

## MAX20334 Evaluation Kit

Evaluates: MAX20334

### General Description

The MAX20334 evaluation kit (EV kit) is a fully assembled and tested circuit board that demonstrates the MAX20334 overvoltage and surge-protected dual SPDT data line switch device intended for use with portable devices. The EV kit comes with the MAX20334EWC+T installed.

### Features

- 2.7V to 5.5V Operating Voltage Range
- No Power Supply Needed Testing
- Power and  $\overline{\text{FLAG}}$  LED Reading
- Proven PCB Layout
- Fully Assembled and Tested

### EV Kit Contents

- EV kit board containing a MAX20334

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

### Quick Start

#### Required Equipment

- MAX20334 EV kit
- Computer
- A-Male to B-Male USB cable
- USB storage

#### Procedure

The EV kit is fully assembled and tested. Follow the steps below to verify board operation:

- 1) Connect a USB cable from the computer to J1. Verify LED2 is on.
- 2) Connect the USB storage to J2. Verify the computer can read the device.
- 3) Connect the USB storage to J3. Verify the computer does not see the device.
- 4) Move shunts on JU5 and JU6 from the 2–3 to the 1–2 position. Verify the computer can read the device.

### Detailed Description

The MAX20334 EV kit is a fully assembled and tested circuit board demonstrating the MAX20334 overvoltage and surge-protected dual SPDT data line switch device in a 12-bump WLP package.

#### LED Indicator

The EV kit features two LED indicators. LED1 indicates the status of  $\overline{\text{FLAG}}$  and LED2 indicates the presence of a power source on VPU.

**FLAG**

Jumper JU1 connects  $\overline{\text{FLAG}}$  to the LED1 indicator and to VPU through a 10kΩ pullup resistor. In the OVP or thermal shutdown condition,  $\overline{\text{FLAG}}$  is driven low and LED1 is on.

**Enable**

Use jumper JU2 to control active-low enable input (Table 2).

**VCC Power, VBUS, VPU**

The EV kit is powered by an external power source or a USB cable. Use TP10 when applying an external power source to VCC or use a USB cable to power on the EV kit with shunts in the default position (Table 3).

**Digital Inputs**

Use jumper JU5 and JU6 to control digital inputs CSA and CSB (Table 4).

**Table 1. JU1 Jumper Setting**

JUMPER	SHUNT POSITION	DESCRIPTION
JU1	Installed*	$\overline{\text{FLAG}}$ is connected to both the LED1 indicator and VPU using a 10kΩ pullup resistor.
	Not Installed	$\overline{\text{FLAG}}$ is unconnected.

\*Default position.

**Table 2. JU2 Jumper Setting**

JUMPER	SHUNT POSITION	DESCRIPTION
JU2	Installed*	$\overline{\text{EN}}$ is pulled low. The switches are controlled by CSA and CSB.
	Not installed	$\overline{\text{EN}}$ is pulled high and all switches are open.

\*Default position.

**Table 3. JU3, JU4, JU7, JU8 Jumper Settings**

JUMPER	SHUNT POSITION	DESCRIPTION
JU3	1-2*	Connect VB1 to VBUS
	2-3	J3 is not powered
JU4	1-2*	Connect VB2 to VBUS
	2-3	J2 is not powered
JU7	Installed*	Connect VCC to VPU
	Not Installed	Disconnect VCC from VPU. An external voltage source can be applied to TP10 to provide power for VCC
JU8	1-2	Connect VPU to VEXT. An external source can be applied to TP4 to provide power for VPU
	2-3*	Connect VPU to VBUS

\*Default position.

**Table 4. JU5, JU6 Jumper Settings for J1, J2, J3 Data Line Path**

JUMPER	SHUNT POSITION	DESCRIPTION
JU5	1-2	Selects P2 path for Channel A on J1-J3. CSA is pulled up to VPU
	2-3*	Selects P1 path for Channel A on J1-J2. CSA is pulled low to GND.
JU6	1-2	Selects P2 path for Channel B on J1-J3. CSB is pulled up to VPU.
	2-3*	Selects P1 path for Channel B on J1-J2. CSB is pulled low to GND.

\*Default position.

**Table 5. Functional Truth Table**

	$\overline{EN}$				
	0				1
	[CSA:CSB]				[CSA:CSB]
	00	01	10	11	D.C.
COMA =	PA1	PA1	PA2	PA2	OPEN
COMB =	PB1	PB2	PB1	PB2	OPEN

## Ordering Information

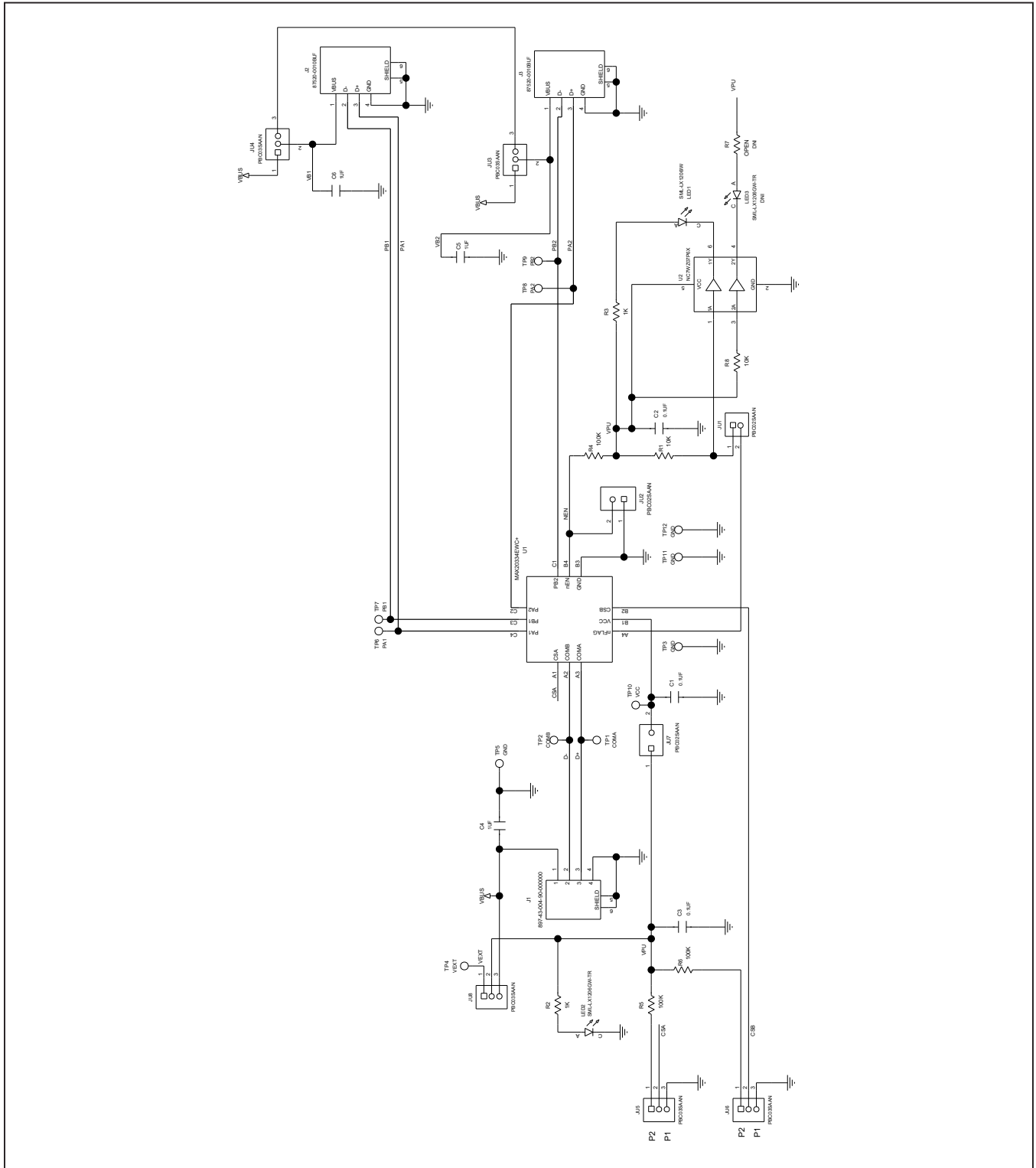
PART	TYPE
MAX20334EVKIT#	EV Kit

#Denotes RoHS compliant.

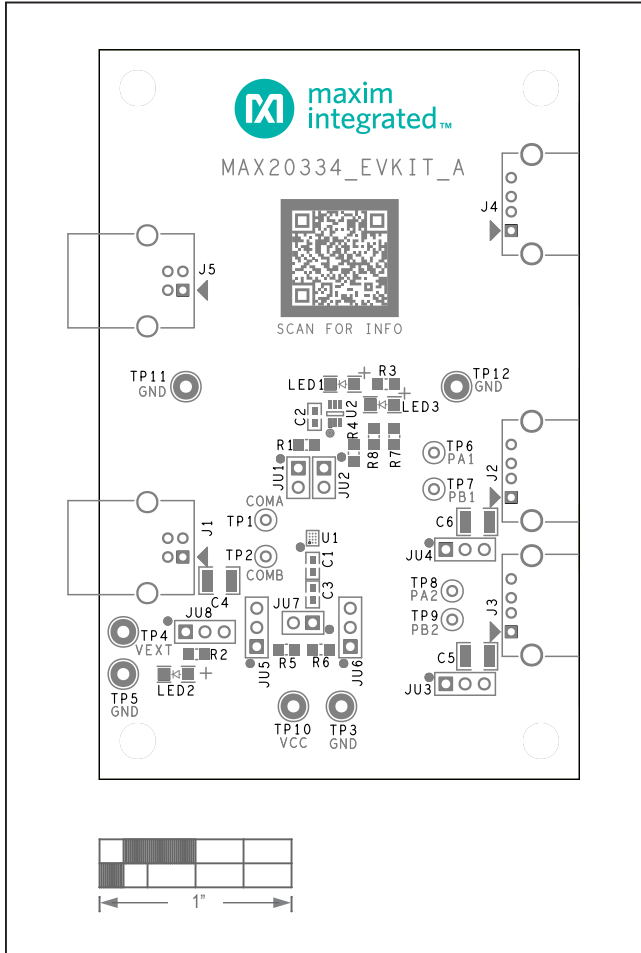
MAX20334 EV Kit BOM

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1-C3	-	3	GCJ188R71H104KA12; GCM188R71H104K; CGA3E2X7R1H104K080AA	MURATA;MURATA;TDK	0.1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R; AUTO	
2	C4-C6	-	3	C1210C105K5RAC	KEMET	1UF	CAPACITOR; SMT; 1210; CERAMIC; 1uF; 50V; 10%; X7R; -55degC to + 125degC;	
3	J1, J5	-	2	897-43-004-90-000000	MILL-MAX	897-43-004-90-000000	CONNECTOR; FEMALE; THROUGH HOLE; USB 2.0; TYPE B; RIGHT ANGLE; 4PINS	
4	J2-J4	-	3	87520-0010BLF	FCI CONNECT	87520-0010BLF	CONNECTOR; FEMALE; THROUGH HOLE; USB RECEPTACLE; RIGHT ANGLE; 4PINS	
5	JU1, JU2, JU7	-	3	PBC02SAAN	SULLINS ELECTRONICS CORP.	PBC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS	
6	JU3-JU6, JU8	-	5	PBC03SAAN	SULLINS	PBC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS; -65 DEGC TO +125 DEGC	
7	LED1	-	1	SML-LX1206IW	LUMEX OPTOCOMPONENTS INC	SML-LX1206IW	DIODE; LED; 635NM RED LED; MILKY WHITE DIFFUSED LENS; RED; SMT (1206); VF=2V; IF=0.1A	
8	LED2	-	1	SML-LX1206GW-TR	LUMEX OPTOCOMPONENTS INC	SML-LX1206GW-TR	DIODE; LED; STANDARD; GREEN; SMT (1206); PIV=2.2V; IF=0.02A; -40 DEGC TO +85 DEGC	
9	R1, R8	-	2	CRCW080510K0FK; MCR10EZHF1002; ERJ-6ENF1002; RC0805FR-0710KL	CRCW080510K0FK; MCR10EZHF1002; ERJ-	10K	RESISTOR; 0805; 10K; 1%; 100PPM; 0.125W; THICK FILM	
10	R2, R3	-	2	CRCW08051K00FK; ERJ-6ENF1001; MCR10EZHF1001; RC0805FR-071KL	VISHAY DALE; PANASONIC; ROHM; YAGEO	1K	RESISTOR; 0805; 1K; 1%; 100PPM; 0.125W; THICK FILM	
11	R4-R6	-	3	CRCW0805100KFK; RK73H2ATD1003; ERJ-6ENF1003	VISHAY DALE; KOA SPEER; PANASONIC	100K	RESISTOR; 0805; 100K; 1%; 100PPM; 0.125W; THICK FILM	
12	TP1, TP2	-	2	5116	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; GREEN; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
13	TP3, TP5, TP11, TP12	-	4	5011	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
14	TP4, TP10	-	2	5010	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;	
15	TP6, TP7	-	2	5002	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;	
16	TP8, TP9	-	2	5004	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; YELLOW; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
17	U1	-	1	MAX20334EWC+	MAXIM	MAX20334EWC+	EVKIT PART-IC; ASW; OVERVOLTAGE AND SURGE-PROTECTED; DUAL SPDT DATA LINE SWITCH; PACKAGE OUTLINE DRAWING: 21-100286; PACKAGE CODE: W121C1+1; WLP12	
18	U2	-	1	NC7WZ07P6X	FAIRCHILD SEMICONDUCTOR	NC7WZ07P6X	IC; BUF; TINY LOGIC ULTRA-HIGH SPEED DUAL BUFFER; SC70-6	
19	PCB	-	1	MAX20334	MAXIM	PCB	PCB:MAX20334	-
20	MH1-MH4	DNI	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON	
21	LED3	DNP	0	SML-LX1206GW-TR	LUMEX OPTOCOMPONENTS INC	SML-LX1206GW-TR	DIODE; LED; STANDARD; GREEN; SMT (1206); PIV=2.2V; IF=0.02A; -40 DEGC TO +85 DEGC	
22	R7	DNP	0	N/A	N/A	OPEN	RESISTOR; 0805; OPEN; FORMFACTOR	
TOTAL			47					

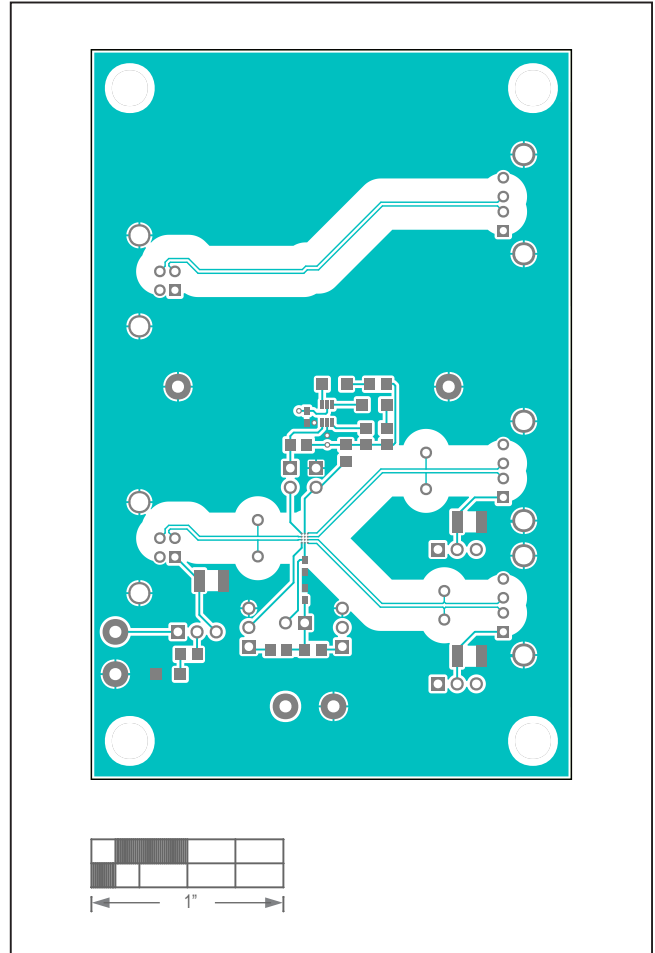
MAX20334 EV Kit Schematic



MAX20334 EV Kit PCB Layout

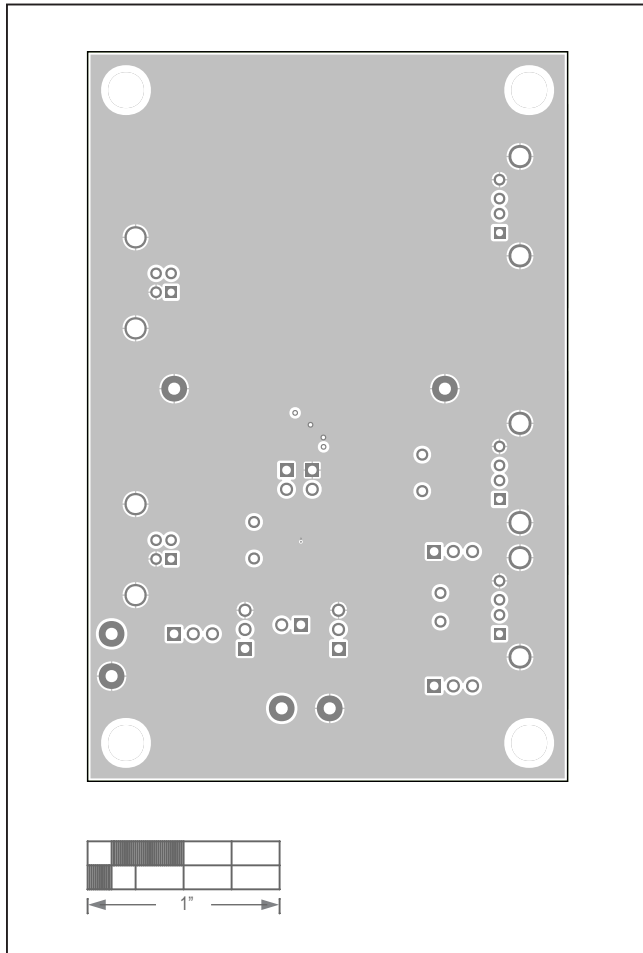


MAX20334 EV Kit—Top Silkscreen

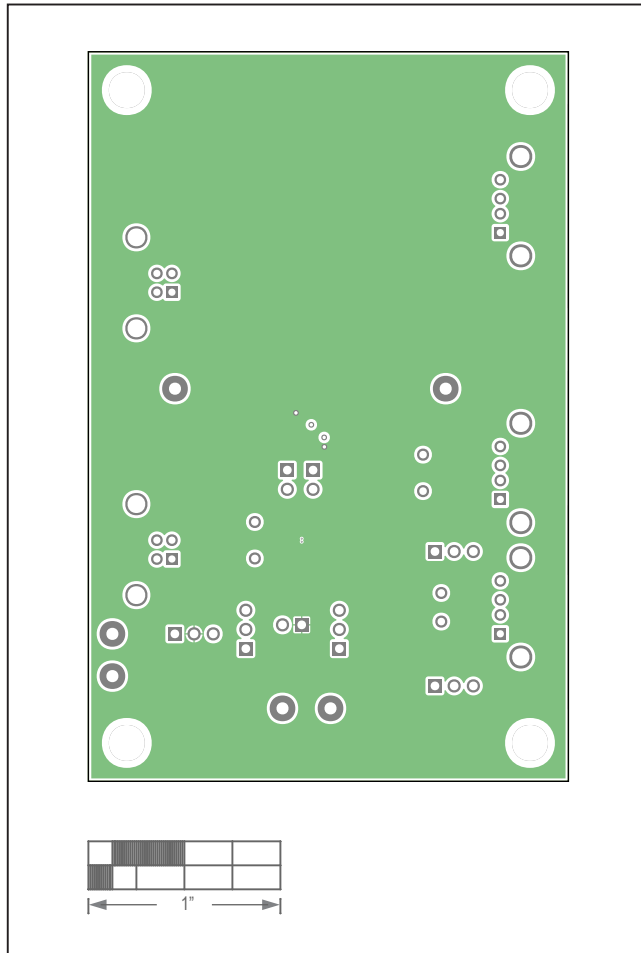


MAX20334 EV Kit—Top Layer

MAX20334 EV Kit PCB Layout (continued)

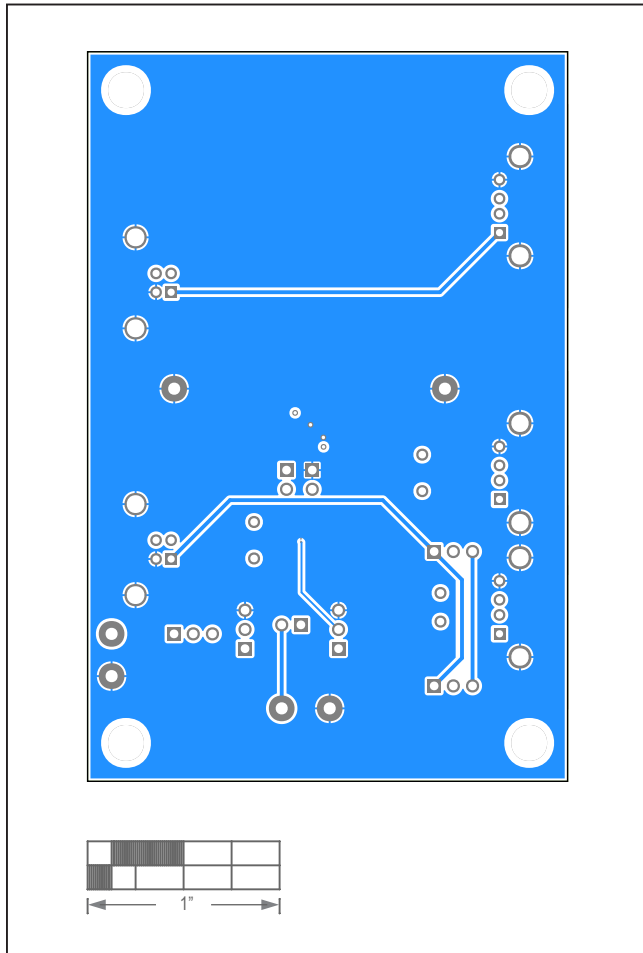


MAX20334 EV Kit—Layer 2 Ground

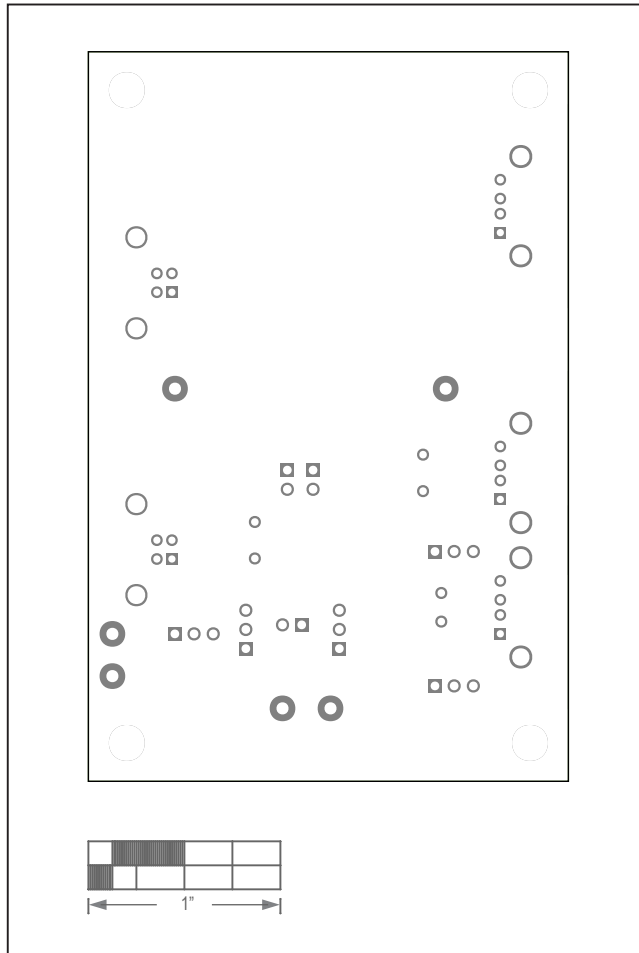


MAX20334 EV Kit—Layer 3 Power

MAX20334 EV Kit PCB Layout (continued)



MAX20334 EV Kit—Bottom Layer



MAX20334 EV Kit—Bottom Silkscreen