

MAX17600–MAX17605 Evaluation Kits

Evaluate: MAX17600–MAX17605

General Description

The MAX17600–MAX17605 evaluation kits (EV kits) provide a proven design to evaluate the MAX17600–MAX17605 dual, high-speed, low-side MOSFET drivers that can source/sink up to a 4A peak current. Each EV kit provides four separate designs to evaluate four different IC packages. The EV kits use a 4V to 14V (MAX17600/MAX17601/MAX17602), or a 6V to 14V (MAX17603/MAX17604/MAX17605) input supply.

Installed on the EV kits are the MAX17600–MAX17605 (in 8-pin TDFN, μ MAX[®], and SO packages).

Benefits and Features

- ◆ 4V to 14V Input Range (MAX17600/MAX17601/MAX17602)
- ◆ 6V to 14V Input Range (MAX17603/MAX17604/MAX17605)
- ◆ Sources/Sinks Up to 4A Peak Current
- ◆ Enable Inputs
- ◆ TTL (MAX17600/MAX17601/MAX17602) or High Noise Margin (HNM) (MAX17603/MAX17604/MAX17605) Logic-Level Inputs with Hysteresis for Noise Immunity
- ◆ Evaluates Four Different Packages
- ◆ Proven PCB Layout
- ◆ Fully Assembled and Tested

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

Component List

| DESIGNATION | QTY | DESCRIPTION |
|----------------------------------|-----|---|
| C1, C4, C7, C10 | 4 | 2.2 μ F \pm 10%, 25V X7R ceramic capacitors (1206) Murata GRM31MR71E225M |
| C2, C3, C5, C6, C8, C9, C11, C12 | 8 | 0.01 μ F \pm 10%, 50V X7R ceramic capacitors (0603) Murata GRM188R71H103K |
| C13–C16 | 4 | 10 μ F, 25V aluminum electrolytic SMD capacitors (4mm x 5.8mm) Panasonic EEEFK1E100R |

| DESIGNATION | QTY | DESCRIPTION |
|-------------|-----|---|
| JU1–JU8 | 8 | 2-pin headers, 0.1in centers |
| U1 | 1 | See the <i>EV Kit-Specific Component List</i> |
| U2 | 1 | See the <i>EV Kit-Specific Component List</i> |
| U3 | 1 | See the <i>EV Kit-Specific Component List</i> |
| U4 | 0 | Not installed (8 TDFN-EP*) |
| — | 8 | Shunts |
| — | 1 | PCB: MAX17600/1/2/3/4/5 EVALUATION KIT |

*EP = Exposed pad.

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EV Kit-Specific Component List

| PART | REFERENCE DESIGNATOR | DESCRIPTION |
|----------------|----------------------|---|
| MAX17600EVKIT# | U1 | MAX17600ATA+ Dual MOSFET driver (8 TDFN-EP*) |
| | U2 | MAX17600ASA+ Dual MOSFET driver (8 SO) |
| | U3 | MAX17600AUA+ Dual MOSFET driver (8 μ MAX-EP*) |
| MAX17601EVKIT# | U1 | MAX17601ATA+ Dual MOSFET driver (8 TDFN-EP*) |
| | U2 | MAX17601ASA+ Dual MOSFET driver (8 SO) |
| | U3 | MAX17601AUA+ Dual MOSFET driver (8 μ MAX-EP*) |
| MAX17602EVKIT# | U1 | MAX17602ATA+ Dual MOSFET driver (8 TDFN-EP*) |
| | U2 | MAX17602ASA+ Dual MOSFET driver (8 SO) |
| | U3 | MAX17602AUA+ Dual MOSFET driver (8 μ MAX-EP*) |

| PART | REFERENCE DESIGNATOR | DESCRIPTION |
|----------------|----------------------|---|
| MAX17603EVKIT# | U1 | MAX17603ATA+ Dual MOSFET driver (8 TDFN-EP*) |
| | U2 | MAX17603ASA+ Dual MOSFET driver (8 SO) |
| | U3 | MAX17603AUA+ Dual MOSFET driver (8 μ MAX-EP*) |
| MAX17604EVKIT# | U1 | MAX17604ATA+ Dual MOSFET driver (8 TDFN-EP*) |
| | U2 | MAX17604ASA+ Dual MOSFET driver (8 SO) |
| | U3 | MAX17604AUA+ Dual MOSFET driver (8 μ MAX-EP*) |
| MAX17605EVKIT# | U1 | MAX17605ATA+ Dual MOSFET driver (8 TDFN-EP*) |
| | U2 | MAX17605ASA+ Dual MOSFET driver (8 SO) |
| | U3 | MAX17605AUA+ Dual MOSFET driver (8 μ MAX-EP*) |

*EP = Exposed pad.

Component Suppliers

| SUPPLIER | PHONE | WEBSITE |
|--|--------------|-----------------------------|
| Murata Electronics North America, Inc. | 770-436-1300 | www.murata-northamerica.com |
| Panasonic Corp. | 800-344-2112 | www.panasonic.com |

Note: Indicate that you are using the MAX17600–MAX17605 when contacting these component suppliers.

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Quick Start

Required Equipment

- MAX17600–MAX17605 EV kit
- 4V to 14V DC power supply

Procedure

The EV kits are fully assembled and tested. Follow the steps below to verify U1 board operation. **Caution: Do not turn on the power supply until all connections are completed.**

- 1) Verify that all jumpers are in their default positions, as shown in Table 1.
- 2) Connect the positive terminal of the power supply to the VDD1 PCB pad and the negative terminal to the nearest GND PCB pad on the EV kit.
- 3) Set the VDD1 power supply to 14V and enable its output.
- 4) Drive INA1 high and verify that the OUTA1 polarity is according to Table 2.
- 5) Drive INB1 high and verify that the OUTB1 polarity is according to Table 2.
- 6) Drive INA1 low and verify that the OUTA1 polarity is according to Table 2.
- 7) Drive INB1 low and verify that the OUTB1 polarity is according to Table 2.
- 8) Repeat accordingly for the other circuits.

Table 1. Jumper Descriptions (JU1–JU8)

| JUMPER | SHUNT POSITION | DESCRIPTION |
|--------|----------------|---|
| JU1 | 1-2 | Disables channel A for the TDFN-EP (3mm x 3mm) package |
| | Open* | Enables channel A for the TDFN-EP (3mm x 3mm) package |
| JU2 | 1-2 | Disables channel B for the TDFN-EP (3mm x 3mm) package |
| | Open* | Enables channel B for the TDFN-EP (3mm x 3mm) package |
| JU3 | 1-2 | Disables channel A for the SO (3.9mm x 4.9mm) package |
| | Open* | Enables channel A for the SO (3.9mm x 4.9mm) package |
| JU4 | 1-2 | Disables channel B for the SO (3.9mm x 4.9mm) package |
| | Open* | Enables channel B for the SO (3.9mm x 4.9mm) package |
| JU5 | 1-2 | Disables channel A for the μ MAX-EP (3mm x 3mm) package |
| | Open* | Enables channel A for the μ MAX-EP (3mm x 3mm) package |
| JU6 | 1-2 | Disables channel B for the μ MAX-EP (3mm x 3mm) package |
| | Open* | Enables channel B for the μ MAX-EP (3mm x 3mm) package |
| JU7 | 1-2 | Disables channel A for the TDFN-EP (2mm x 3mm) package |
| | Open* | Enables channel A for the TDFN-EP (2mm x 3mm) package |
| JU8 | 1-2 | Disables channel B for the TDFN-EP (2mm x 3mm) package |
| | Open* | Enables channel B for the TDFN-EP (2mm x 3mm) package |

*Default position.

Table 2. OUTA/OUTB Polarity vs. INA/INB Polarity

| PART | OUTA POLARITY | OUTB POLARITY |
|----------------|---------------|---------------|
| MAX17600EVKIT# | Inverting | Inverting |
| MAX17601EVKIT# | Noninverting | Noninverting |
| MAX17602EVKIT# | Inverting | Noninverting |
| MAX17603EVKIT# | Inverting | Inverting |
| MAX17604EVKIT# | Noninverting | Noninverting |
| MAX17605EVKIT# | Inverting | Noninverting |

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Detailed Description of Hardware

The MAX17600–MAX17605 EV kits operate on a 4V to 14V (MAX17600/MAX17601/MAX17602) or a 6V to 14V (MAX17603/MAX17604/MAX17605) wide-input voltage range and sources/sinks 4A peak current.

Enable (EN_ _)

Each EV kit has four separate sets of enables to evaluate each package:

- 1) ENA1/ENB1 enables/disables the TDFN-EP package
- 2) ENA2/ENB2 enables/disables the SO package
- 3) ENA3/ENB3 enables/disables the μ MAX-EP package
- 4) ENA4/ENB4 enables/disables the TDFN-EP package

Input (IN_ _)

Each EV kit has four separate sets of inputs to evaluate each package:

- 1) INA1/INB1 inputs control the output state for the TDFN-EP package
- 2) INA2/INB2 inputs control the output state for the SO package

- 3) INA3/INB3 inputs control the output state for the μ MAX-EP package

- 4) INA4/INB4 inputs control the output state for the TDFN-EP package

Power Supply Input (VDD_)

Each EV kit has four separate VDD inputs to evaluate each package:

- 1) VDD1 supplies power to the TDFN-EP package
- 2) VDD2 supplies power to the SO package
- 3) VDD3 supplies power to the μ MAX-EP package
- 4) VDD4 supplies power to the TDFN-EP package

Ground (GND)

Each EV kit has four circuits to evaluate each package. Each circuit has its own ground plane and each GND is not connected to the GND of the nearby circuit.

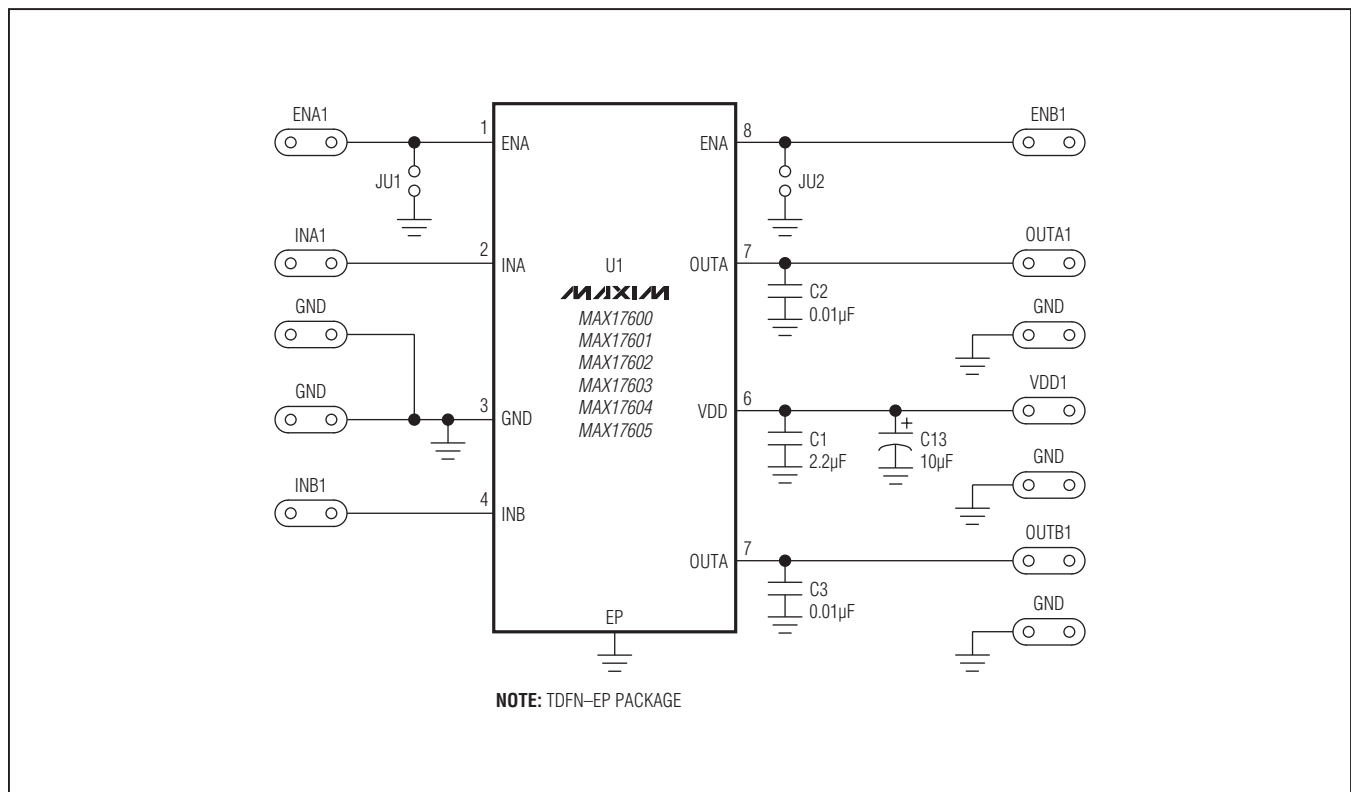


Figure 1a. MAX17600–MAX17605 EV Kit Schematic (U1)

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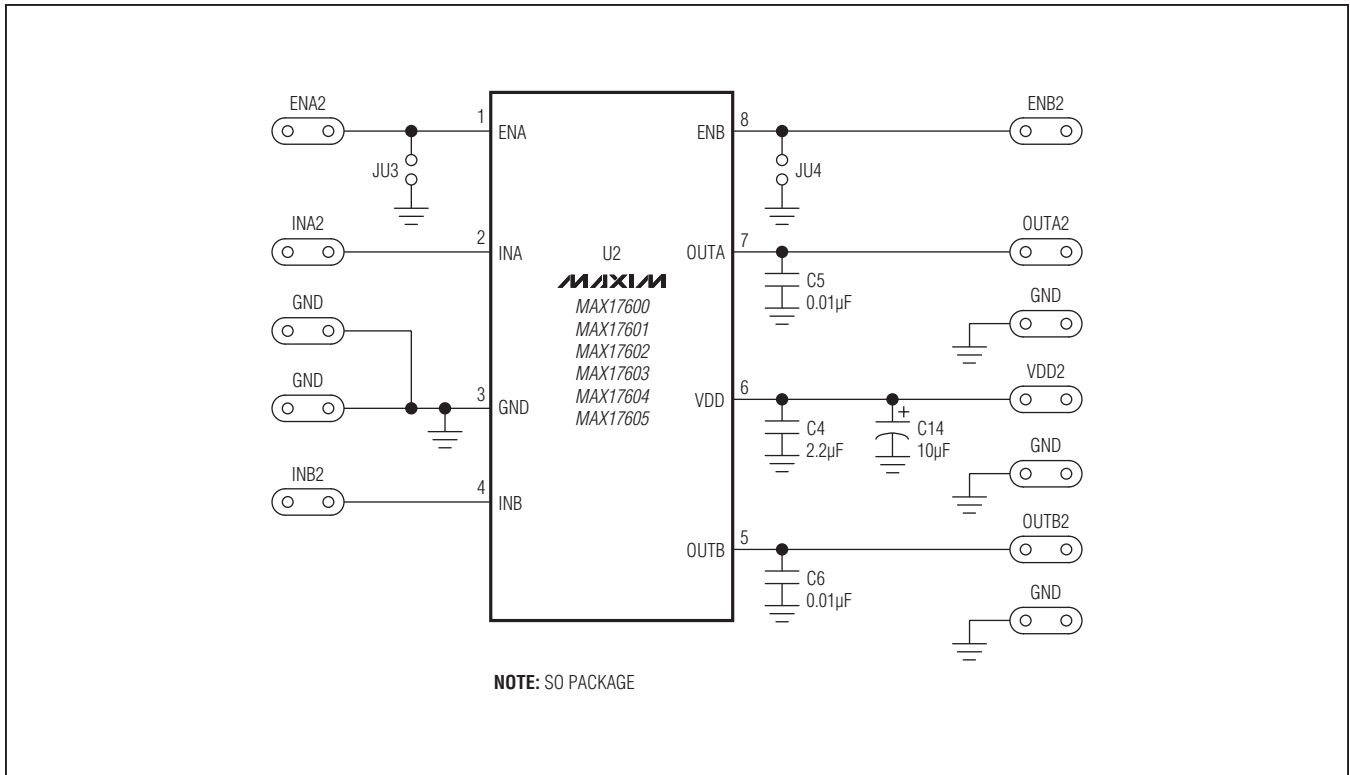


Figure 1b. MAX17600–MAX17605 EV Kit Schematic (U2)

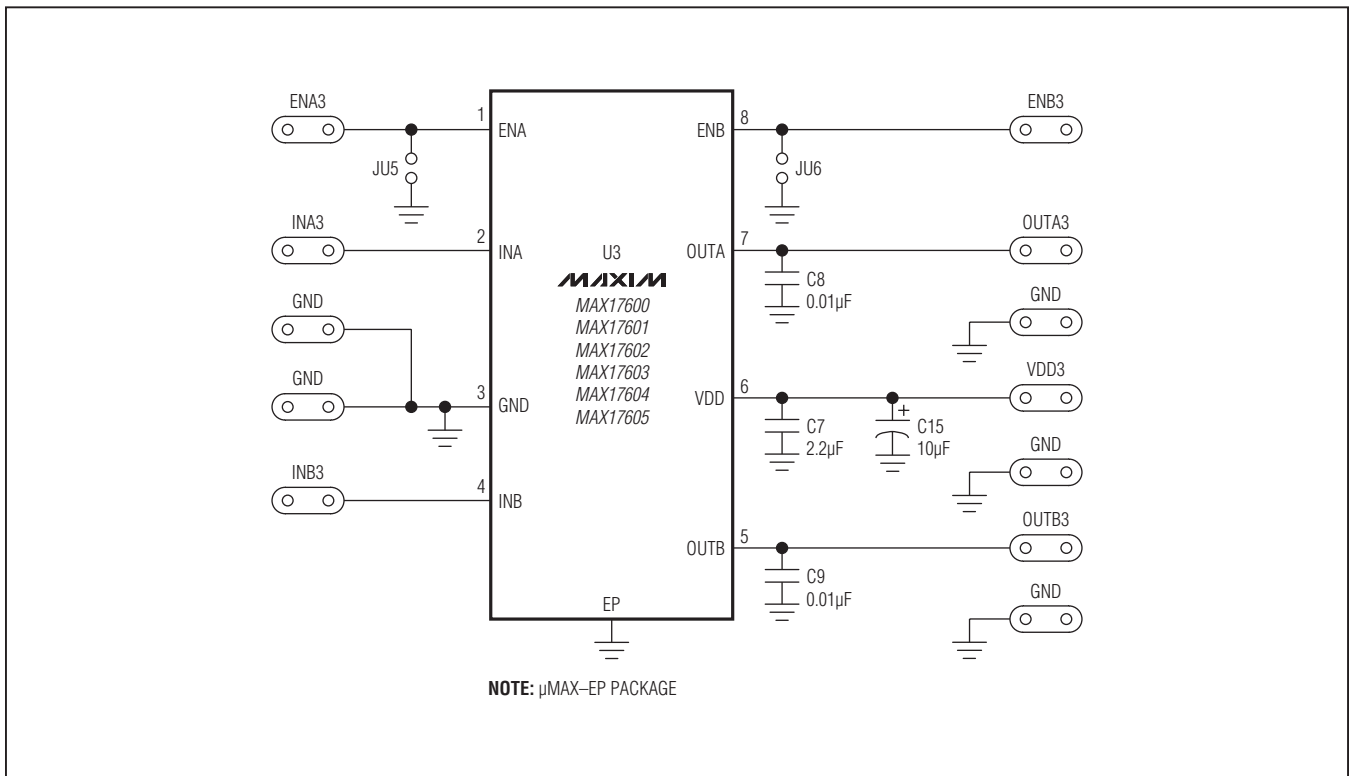


Figure 1c. MAX17600–MAX17605 EV Kit Schematic (U3)

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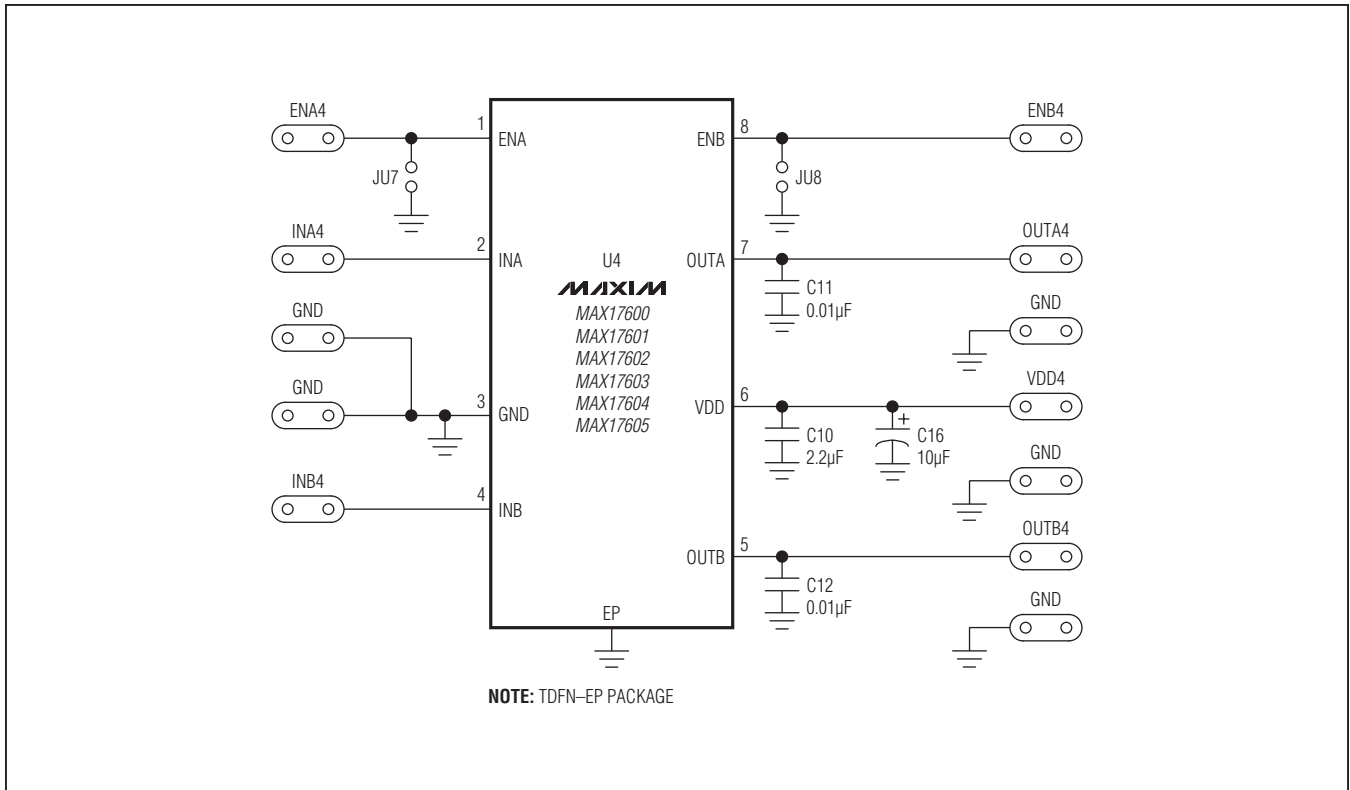


Figure 1d. MAX17600–MAX17605 EV Kit Schematic (U4)

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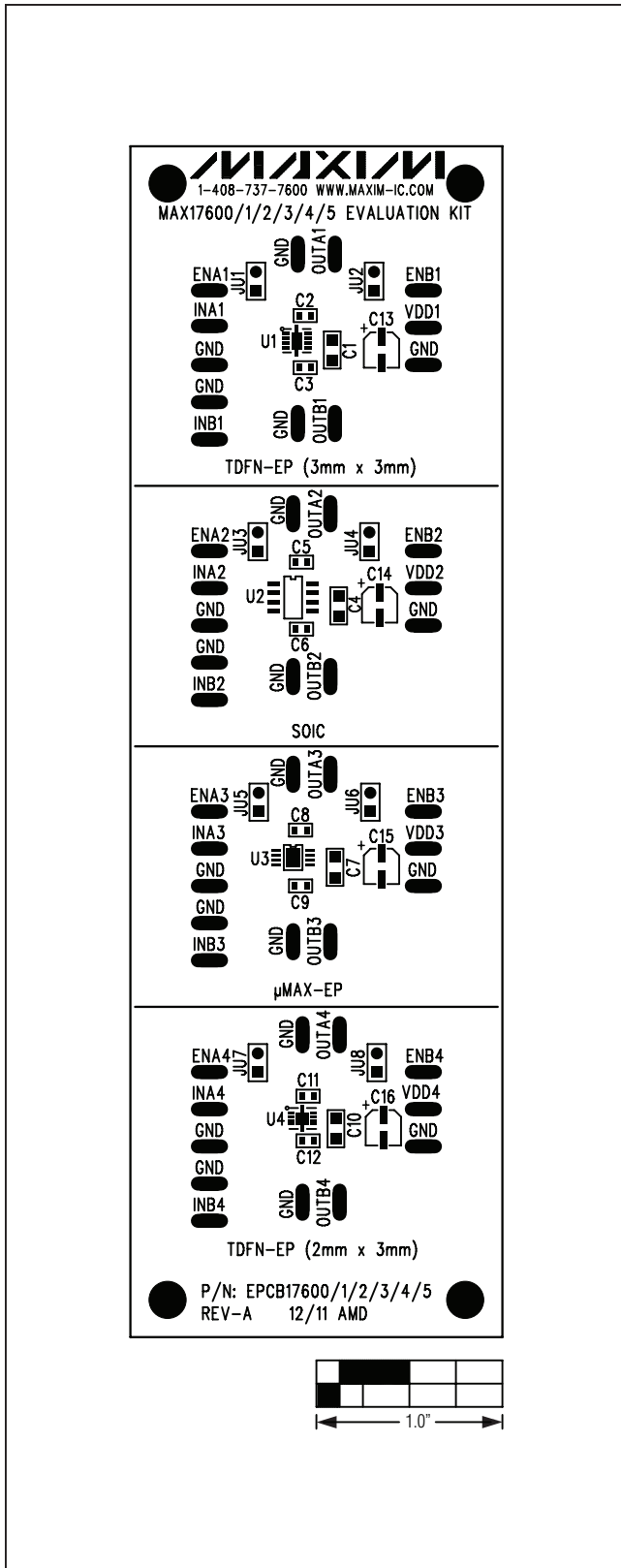


Figure 2. MAX17600–MAX17605 EV Kit Component Placement Guide—Component Side

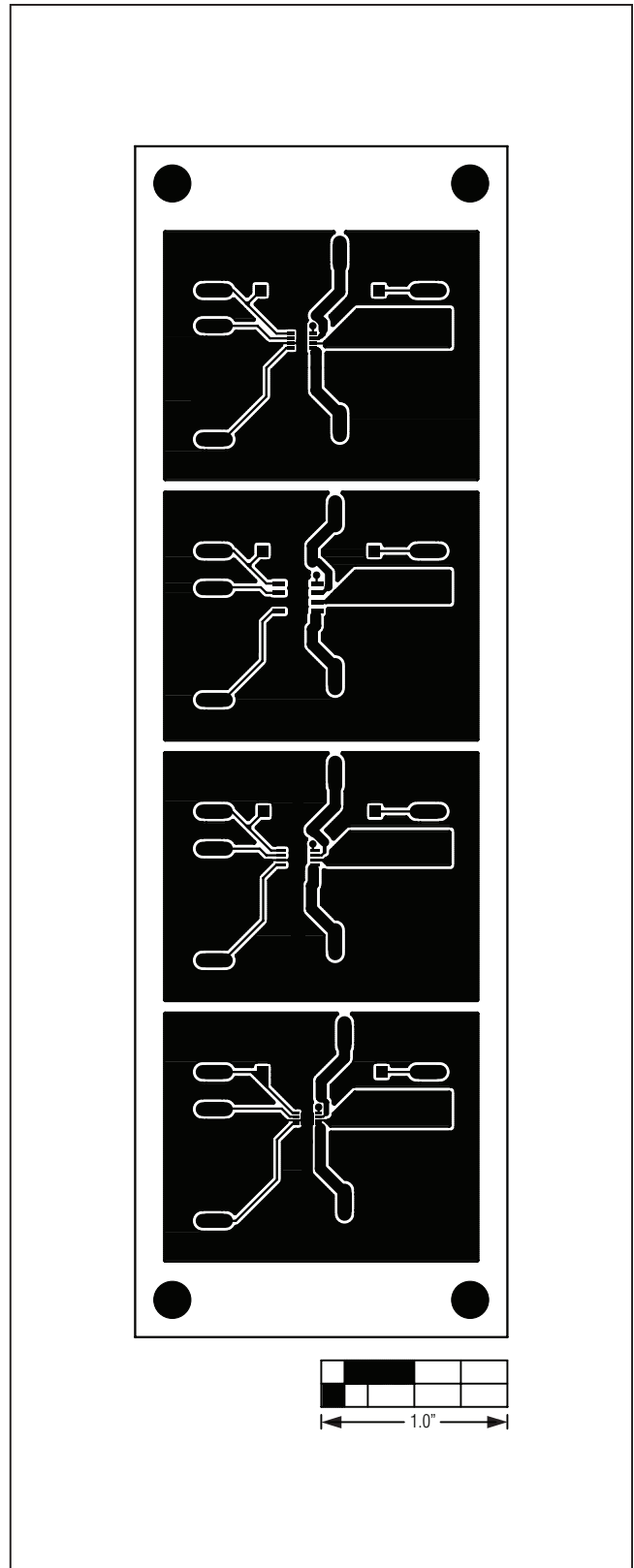


Figure 3. MAX17600–MAX17605 EV Kit PCB Layout—Component Side

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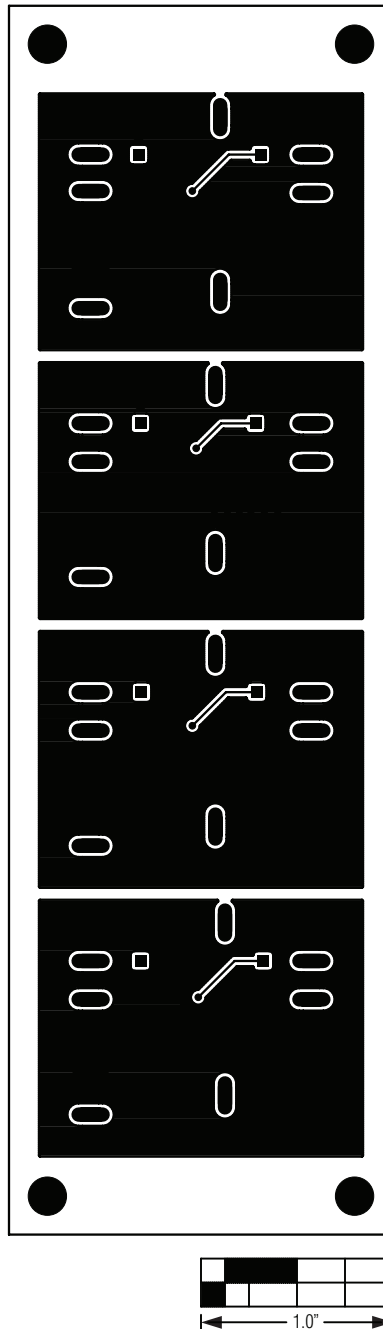


Figure 4. MAX17600–MAX17605 EV Kit PCB Layout—Solder Side

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Ordering Information/Selector Guide

| PART | TYPE | INPUT LOGIC TYPE | OUTA POLARITY | OUTB POLARITY |
|-----------------|--------|------------------|---------------|---------------|
| MAX17600EVKIT#* | EV Kit | TTL | Inverting | Inverting |
| MAX17601EVKIT# | EV Kit | TTL | Noninverting | Noninverting |
| MAX17602EVKIT# | EV Kit | TTL | Inverting | Noninverting |
| MAX17603EVKIT# | EV Kit | HNM | Inverting | Inverting |
| MAX17604EVKIT# | EV Kit | HNM | Noninverting | Noninverting |
| MAX17605EVKIT# | EV Kit | HNM | Inverting | Noninverting |

#Denotes RoHS compliant.

*Future product—contact factory for availability.

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Revision History

| REVISION NUMBER | REVISION DATE | DESCRIPTION | PAGES CHANGED |
|-----------------|---------------|-----------------|---------------|
| 0 | 6/12 | Initial release | — |

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