



MAX9225/6 Evaluation Kit

General Description

The MAX9225/6 evaluation kit (EV kit) is a fully assembled and tested printed circuit board (PCB) that simplifies the evaluation of the MAX9225 10-bit, 10MHz to 20MHz serializer and the MAX9226 10-bit, 10MHz to 20MHz deserializer. The MAX9225 IC transfers 10-bit parallel 1.8V to 3.3V logic to an LCDS 2-wire serial interface. The MAX9226 IC accepts an LCDS data and converts it back to a 10-bit parallel 1.8V to 3.3V logic signal.

The MAX9225 serializer operates from a single +2.375V to +3.465V supply and accepts +1.71V to +3.465V inputs. The MAX9226 deserializer operates from a +2.375V to +3.465V core supply and has a separate output buffer supply, allowing +1.71V to +3.465V output-high levels.

Component Suppliers

SUPPLIER	PHONE	WEBSITE
KEMET Corp.	864-963-6300	www.kemet.com
Taiyo Yuden	800-348-2496	www.t-yuden.com
TDK Corp.	847-803-6100	www.component.tdk.com

Note: Indicate that you are using the MAX9225/MAX9226 when contacting these component suppliers.

Features

- ◆ 10-Bit Parallel I/O Interface Directly to 1.8V to 3.3V Logic
- ◆ 2-Wire Serial Interface
- ◆ Independent Evaluation of Serializer (MAX9225) and Deserializer (MAX9226)
- ◆ Low-Voltage, Low-Power Operation
- ◆ Including Flat-Flex Cable for 2-Wire Interface
- ◆ Fully Assembled and Tested

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX9225/6EVKIT	0°C to +70°C	16 TQFN-EP*

*EP = Exposed paddle.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2, C3	3	10 μ F \pm 20%, 6.3V X5R ceramic capacitors (0805) Taiyo Yuden JMK212BJ106MG TDK C2012X5R0J106M
C4, C5, C6	3	0.1 μ F \pm 10%, 16V X7R ceramic capacitors (0603) TDK C1608X7R1C104K
C7, C8, C9	3	0.01 μ F \pm 10%, 25V X7R ceramic capacitors (0402) Kemet C0402C103K3RAC TDK C1005X7R1E103K
EX_PCLKIN, POWER-DOWN	2	50 Ω BNC PC board mount connectors

DESIGNATION	QTY	DESCRIPTION
J1, J2, J3	3	2 x 10-pin headers
JU1, JU4, JU5	3	2-pin headers
JU2, JU3	2	3-pin headers
R1, R2	2	249 Ω \pm 1% resistors (0402)
R3	0	Not installed, short by PC trace, resistor (0402)
R4	1	10k Ω \pm 5% resistor (0603)
R5, R6	2	49.9 Ω \pm 1% resistors (1206)
U1	1	MAX9225ETE (16-pin TQFN, 3mm x 3mm)
U2	1	MAX9226ETE (16-pin TQFN, 3mm x 3mm)
—	2	Shunts

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Quick Start

Recommended Equipment

- Three separate 3.0V, 50mA power supplies
- Data generator
- Logic analyzer

Procedure

The MAX9225/6 EV kit is fully assembled and tested.

Caution: Do not turn on the power supplies until all connections are completed.

- 1) Connect JU1 and JU4 with a two-connection, flat-flex cable included with the EV kit.
- 2) Verify that there is a shunt across JU3 (pins 1-2) (power-down).
- 3) Connect the clock signal from the data generator to pin 2 of JU2 and connect the ground to pin 1 of JU2.
- 4) Connect the desired data to the 10-bit parallel inputs (see Table 3 for input bit location).
- 5) Connect the 10-bit parallel outputs to the input of the logic analyzer (see Table 3 for output bits location).
- 6) Connect the output clock signal to the logic analyzer, pin 1 of JU5.
- 7) Connect the positive of a 3.0V power supply to the VDD1 pad, and then connect the negative of the power supply to GND1.
- 8) Connect the positive of a 3.0V power supply to the VDD2 pad, and then connect the negative of the power supply to GND2.
- 9) Connect the positive of a 3.0V power supply to the VDDO pad, and then connect the negative of the power supply to GND3.
- 10) Turn on all three power supplies, and then enable the data generator and logic analyzer.
- 11) Move the shunt on JU3 to pins 2-3 (power-up).
- 12) Compare the input signals of the serializer and the output signals of the deserializer with the logic analyzer.

Detailed Description

The MAX9225/6 EV kit is a fully assembled and tested board that simplifies the evaluation of the MAX9225 10-bit, 10MHz to 20MHz serializer and the MAX9226 10-bit, 10MHz to 20MHz deserializer. The MAX9225/MAX9226 serializer/deserializer chipset reduces wiring by serializing 10 bits onto a single differential pair. The 2-wire serial interface uses low-current differential singling (LCDS) for low-EMI, high common-mode noise immunity, and ground-shift tolerance.

The MAX9225 serializer operates from a single +2.375V to +3.465V supply and accepts +1.71V to +3.465V inputs. The MAX9226 deserializer operates from a +2.375V to +3.465V core supply and has a separate output buffer supply, allowing +1.71V to +3.465V output-high levels, $V_{DDO} \leq V_{DD}$.

Transferring Data from Serializer to Deserializer

The EV kit provides two 2-pin headers, JU1 and JU4, for transferring data from the serializer to the deserializer with a flat-flex cable. JU1 is the output of the serializer, and JU4 is the input of the deserializer. The 2-pin header, JU1, provides easy connection for either using a differential probe to monitor the output or connecting a flat-flex cable to the deserializer. Pads SDO+/SDO- and SDI+/SDI- are provided for extra connections.

Parallel Clock Input

The MAX9225/6 EV kit allows the MAX9225 to accept a clock from either a data generator/logic analyzer or a clock from an individual function generator, which is 50Ω terminated, by changing jumper JU2. See Table 1 for JU2 functions. The clock and the data inputs to the MAX9225 need to be synchronized.

Table 1. JU2 Functions

SHUNT POSITION	PIN PCLKIN	PARALLEL CLOCK INPUT
Open	Clock externally connected to pin 2 of JU2	Using clock from a data generator/ logic analyzer
2-3	Connected to EX_PCLKIN connector, 50Ω terminated	Using clock from a function generator

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Power-Down Input

The MAX9225/6 EV kit incorporates jumper JU3 to control the $\overline{\text{PWRDN}}$ pin. See Table 2 for JU3 functions. For normal operation, PCLKIN must be running before driving $\overline{\text{PWRDN}}$ high.

Table 2. JU3 Functions

SHUNT POSITION	PIN $\overline{\text{PWRDN}}$	MAX9225 OPERATING MODE
2-3	Connect to VDD1 through a 10k Ω resistor	Power-up mode
1-2	Connect to SGND1 through R6	Power-down mode
	Connect to POWER-DOWN BNC with an external signal	The external signal levels determine the operating mode

Table 3. Input/Output Bit Location

DATA BIT	INPUT LOCATION	OUTPUT LOCATION
Bit 0	J1-1	J3-19
Bit 1	J1-3	J3-17
Bit 2	J1-5	J3-15
Bit 3	J1-7	J3-13
Bit 4	J1-9	J3-11
Bit 5	J1-11	J3-9
Bit 6	J1-13	J3-7
Bit 7	J1-15	J3-5
Bit 8	J2-1	J3-3
Bit 9	J2-3	J3-1
Clock	Pin 2 of JU2	Pin 1 of JU5

Evaluates: MAX9225/MAX9226

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Evaluates: MAX9225/MAX9226

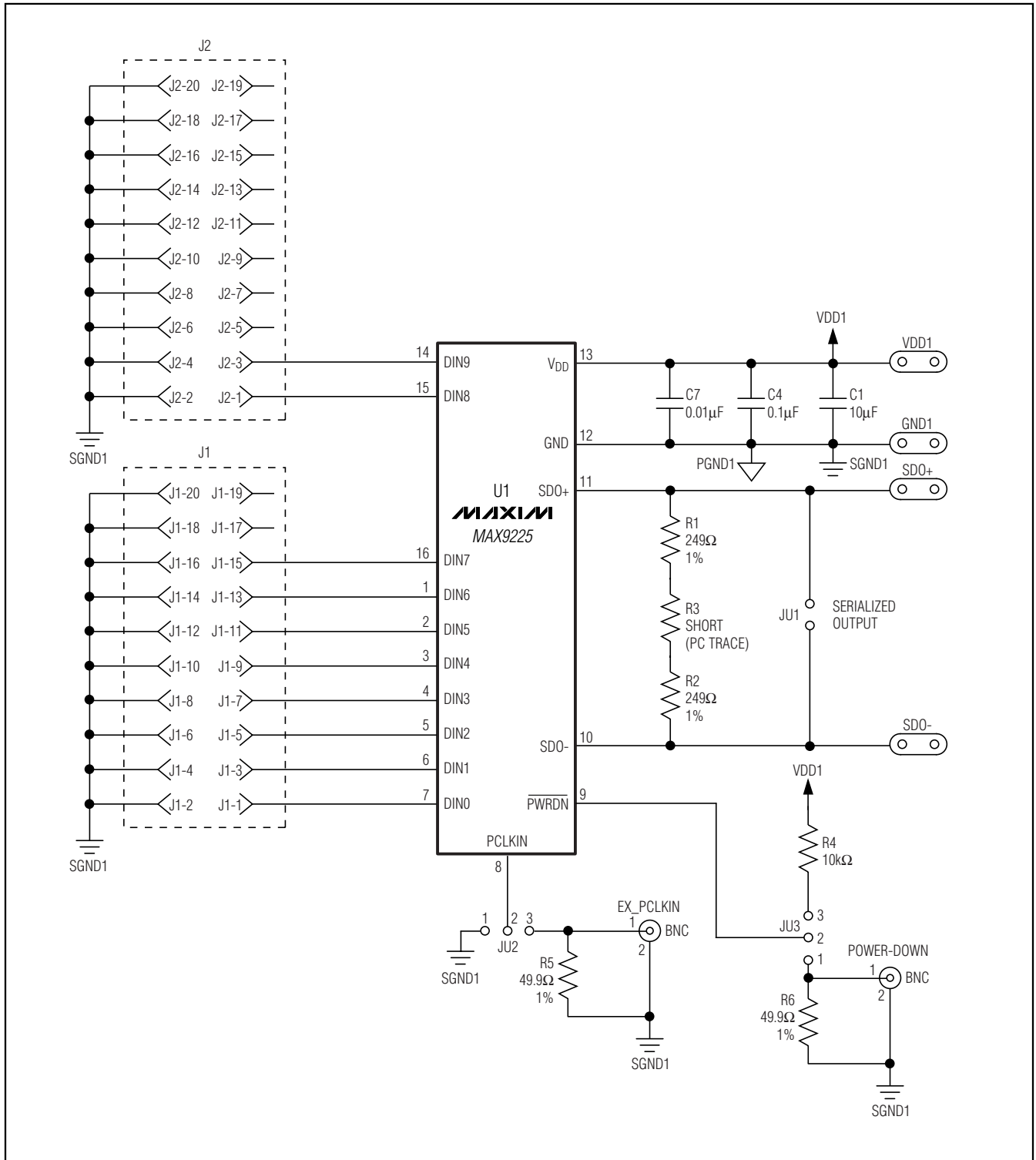


Figure 1a. MAX9225/6 EV Kit Schematic (Sheet 1 of 2)

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Evaluates: MAX9225/MAX9226

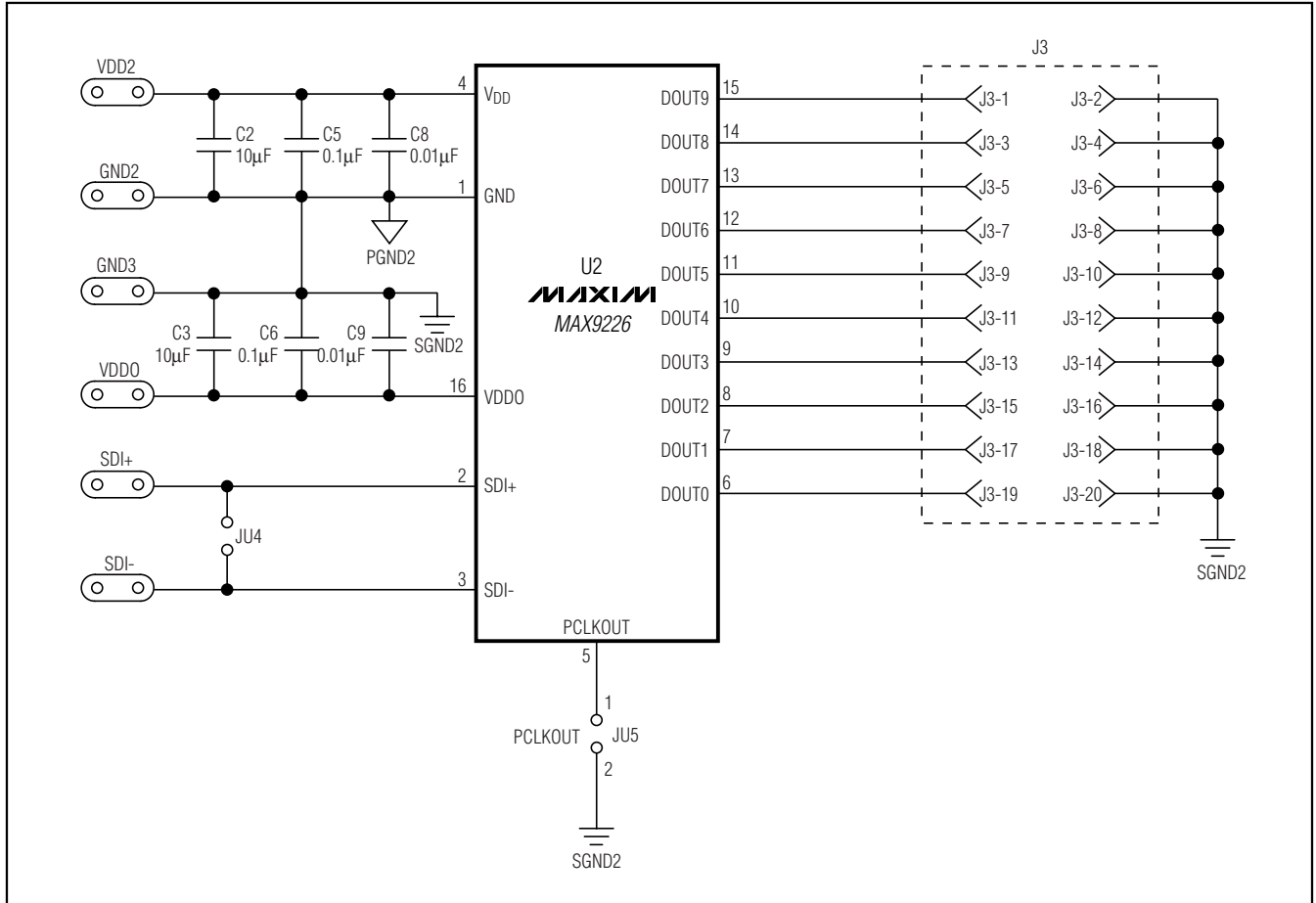


Figure 1b. MAX9225/6 EV Kit Schematic (Sheet 2 of 2)

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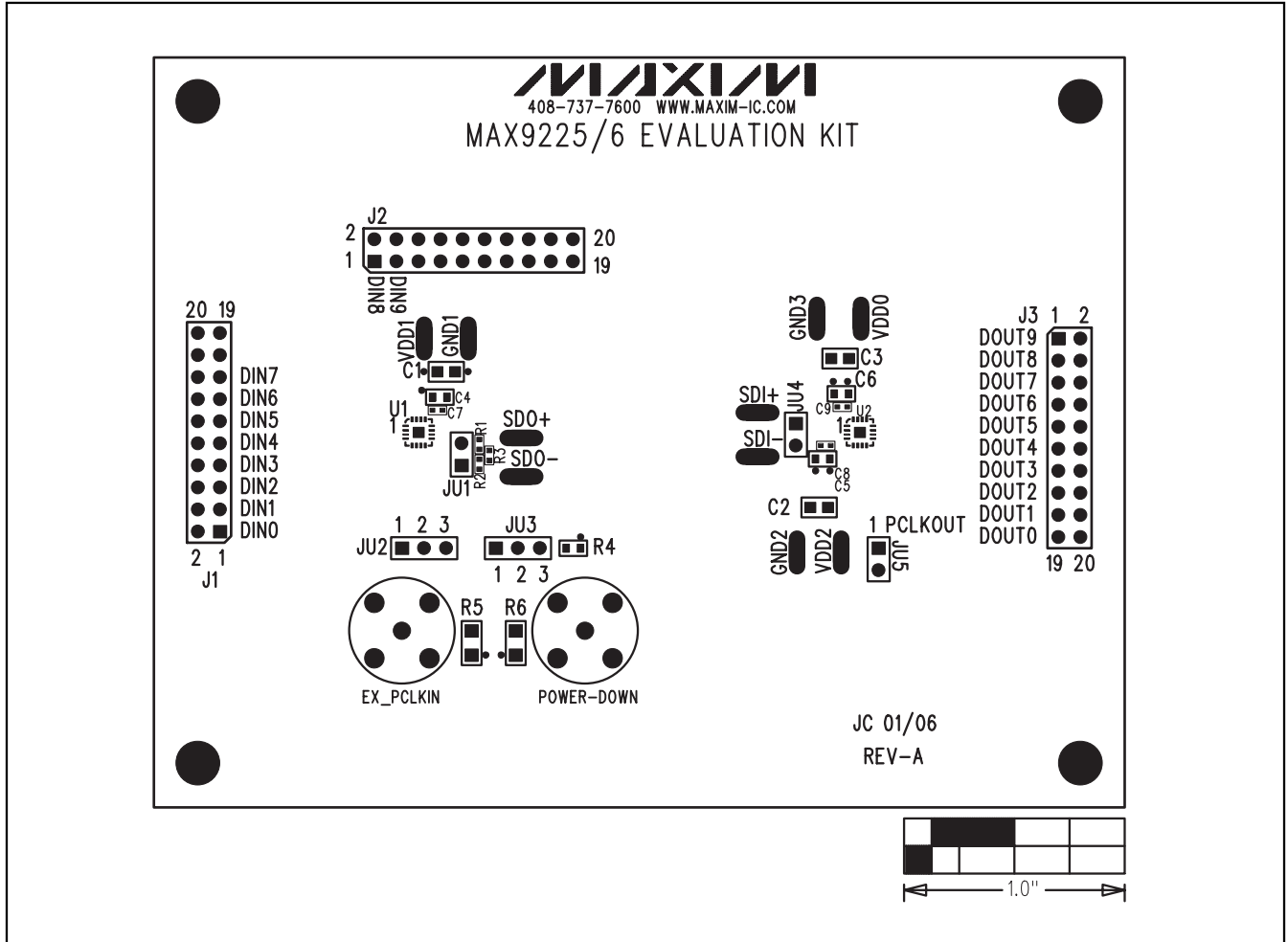


Figure 2. MAX9225/6 EV Kit Component Placement—Component Side

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Evaluates: MAX9225/MAX9226

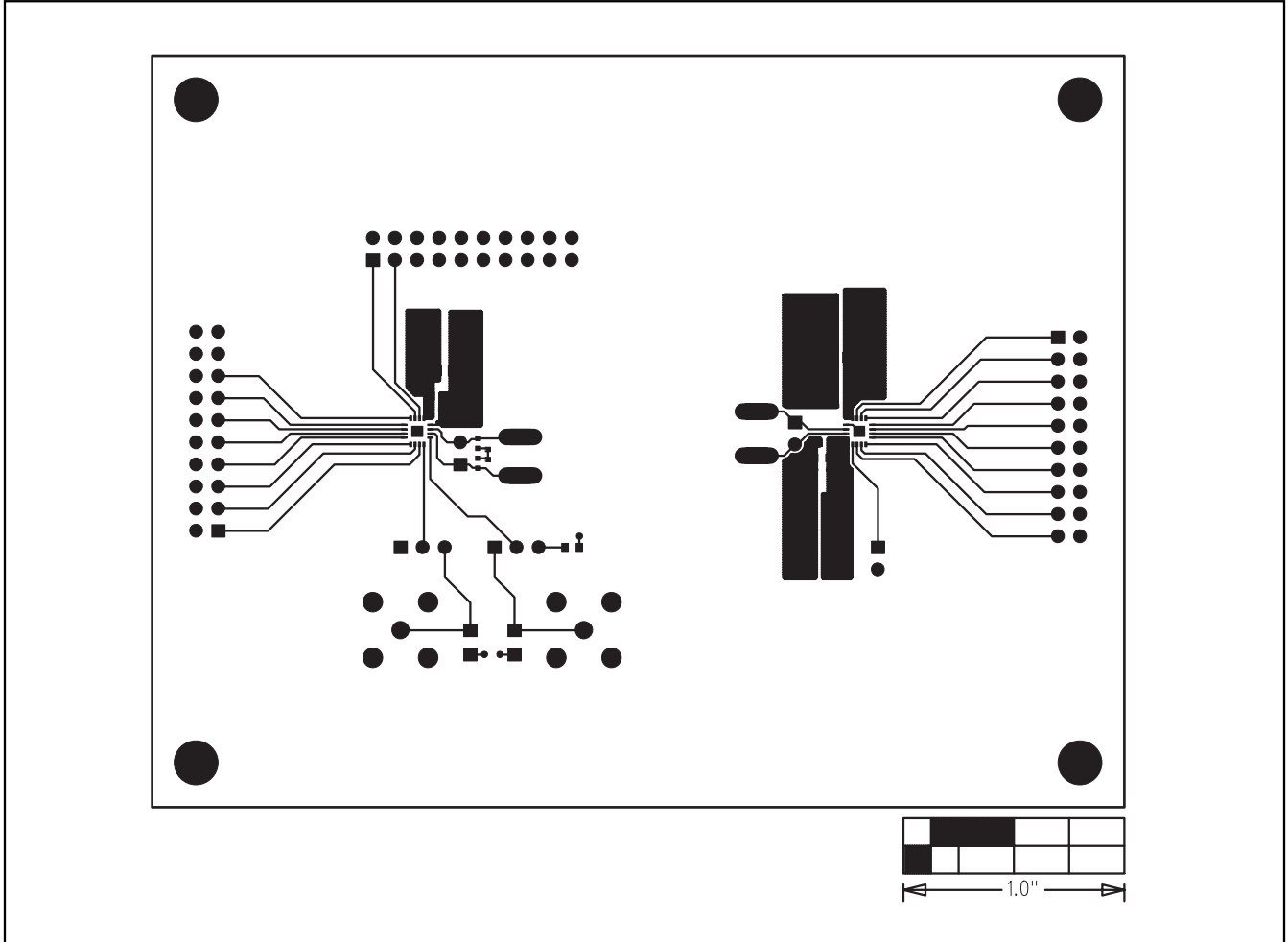


Figure 3. MAX9225/6 EV Kit PCB Layout—Component Side

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Evaluates: MAX9225/MAX9226

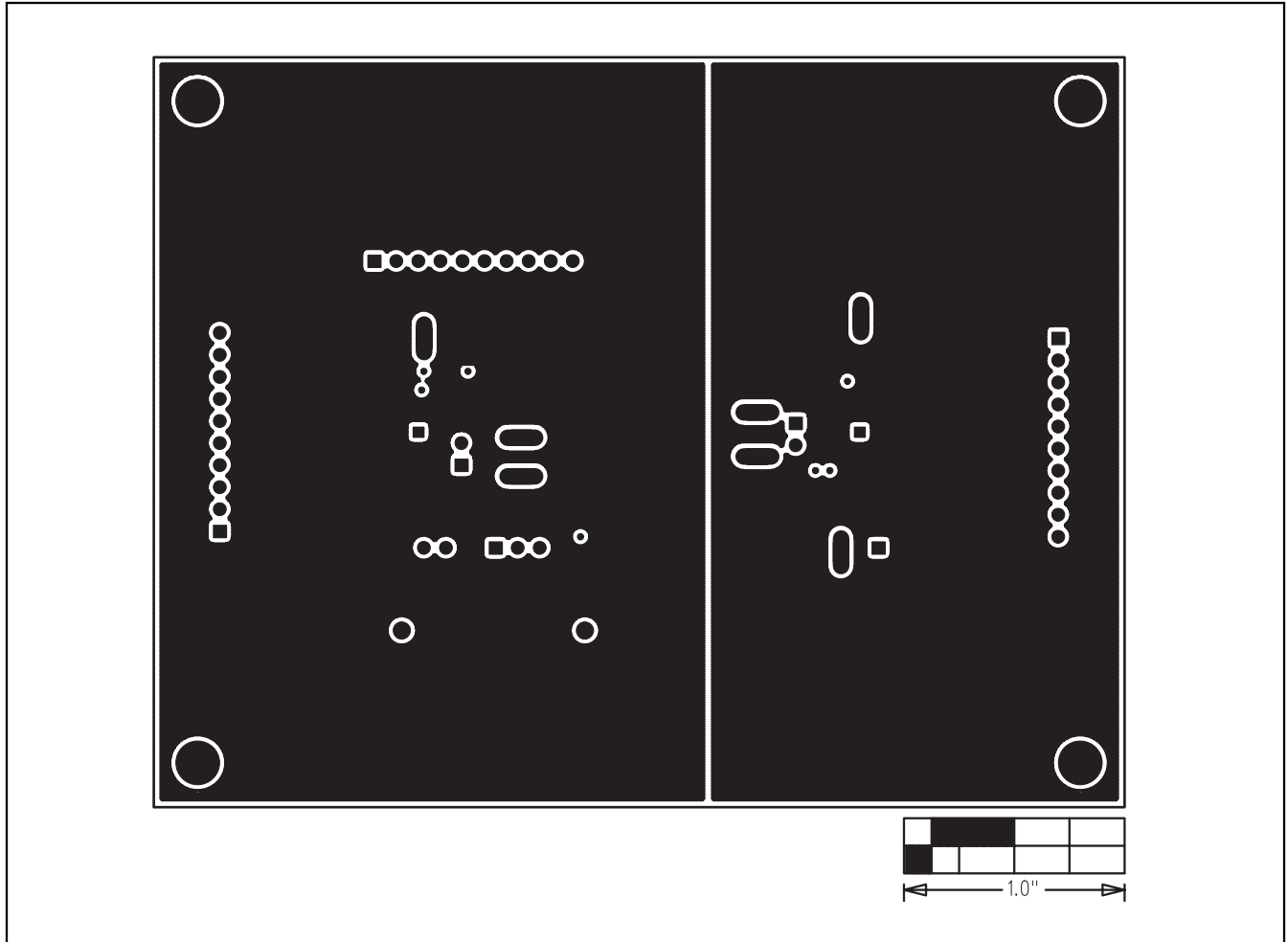


Figure 4. MAX9225/6 EV Kit PCB Layout—Inner Layer 2 (SGND1 and SGND2)

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Evaluates: MAX9225/MAX9226

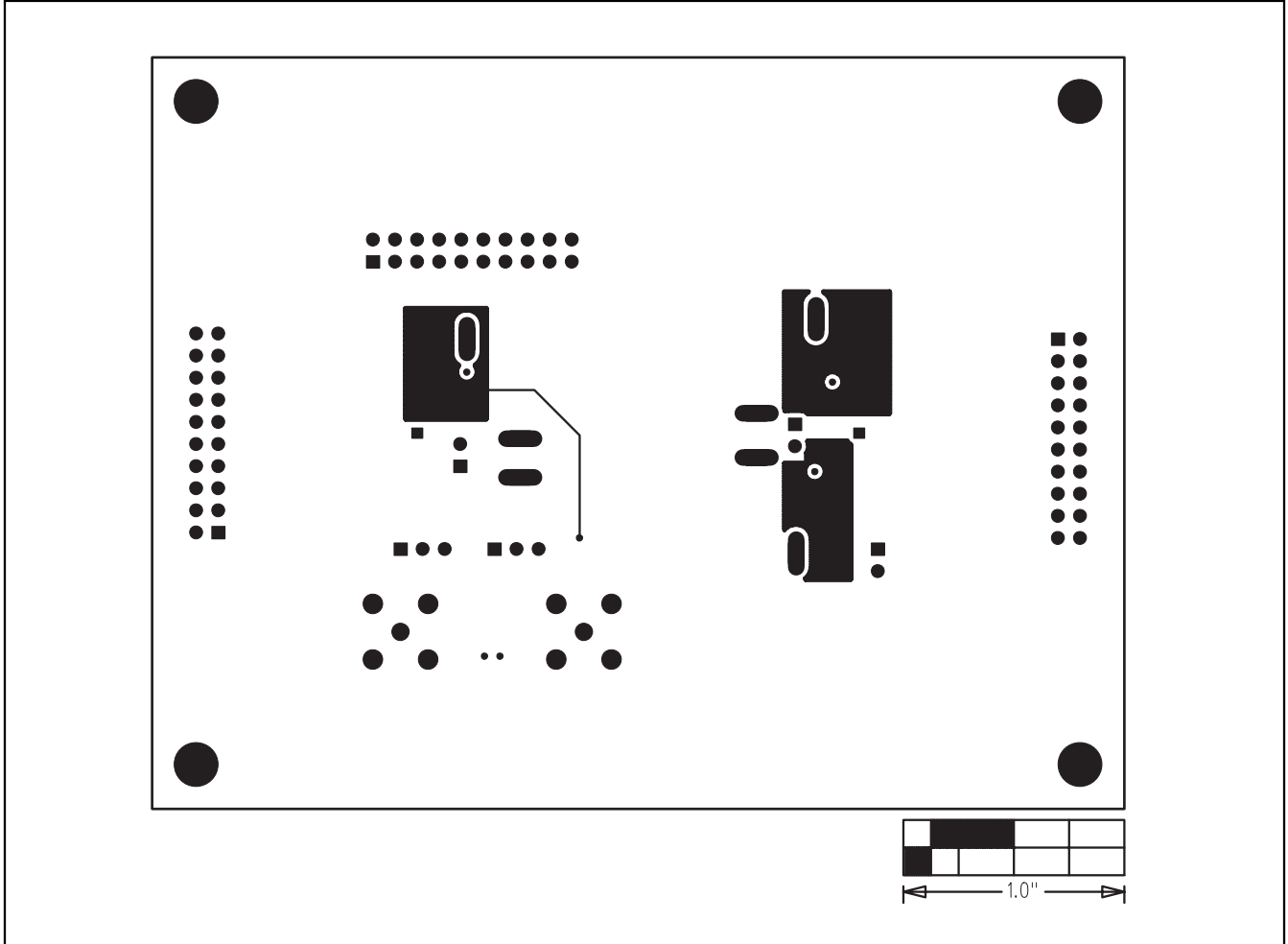


Figure 5. MAX9225/6 EV Kit PCB Layout—Inner Layer 3

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Evaluates: MAX9225/MAX9226

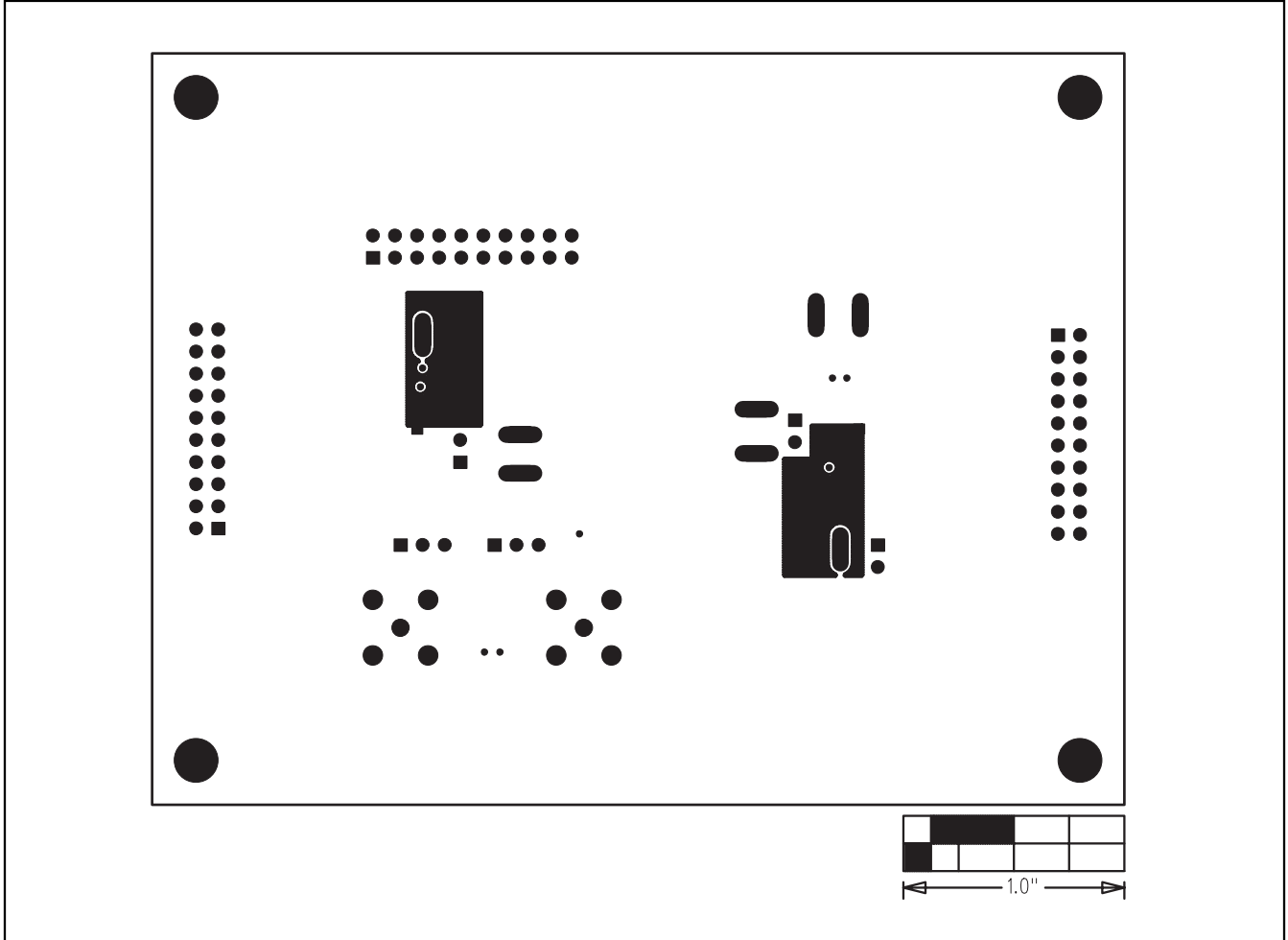


Figure 6. MAX9225/6 EV Kit PCB Layout—Solder Side

Revision History

Pages changed at Rev 1: 1-5, 10

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