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MAX14661PMB1 Peripheral Module

Evaluates: MAX14661

General Description

The MAX14661 PMB1 peripheral module provides a convenient way to evaluate the MAX14661 Beyond-the-Rails™ 16:2 multiplexer. All PCB signal traces are 50Ω controlled impedance to allow for easy impedance-matching. The IC is capable of both I²C and SPI programming modes set by the SPI/I²C pin.

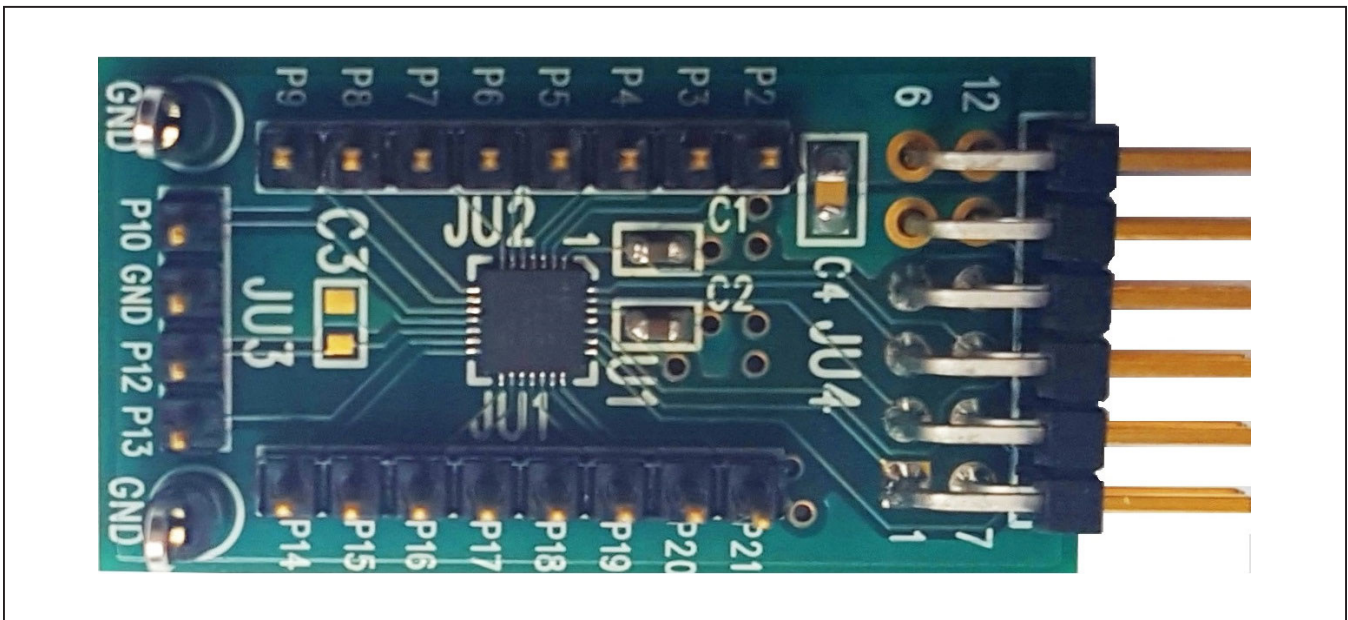
Refer to the MAX14661 IC data sheet for detailed information regarding the operation of the IC.

Features

- 16:2 Matrix Switch Multiplexer
- 50Ω Controlled-Impedance Signal Traces
- Pmod™ Connector for Easy Interfacing
- RoHS-Compliant
- Proven PCB Layout
- Fully Assembled and Tested
- EV Kit Contents Peripheral Module Containing MAX14661

[Ordering Information](#) appears at end of data sheet.

MAX14661PMB1 Board Photo



Beyond-the-Rails is a trademark of Maxim Integrated Products, Inc.

Pmod is a trademark of Digilent Inc.

Detailed Description

The MAX14661 PMB1 peripheral module provides a convenient way to evaluate the MAX14661 Beyond-the-Rails 16:2 multiplexer. All PCB signal traces are 50Ω controlled impedance to allow easy impedance-matching. The IC is capable of both I²C and SPI programming modes set by the SPI/I²C pin. Use any common I²C or SPI programmer to program the IC's switches.

The JU1 connector provides connection to AB09-AB16 (see [Table 2](#)), while the JU2 connector provides connection to AB01-AB08 (see [Table 3](#)). JU3 provides connection to COMA and COMB (see [Table 4](#)).

The MAX14661 PMB1 can interface to the host by plugging directly into a Pmod-compatible port (configured for I²C or SPI) through connector JU4 (See [Table 5](#)). Resistors R1 to R6 are not installed by default. See [Table 6](#) for installation configurations.

Software Example Code

A C++ library and example code are available on the developer.mbed.org site. This module can be used with most Arduino UNO R3 compatible boards when combined with the MAXREFDES72# Arduino to Pmod adapter. For the latest version of the code go [HERE](#).

Table 1. Slave Address Configuration

LOGIC INPUTS		I ² C SLAVE ADDRESS									
A1	A0	B7	B6	B5	B4	B3	B2	B1	R/W	READ ADD	WRITE ADD
0	0	1	0	0	1	1	0	0	1/0	0x99	0x98
0	1	1	0	0	1	1	0	1	1/0	0x9B	0x9A
1	0	1	0	0	1	1	1	0	1/0	0x9D	0x9C
1	1	1	0	0	1	1	1	1	1/0	0x9F	0x9E

Table 2. Connector JU1

PIN	SIGNAL	DESCRIPTION
1	AB09	AB connection to switches 9A and 9B
2	AB10	AB connection to switches 10A and 10B
3	AB11	AB connection to switches 11A and 11B
4	AB12	AB connection to switches 12A and 12B
5	AB13	AB connection to switches 13A and 13B
6	AB14	AB connection to switches 14A and 14B
7	AB15	AB connection to switches 15A and 15B
8	AB16	AB connection to switches 16A and 16B

Table 3. Connector JU2

PIN	SIGNAL	DESCRIPTION
1	AB08	AB connection to switches 8A and 8B
2	AB07	AB connection to switches 7A and 7B
3	AB06	AB connection to switches 6A and 6B
4	AB05	AB connection to switches 5A and 5B
5	AB04	AB connection to switches 4A and 4B
6	AB03	AB connection to switches 3A and 3B
7	AB02	AB connection to switches 2A and 2B
8	AB01	AB connection to switches 1A and 1B

Table 4. Connector JU3

PIN	SIGNAL	DESCRIPTION
1	COMB	Common connection to all A switches
2	N.C.	Not connected
3	GND	Ground
4	COMA	Common connection to all B switches

Table 5. Connector JU4

PIN	SIGNAL		DESCRIPTION
	SPI/ $\overline{I^2C}$ = 1	SPI/ $\overline{I^2C}$ = 0	
1	A0	CS	I ² C address bit 0/SPI \overline{CS} signal
2	SDA	DIN	I ² C serial data/SPI data input
3	A1	DOUT	I ² C address bit 1/SPI data output
4	SCL	SCLK	I ² C serial clock/SPI serial clock
5	GND	GND	Ground
6	V _{CC}	V _{CC}	Power-supply input
7	N.C.	N.C.	Not connected

PIN	SIGNAL		DESCRIPTION
	SPI/ $\overline{I^2C}$ = 1	SPI/ $\overline{I^2C}$ = 0	
8	\overline{SD}	\overline{SD}	Active-low shutdown (low-power mode, turns all switches off)
9	SPI/ $\overline{I^2C}$	SPI/ $\overline{I^2C}$	Serial-mode select SPI (high) or I ² C (low); supply input for DOUT
10	N.C.	N.C.	Not connected
11	GND	GND	Ground
12	V _{CC}	V _{CC}	Power supply input

Table 6. Resistor Configuration (R1–R6)

RESISTOR	MODE	FUNCTIONALITY
R1	SPI	Install pullup to V _{CC} to enter SPI mode.
R2	SPI	Do not install (DOUT pin).
	I ² C	Do not install (A1 pin for I ² C slave address selection). If installed, it pulls A1 high for I ² C slave address selection.
R3	SPI	Do not install (DIN pin).
	I ² C	Install to add a pullup resistor to SDA if I ² C master does not have it already.
R4	SPI	Do not install (SCLK pin).
	I ² C	Install to add a pullup resistor to SCL if I ² C master does not have it already.
R5	SPI	Do not install (\overline{CS} pin).
	I ² C	Do not install (A0 pin for I ² C slave address selection). If installed, it pulls A0 high for I ² C slave address selection.
R6	SPI and I ² C	If installed, it pulls \overline{SD} high to keep the MAX14661 from shutdown.

Component Suppliers

SUPPLIER	WEBSITE
Murata Americas	www.murataamericas.com

Ordering Information

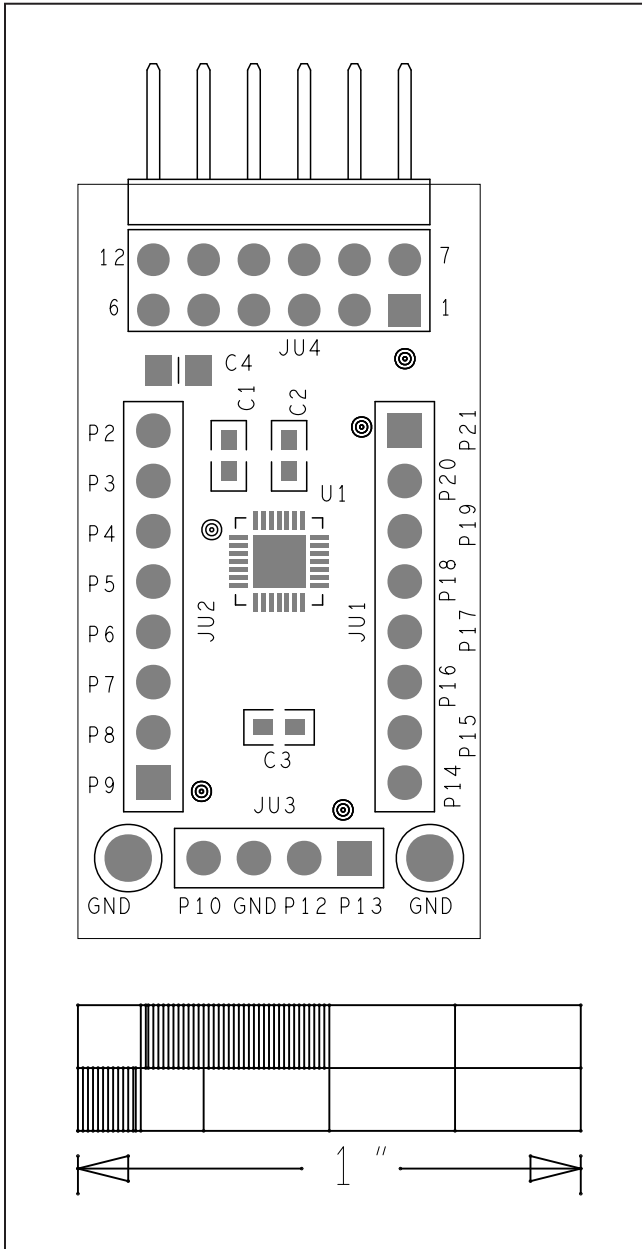
PART	TYPE
MAX14661PMB1#	Peripheral Module

#Denotes RoHS compliant.

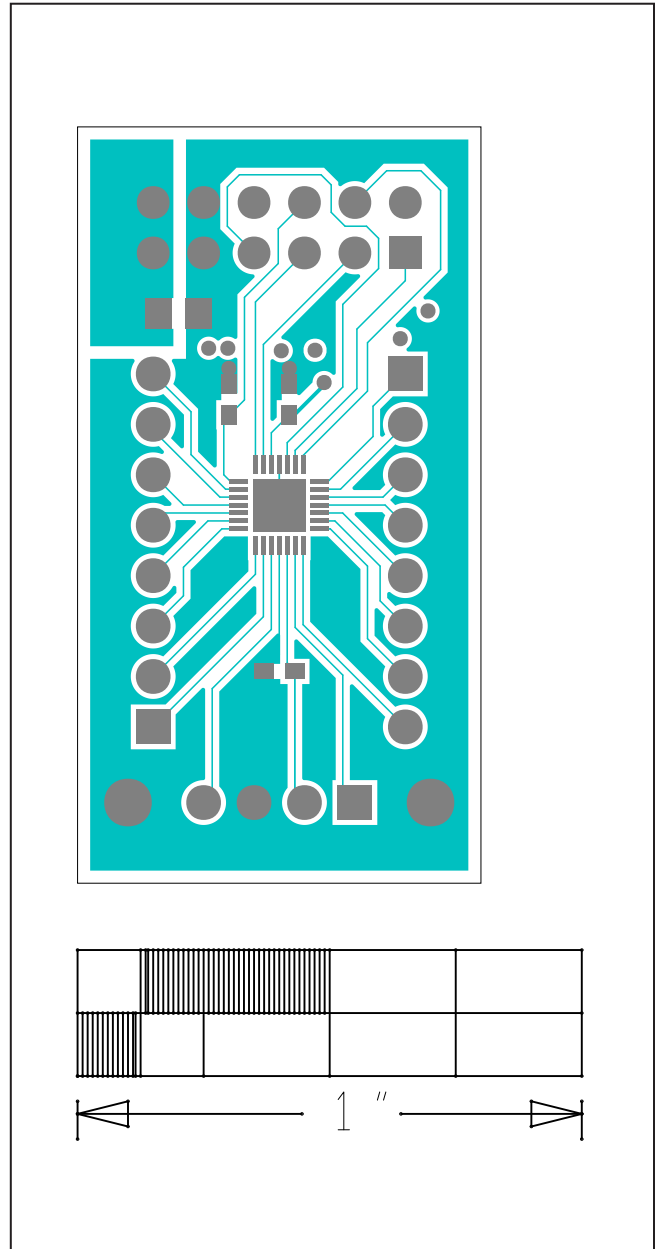
MAX14661 EV Kit Bill of Materials

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	0.1uF 10% 50V X7R ceramic capacitor (0603)
C3	—	Not installed
C4	1	10uF 10% 10V X5R ceramic capacitor (0805)
R1, R2, R3, R4, R5, R6	—	Not installed
JU1, JU2	2	8-Pin straight Single-Row Header, 0.1in centers
JU3	1	4-Pin straight Single-Row Header, 0.1in centers
JU4	1	6-Pin right angle Dual-Row Header, 0.1in centers
TP3, TP4	2	Black test point
U1	1	
—	1	PCB: MAX14661 EVALUATION KIT

MAX14661 EV Kit PCB Layout

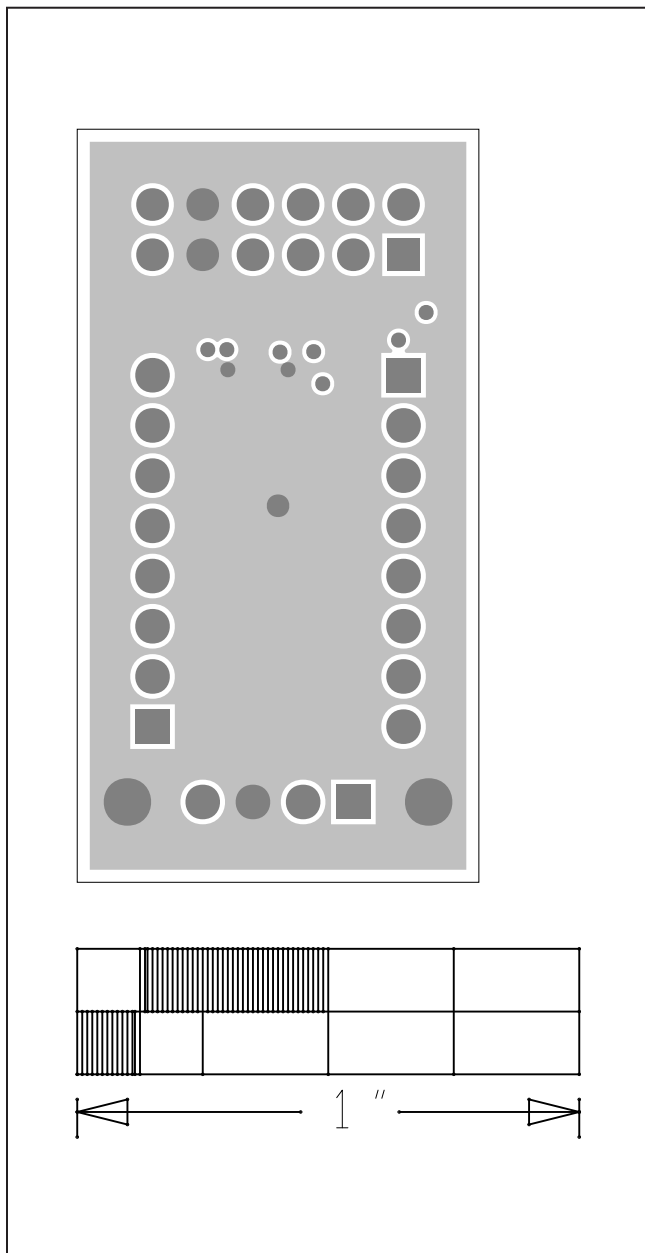


MAX14661 EV Kit PCB—Top Silkscreen

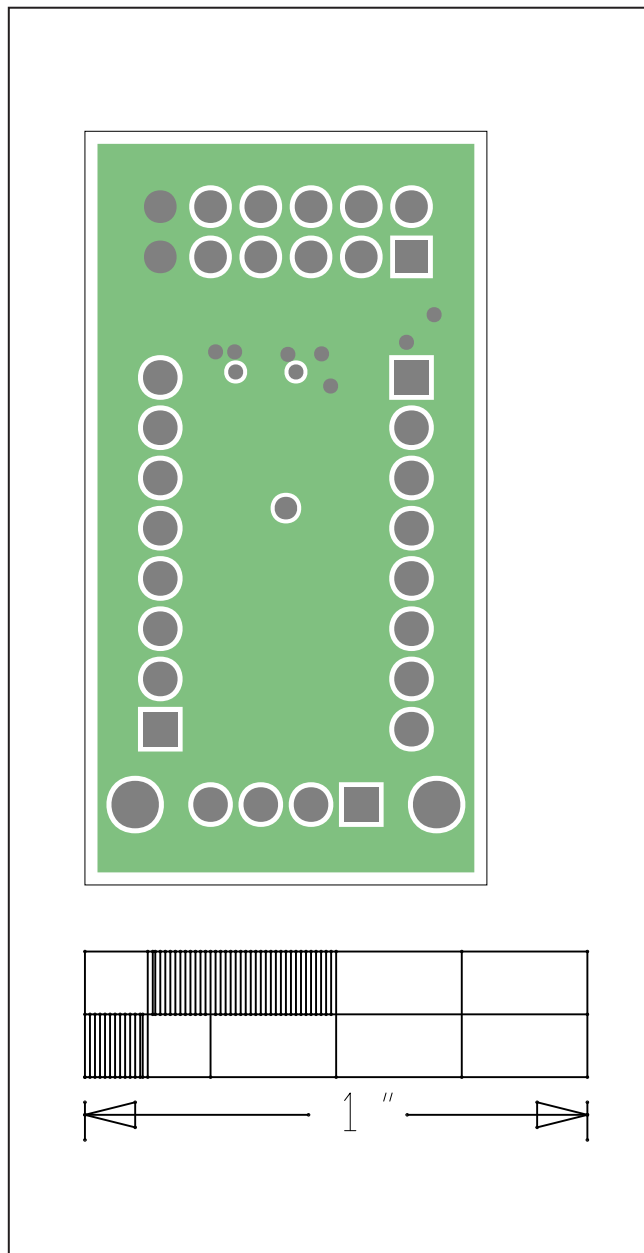


MAX14661 EV Kit PCB—Top Layer

MAX14661 EV Kit PCB Layout (continued)

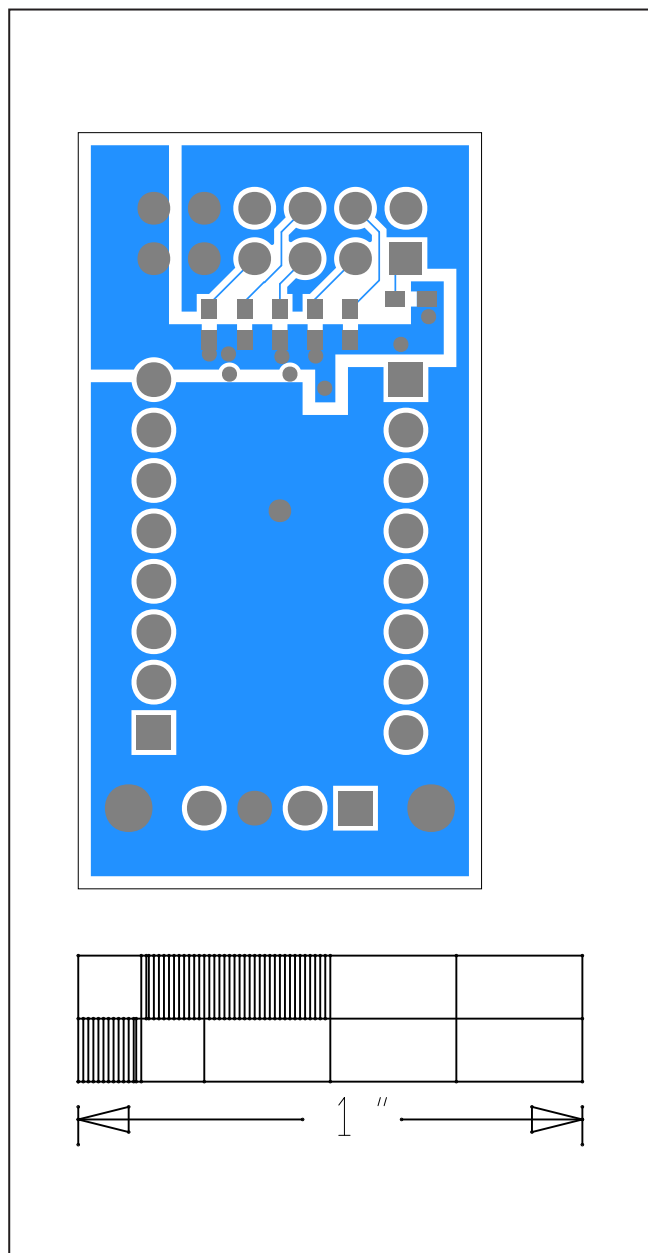


MAX14661 EV Kit PCB—Layer 2

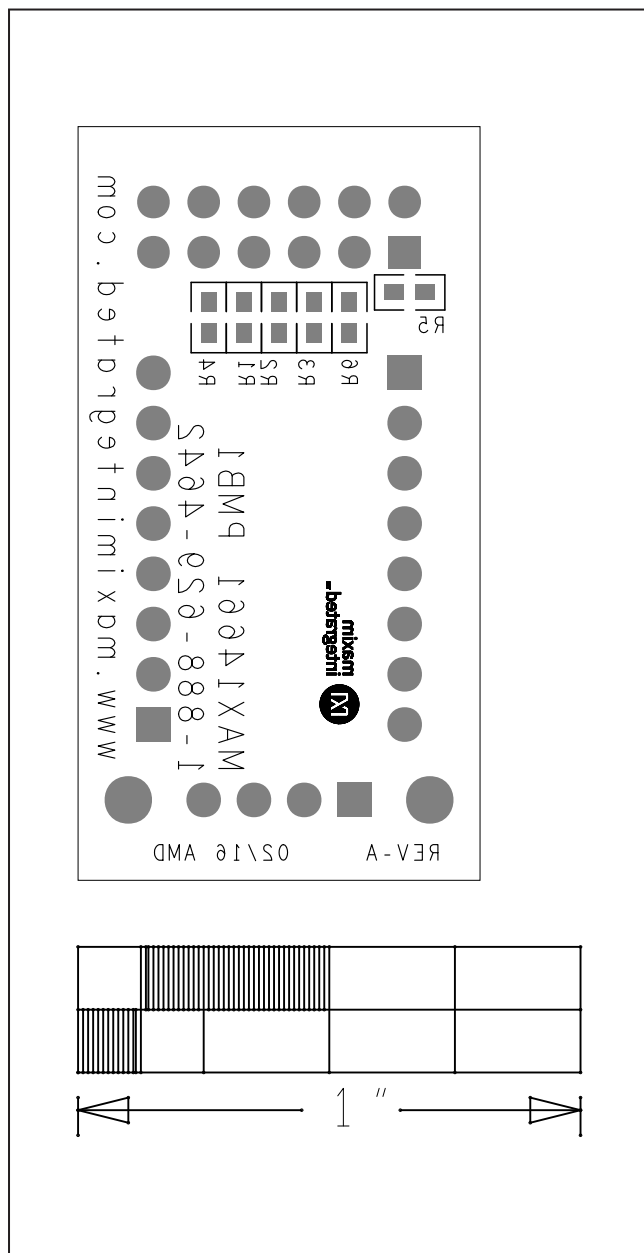


MAX14661 EV Kit PCB—Layer 3

MAX14661 EV Kit PCB Layout (continued)



MAX14661 EV Kit PCB—Bottom Layer



MAX14661 EV Kit PCB—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	3/16	Initial release	—
1	1/20	Updated the <i>Detailed Description</i> section and added Table 6	2–3

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