

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 1 to 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.

PRELIMINARY

FLAG

Jumper JU1 connects $\overline{\text{FLAG}}$ to the LED1 indicator and to VPU through a 10k Ω 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).

V_{CC} 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 V_{CC} 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 10k Ω 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 V _{CC} to VPU
	Not Installed	Disconnect V _{CC} from VPU. An external voltage source can be applied to TP10 to provide power for V _{CC}
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

	$\overline{\text{EN}}$				
	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.

PRELIMINARY

MAX20334 Evaluation Kit

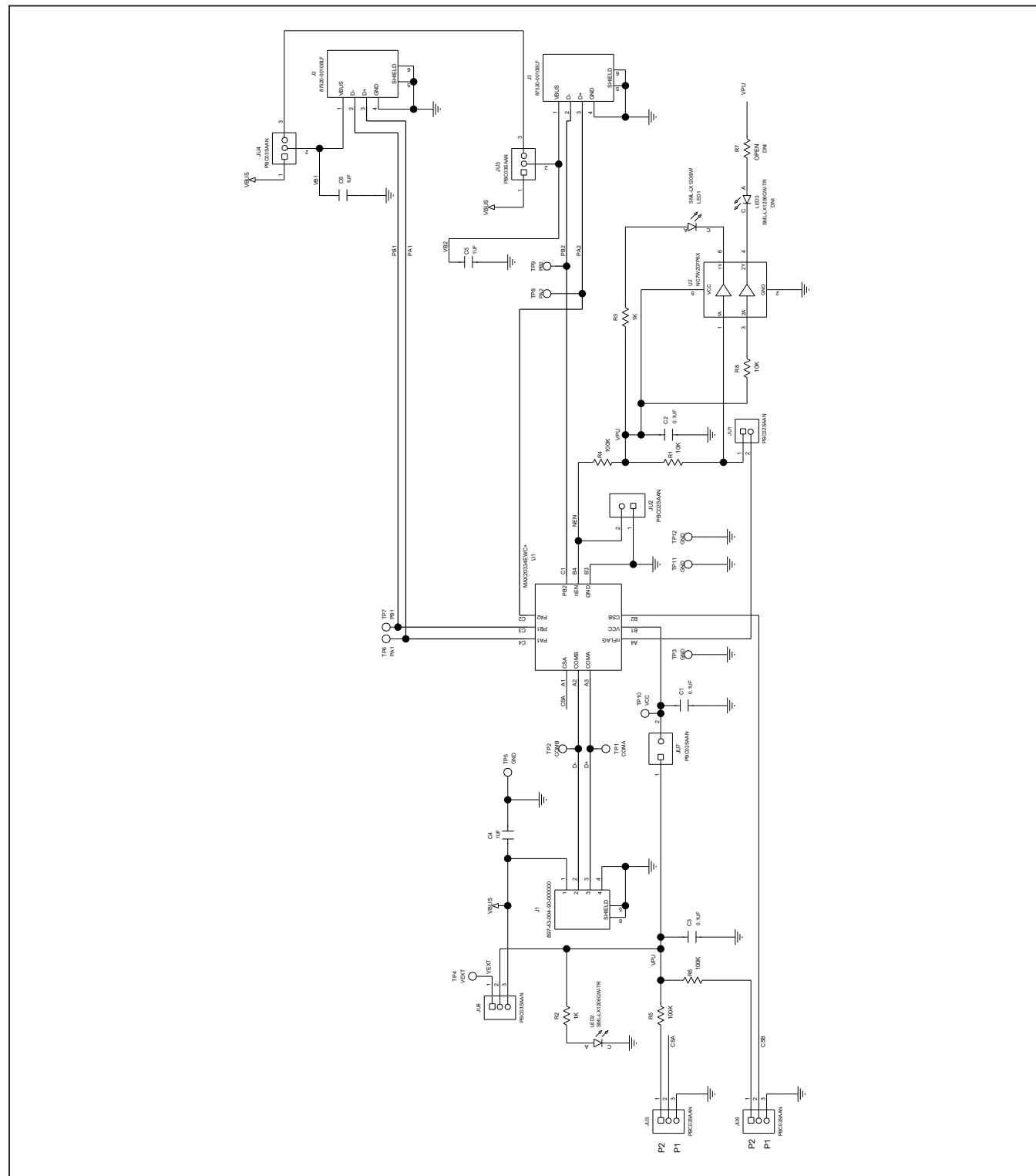
Evaluates: MAX20334

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; RK73H2ATTD1003; 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					

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MAX20334 EV Kit Schematic



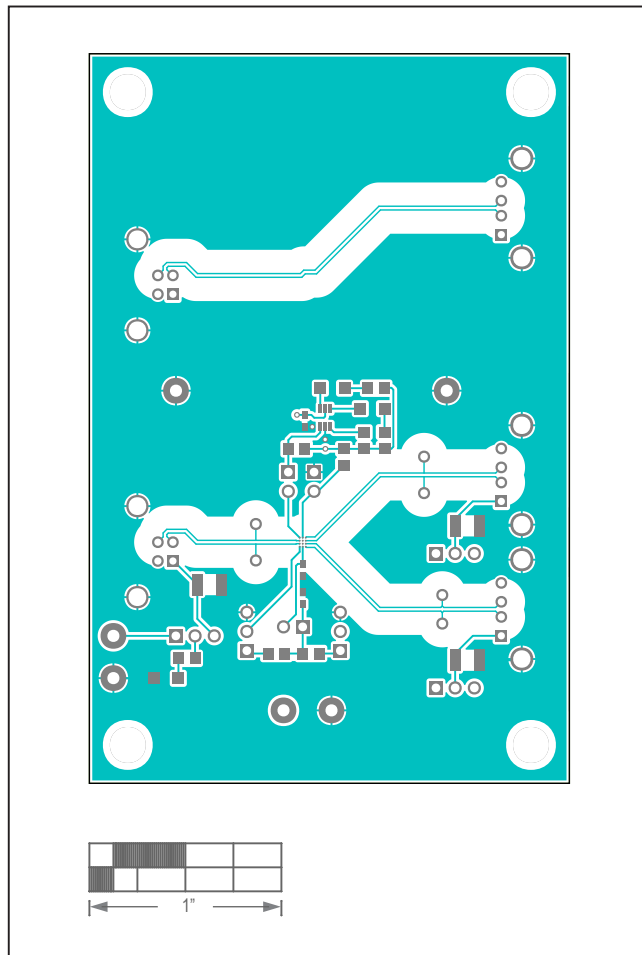
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The image shows the top layer of the MAX20334_EVKIT_A PCB. At the top center is the Maxim Integrated logo and the text "maxim integrated™". Below this is the board identifier "MAX20334_EVKIT_A". A QR code is located in the upper center, with the text "SCAN FOR INFO" below it. The PCB features various components including:

- Connectors: J1, J2, J3, J4, and J5.
- Test Points: TP1 through TP11, with TP11 and TP12 labeled as GND.
- Microcontrollers: U1 (MAX20334).
- Resistors: R1, R2, R3, R4, R5, R6, R7, R8.
- Capacitors: C1, C2, C3, C4, C5, C6.
- LEDs: LED1, LED2, LED3.
- Other components: JU1 through JU8, JU3, JU4, JU5, JU6, JU7.

 The layout includes a 1" scale bar at the bottom left and a 1" dimension line at the bottom center.

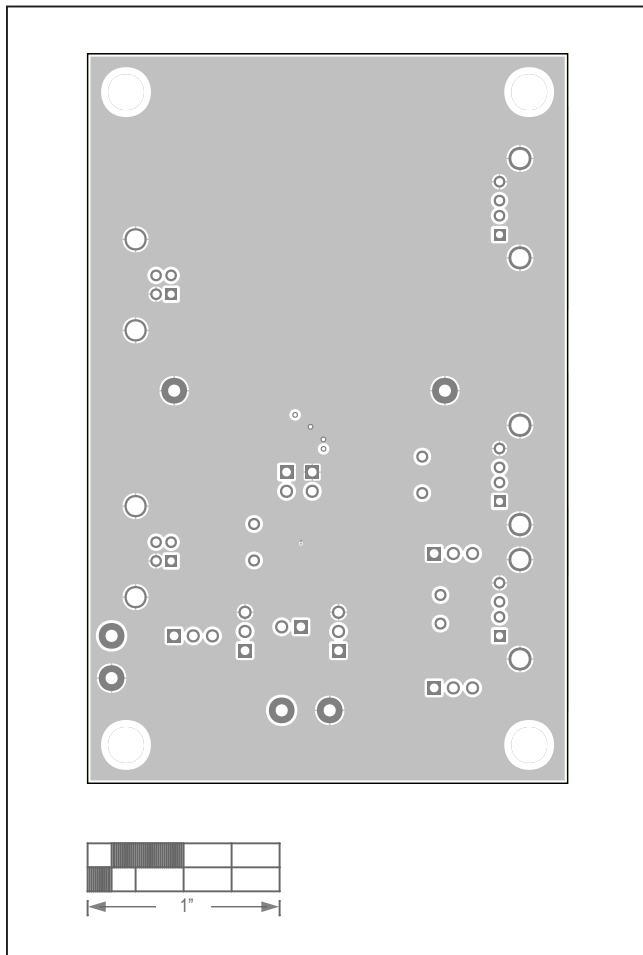
MAX20334 EV Kit—Top Silkscreen



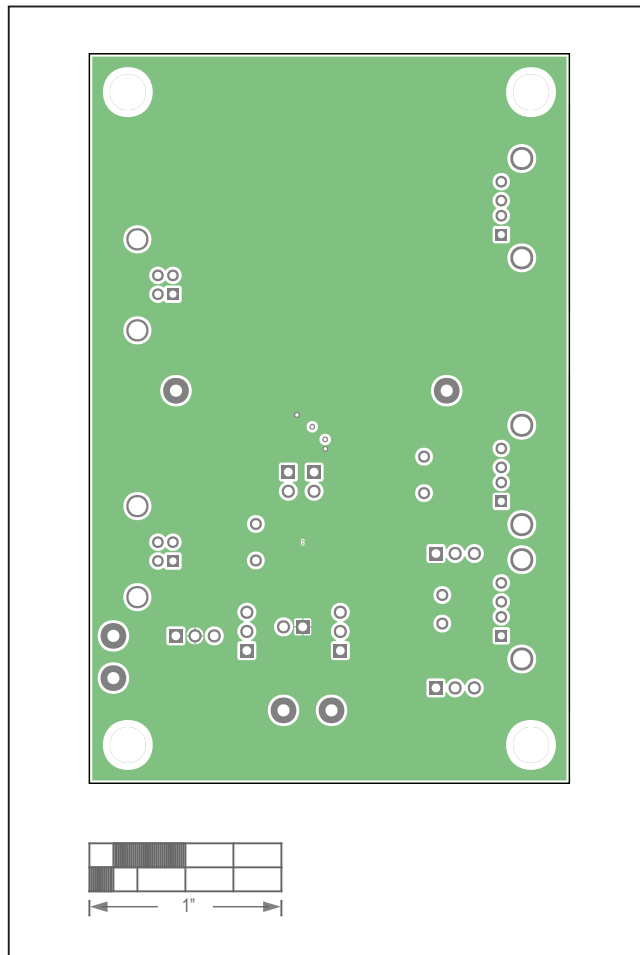
MAX20334 EV Kit—Top Layer

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MAX20334 EV Kit PCB Layout (continued)



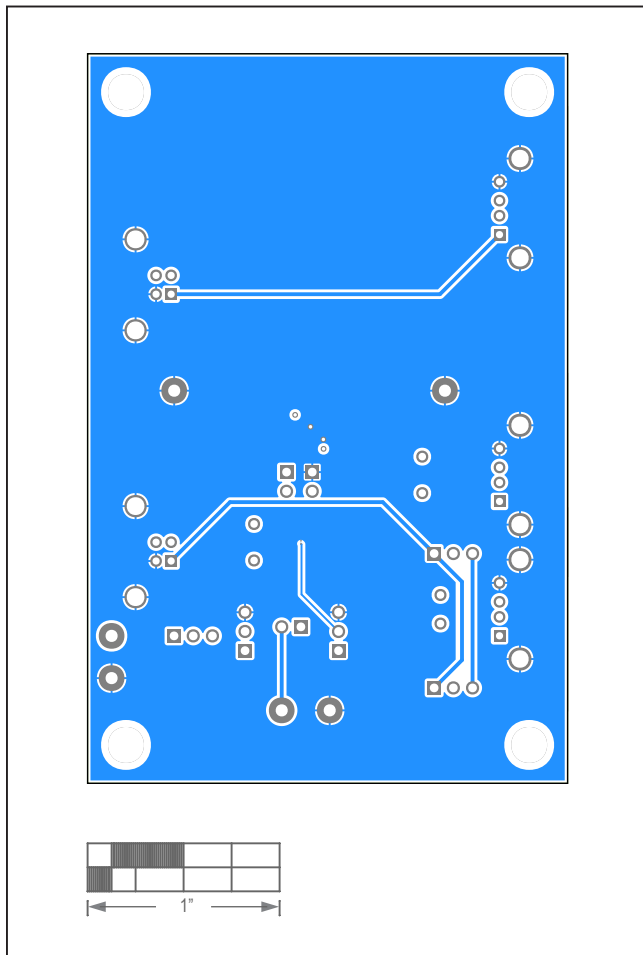
MAX20334 EV Kit—Layer 2 Ground



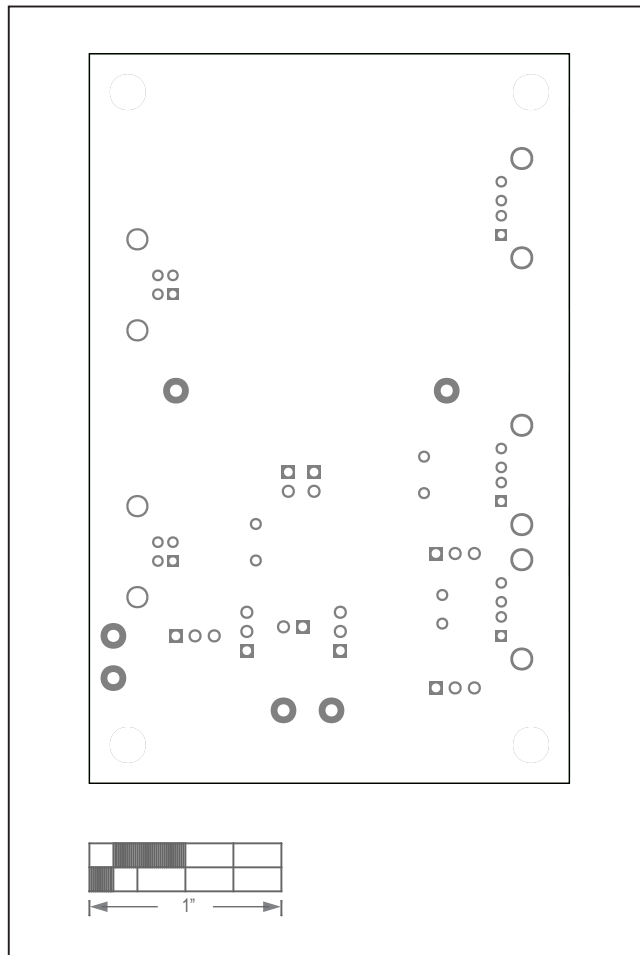
MAX20334 EV Kit—Layer 3 Power

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MAX20334 EV Kit PCB Layout (continued)



MAX20334 EV Kit—Bottom Layer



MAX20334 EV Kit—Bottom Silkscreen

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Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	4/19	Initial release	—

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