## MAX14933/MAX14937 Evaluation Kit

## Evaluates: MAX14933, MAX14937

#### **General Description**

The MAX14933/MAX14937 evaluation kit (EV kit) is a fully assembled and tested circuit board that demonstrates the functionality of the MAX14933/MAX14937 2-channel digital isolators in a 16-pin, wide-body SOIC surface-mount package. The EV kit features two independent isolated power supplies independently adjustable to +5V.

#### **Features**

- Ease of Use
  - Easy Powering Through Micro-USB or Test Points
  - SMA Connectors to Connect to External Equipment
- Guaranteed 5kV<sub>RMS</sub> Isolation
- Fully Assembled and Tested.



Ordering Information appears at end of data sheet.



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#### **Quick Start**

#### **Required Equipment**

- MAX14933/MAX14937 EV kit
- Two 5V DC power supplies or USB cables with a micro-B connector
- Signal/function generator
- Oscilloscope

#### Procedure

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

- 1) Connect the DC power supplies between the EV kit's VDDA/VDDB and GNDA/GNDB test points.
- Turn on the DC power supply and set it to 5V, then enable the power-supply output.
   Note: It is also possible to power the EV kit with standard USB ports. To do so, connect the micro-B end of the USB cables into PA/PB on the board. Connect the A-end of the USB cable into the USB ports.
- Connect any signal to the SMA connectors or test points and observe the isolated signal on the other side using an oscilloscope.

## Detailed Description of Hardware (or Software)

The MAX14933/MAX14937 EV kit is a fully assembled and tested circuit board for evaluating the MAX14933/ MAX14937 2-channel digital isolators in a 16-pin, widebody SOIC package. The EV kit is powered from two +5V supplies, as described below.

#### **External Power Supply**

Power on the EV kit is derived from two +5V sources. Connect external supplies to the +5V and GNDA test points, or connect a micro-B USB cable to the on-board PA/PB connectors to provide the 5V supply. Both options have a reverse-current protection diode. The devices level-shift the data and control signals, transmitting them across the isolation barrier. Each supply can be set independently and be present over the entire specified range of the device, regardless of the level or presence of the other supply.

The devices can be used to transmit signals on isolated  $I^2C$  serial buses. Connect signals as shown in <u>Table 1</u> to evaluate isolated  $I^2C$  operation.

A simplified schematic showing the connections for evaluating the devices in an isolated I<sup>2</sup>C interface is attached to this data sheet. The devices level-shift the data and clock signals, transmitting them across the isolation barrier.

#### Jumpers

Two jumpers (POWA/POWB) are provided to switch between powering the EV kit using micro-USB supplies or jumpers. When the jumpers are connected, the EV kit is powered from the micro-USB ports. In this case, no external supply should be connected to VDDA/VDDB.

#### **Pullups**

All inputs and outputs are pulled up to the corresponding  $V_{DD}$  with a 4.7K resistor. The user has the option of adding a resistor or capacitor to ground, or a series resistor depending on their particular needs.



Figure 1. Simplified Schematic

#### Table 1. MAX14933/MAX14937 Connections for Isolated I<sup>2</sup>C Evaluation

MAX14933/MAX14937 PIN	TEST POINT CONNECTION	DESCRIPTION
I/OA1	TPA1	SDA
I/OA2	TPA2	SCLK

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# Component Information, PCB Files, and Schematic

See the following links for component information, PCB files, and schematics:

- MAX14933/MAX14937 EV BOM
- MAX14933/MAX14937 EV PCB
- MAX14933/MAX14937 EV Schematic

## **Ordering Information**

PART	ТҮРЕ
MAX14933WEVKIT#	EV Kit
MAX14937WEVKIT#	EV Kit

#Denotes RoHS compliant.

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#### **Revision History**

REVISION	REVISION	DESCRIPTION	PAGES
NUMBER	DATE		CHANGED
0	5/15	Initial release	—

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim Integrated's website at www.maximintegrated.com.

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	8	7	6	5	4	3
D			10   11	U103593-0001LF D2 1 2 2 MBR130T1G 3 3 3 C3 4 4 10UF 5 5 SOCKET_TER 7 SHIELD 10 9 8	J6 10103593-0001LF D4 1 2 2 MBR130T1G 3 3 C6 4 4 10UF 5 5 SOCKET_TER 6 SOCKET_TER 7 SHIELD 11 10 9 8	VDDB GNDB
С			VDDA VDDA G TP1 TP2 VDDA	J5 J1 SNDA - - - - - - - - - - - - - - - - - - -	J7 GNDB VDDB J2 D3 MBR130T1G	VDDB
В			VDDA R3 4.7K 142-0701-851 TPA1 C1 R5 0.01UF 4.7K DNI DNI GNDA	U1 MAX14933/ MAX14937 GNDA VDDA C4 1 16 0.1UF 2 15 3 14 4 13 5 12	GNDB C5 VDDB 0.1UF 0.01UF DNI	VDDB R9 4.7K 142-0701-851 R7 4.7K DNI 2435 R11 R11
A			VDDA R4 4.7K $1 \bigcirc 0.01UF$ $5 \bigcirc 34 \bigcirc 2$ GNDA R4 4.7K DNI DNI DNI	GNDA TP5 TP6 GNDA TP5 TP6 GNDA	TP7 TP8 GNDB C8 0.01UF DNI GNDB	VDDB R10 4.7K R8 4.7K TPB2 C C C C C C C C
	8	7	6	5	4	3

2	1

D

С



MAX1	MAX1493X W BIDI EVKIT			
DRAWING	DRAWING TITLE:			
SIZE B	B HARDWARE NUMBER: HARDWARE_NUMBER>		DATE: 02/24/15	
ENGINEER <engine< td=""><td>ER&gt;</td><td>DRAWN BY: <drawn_by></drawn_by></td><td>REV: A</td></engine<>	ER>	DRAWN BY: <drawn_by></drawn_by>	REV: A	
		TEMPLATE REV: 1.5	SHEET 1 OF 1	
2		1		

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HARDWARE NAME:MAX1493X_W_BIDI_EVKIT_A	
HARDWARE NUMBER:	
ENGINEER:	DESIGNER:
DATE: 02/25/2015	ODB++/GERBER: SILK_TOP



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ENGINEER:	DESIGNER:
DATE: 02/25/2015	ODB++/GERBER: L2_GND











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ENGINEER:	DESIGNER:
DATE: 02/25/2015	ODB++/GERBER: BOTTOM











## BILL OF MATERIALS (BOM)

ITEM	QTY	REF DES	DESCRIPTION	MFG PART #
1	4	A1, A2, B1, B2	CONNECTOR; END LAUNCH JACK RECEPTACLE; BOARDMOUNT; STRAIGHT THROUGH; 2PINS;	142-0701-801
2	2	C3, C6	CAPACITOR; SMT (0805); CERAMIC CHIP; 10UF; 10V;	LMK212F106ZG-T
3	2	C4, C5	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 16V;	EMK107BJ104KAH
4	4	D1-D4	DIODE; SCH; SCHOTTKY POWER RECTIFIER; SMT (SOD-123); PIV=30V; IF=1.0A	MBR130T1G
5	2	J4, J6	CONNECTOR; FEMALE; BOARDMOUNT; MICRO USB B-TYPE MID MOUNT; RIGHT ANGLE; 5PINS	10103593-0001LF
6	2	J5, J7	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS	961102-6404-AR
7	2	JP1, JP2	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	961104-6804-AR
8	4	R1, R2, R11, R12	RESISTOR; 0805; 0 OHM; 5%; JUMPER; 0.125W; THICK FILM	AC0805FR-070RL
9	4	R3, R4, R9, R10	RESISTOR; 0805; 4.7K OHM; 5%; 200PPM; 0.25W; THICK FILM	ERJ-P06J472V
10	4	TP1, TP2, TP9, TP10	TEST POINT	5000
11	4	TP5-TP8	TEST POINT	5001
12	4	TPA1, TPA2, TPB1, TPB2	TEST POINT	5004
14	4	C1, C2, C7, C8	CAPACITOR; SMT; 0805; CERAMIC; 0.01uF; 50V; 5%;	GRM2195C1H103JA01
15	4	R5-R8	RESISTOR; 0805; 4.7K OHM; 5%; 200PPM; 0.25W; THICK FILM	ERJ-P06J472V

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