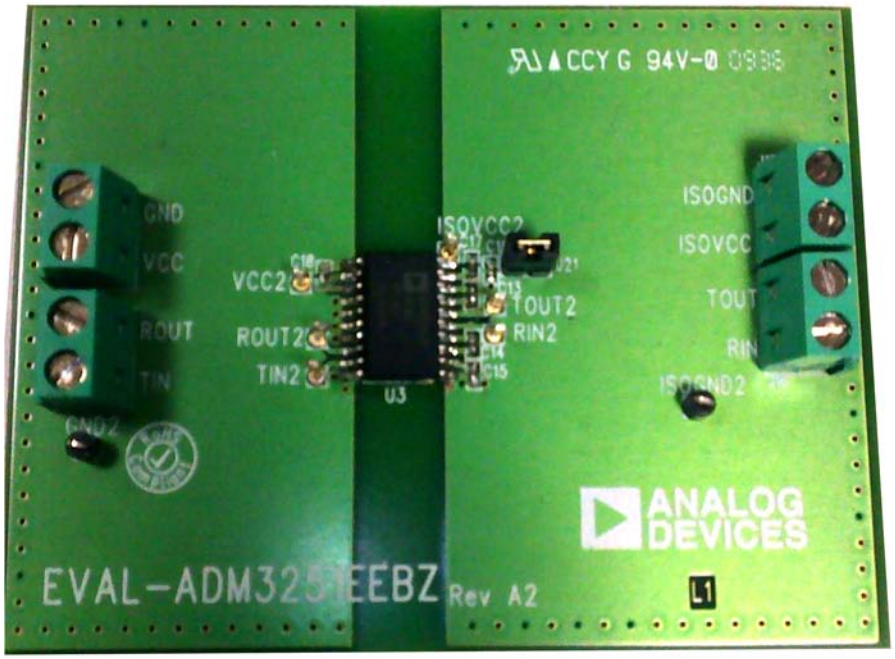


*Figure 1.*

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## REVISION HISTORY

**4/10—Revision 0: Initial Version**

# EVALUATION BOARD HARDWARE

## CONNECTOR, TEST POINT, AND JUMPER FUNCTIONS

**Table 1. Connector Functions**

| Connector | Name | Function |
|---|---|---|
| J15 | Power connector | J15-1: connects positive supply of bench supply to the $V_{CC}$ plane<br>J15-2: connects ground terminal of bench supply to the GND plane |
| J20 | Terminal block | J20-1: connects to $R_{OUT}$ pin of ADM3251E<br>J20-2: connects to $T_{IN}$ pin of ADM3251E |
| J17 | Power connector | J17-1: connects positive supply of the isolated bench supply to the $V_{ISO}$ plane<br>J17-2: connects ground terminal of the isolated bench supply to the $GND_{ISO}$ plane |
| J16 | Terminal block | J16-1: connects to $T_{OUT}$ pin of ADM3251E<br>J16-2: connects to $R_{IN}$ pin of ADM3251E |

**Table 2. Test Point Functions**

| Test Point | Function |
|---|---|
| GND2 | Connects to GND plane |
| VCC2 | Connects to $V_{CC}$ plane |
| ROUT2 | Connects to $R_{OUT}$ pin of the ADM3251E |
| TIN2 | Connects to $T_{IN}$ pin of the ADM3251E |
| ISOVCC2 | Connects to $V_{ISO}$ plane |
| TOUT2 | Connects to $T_{OUT}$ pin of the ADM3251E device |
| RIN2 | Connects to $R_{IN}$ pin of the ADM3251E device |
| ISOGND2 | Connects to $GND_{ISO}$ plane |

**Table 3. Jumper Functions**

| Jumper | Function | Default |
|---|---|---|
| J21 | Connects Pin 20 ($V_{ISO}$) to J17-1 | Inserted |

# EVALUATION BOARD SCHEMATIC

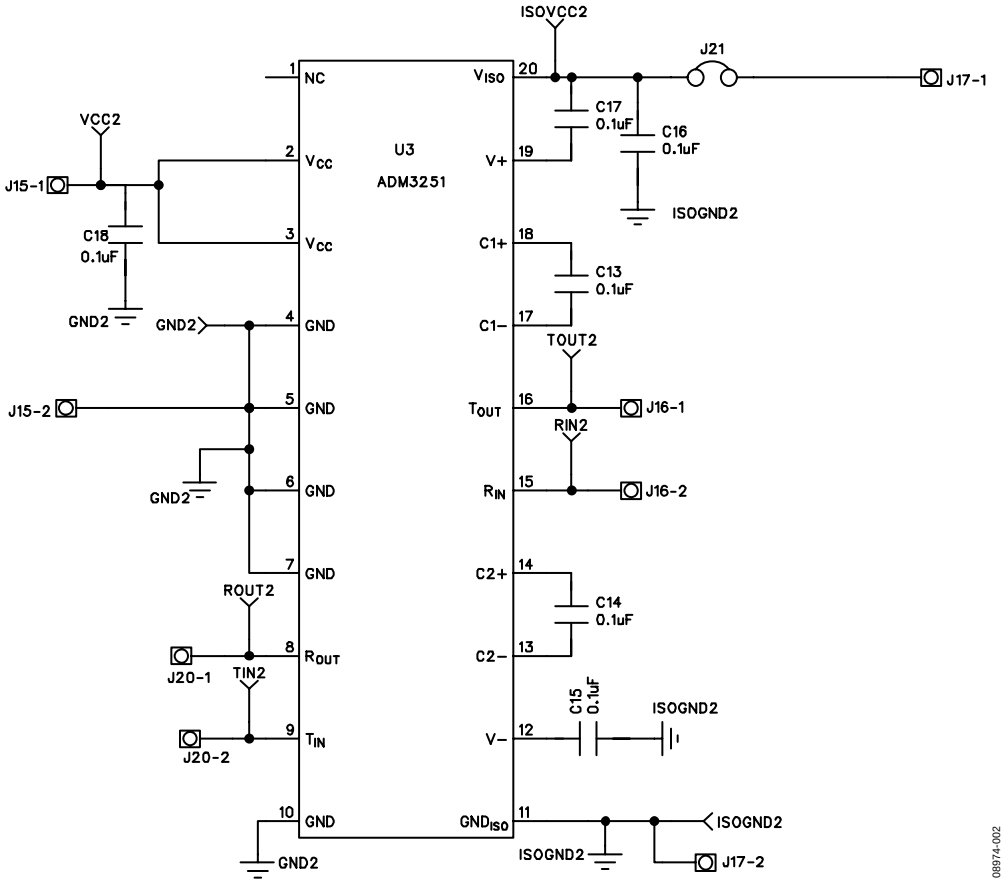


*Figure 2. Schematic of the ADM3251E Evaluation Board*

## ASSEMBLY DRAWINGS AND BOARD LAYOUT

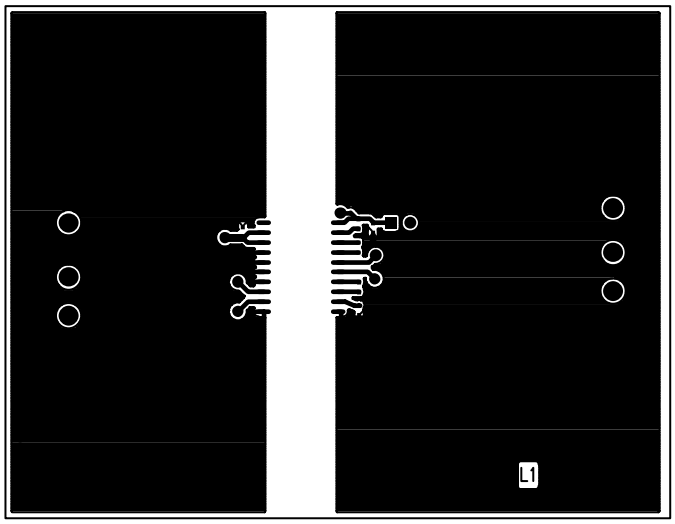


*Figure 3. Top Layer*

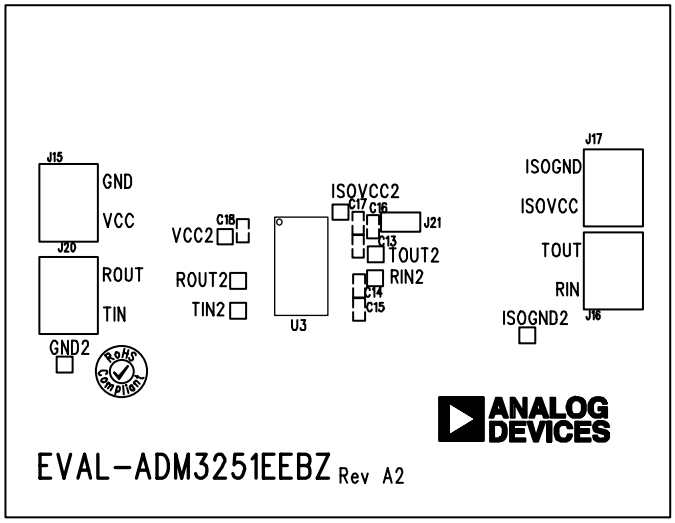


*Figure 4. Silkscreen*

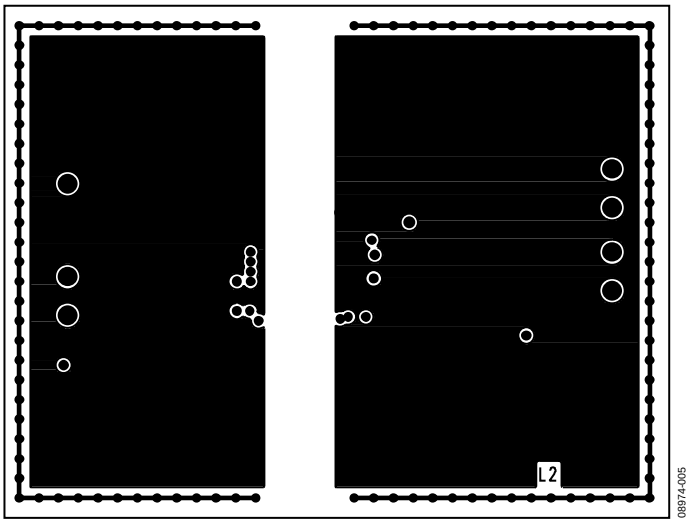


*Figure 5. Internal Layer 2*

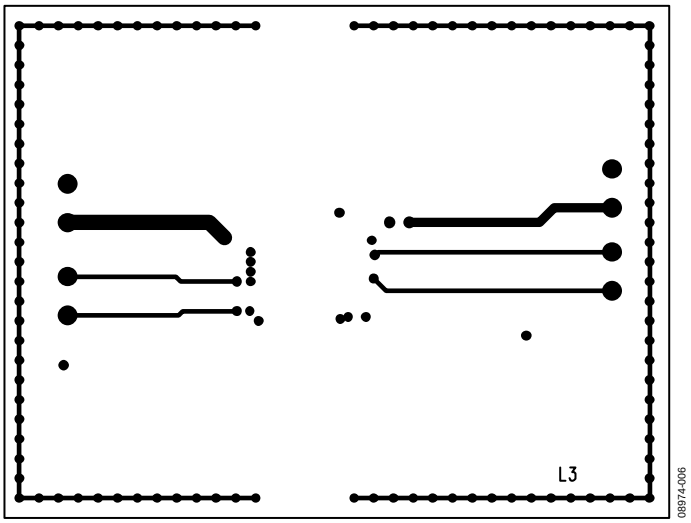


*Figure 6. Internal Layer 3*

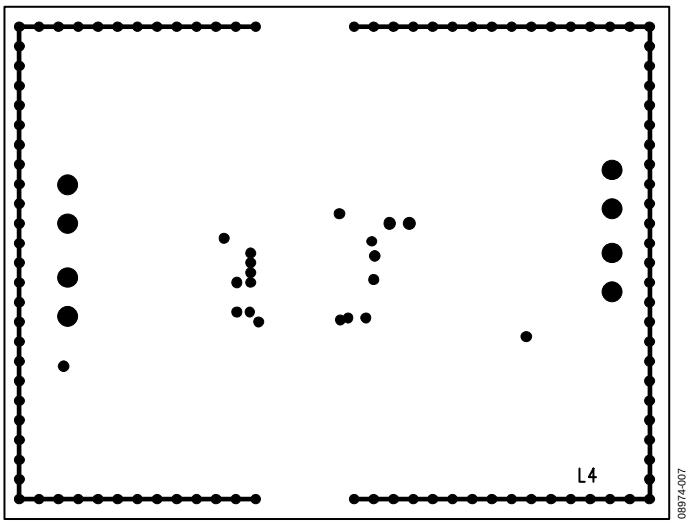


*Figure 7. Internal Layer 4*

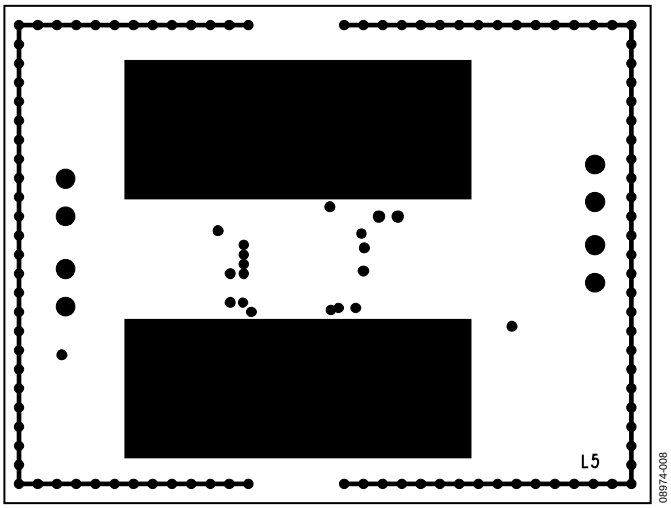


*Figure 8. Internal Layer 5*

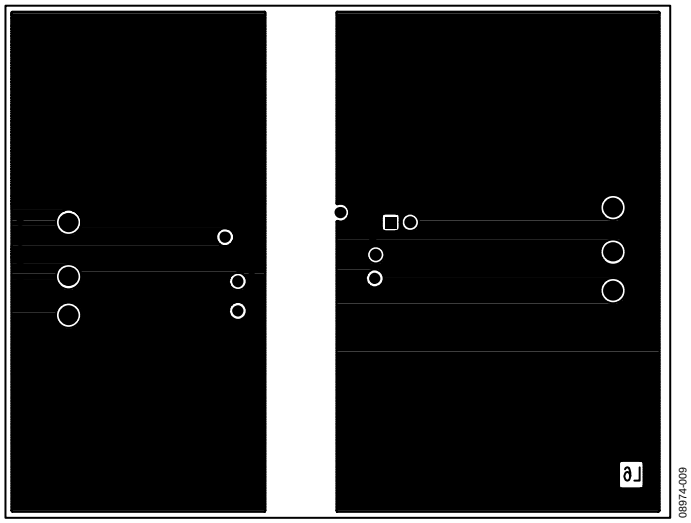


*Figure 9. Bottom Solder Layer*

# ORDERING INFORMATION

## BILL OF MATERIALS

**Table 2.**

| Qty | Reference Designator | Part Type | Value | Part No. |
|---|---|---|---|---|
| 6 | C13, C14, C15, C16, C17, C18 | Capacitor, 0402 | 0.1 µF | FEC 1288252 |
| 8 | GND2, ISOGND2, ISOVCC2, RIN2, ROUT2, TIN2, TOUT2, VCC2 | Test point | | FEC 240333 |
| 4 | J15, J16, J17, J20 | Terminal block | | FEC 151785 |
| 1 | J21 | Jumper | | FEC 1022247 and FEC 150411 |
| 1 | U3 | Line driver/receiver | | ADM3251EARWZ |