



MAX17109 Evaluation Kit

Evaluates: MAX17109

General Description

The MAX17109 evaluation kit (EV kit) is an assembled and tested circuit board that contains all the components necessary to evaluate the MAX17109 IC. The MAX17109 is a dual, high-voltage, level-shifting scan driver to drive the TFT panel integrated gate logic. The driver outputs swing from -30V to +40V. To save power, two sets of complementary outputs are provided to allow charge sharing during state changes. The EV kit operates from a DC supply range from +2.2V to +3.6V and consumes 200 μ A (typ).

Features

- ◆ Two High-Voltage, Level-Shifting Scan Drivers
- ◆ +2.2V to +3.6V Input Supply Voltage Range (VDD)
- ◆ -30V to +40V Output Swing
- ◆ Demonstrates Output Charge Sharing
- ◆ Evaluates the MAX17109 in a 32-Pin, 5mm x 5mm, Thin QFN Package with an Exposed Pad
- ◆ Lead(Pb)-Free and RoHS Compliant
- ◆ Fully Assembled and Tested

Ordering Information

PART	TYPE
MAX17109EVKIT+	EV Kit

+Denotes lead(Pb)-free and RoHS compliant.

Component List

DESIGNATION	QTY	DESCRIPTION
CKVBCS1, CKVBCS2, CKVCS1, CKVCS2, DISH, OECON	6	Test points, white
C1	1	0.047 μ F \pm 10%, 25V X7R ceramic capacitor (0603) Murata GRM188R71E473K or TDK C1608X7R1E473K
C2	1	0.1 μ F \pm 10%, 50V X7R ceramic capacitor (0603) Murata GRM188R71H104K or TDK C1608X7R1H104K

DESIGNATION	QTY	DESCRIPTION
C3	1	1 μ F \pm 10%, 10V X5R ceramic capacitor (0603) Murata GRM188R61A105K or TDK C1608X5R1A105K
C4, C5	2	1 μ F \pm 10%, 50V X7R ceramic capacitors (1206) Murata GRM31MR71H105KA or TDK C3216X7R1H105K
R1	1	20k Ω \pm 5% resistor (0603)
R2–R5	4	200 Ω \pm 5% resistors (1210)
U1	1	High-voltage scan driver (32 TQFN-EP*) Maxim MAX17109ETJ+
—	1	PCB: MAX17109 EVALUATION KIT+

*EP = Exposed pad.

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 MAX17109 when contacting these component suppliers.



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For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

MAX17109 Evaluation Kit

Quick Start

Required Equipment

- +3.3V, 100mA DC power supply (VDD)
- +35V, 100mA DC power supply (GON)
- -25V, 100mA DC power supply (GOFF)
- One voltmeter

Procedure

The MAX17109 EV kit is 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) Connect the +3.3V DC power supply to the VDD and AGND PCB pads.
- 2) Connect the +35V DC power supply to the GON and AGND PCB pads.
- 3) Connect the -25V DC power supply to the GOFF and AGND PCB pads.
- 4) Turn on the power supply.
- 5) Note that the logic inputs (STV1, STV2, CPV1, CPV2, and OE) must be set to AGND or VDD.

- 6) Verify the STVP1 logic per the table below at the respective test points:

INPUT SIGNAL	LOGIC STATE			
	STV1	H	H	H
OECON	X	X	X	X
CPV1	L	H	X	X
OE	L	X	H	X
OUTPUT SIGNAL	LOGIC STATE			
	STVP1	GON	Hi-Z	Hi-Z

H = VDD, L = GND, Hi-Z = High impedance, X = Don't care.

- 7) Verify the STVP2 logic per the table below at the respective test points:

INPUT SIGNAL	LOGIC STATE			
	STV2	H	H	H
OECON	X	X	X	X
CPV2	L	H	X	X
OE	L	X	H	X
OUTPUT SIGNAL	LOGIC STATE			
	STVP2	GON	Hi-Z	Hi-Z

H = VDD, L = GND, Hi-Z = High impedance, X = Don't care.

MAX17109 Evaluation Kit

Evaluates: MAX17109

- 8) Verify the CKV1 and CKVB1 logic per the table below at the respective test points:

INPUT SIGNAL	LOGIC STATE							
STV1	H	H	H	L	L	L	L	L
OECON	X	X	X	L	L	L	H	H
CPV1	L	H	X	L	↑	X	L	↑
OE	L	X	H	L	X	↑	X	X
OUTPUT SIGNAL	LOGIC STATE							
CKV1	GOFF	GON	GON	CS	Toggle	Toggle	CS	Toggle
CKVB1	GON	GOFF	GOFF	CS	Toggle	Toggle	CS	Toggle

H = VDD, L = GND, ↑ = Rising edge, CS = charge-share state, X = Don't care.

- 9) Verify the CKV2 and CKVB2 logic per the table below at the respective test points:

INPUT SIGNAL	LOGIC STATE							
STV2	H	H	H	L	L	L	L	L
OECON	X	X	X	L	L	L	H	H
CPV2	L	H	X	L	↑	X	L	↑
OE	L	X	H	L	X	↑	X	X
OUTPUT SIGNAL	LOGIC STATE							
CKV2	GOFF	GON	GON	CS	Toggle	Toggle	CS	Toggle
CKVB2	GON	GOFF	GOFF	CS	Toggle	Toggle	CS	Toggle

H = VDD, L = GND, ↑ = Rising edge, CS = charge-share state, X = Don't care.

Detailed Description of Hardware

The MAX17109 EV kit contains all the components necessary to evaluate the MAX17109 IC. The MAX17109 is a dual, high-voltage, level-shifting scan driver to drive the TFT panel integrated gate logic. The driver outputs swing from -30V to +40V and two sets of complementary outputs are provided to allow charge sharing during state changes. The EV kit operates from a +2.2V to +3.6V DC supply range and consumes 200µA (typ).

The MAX17109 EV kit provides PCB pads to connect the logic inputs and scan-driver outputs. Test points are also provided to monitor the charge sharing, OECON, and DISH states.

MAX17109 Evaluation Kit

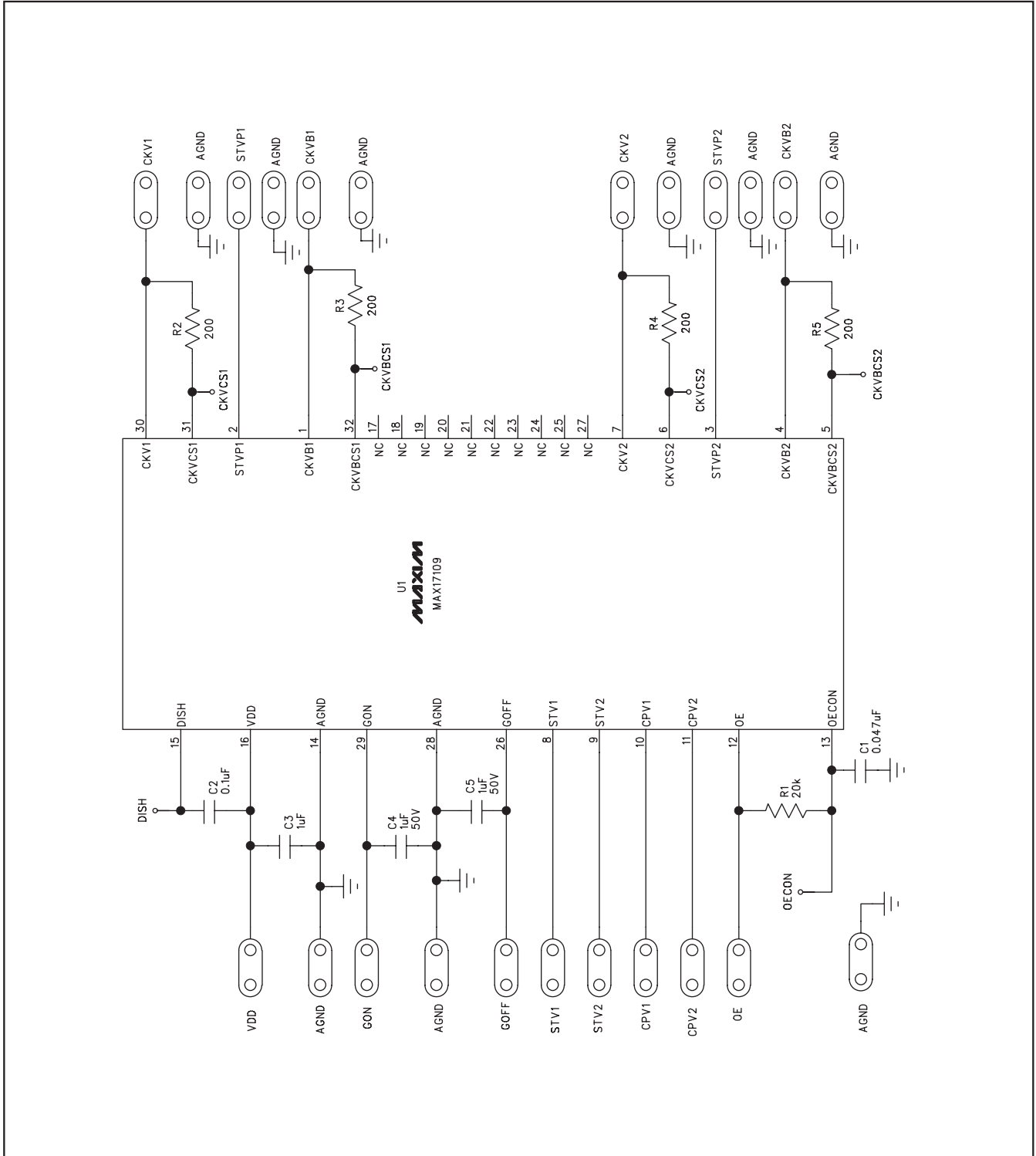


Figure 1. MAX17109 EV Kit Schematic

MAX17109 Evaluation Kit

Evaluates: MAX17109

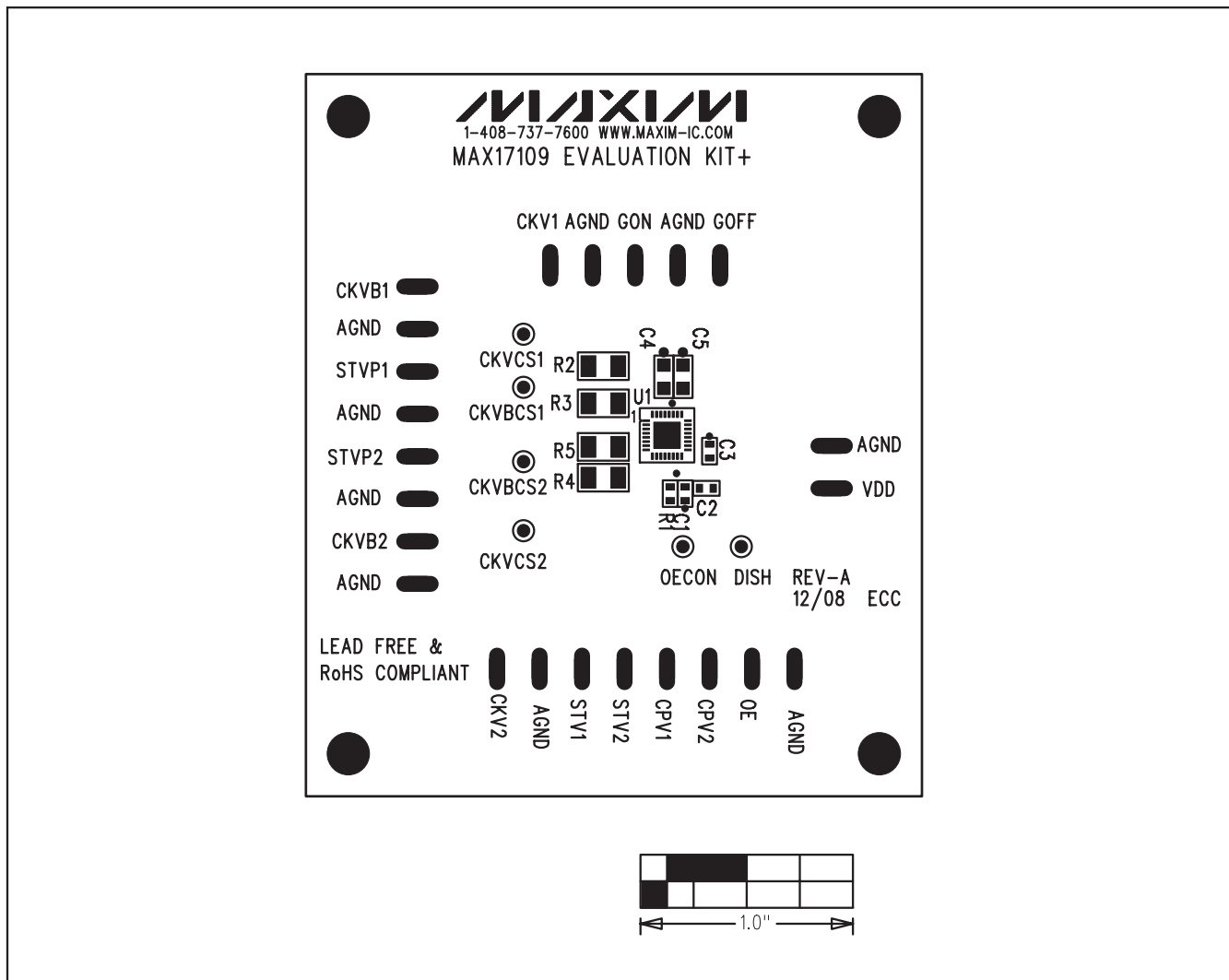


Figure 2. MAX17109 EV Kit Component Placement Guide—Component Side

MAX17109 Evaluation Kit

Evaluates: MAX17109

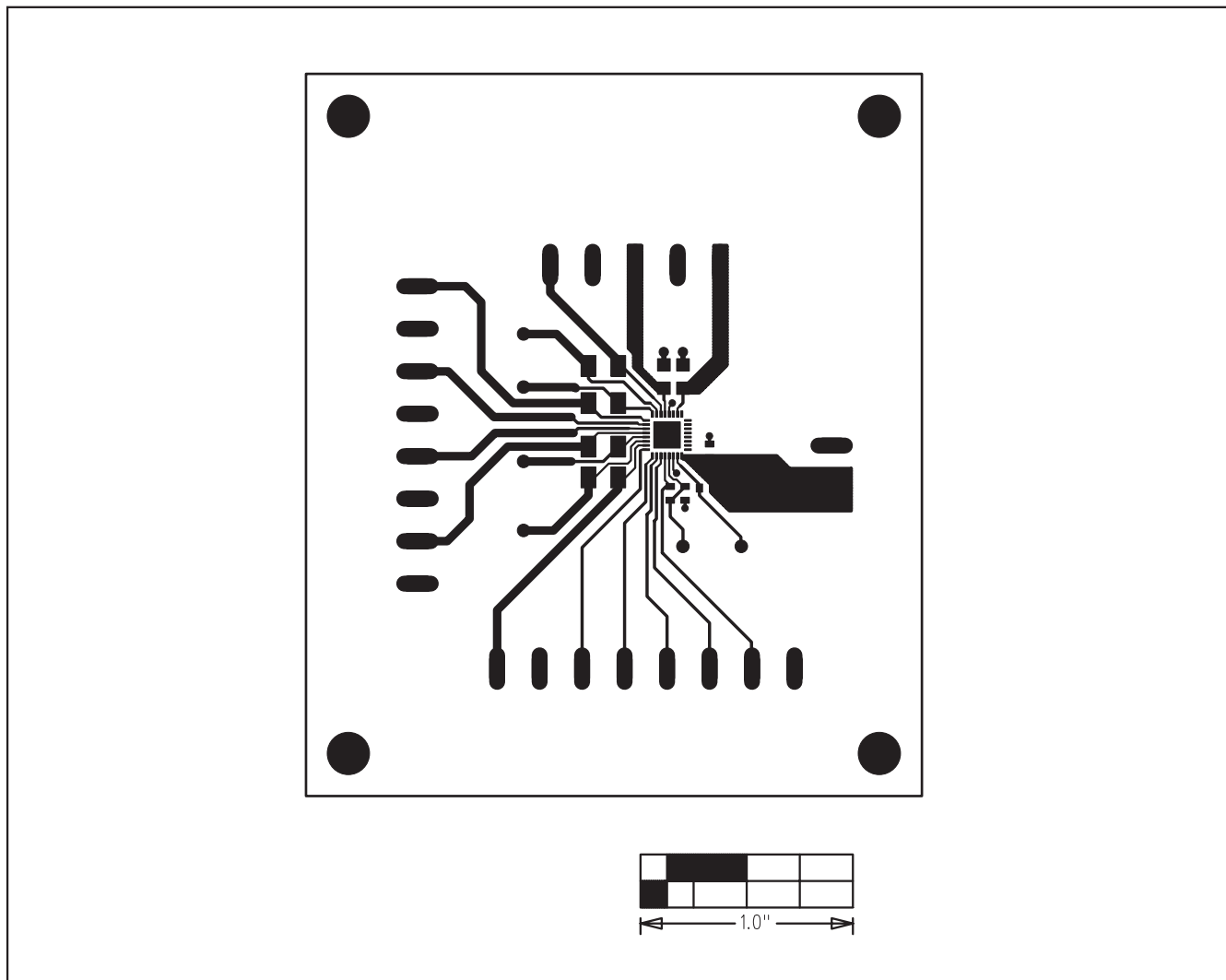


Figure 3. MAX17109 EV Kit PCB Layout—Component Side

MAX17109 Evaluation Kit

Evaluates: MAX17109

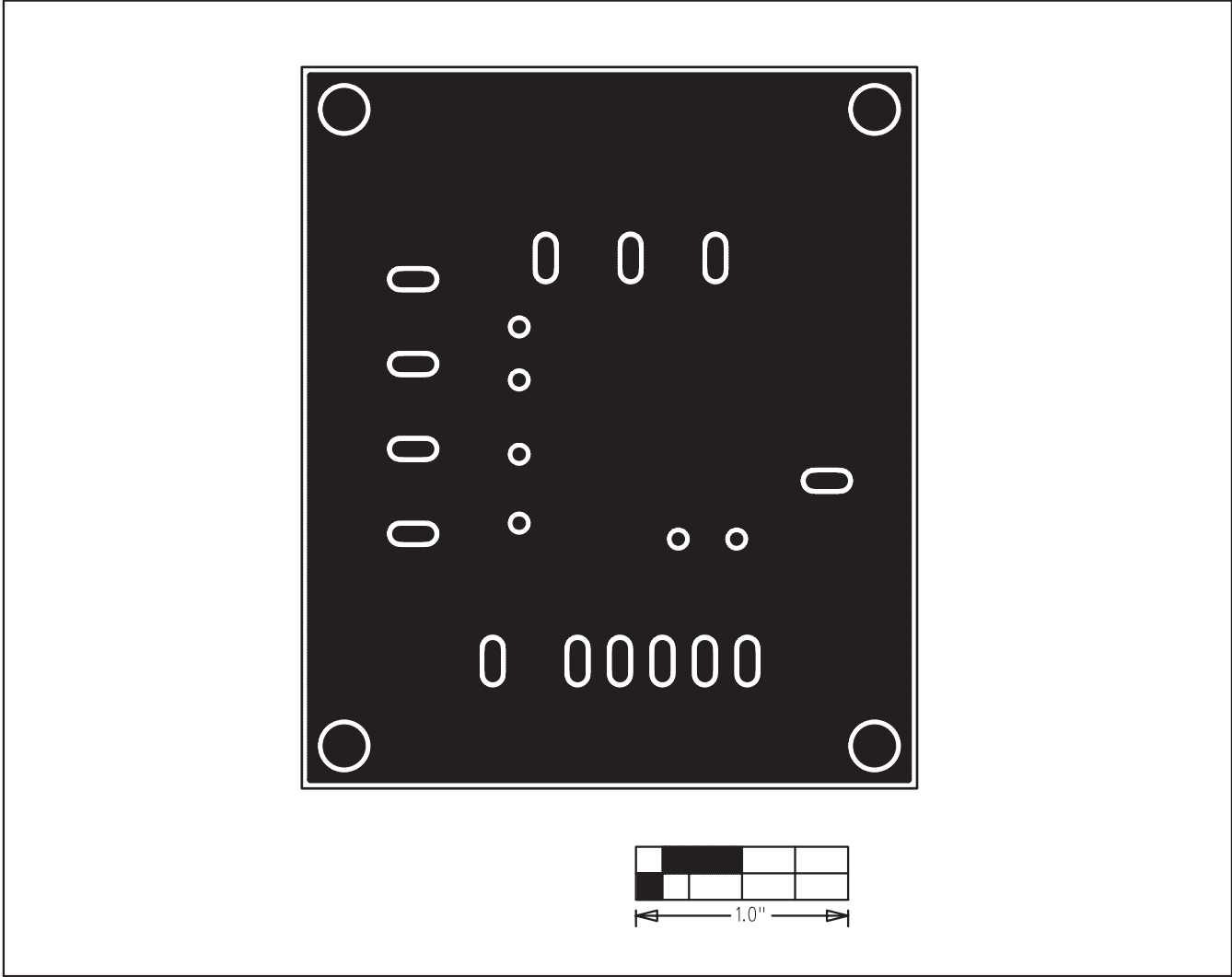


Figure 4. MAX17109 EV Kit PCB Layout—Solder Side

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