

# MAX9644/MAX9645/MAX9646 Evaluation Kits

## Evaluate: MAX9644/MAX9645/MAX9646

### General Description

The MAX9644/MAX9645/MAX9646 evaluation kits (EV kits) are fully assembled and tested PCBs that evaluate the MAX9644/MAX9645/MAX9646 single comparators. All EV kits have a common internal reference voltage of +0.2V, operate from a +1V to +5.5V power supply (VCC), and have a common -0.3V to +5.5V input voltage (IN) range.

The EV kits are configured to evaluate both the 4-bump UCSP™ (installed) and an optional 5-pin SOT23 (to do so, request a free MAX9644/MAX9645/MAX9646 SOT23 IC sample when ordering the EV kits).

### Features

- ◆ -0.3V to +5.5V Input Voltage Range
- ◆ +1V to +5.5V VCC Range
- ◆ +0.2V Internal Reference Voltage
- ◆ Evaluates 4-Bump UCSP and Optional 5-Pin SOT23 Packages
- ◆ Proven PCB Layout
- ◆ Fully Assembled and Tested

*Ordering Information appears at end of data sheet.*

### Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	0.1µF ±10%, 25V X7R ceramic capacitors (0603) Murata GRM188R71E104K TDK C1608X7R1E104K
JU1	1	3-pin header
R1, R2	2	100kΩ ±5% resistors (0603)
U1	1	See the <i>EV Kit-Specific Component List</i>

DESIGNATION	QTY	DESCRIPTION
U2	0	Not installed, single comparator (5 SOT23) Maxim MAX9644/MAX9645/ MAX9646
—	1	Shunts
—	1	PCB: MAX9644/5/6 EVALUATION KIT

### EV Kit-Specific Component List

PART	DESIGNATION	DESCRIPTION
MAX9644EVKIT#	U1	Open-drain noninverting single comparator (4 UCSP) Maxim MAX9644EBS+G45 (Top Mark: AGL)
MAX9645EVKIT#		Open-drain inverting single comparator (4 UCSP) Maxim MAX9645EBS+G45 (Top Mark: AGM)
MAX9646EVKIT#		Push-pull noninverting single comparator (4 UCSP) Maxim MAX9646EBS+G45 (Top Mark: AGN)

### Component Suppliers

SUPPLIER	PHONE	WEBSITE
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
TDK Corp.	847-803-6100	www.component.tdk.com

**Note:** Indicate that you are using the MAX9644, MAX9645, or MAX9646 when contacting these component suppliers.

UCSP is a trademark of Maxim Integrated Products, Inc.

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### Quick Start

#### Recommended Equipment

- MAX9644, MAX9645, or MAX9646 EV kit
- Two -5V DC power supplies (VCC, IN)
- Optional third +5V DC power supply (EXT for MAX9644/MAX9645 only)
- Digital multimeter (DMM)

#### Procedure

The EV kits are fully assembled and tested. Follow the steps below to verify board operation. **Caution: Do not turn on the power supply until all connections are completed.**

- 1) Verify that a shunt is installed on pins 1-2 of jumper JU1.
- 2) Connect the positive terminal of a DC power supply to the VCC PCB pad and the ground terminal to the GND PCB pad.
- 3) Connect the positive terminal of a DC power supply to the IN PCB pad and the ground terminal to the GND PCB pad.
- 4) Connect the positive terminal of a DC power supply to the EXT PCB pad and the ground terminal to the GND PCB pad. (MAX9644/MAX9645 only)
- 5) Turn on the VCC power supply and set it to the desired level.
- 6) Turn on the IN power supply and set it to the desired level.
- 7) Turn on the EXT power supply and set it to the desired level (MAX9644/MAX9645 only).
- 8) Monitor the output using a DMM at the OUT1 PCB pad, and study its response to varying voltage at IN.

### Detailed Description of Hardware

The MAX9644/MAX9645/MAX9646 EV kits are fully assembled and tested PCBs that evaluate the MAX9644/MAX9645/MAX9646 single comparators. The MAX9644 is an open-drain noninverting single comparator, the MAX9645 is an open-drain inverting single comparator, and the MAX9646 is a push-pull noninverting single comparator. All EV kits have an internal reference voltage of +0.2V, require VCC between +1V to +5.5V to operate, and have a common -0.3 to +5.5V input voltage (IN) range.

#### VCC Supply Selection

The VCC PCB pad on the EV kits is used to supply a +1V to +5.5V VCC supply to the IC.

The EV kits can evaluate both 4-bump UCSP (U1) and 5-pin SOT23 (U2) packages. The EV kit offers the option to power up U1 or U2 separately through configuration of jumper JU1. See Table 1 for power-up options.

#### EXT PCB Pad

The EXT PCB pad on the EV kits can be used as an external source to pull the outputs high through resistors R1 or R2 when open-drain versions of the parts are used.

**Table 1. Jumper JU1 Functions**

SHUNT POSITION	VCC/REF PAD
1-2*	Powers U1 (UCSP) sub circuit
2-3	Powers optional U2 (SOT23) sub circuit

\*Default position.

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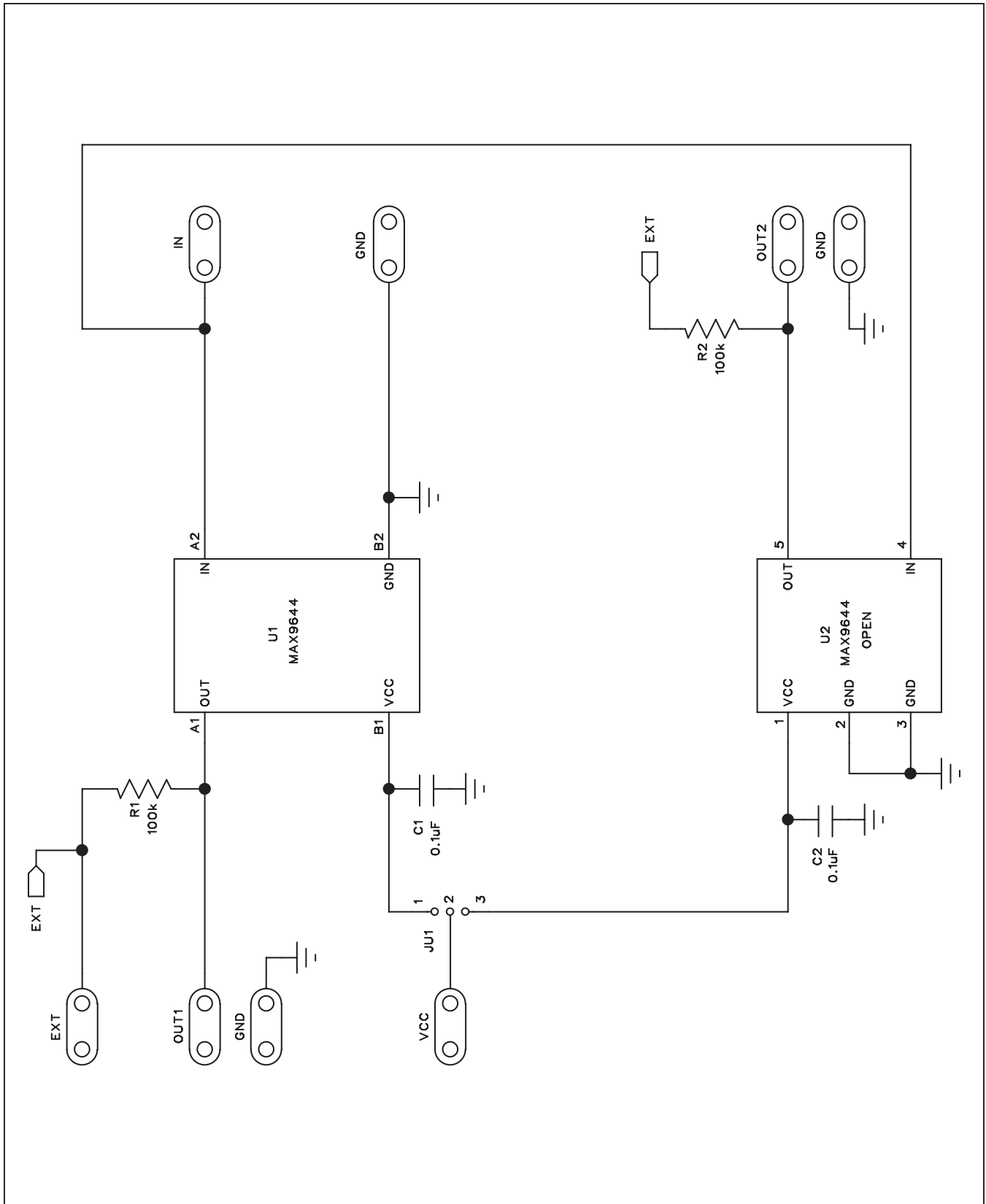


Figure 1. MAX9644 EV Kit Schematic

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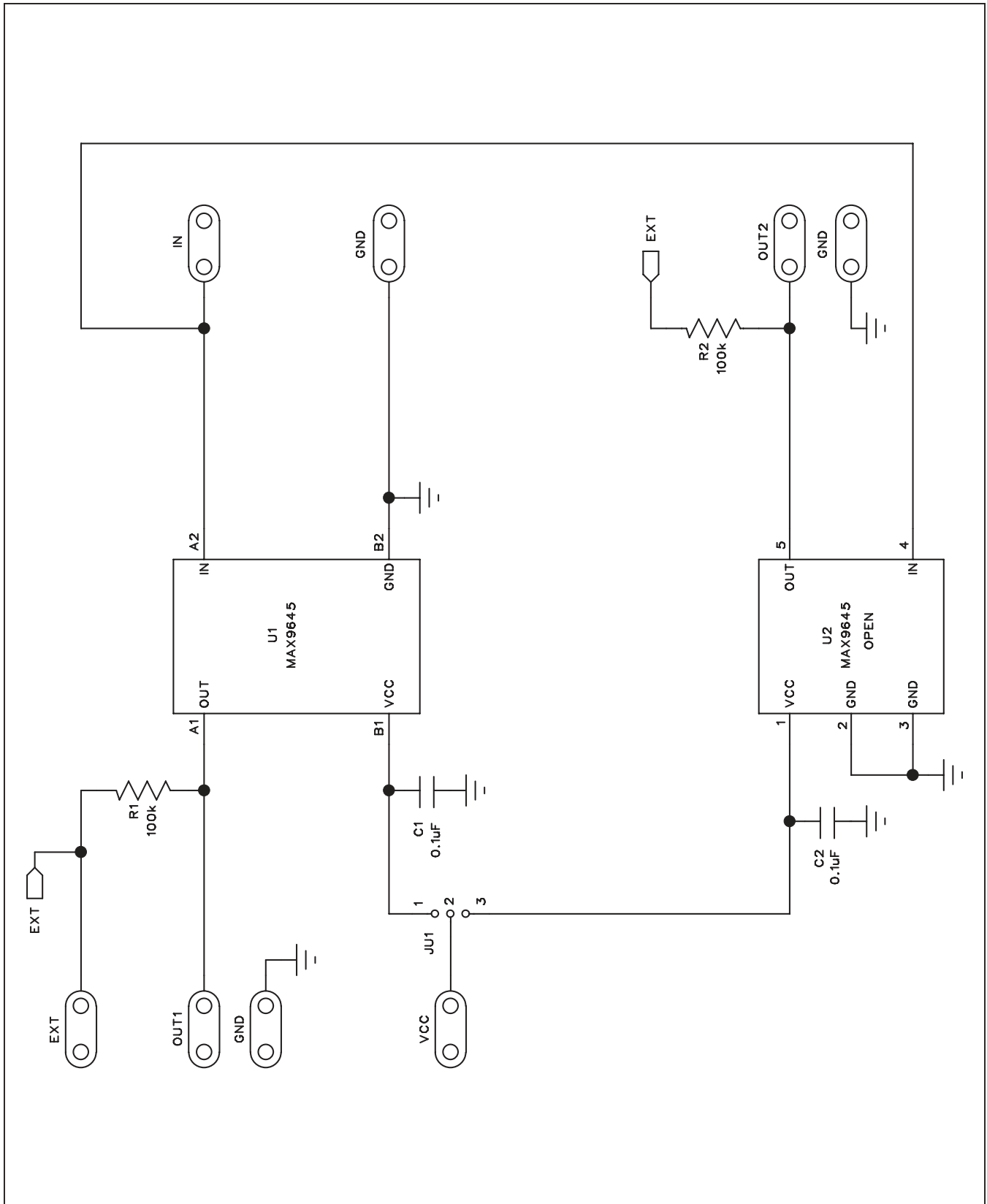


Figure 2. MAX9645 EV Kit Schematic

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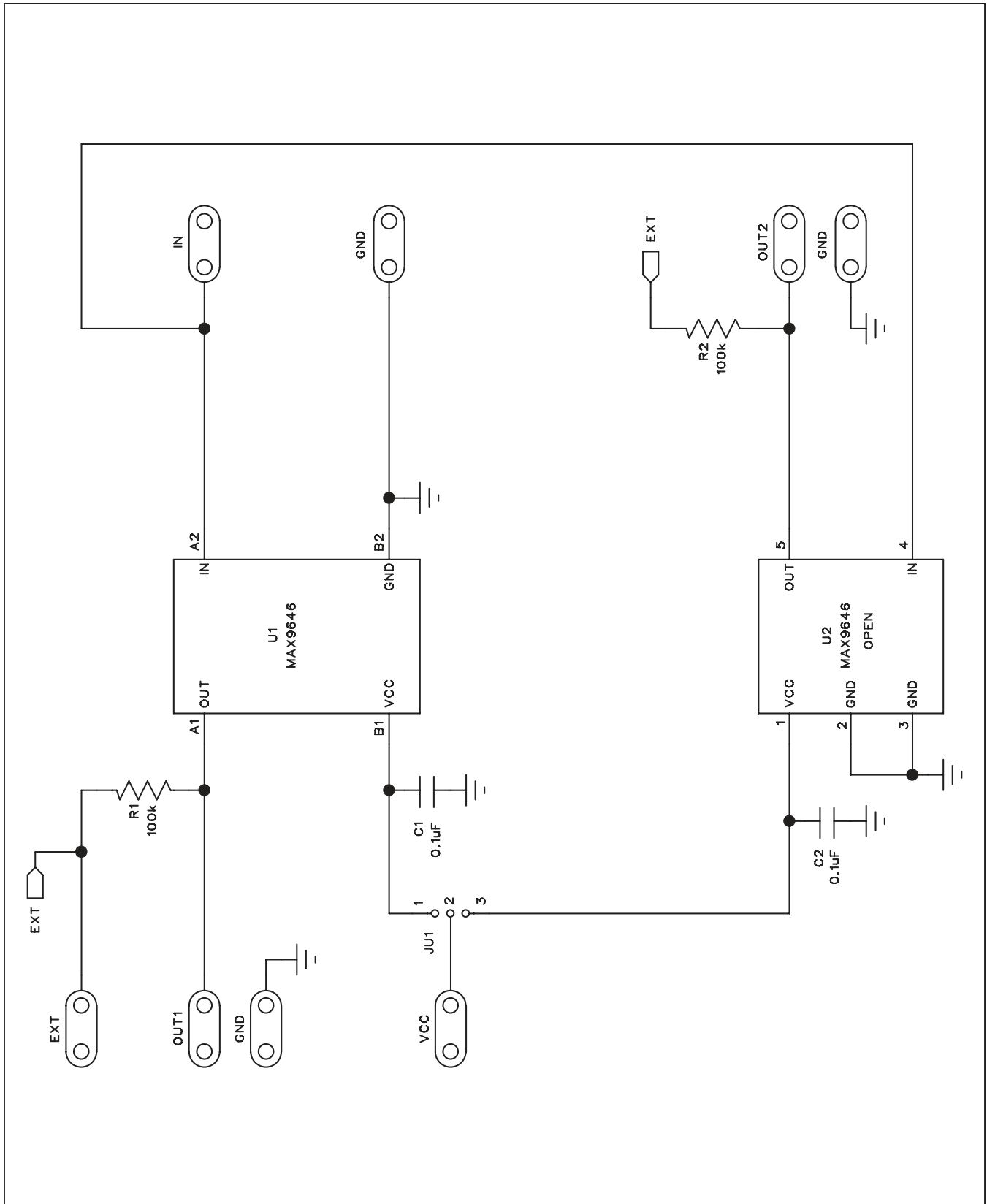


Figure 3. MAX9646 EV Kit Schematic

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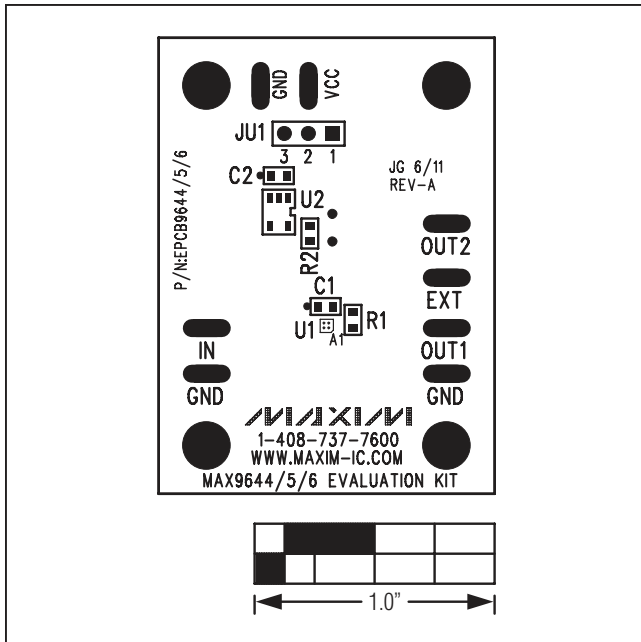


Figure 4. MAX9644/MAX9645/MAX9646 EV Kit PCB Component Placement

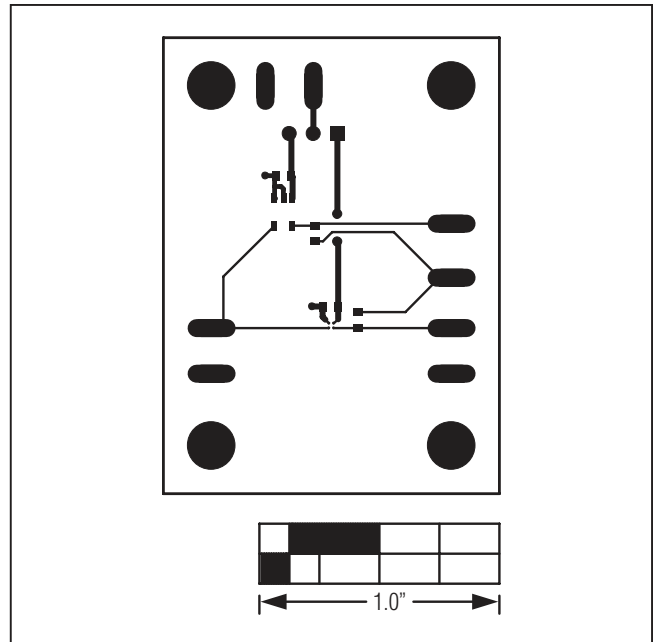


Figure 5. MAX9644/MAX9645/MAX9646 EV Kit PCB Layout—Component Side

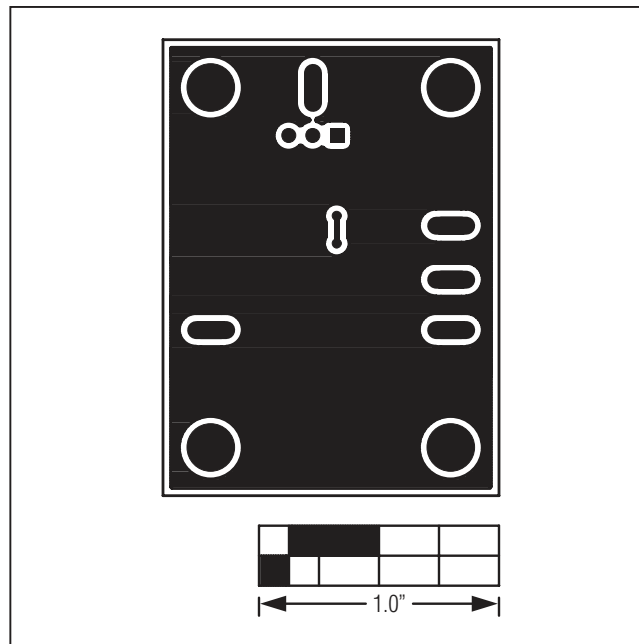


Figure 6. MAX9644/MAX9645/MAX9646 EV Kit PCB Layout—Solder Side

# MAX9644/MAX9645/MAX9646 Evaluation Kits

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### ***Ordering Information***

PART	TYPE
MAX9644EVKIT#	EV Kit
MAX9645EVKIT#	EV Kit
MAX9646EVKIT#	EV Kit

#Denotes RoHS compliant.

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### Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	7/11	Initial release	—

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