



Evaluation Board User Guide

UG-124

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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 *isoPower*® technology to transfer power through its transformer. Guidelines mentioned in the AN-0971 Application Note, *Recommendations for Control of Radiated Emissions with isoPower 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

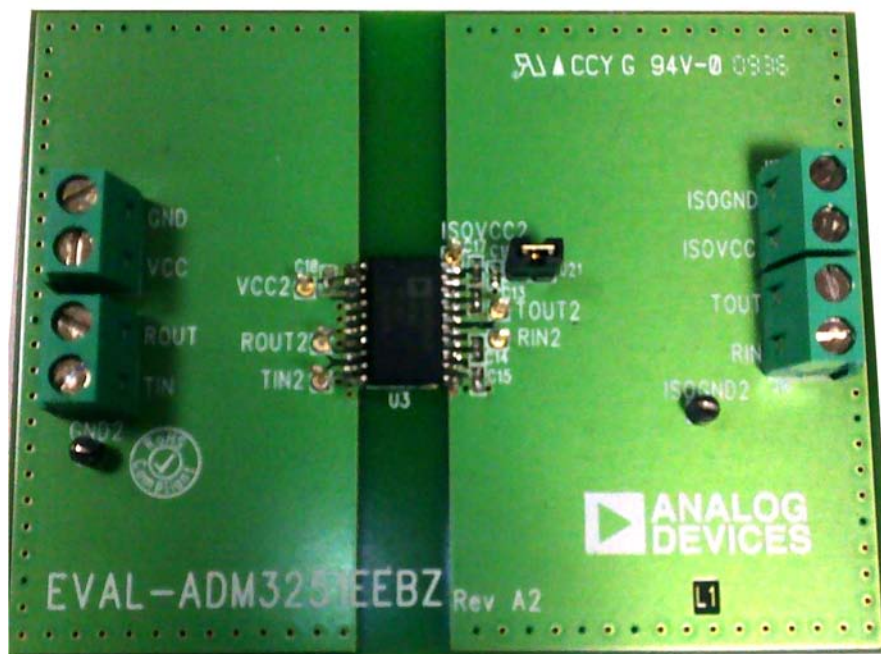


Figure 1.

TABLE OF CONTENTS

Features	1	Evaluation Board Hardware.....	3
Evaluation Kit Contents.....	1	Connector, Test Point, and Jumper Functions	3
General Description	1	Evaluation Board Schematic	4
Radiated Emissions	1	Assembly Drawings and Board Layout	5
Digital Picture of Evaluation Board	1	Ordering Information.....	8
Revision History	2	Bill of Materials.....	8

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 J15-2: connects ground terminal of bench supply to the GND plane
J20	Terminal block	J20-1: connects to R_{OUT} pin of ADM3251E 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 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 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

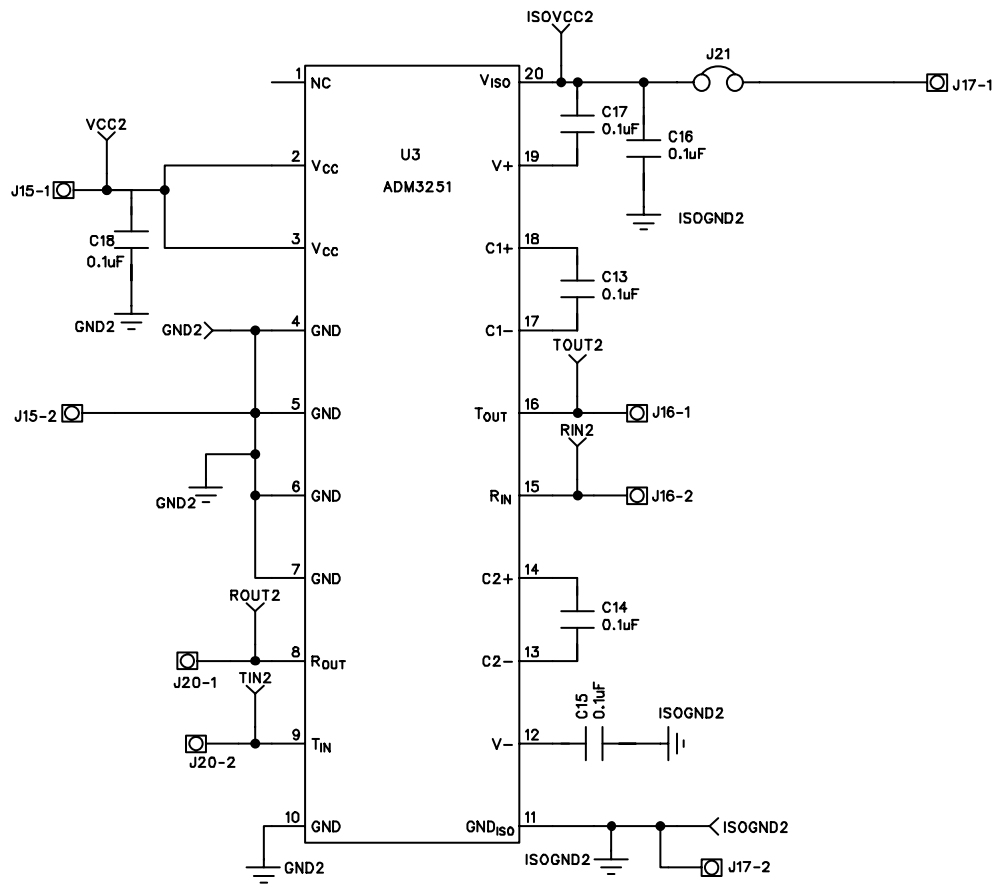


Figure 2. Schematic of the ADM3251E Evaluation Board

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ASSEMBLY DRAWINGS AND BOARD LAYOUT

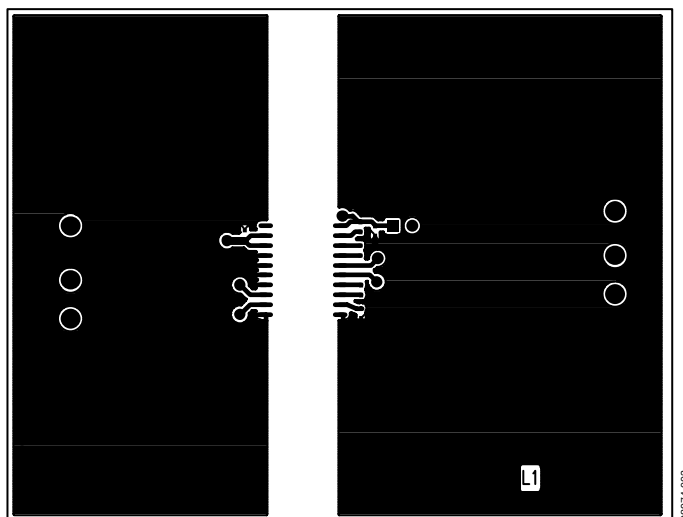


Figure 3. Top Layer

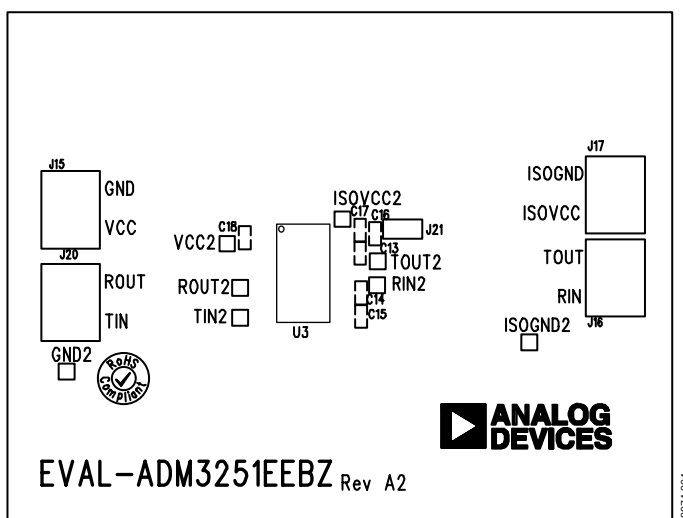


Figure 4. Silkscreen

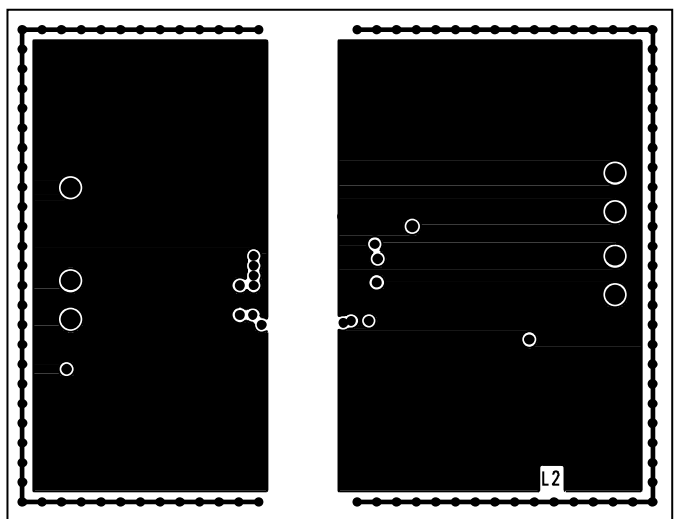


Figure 5. Internal Layer 2

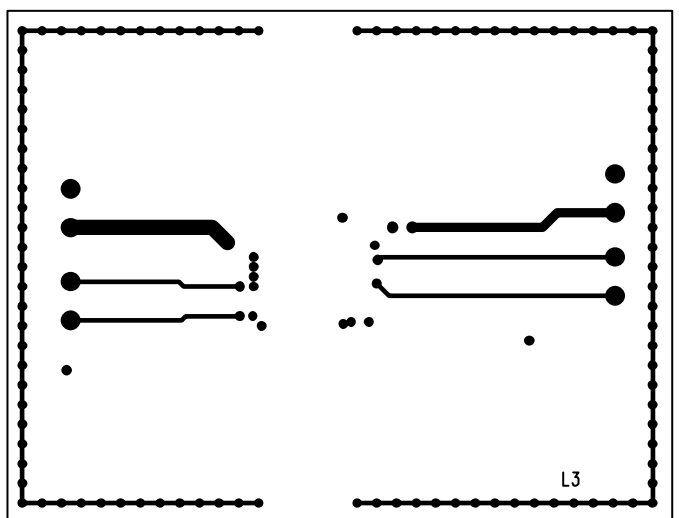


Figure 6. Internal Layer 3

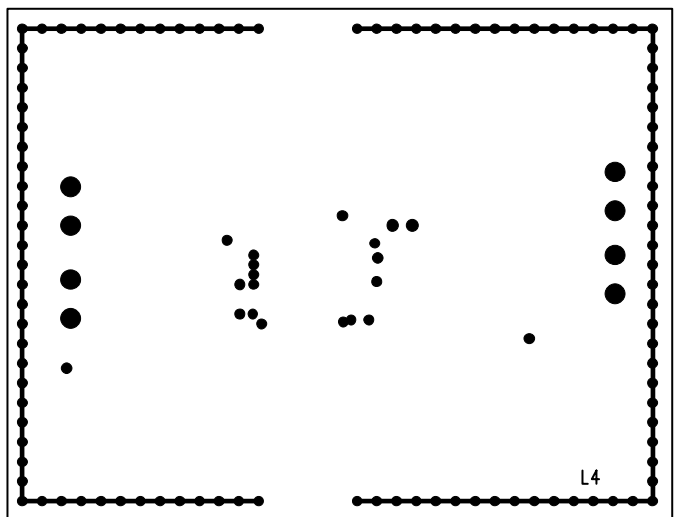


Figure 7. Internal Layer 4

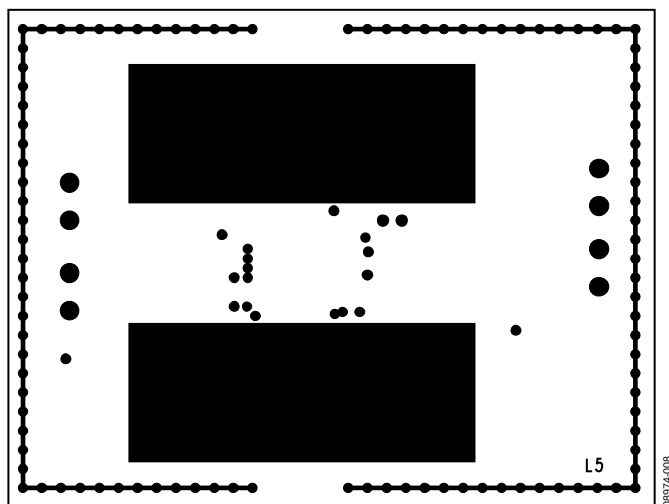


Figure 8. Internal Layer 5

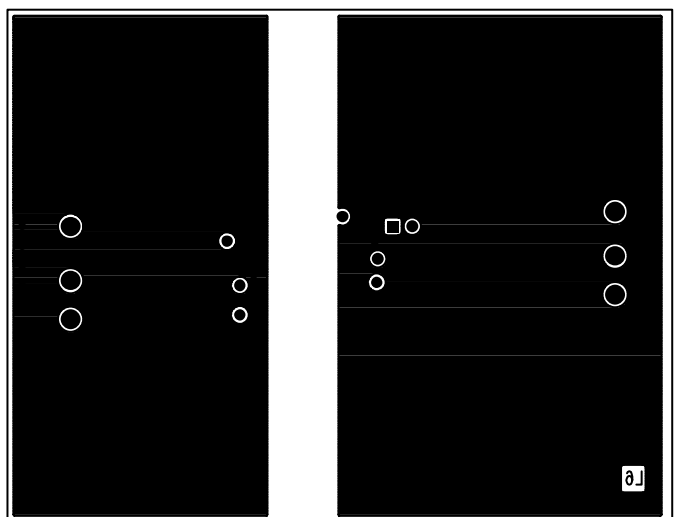


Figure 9. Bottom Solder Layer

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 μ F	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



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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