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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.

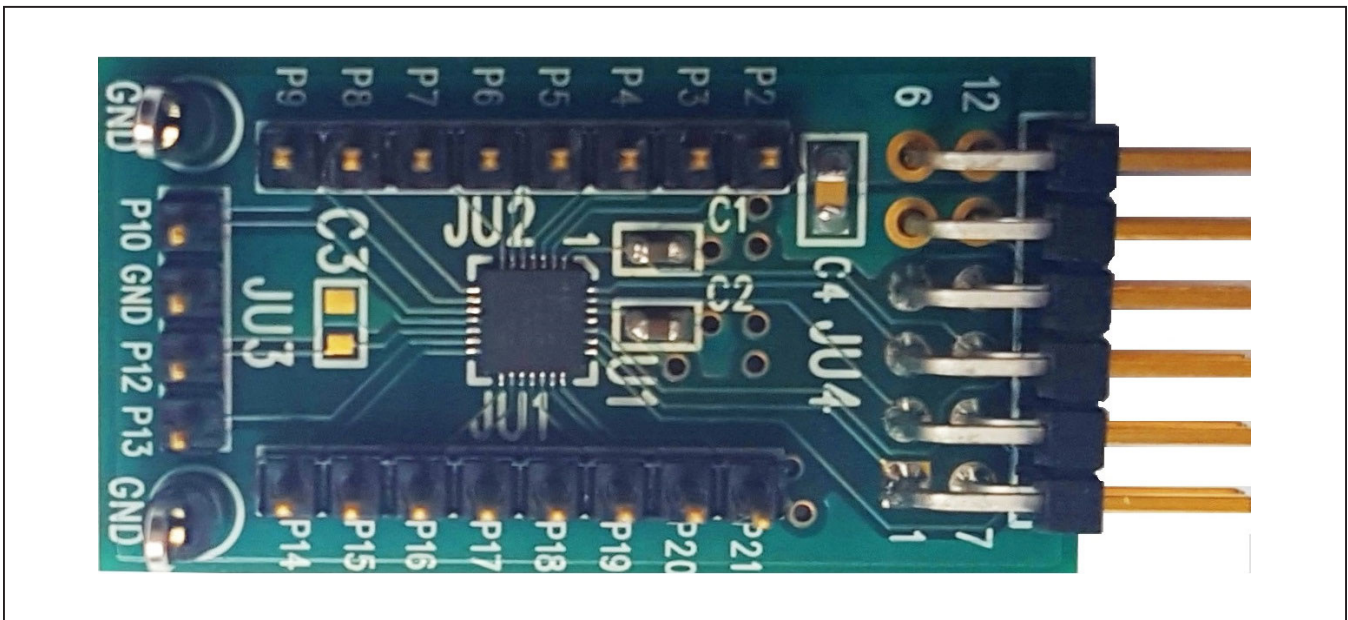
Refer to the MAX14661 IC data sheet for detailed information regarding the operation of the IC.

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.

MAX14661PMB1 Peripheral Module

Evaluates: MAX14661

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/ $\overline{\text{I}^2\text{C}}$ = 1	SPI/ $\overline{\text{I}^2\text{C}}$ = 0	
1	A0	CS	I ² C address bit 0/SPI $\overline{\text{CS}}$ 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/ $\overline{\text{I}^2\text{C}}$ = 1	SPI/ $\overline{\text{I}^2\text{C}}$ = 0	
8	$\overline{\text{SD}}$	$\overline{\text{SD}}$	Active-low shutdown (low-power mode, turns all switches off)
9	SPI/ $\overline{\text{I}^2\text{C}}$	SPI/ $\overline{\text{I}^2\text{C}}$	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 ($\overline{\text{CS}}$ 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 $\overline{\text{SD}}$ high to keep the MAX14661 from shutdown.

Component Suppliers

SUPPLIER	WEBSITE
Murata Americas	www.murataamericas.com

Ordering Information

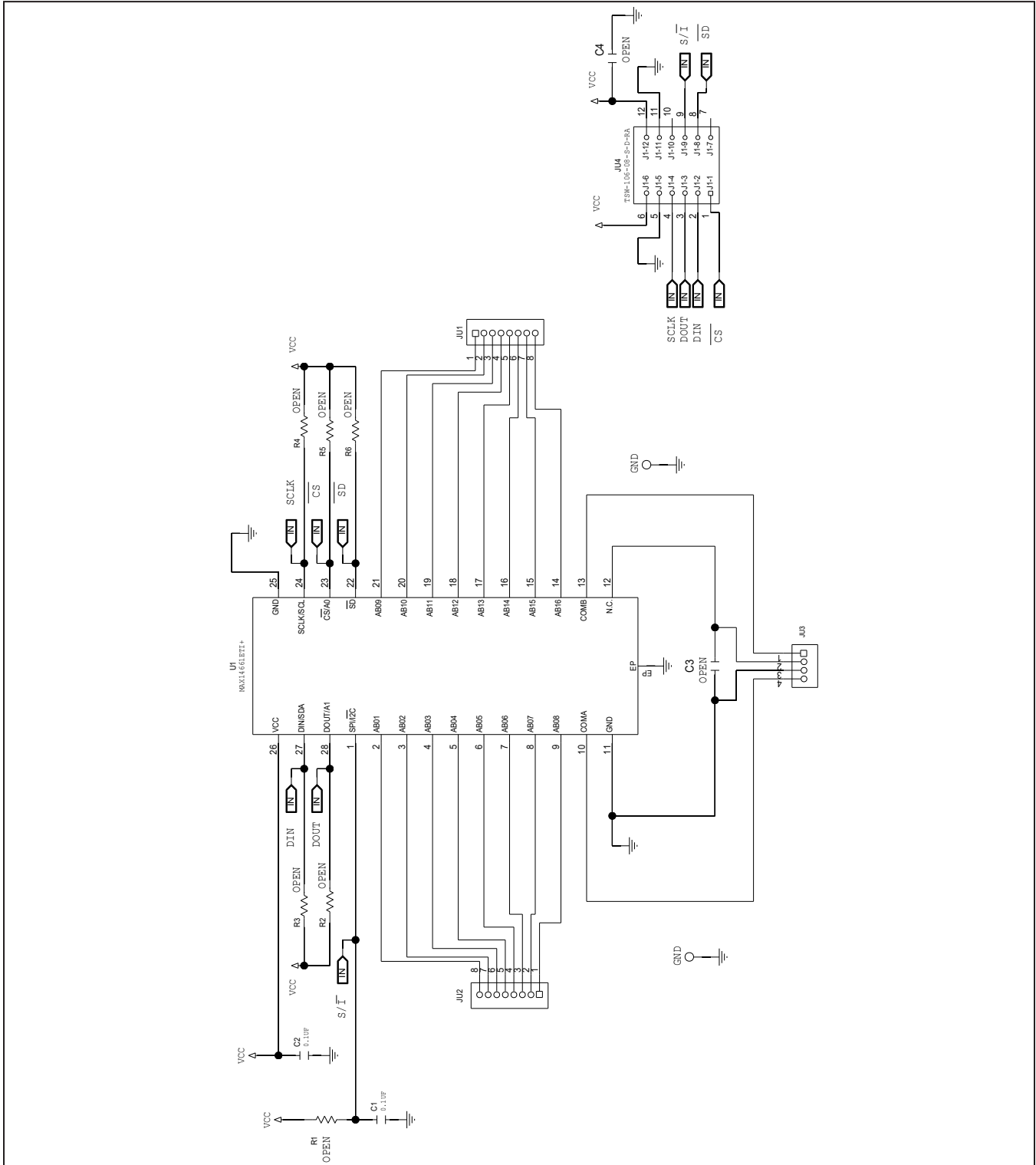
PART	TYPE
MAX14661PMB1#	Peripheral Module

#Denotes RoHS compliant.

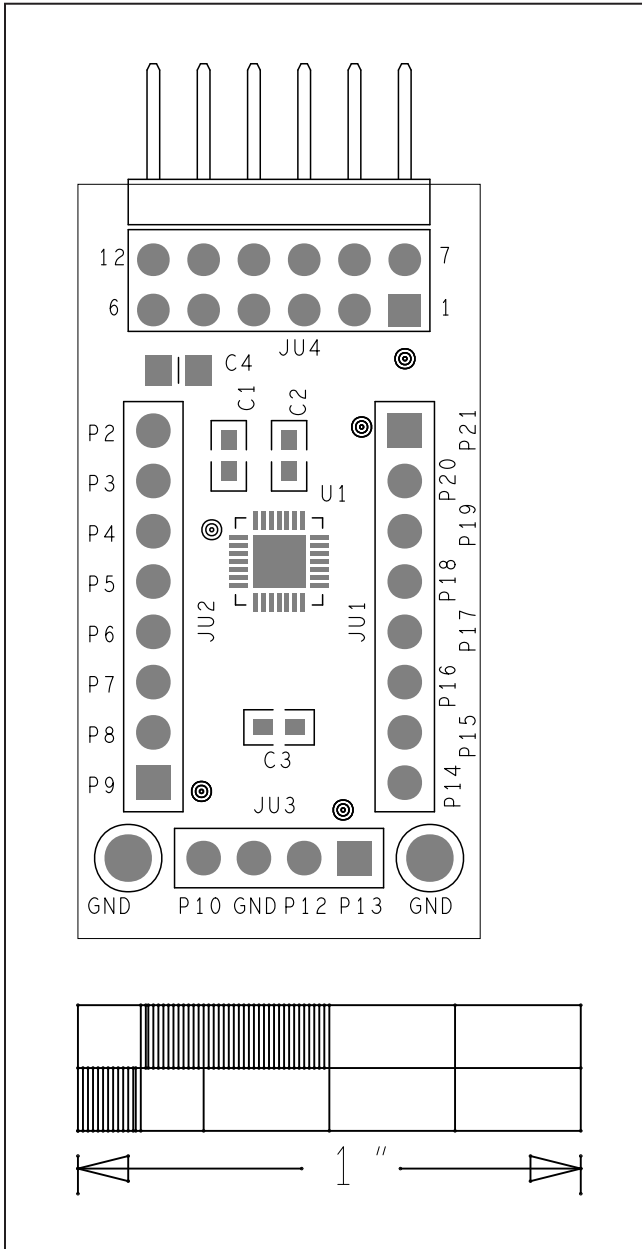
MAX14661 EV Kit Bill of Materials

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

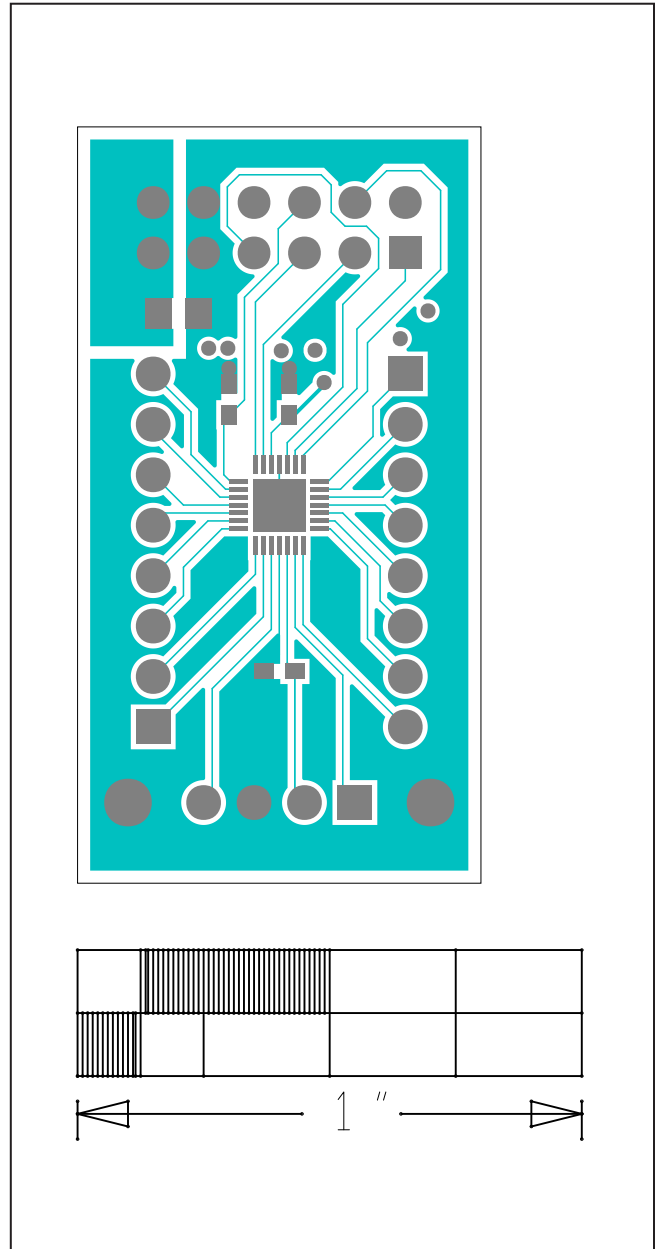
MAX14661 EV Kit Schematic



MAX14661 EV Kit PCB Layout

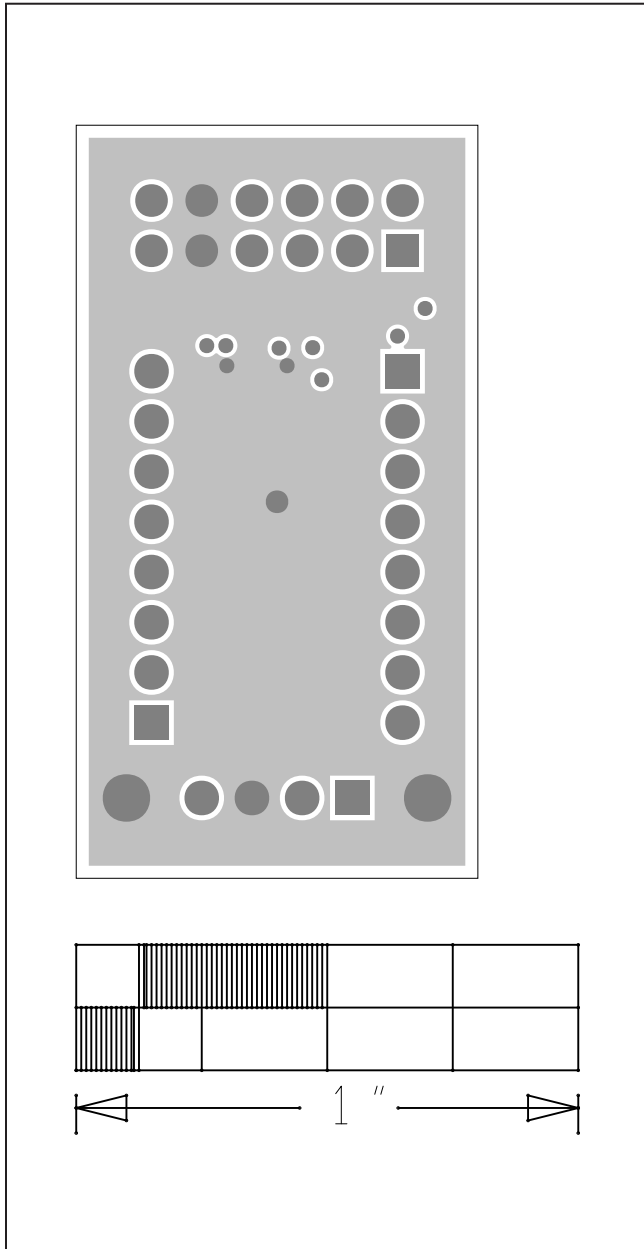


MAX14661 EV Kit PCB—Top Silkscreen

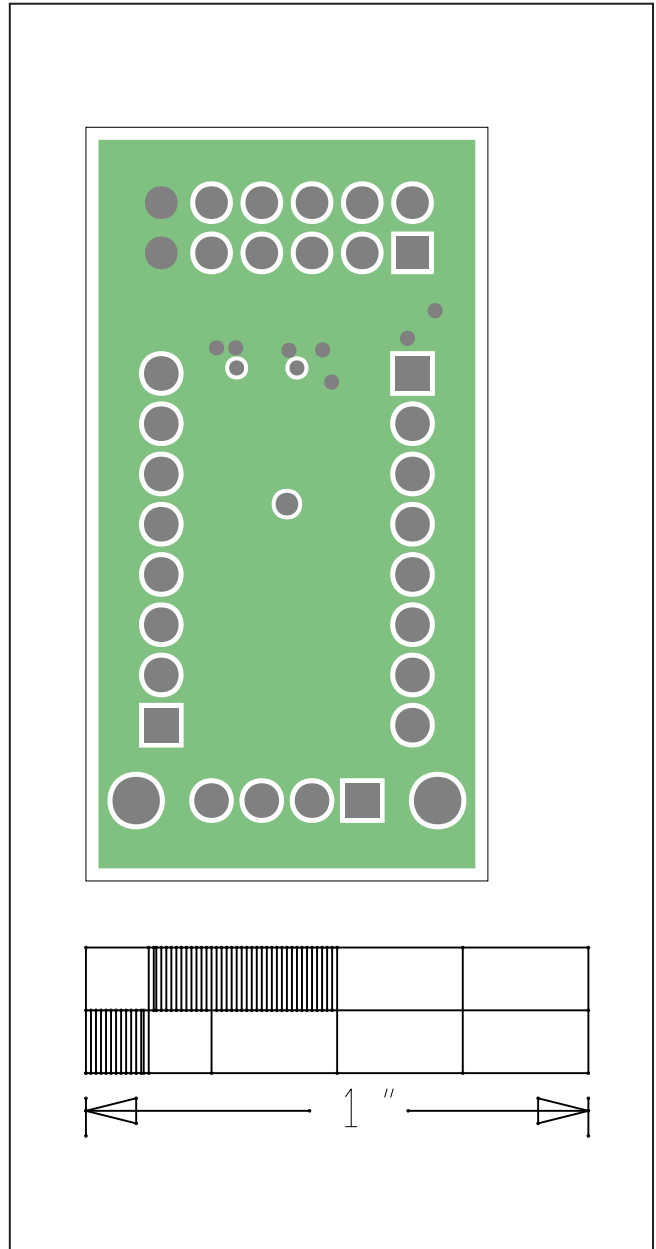


MAX14661 EV Kit PCB—Top Layer

MAX14661 EV Kit PCB Layout (continued)

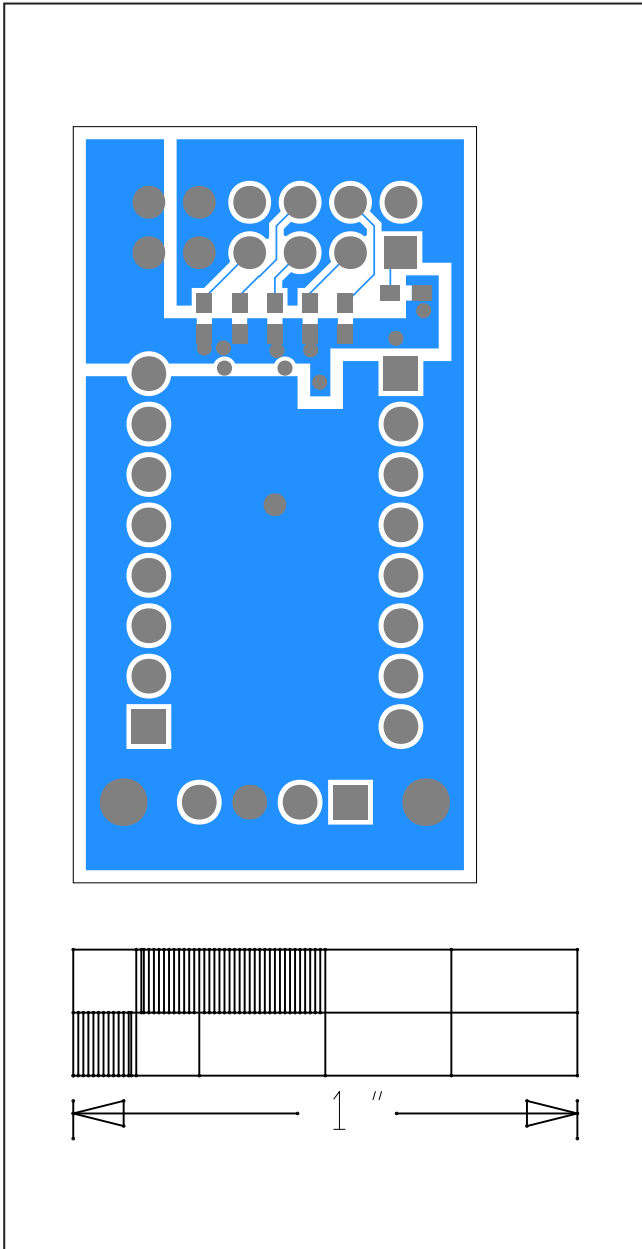


MAX14661 EV Kit PCB—Layer 2

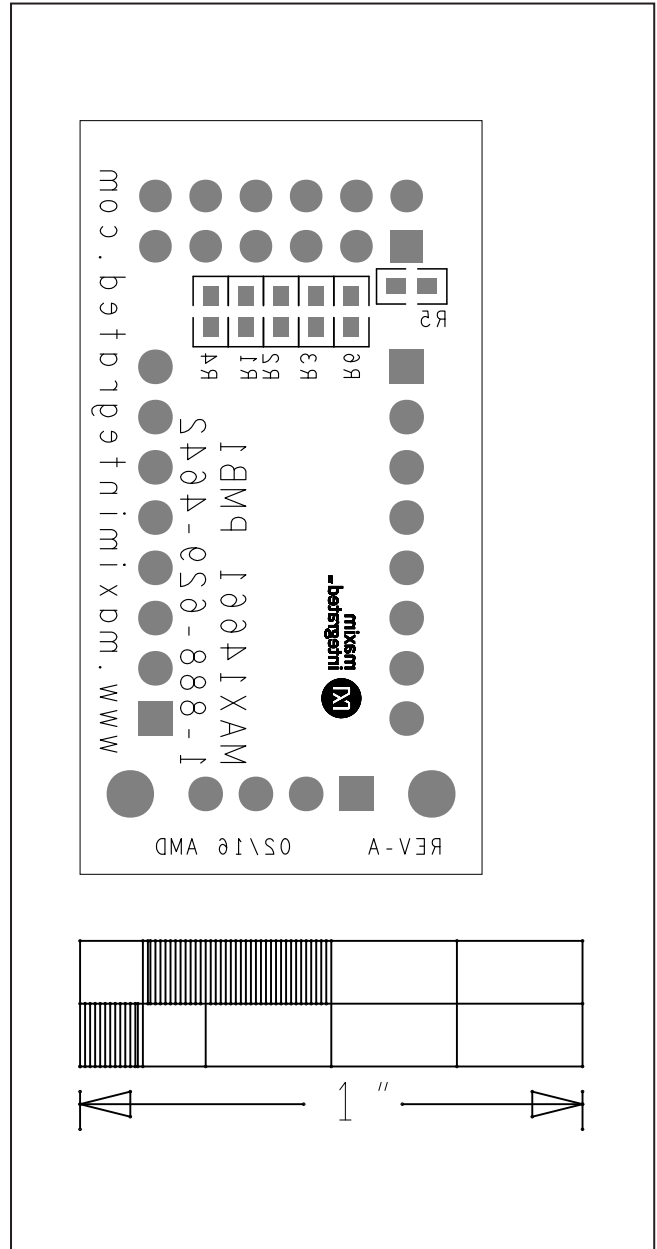


MAX14661 EV Kit PCB—Layer 3

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

For pricing, delivery, and ordering information, please visit Maxim Integrated's online storefront at <https://www.maximintegrated.com/en/storefront/storefront.html>.

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