

MAXIM

MAX7445 Evaluation Kit

Evaluates: MAX7445-MAX7449

General Description

The MAX7445 evaluation kit (EV kit) is a fully assembled and tested surface-mount board. The MAX7445 EV kit includes a MAX7445 4-channel video-reconstruction filter, ideal for anti-aliasing and digital-to-analog converter (DAC)-smoothing video applications. The EV kit provides three different output buffer-gain settings. The input signal is AC-coupled, and the output signal can be DC- or AC-coupled. The EV kit operates from a single +5V supply.

The MAX7445 EV kit can be used to evaluate the MAX7445-MAX7449.

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	1 μ F \pm 20%, 6.3V X5R ceramic capacitor (0603) Taiyo Yuden JMK107BJ105MA or equivalent
C2-C6	5	0.1 μ F \pm 10%, 16V X7R ceramic capacitors (0603) Taiyo Yuden EMK107BJ104KA or TDK C1608X7R1C104KT or equivalent
C7-C10	4	220 μ F \pm 20%, 6.3V aluminum electrolytic capacitors (6.3mm x 6.0mm) Sanyo 6CV220AX
EXTSYNC	1	50 Ω BNC PC board mount-jack connector
IPA-IPD, OPA-OPD	8	75 Ω BNC PC board mount-jack connectors
JU1-JU7	7	3-pin headers
JU8-JU16	8	2-pin headers
R1-R8	8	75 Ω \pm 1% resistors (0603)
R9-R12	4	200 Ω \pm 1% resistors (0603)
R13-R16	4	162 Ω \pm 1% resistors (0603)
R17	1	0 Ω resistor (0603)
TB1	1	2-circuit terminal block
U1	1	MAX7445EUD (14-pin TSSOP)
None	15	Shunts
None	1	MAX7445 PC board

Features

- ◆ Single +5V Power Supply
- ◆ Selectable Input 75 Ω Termination or DAC Termination
- ◆ Selectable AC- or DC-Output Couple
- ◆ Selectable Output Buffer Gains (MAX7445)
- ◆ Surface-Mount Construction
- ◆ Fully Assembled and Tested

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX7445EVKIT	0°C to +70°C	14 TSSOP-EP*

*EP = Exposed pad.

Note: To evaluate the MAX7446-MAX7449, order a free sample of the MAX7446EUD-MAX7449EUD with the MAX7445EVKIT.

Quick Start

The following equipment is recommended:

- Single +5V 500mA DC power supply
- Video signal generator (e.g., Tektronix TG 2000)
- Video measurement equipment (e.g., Tektronix VM 700A)

The MAX7445 EV kit is a fully assembled and tested surface-mount board. Follow the steps below to verify the board operation. **Do not turn on the power supply until all connections are completed.**

Evaluating Channel 1

- 1) Verify that there are shunts across jumpers JU5 (pins 2 and 3, GAIN = +6.0dB), JU6 (pins 2 and 3, SELECT = GND), and JU7 (pins 2 and 3, output enabled).
- 2) Verify that a shunt is installed across pins 1 and 2 of jumpers JU1-JU4 (75 Ω termination).
- 3) Verify that there are shunts across jumpers JU8, JU10, JU11, and JU12.
- 4) Verify that the remaining jumpers are open.
- 5) Connect the output of the video signal generator to the IPA BNC connector on the EV kit.

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Component Suppliers

SUPPLIER	PHONE	FAX	WEBSITE
Sanyo	619-661-6835	619-661-1055	www.sanyo.com
Taiyo Yuden	800-348-2496	847-925-0899	www.t-yuden.com
TDK	847-803-6100	847-390-4405	www.component.tdk.com

Note: Please indicate that you are using the MAX7445–MAX7449 when contacting these suppliers.

- Connect the OPA BNC connector on the EV kit to the input of the video measurement equipment.
- Connect the positive of the +5V supply to the 2-circuit terminal block labeled VCC. Connect the negative of the power supply to the 2-circuit terminal block labeled GND.
- Set the video signal generator for the desired video-input signal (e.g., multiburst sweep). This signal must contain sync information (composite or CVBS).
- Turn on the power supply, and enable the signal generator.
- Analyze the output signal with the video-measurement equipment.

DAC or an encoder output, the 200Ω termination resistor is on the board and is selected by changing jumpers JU1–JU4 for channels A through D, respectively. A typical DAC termination resistor is 200Ω.

The EV kit incorporates jumpers to control GAIN (JU5), SELECT (JU6), and DISABLE (JU7) pins. Tables 2, 3, and 4 list the jumper functions for JU5, JU6, and JU7.

Evaluating the MAX7446–MAX7449

The MAX7445 EV kit can be used to evaluate the MAX7446–MAX7449. To evaluate the MAX7446–MAX7449, replace the MAX7445EUD with a MAX7446EUD–MAX7449EUD, and verify that there is a shunt across pins 2 and 3 of JU5 (GAIN = GND). Place a shunt across JU9 and replace R17 with a 49.9Ω resistor when evaluating the MAX7449. Connect the video measurement equipment to OPB, OPC, and OPD to view the output signal.

The MAX7449 requires an external TTL logic signal (H-sync) connected to EXTSYNC (as a sync source) to turn on or off the internal clamp circuits. See Table 5 for channel assignment, clamp voltage level, and sync source.

Detailed Description

Jumper Selection

The MAX7445 EV kit provides options for evaluating the MAX7445 with a video-signal generator output, or a current output video DAC/encoder. Table 1 lists the jumper settings for selecting the input from either a video generator or a DAC. When interfacing with a video

Table 1. Jumper Functions (JU1–JU4)

JU1 SHUNT LOCATION	JU2 SHUNT LOCATION	JU3 SHUNT LOCATION	JU4 SHUNT LOCATION	INPUT TERMINATION
Pins 1 and 2	Pins 1 and 2	Pins 1 and 2	Pins 1 and 2	75Ω
Pins 2 and 3	Pins 2 and 3	Pins 2 and 3	Pins 2 and 3	200Ω
All other combinations				Undefined

Note: To emulate a 200Ω DAC source resistor when driving from a 75Ω generator, remove jumpers JU8, JU10, JU11, and JU12. The 162Ω resistor added to the standard 75Ω terminate equals approximately 200Ω.

Table 2. JU5 Functions (GAIN)

JU5 SHUNT LOCATION	GAIN PIN	MAX7445 OUTPUT BUFFER GAIN (dB)
Pins 1 and 2	Connected to VCC	+9.5
Pins 2 and 3 (default)	Connected to GND	+6.0
Open (not installed)	Floating	+12

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Table 3. JU6 Functions (SELECT)

JU6 SHUNT LOCATION	SELECT PIN	OPERATING MODE			
		CHANNEL	CHANNEL ASSIGNMENT	CLAMP LEVEL (V)	SYNC SOURCE
Pins 1 and 2	Connected to VCC	A	CVBS	0.8	Channel A
		B	Y	0.8	Channel A
		C	C	1.6	Channel A
		D	CVBS _{ASYNC}	0.8	Channel D
Pins 2 and 3 (default)	Connected to GND	A	CVBS	0.8	Channel A
		B	R	1.4	Channel A
		C	G	1.4	Channel A
		D	B	1.4	Channel A
Open (not installed)	Floating	A	G (with sync)	0.8	Channel A
		B	R	1.4	Channel A
		C	B	1.4	Channel A
		D	CVBS _{ASYNC}	0.8	Channel D

Table 4. JU7 Functions (DISABLE)

JU7 SHUNT LOCATION	DISABLE PIN	MAX7445 OUTPUT
Pins 1 and 2	Connected to VCC	Outputs disabled
Pins 2 and 3 (default)	Connected to GND	Outputs enabled
Open (not installed)	Floating	Undefined

Table 5. MAX7449 Channel Assignment

EV KIT I/O LABELS	CHANNEL ASSIGNMENT	CLAMP LEVEL (V)	SYNC SOURCE
IPB, OPB	R	1.4	EXTSYNC
IPC, OPC	G	1.4	EXTSYNC
IPD, OPD	B	1.4	EXTSYNC

Note: JU9 is closed.

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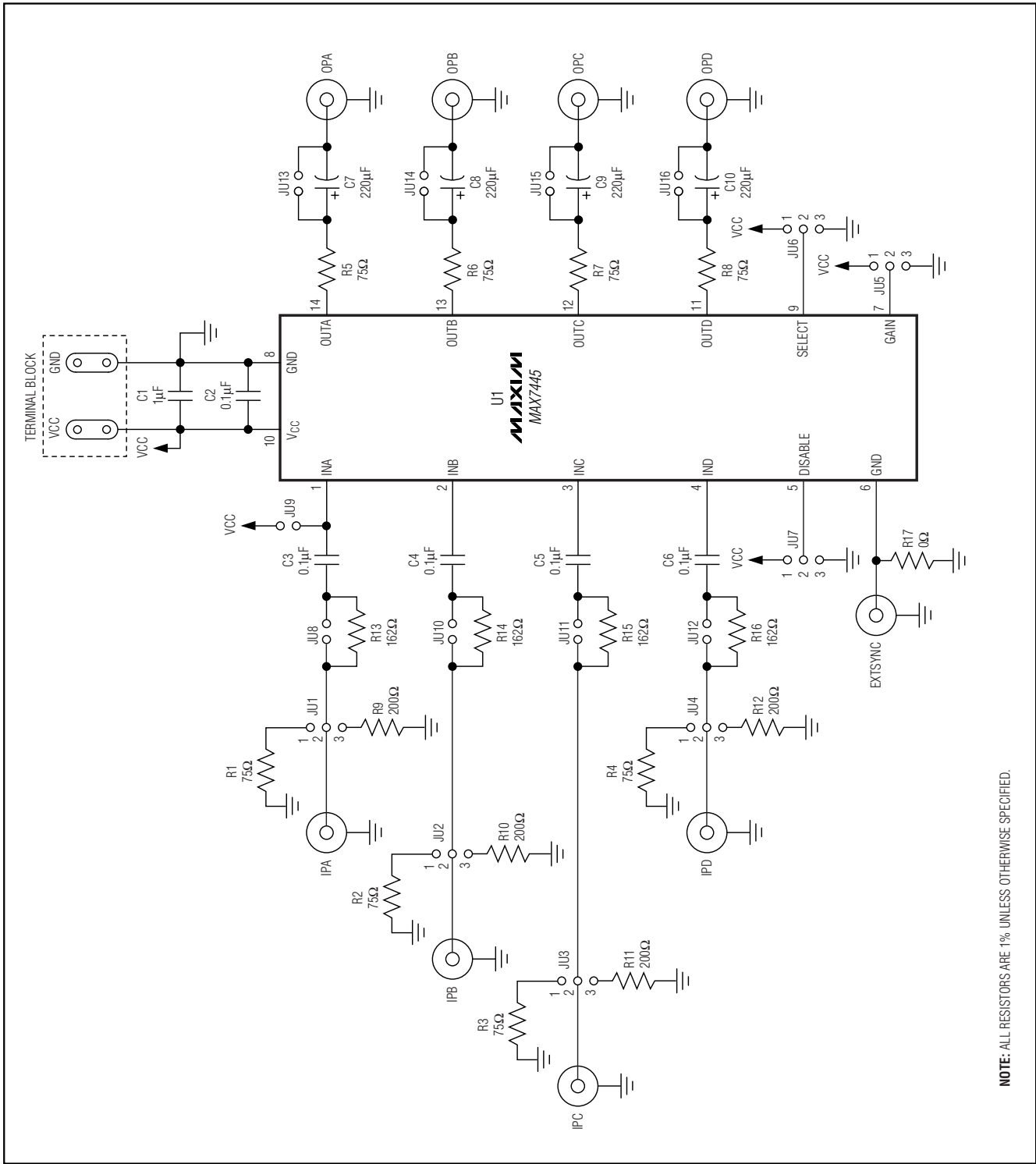


Figure 1. MAX7445 EV Kit Schematic

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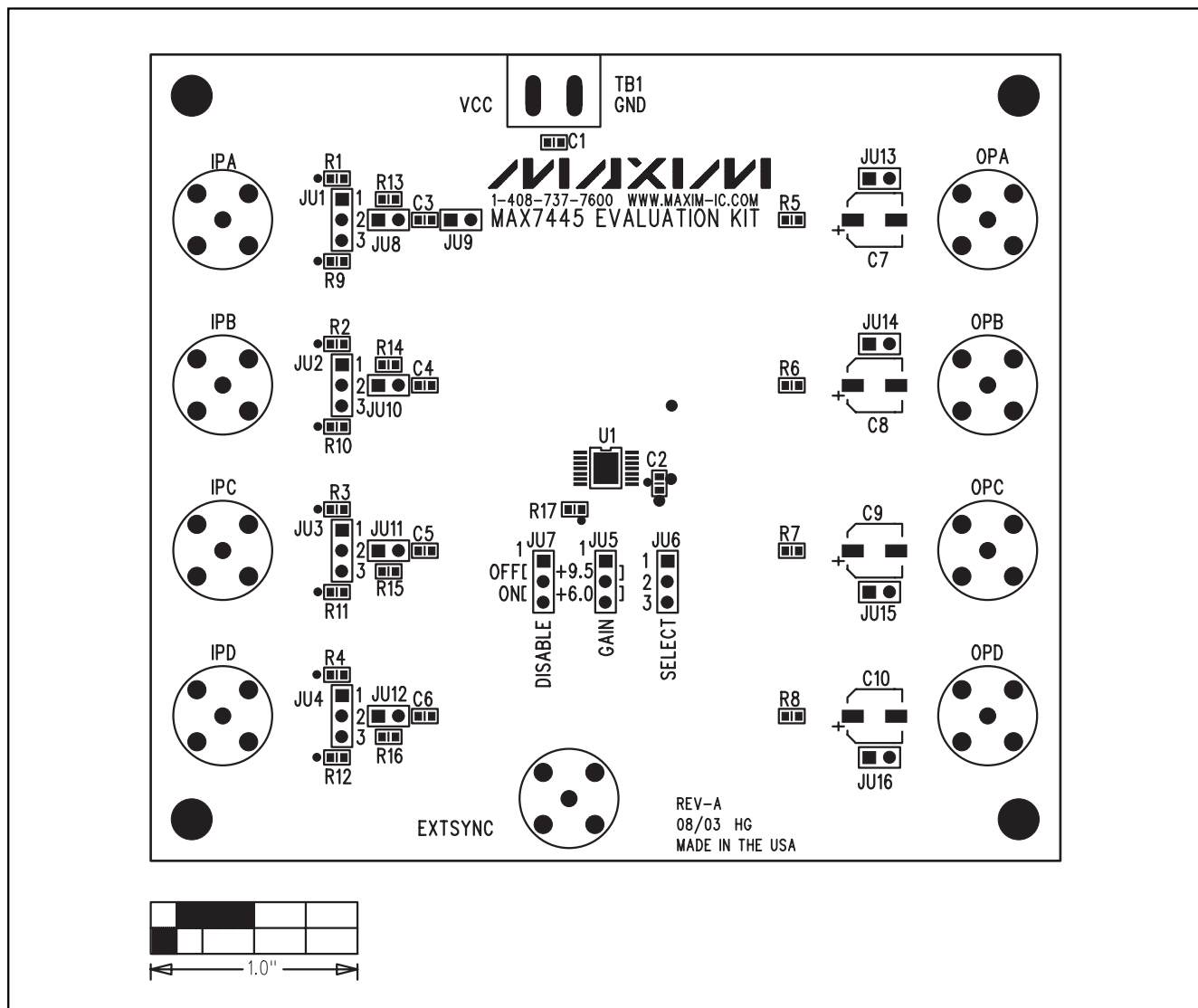


Figure 2. MAX7445 EV Kit Component Placement Guide—Top Silkscreen

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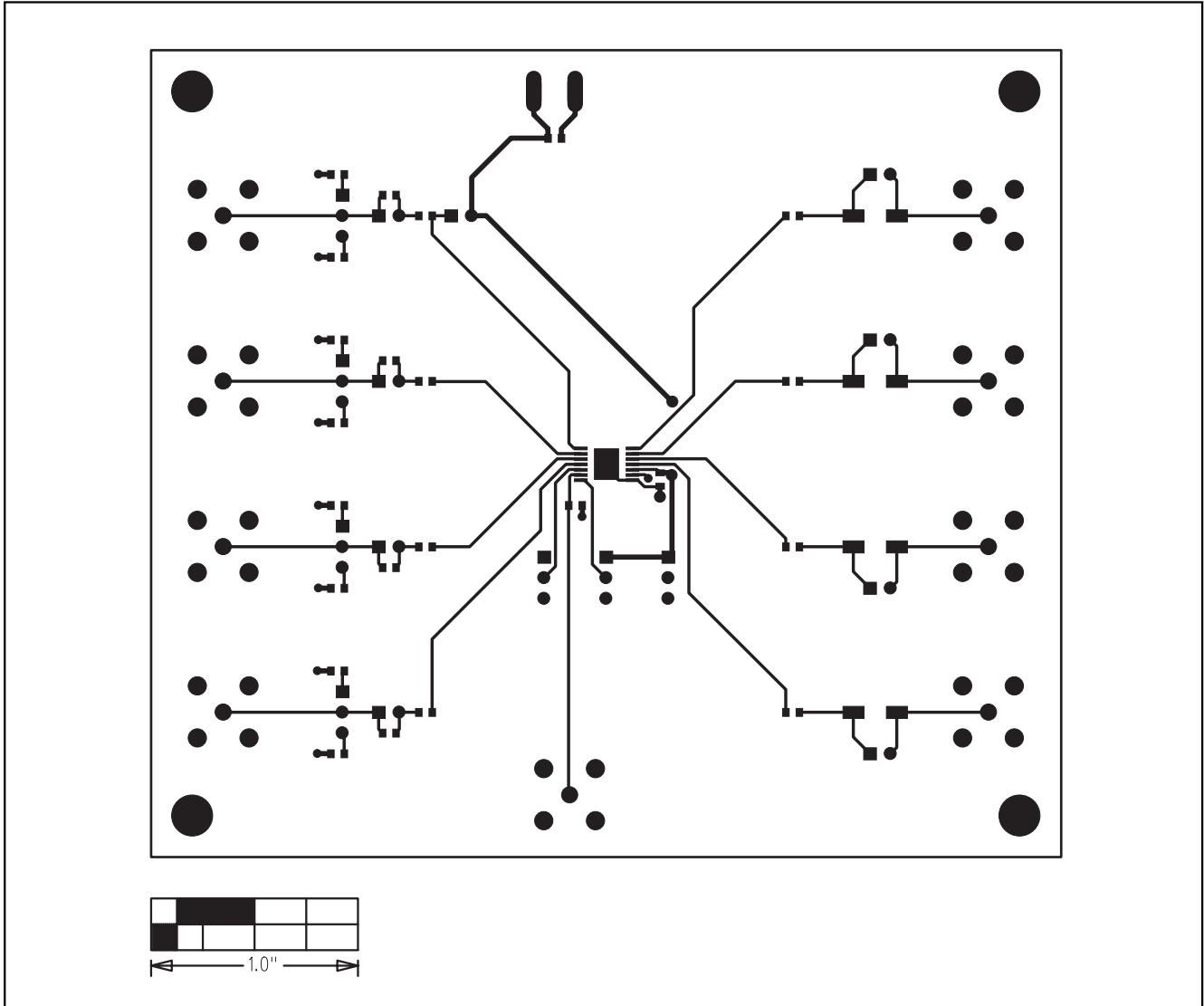


Figure 3. MAX7445 EV Kit PC Board Layout—Component Side

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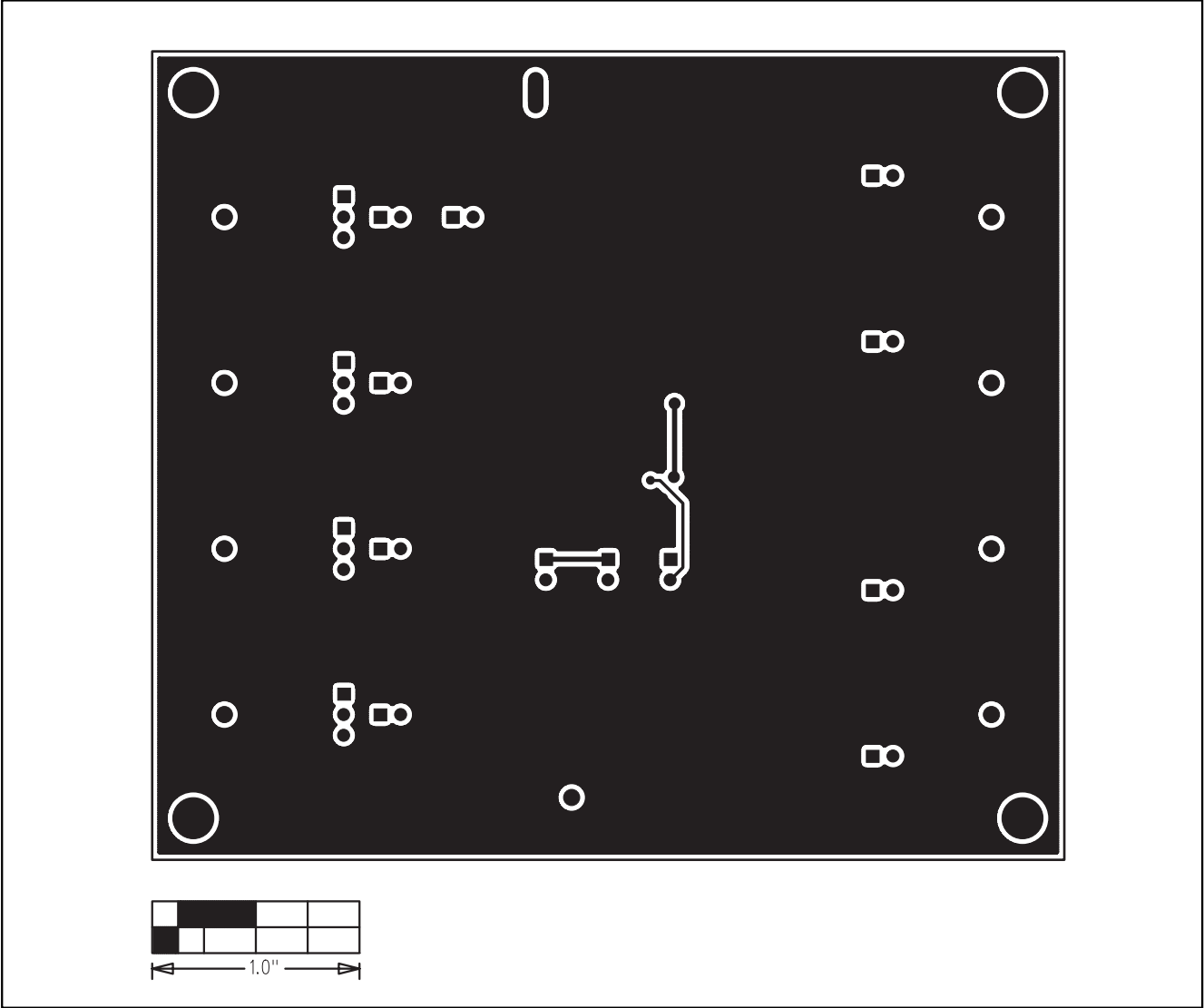


Figure 4. MAX7445 EV Kit PC Board Layout—Solder Side

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