

## General Description

The MAX20330 evaluation kit (EV kit) is a fully assembled and tested circuit board that demonstrates the MAX20330 programmable OVLO with VBUS short detection device. The EV kit comes with the MAX20330EWA+ installed.

## Features

- OVP or ID Detection
- Proven PCB Layout
- Fully Assembled and Tested

## EV Kit Contents

- EV Kit Board Containing a MAX20330

## Quick Start

### Required Equipment

- MAX20330 EV kit
- Power supply
- Multimeter

### Procedure

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

- 1) Connect a 3V power supply to VBUS TP1. Check the voltage on OUT. Verify OUT is also 3V.
- 2) Slowly increase VBUS voltage. Verify OUT voltage follows VBUS. When VBUS reaches ~6.8V, OUT voltage goes down.
- 3) Decrease VBUS voltage and OUT voltage comes back to be same as VBUS voltage.

Ordering Information appears at end of data sheet.

## Detailed Description

The MAX20330 EV kit is a fully assembled and tested circuit board demonstrating the MAX20330 OVP/ID detector in an 8-bump wafer-level package (WLP).

### V<sub>CC</sub> Power Supply

The V<sub>CC</sub> can be connected from different power supply sources or externally supplied from TP7.

## I<sup>2</sup>C Communication

Use JU2, JU3, JU4, JU5, and JU6 to have I<sup>2</sup>C pins pulled up to selected supply. User needs to provide I<sup>2</sup>C master to communicate with the device. The slave address is 0010 111.

**Table 1. V<sub>CC</sub> Jumper Setting**

| JUMPER | SHUNT POSITION | DESCRIPTION              |
|--------|----------------|--------------------------|
| JU1    | 1-2*           | VCC is connected to VMC  |
|        | 2-3            | VCC is connected to 5VMC |

\*Default Position

**Table 2. I<sup>2</sup>C Jumper Setting**

| JUMPER | SHUNT POSITION | DESCRIPTION                  |
|--------|----------------|------------------------------|
| JU2    | Installed      | VIO is connected to VCC      |
|        | Not installed* | VIO is not connected to VCC  |
| JU3    | Installed      | SCL is pulled up to VIO      |
|        | Not installed* | SCL is not pulled up to VIO  |
| JU4    | Installed      | SDA is pulled up to VIO      |
|        | Not installed* | SDA is not pulled up to VIO  |
| JU5    | Installed      | INTB is pulled up to VIO     |
|        | Not installed* | INTB is not pulled up to VIO |
| JU6    | Installed      | VIO is connected to VMC      |
|        | Not installed* | VIO is not connected to VMC  |

\*Default Position

## Ordering Information

| PART           | TYPE   |
|----------------|--------|
| MAX20330EVKIT# | EV Kit |

#Denotes RoHS compliant.

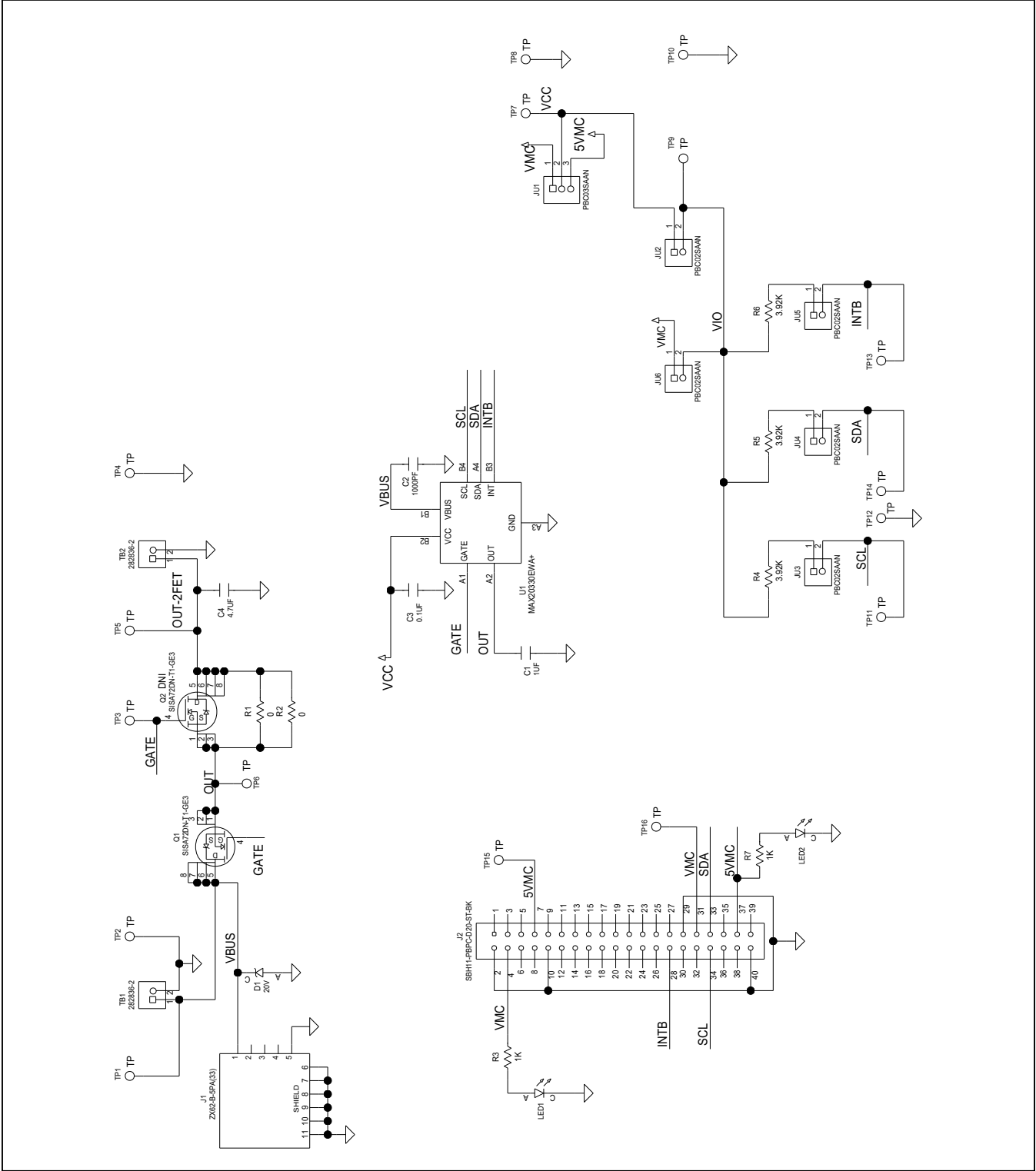
# MAX20330 Evaluation Kit

Evaluates: MAX20330

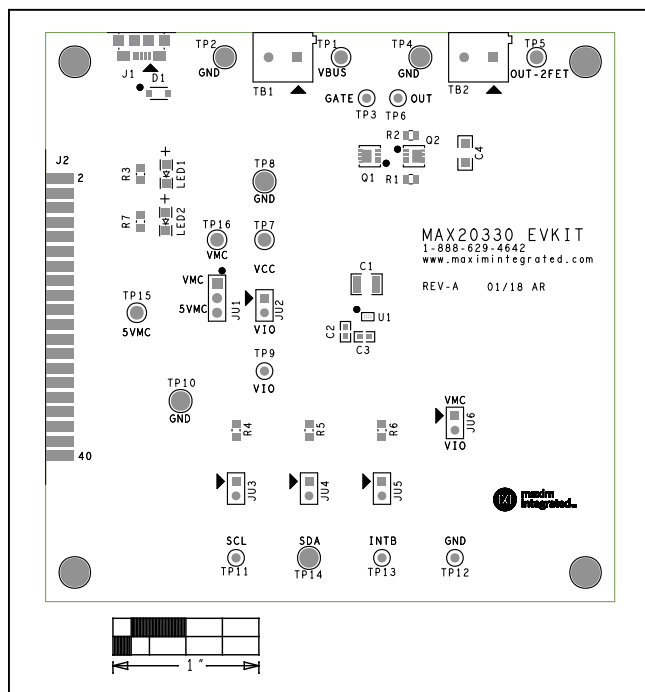
## MAX20330 EV Kit Bill of Materials

| ITEM  | REF DES                   | DNI/DNP | QTY | MFG PART #                                                    | MANUFACTURER                         | VALUE                | DESCRIPTION                                                                                                                                    | COMMENTS |
|-------|---------------------------|---------|-----|---------------------------------------------------------------|--------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1     | C1                        | -       | 1   | C1210C105KSRAC                                                | KEMET                                | 1UF                  | CAPACITOR; SMT; 1210; CERAMIC; 1uF; 50V; 10%; X7R; -55degC to +125degC;                                                                        |          |
| 2     | C2                        | -       | 1   | C0603Y102K5RACAUTO                                            | KEMET                                | 1000PF               | CAP; SMT (0603); 1000PF; 10%; 50V; X7R; CERAMIC CHIP                                                                                           |          |
| 3     | C3                        | -       | 1   | GCM188R71H104KA12;<br>GCM188R71H104K;<br>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                                               |          |
| 4     | C4                        | -       | 1   | C3216X7R1E475K160AC                                           | TDK                                  | 4.7UF                | CAPACITOR; SMT (1206); CERAMIC CHIP; 4.7UF; 25V; TOL=10%; MODEL=C SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R                                     |          |
| 5     | D1                        | -       | 1   | PTVS20V51UR                                                   | NEXPERIA                             | 20V                  | DIODE; TVS; SMT (SOD-123W); VRM=20V; IPP=12.3A                                                                                                 |          |
| 6     | J1                        | -       | 1   | ZX62-B-5PA(33)                                                | HIROSE ELECTRIC CO LTD.              | ZX62-B-5PA(33)       | CONNECTOR; MALE; SMT; USB MICRO B-TYPE; BOTTOM MOUNT; RIGHT ANGLE; SPINS; WITH OPTION TO CONNECT SHIELD PINS                                   |          |
| 7     | J2                        | -       | 1   | SBH11-PBPC-D20-ST-BK                                          | SULLINS ELECTRONICS CORP.            | SBH11-PBPC-D20-ST-BK | CONNECTOR; MALE; THROUGH HOLE; HEADER CONNECTOR; STRAIGHT; 40PINS; EDGE FOOTPRINT                                                              |          |
| 8     | JU1                       | -       | 1   | PBC035AAN                                                     | SULLINS                              | PBC035AAN            | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS; -65 DEGC TO +125 DEGC                                                               |          |
| 9     | JU2-JU6                   | -       | 5   | PBC025AAN                                                     | SULLINS ELECTRONICS CORP.            | PBC025AAN            | EVKIT PART-CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS; -65 DEGC TO +125 DEGC;                                                   |          |
| 10    | LED1, LED2                | -       | 2   | 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                                                              |          |
| 11    | Q1                        | -       | 1   | SISA72DN-T1-GE3                                               | VISHAY SILICONIX                     | SISA72DN-T1-GE3      | TRAN; NCH; POWERPAK1212-8; PD-(3.7W); I-(60A); V-(40V)                                                                                         |          |
| 12    | R1, R2                    | -       | 2   | ANY                                                           | ANY                                  |                      | RESISTOR; 0805; 0 OHM; JUMPER; 0.125W; THICK FILM; FORMFACTOR                                                                                  |          |
| 13    | R3, R7                    | -       | 2   | CRCW08051K00FK;ERJ-6ENF1001V;<br>MCR10EZHF1001;RC0805FR-071KL | VISHAY DALE;PANASONIC;<br>ROHM;YAGEO | 1K                   | RESISTOR; 0805; 1K; 1%; 100PPM; 0.125W; THICK FILM                                                                                             |          |
| 14    | R4-R6                     | -       | 3   | CRCW08053K92FK; MCR10EZHF3921                                 | VISHAY DALE;ROHM                     | 3.92K                | RESISTOR; 0805; 3.92K OHM; 1%; 100PPM; 0.125W; THICK FILM                                                                                      |          |
| 15    | SU1-SU6                   | -       | 6   | STC025YAN                                                     | SULLINS ELECTRONICS CORP.            | STC025YAN            | TEST POINT; JUMPER; STR; TOTAL LENGTH=0.256IN; BLACK; INSULATION=PBT CONTACT=PHOSPHOR BRONZE; COPPER PLATED TIN OVERALL                        |          |
| 16    | TB1, TB2                  | -       | 2   | 282836-2                                                      | TE CONNECTIVITY                      | 282836-2             | CONNECTOR; FEMALE; THROUGH HOLE; TERMINAL BLOCK; SIDE WIRE ENTRY; STACKING WITH INTERLOCK STRAIGHT; 2PINS ;                                    |          |
| 17    | TP1, TP5, TP7, TP15, TP16 | -       | 5   | 5010                                                          | KEYSTONE                             | N/A                  | TESTPOINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE;                                                                                             |          |
| 18    | TP2, TP4, TP8, TP10, TP14 | -       | 5   | 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;                        |          |
| 19    | TP3                       | -       | 1   | 5119                                                          | KEYSTONE                             | N/A                  | TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; PURPLE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;                            |          |
| 20    | TP6                       | -       | 1   | 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;                            |          |
| 21    | TP9                       | -       | 1   | 5000                                                          | KEYSTONE                             | N/A                  | TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;                               |          |
| 22    | TP11                      | -       | 1   | 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;                             |          |
| 23    | TP12                      | -       | 1   | 5117                                                          | KEYSTONE                             | N/A                  | TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; BLUE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;                              |          |
| 24    | TP13                      | -       | 1   | 5003                                                          | KEYSTONE                             | N/A                  | TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; ORANGE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;                            |          |
| 25    | U1                        | -       | 1   | MAX20330EWA+                                                  | MAXIM                                | MAX20330EWA+         | EVKIT PART - IC; DET; PROGRAMMABLE OVP CONTROLLER WITH VBUS SHORT DETECTION; MAX20330; PACKAGE OUTLINE: 21-100229; PACKAGE CODE: W81B1+1; WLP8 |          |
| 26    | PCB                       | -       | 1   | MAX20330                                                      | MAXIM                                | PCB                  | PCB:MAX20330                                                                                                                                   |          |
| 27    | Q2                        | DNP     | 0   | SISA72DN-T1-GE3                                               | VISHAY SILICONIX                     | SISA72DN-T1-GE3      | TRAN; NCH; POWERPAK1212-8; PD-(3.7W); I-(60A); V-(40V)                                                                                         | DNI      |
| TOTAL |                           |         | 49  |                                                               |                                      |                      |                                                                                                                                                |          |

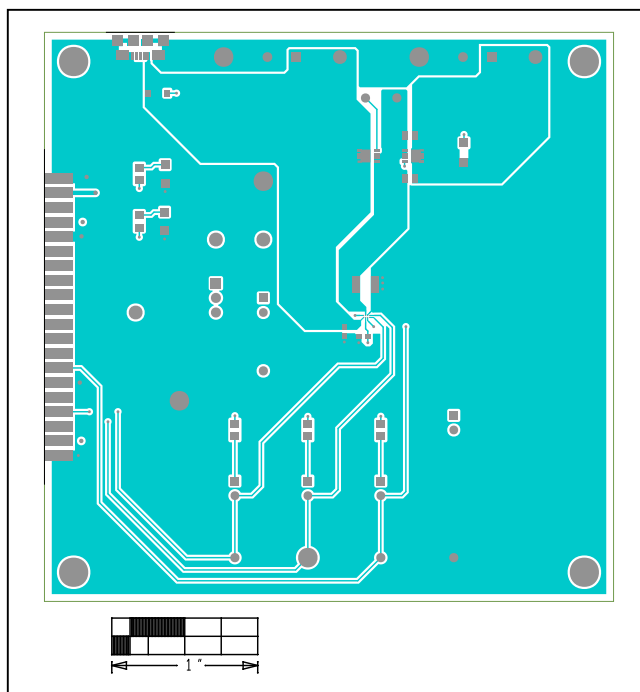
MAX20330 EV Kit Schematic



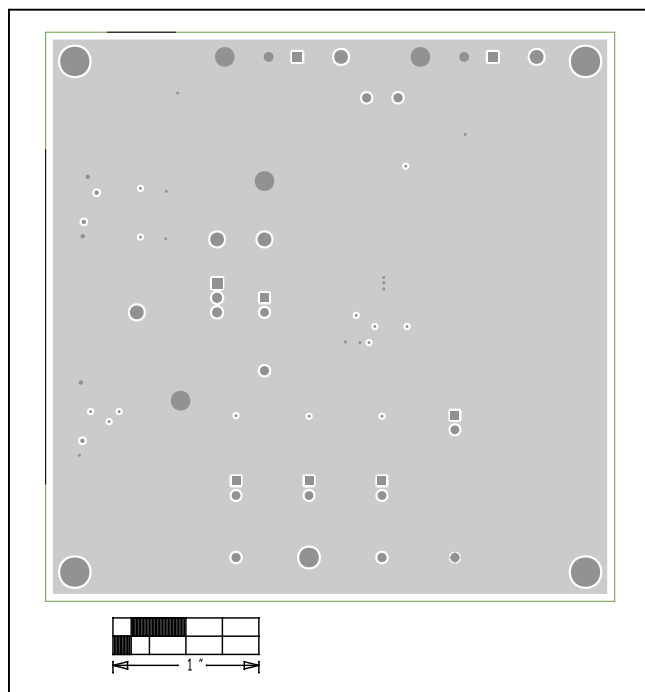
## MAX20330 EV PCB Layout Diagrams



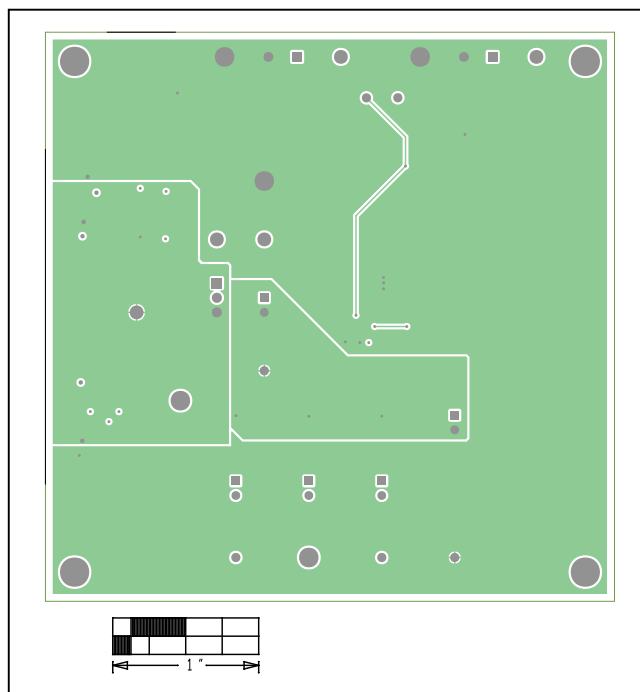
MAX20330 EV Kit—Top Silkscreen



MAX20330 EV Kit—Top

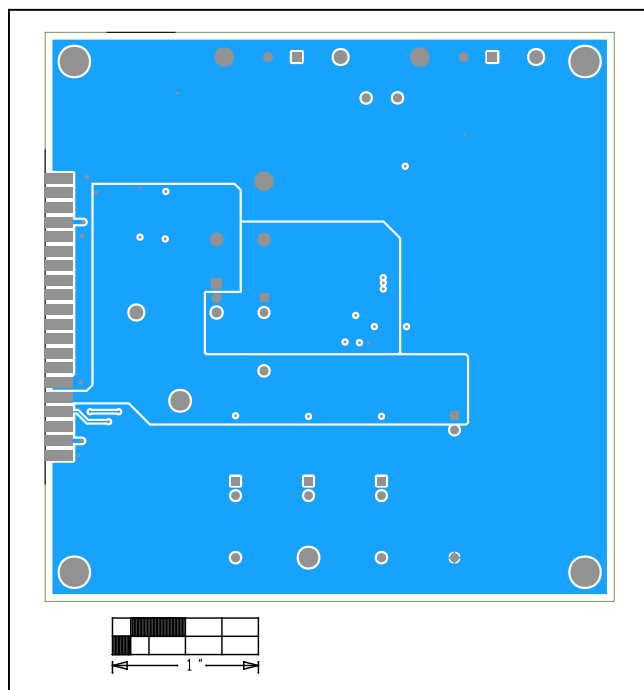


MAX20330 EV Kit—Internal 2

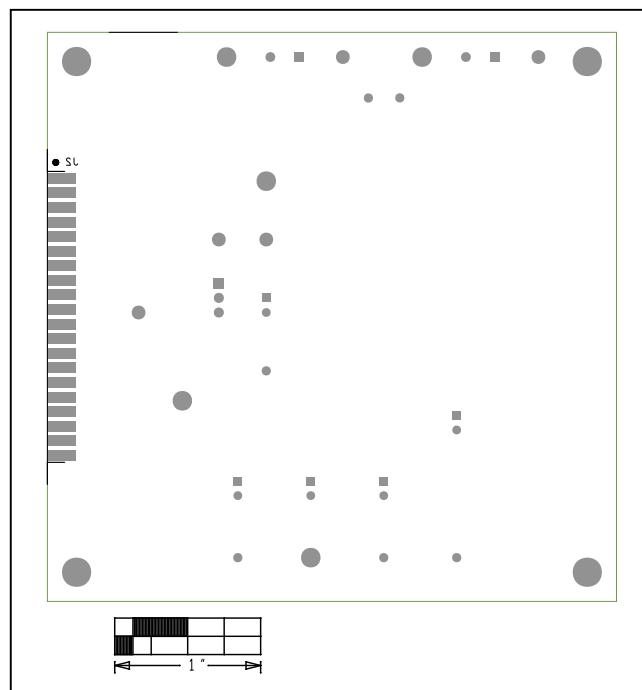


MAX20330 EV Kit—Internal 3

## MAX20330 EV PCB Layout Diagrams (continued)



MAX20330 EV Kit—Bottom



MAX20330 EV Kit—Bottom Silkscreen

## Revision History

| REVISION<br>NUMBER | REVISION<br>DATE | DESCRIPTION     | PAGES<br>CHANGED |
|--------------------|------------------|-----------------|------------------|
| 0                  | 1/18             | Initial release | —                |

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at [www.maximintegrated.com](http://www.maximintegrated.com).

*Maxim Integrated cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim Integrated product. No circuit patent licenses are implied. Maxim Integrated reserves the right to change the circuitry and specifications without notice at any time. The parametric values (min and max limits) shown in the Electrical Characteristics table are guaranteed. Other parametric values quoted in this data sheet are provided for guidance.*