

# MAXIM

## MAX3885 Evaluation Kit

Evaluates: MAX3885

### General Description

The MAX3885 evaluation kit (EV kit) simplifies evaluation of the MAX3885 2.488Gbps, SDH/SONET 1:16 deserializer. The EV kit requires only a single +3.3V supply and includes all the external components necessary to interface with 3.3V PECL and LVDS logic. The board can be connected directly to the output of a clock-and-data-recovery circuit (such as the MAX3875) and to the input of an LVDS device (such as an overhead termination circuit). A signal generator or stimulus system can be used with an oscilloscope to evaluate the MAX3885's basic functionality.

### Component Suppliers

| SUPPLIER  | PHONE        | FAX          |
|-----------|--------------|--------------|
| Coilcraft | 847-639-6400 | 847-639-1469 |
| Sprague   | 603-224-1961 | 603-224-1430 |

**Note:** Please indicate that you are using the MAX3885 when contacting these component suppliers.

### Features

- ◆ Single +3.3V Supply
- ◆ Inputs and Outputs Terminated for Interfacing with 3.3V PECL and LVDS Logic
- ◆ Fully Assembled and Tested Surface-Mount Board

### Ordering Information

| PART         | TEMP. RANGE    | IC PACKAGE |
|--------------|----------------|------------|
| MAX3885EVKIT | -40°C to +85°C | 64 TQFP    |

### Component List

| DESIGNATION   | QTY | DESCRIPTION   |
|---|-----|---|
| C1, C3, C5, C7, C12-C21   | 14  | 0.1μF, 25V min, 10% ceramic caps (0603)                     |
| C2, C4, C6, C8  | 0   | Not installed (shorted by PC board trace)                   |
| C9  | 1   | 33μF, 10V min, ±10% tantalum cap<br>Sprague 293D336X0010C2  |
| C10   | 1   | 2.2μF, 10V min, ±10% tantalum cap<br>Sprague 293D225X0010A2 |
| C11   | 0   | Not installed (open)  |
| R1, R3, R5, R7  | 4   | 133Ω, 1% resistors (0603)                                   |
| R2, R4, R6, R8  | 4   | 86.6Ω, 1% resistors (0603)                                  |
| R12, R15, R18, R21, R24, R27, R30, R33, R36, R39, R42, R45, R48, R53, R56, R59, R62 | 17  | 100Ω, 1% resistors (0603)                                   |

| DESIGNATION   | QTY | DESCRIPTION                               |
|---|-----|---|
| R13, R14, R16, R17, R19, R20, R22, R23, R25, R26, R28, R29, R31, R32, R34, R35, R37, R38, R40, R41, R43, R44, R46, R47, R49-R52, R54, R55, R57, R58, R60, R61 | 0   | Not installed                             |
| J1-J6   | 6   | SMA connectors (PC mount)                 |
| J7-J40  | 34  | SMB connectors (PC mount)                 |
| L1  | 1   | 56nH inductor<br>Coilcraft 0805CS-560XKBC |
| IN1, IN2  | 2   | Test points                               |
| U1  | 1   | MAX3885ECB                                |
| None  | 1   | MAX3885 EV kit PC board                   |
| None  | 1   | MAX3885 data sheet                        |

# MAX3885 Evaluation Kit

## Detailed Description

The MAX3885 EV kit simplifies evaluation of the MAX3885 deserializer. The EV kit operates from a single +3.3V supply and includes all the external components necessary to interface with 3.3V PECL and LVDS logic.

Each PECL input (SCLK+, SCLK-, SD+, SD-) is terminated on the EV board with the Thevenin equivalent of 53Ω to (VCC - 2V). These inputs can be driven directly by the output of any 3.3V PECL device, such as a clock-and-data-recovery circuit (e.g., the MAX3875). For inputs other than directly coupled 3.3V PECL, provision is made on the board to AC couple the input. Remove the trace between C2, C4, C6, and C8 and install 0.1μF 0603 ceramic capacitors (see the MAX3885 data sheet).

All LVDS outputs (PCLK+, PCLK-, PD\_+, PD\_-) are differentially terminated with 100Ω resistors between complementary outputs. Each output can directly drive an LVDS input or a high-impedance input oscilloscope (see *Connecting LVDS Outputs to 50Ω Oscilloscope Inputs*). When driving an LVDS input that already includes 100Ω differential termination, remove the termination resistor corresponding to the appropriate LVDS output.

The synchronization inputs (SYNC+, SYNC-) are internally terminated LVDS inputs with 100Ω differential input resistance. Ensure that LVDS devices driving these inputs are not redundantly terminated.

All signal inputs and outputs use coupled 50Ω transmission lines. All input signal lines are of equal length to minimize propagation-delay skew. Likewise, all output signal lines are of equal length.

## Applications Information

### Connecting LVDS Outputs to 50Ω Oscilloscope Inputs

To monitor an LVDS signal on a 50Ω input oscilloscope, remove the differential load resistor between the complementary outputs and AC couple each output to an oscilloscope input. For example, to observe the PD0 signal on a 50Ω input instrument, remove resistor R15 from the EV board and place a capacitor or DC block in series with each output (PD0+ or PD0-) and the instrument input. **Do not connect MAX3885 outputs directly to 50Ω inputs or terminations to ground.** Choose a coupling capacitor large enough in value to prevent pattern-dependent distortion of the output signal.

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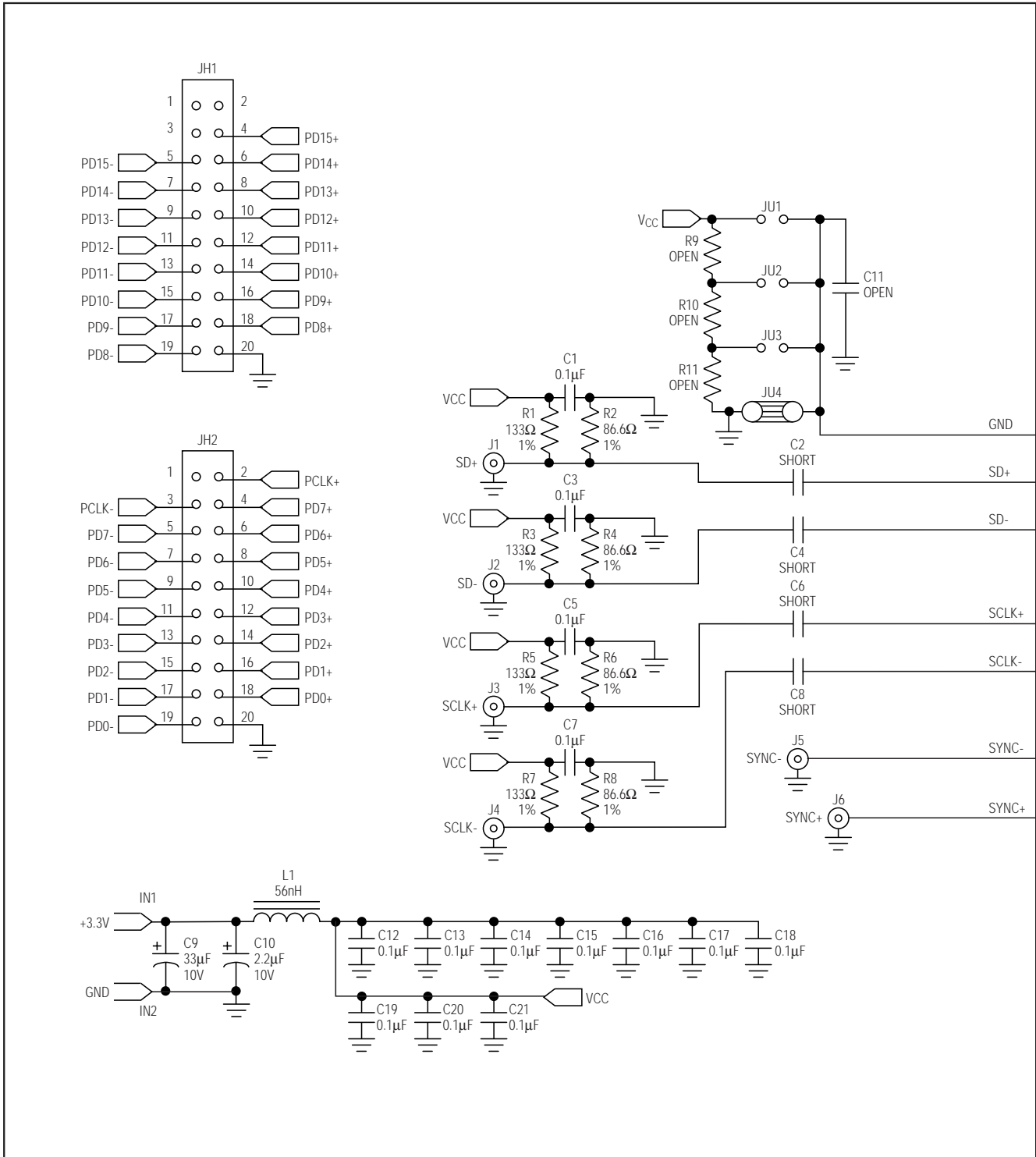


Figure 1. MAX3885 EV Kit Schematic

# MAX3885 Evaluation Kit

Evaluates: MAX3885

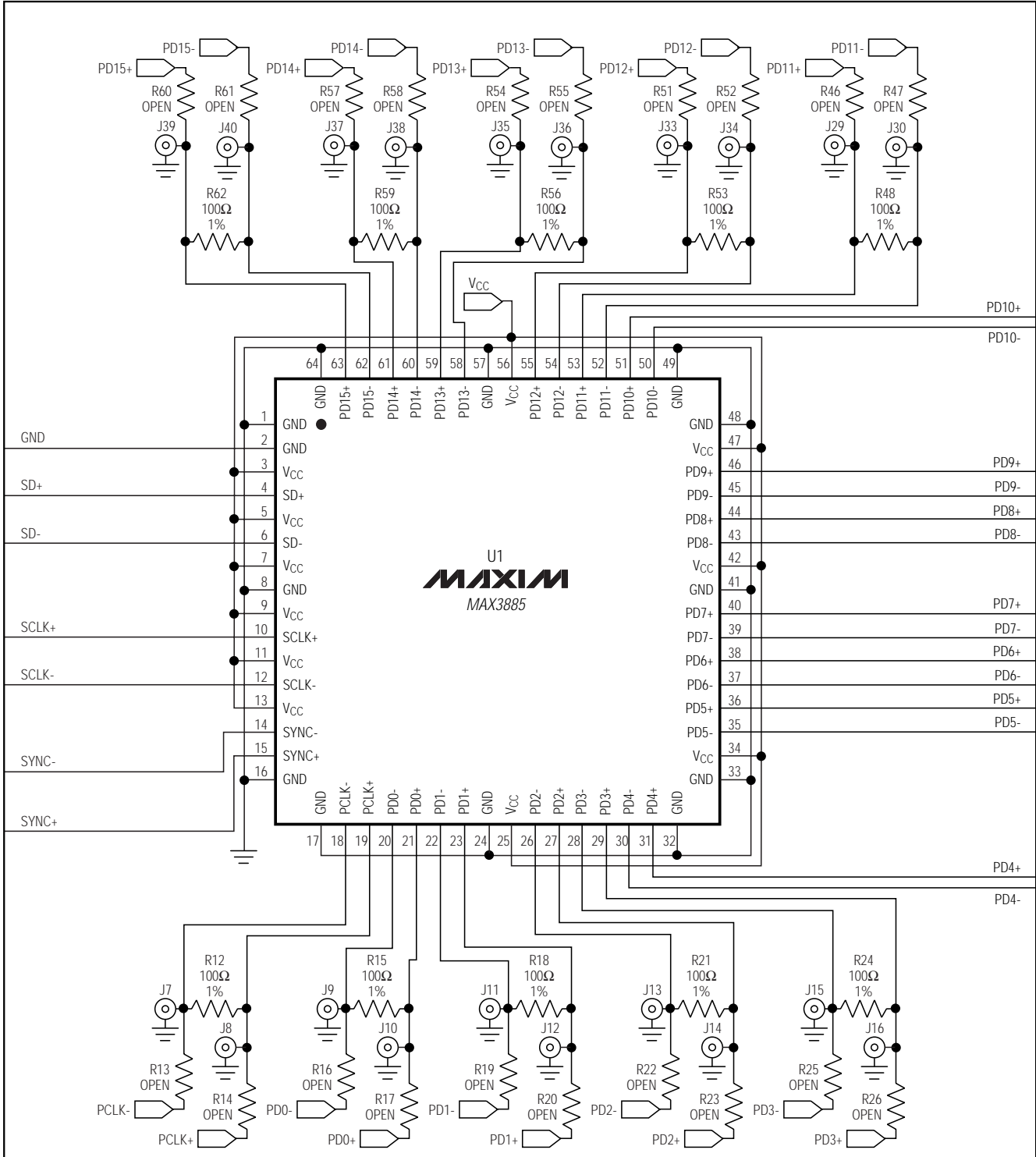


Figure 1. MAX3885 EV Kit Schematic (continued)

# MAX3885 Evaluation Kit

Evaluates: MAX3885

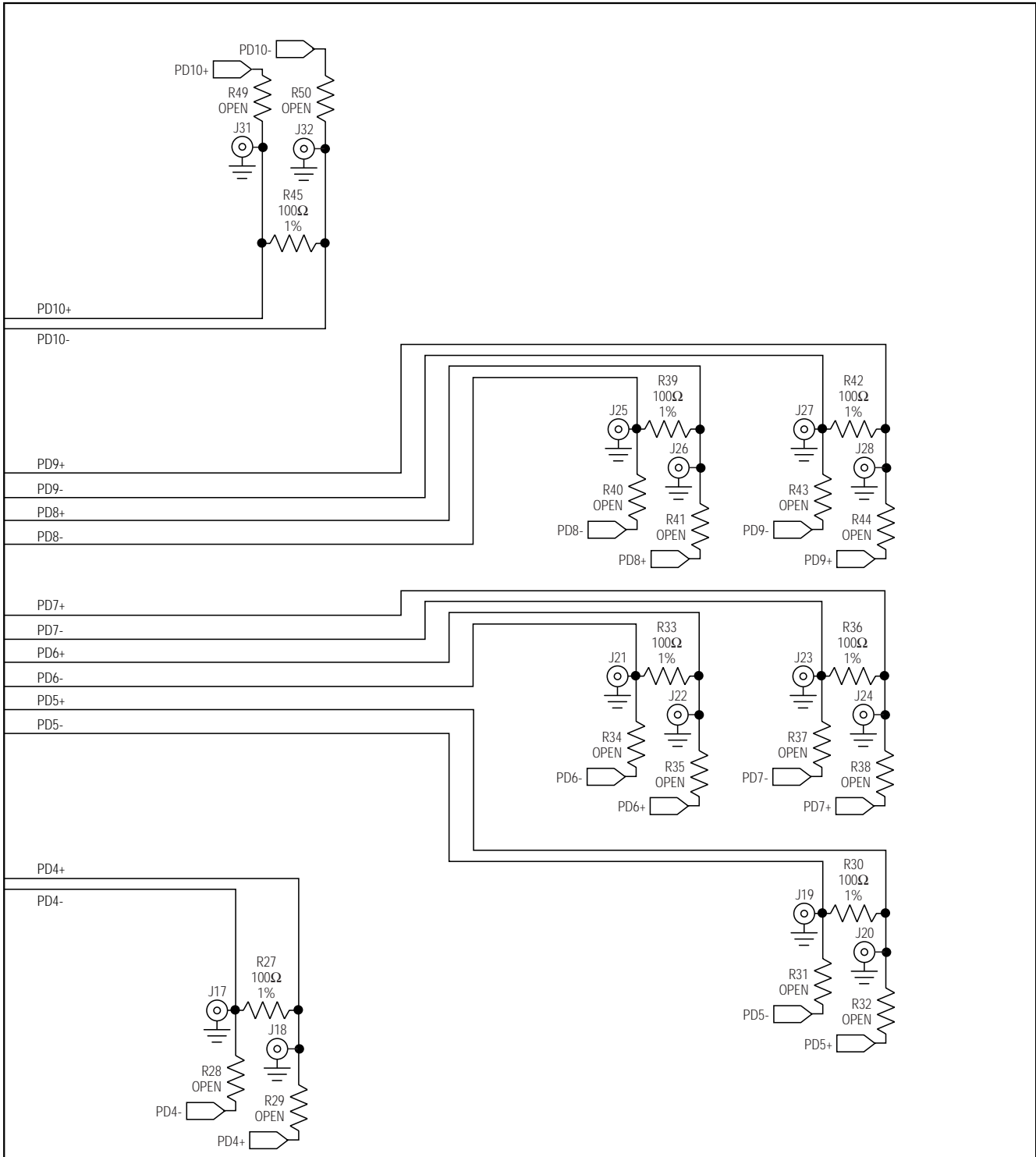


Figure 1. MAX3885 EV Kit Schematic (continued)

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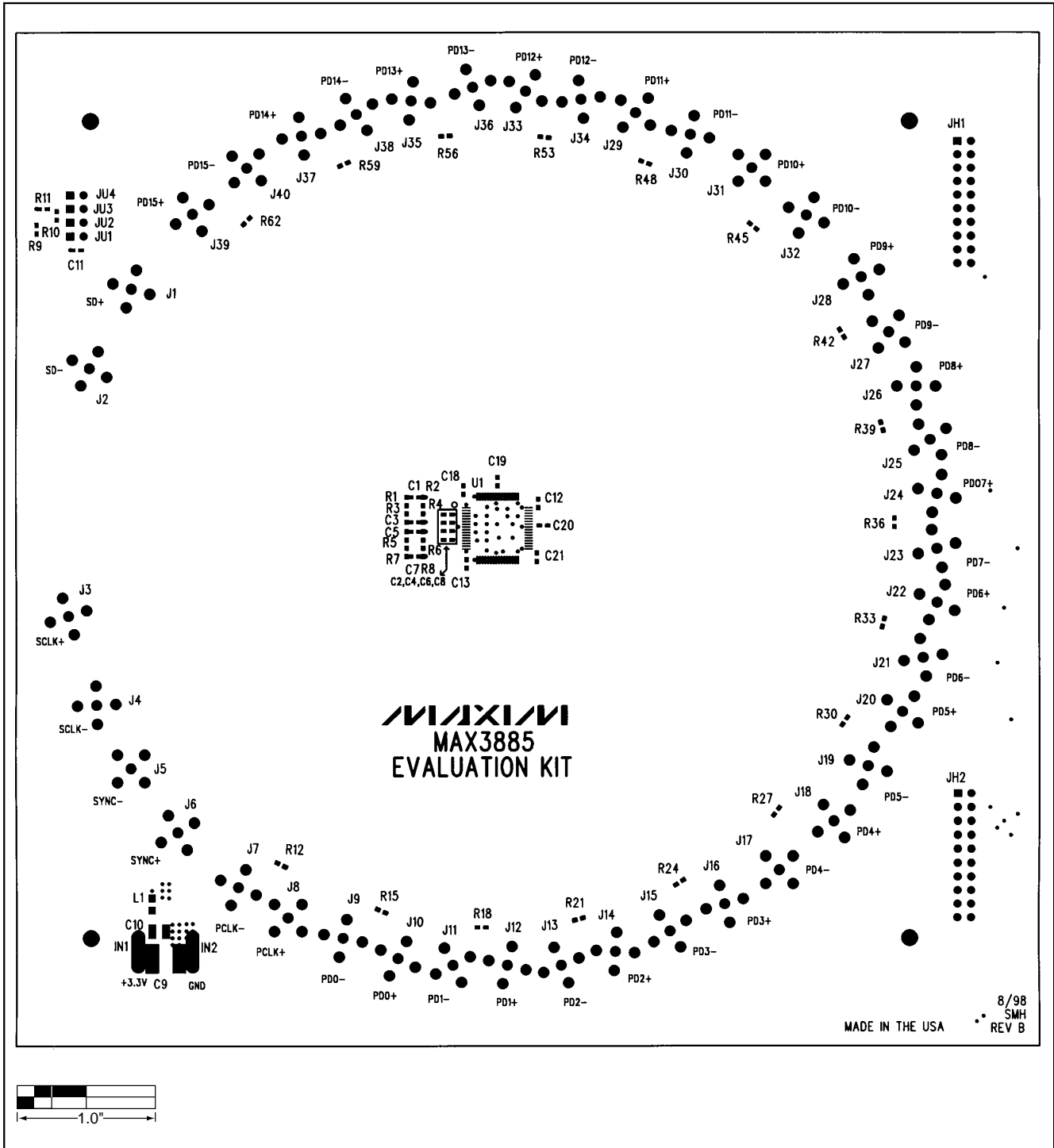


Figure 2. MAX3885 EV Kit Component Placement Guide—Component Side

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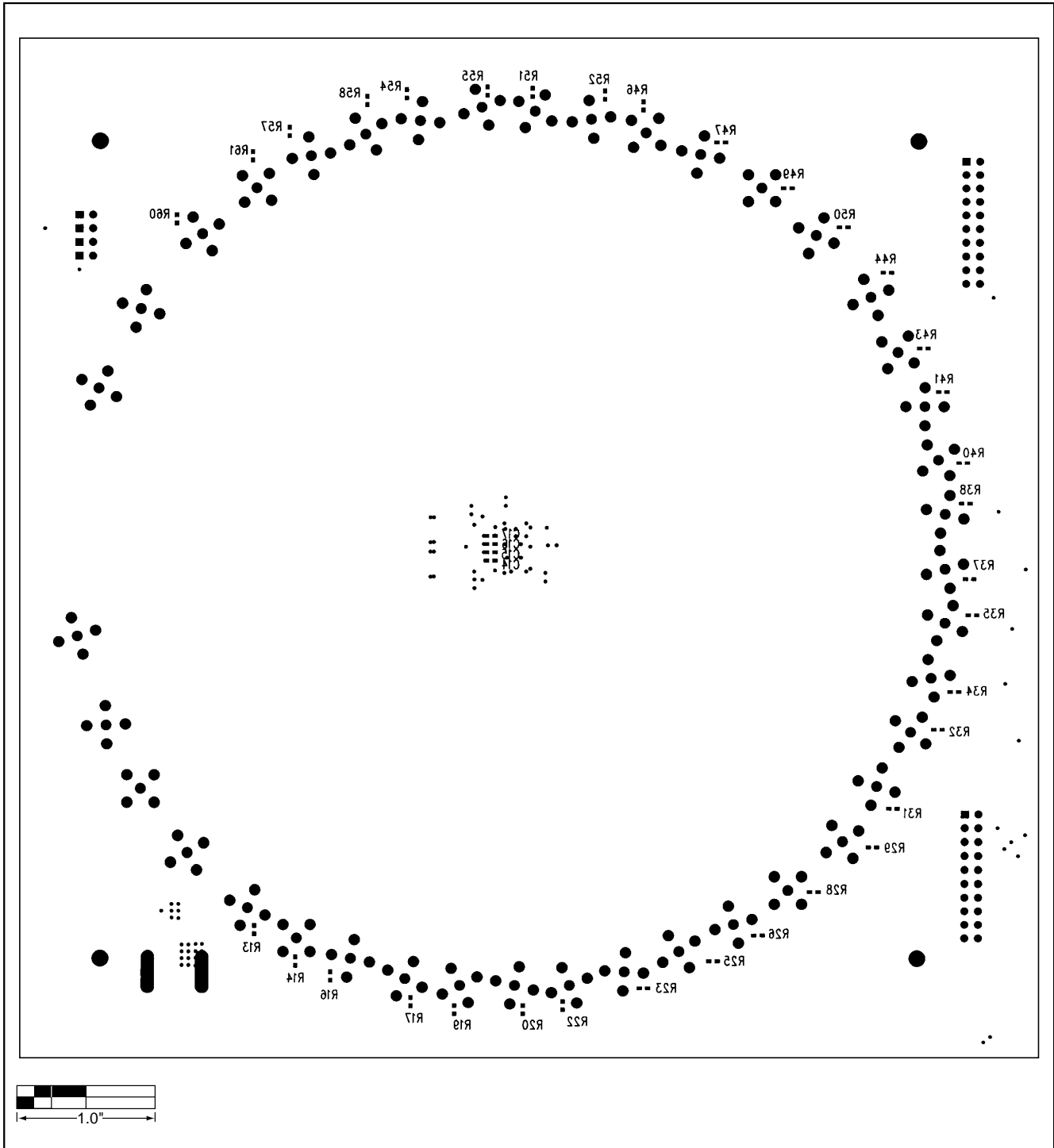


Figure 3. MAX3885 EV Kit Component Placement Guide—Solder Side

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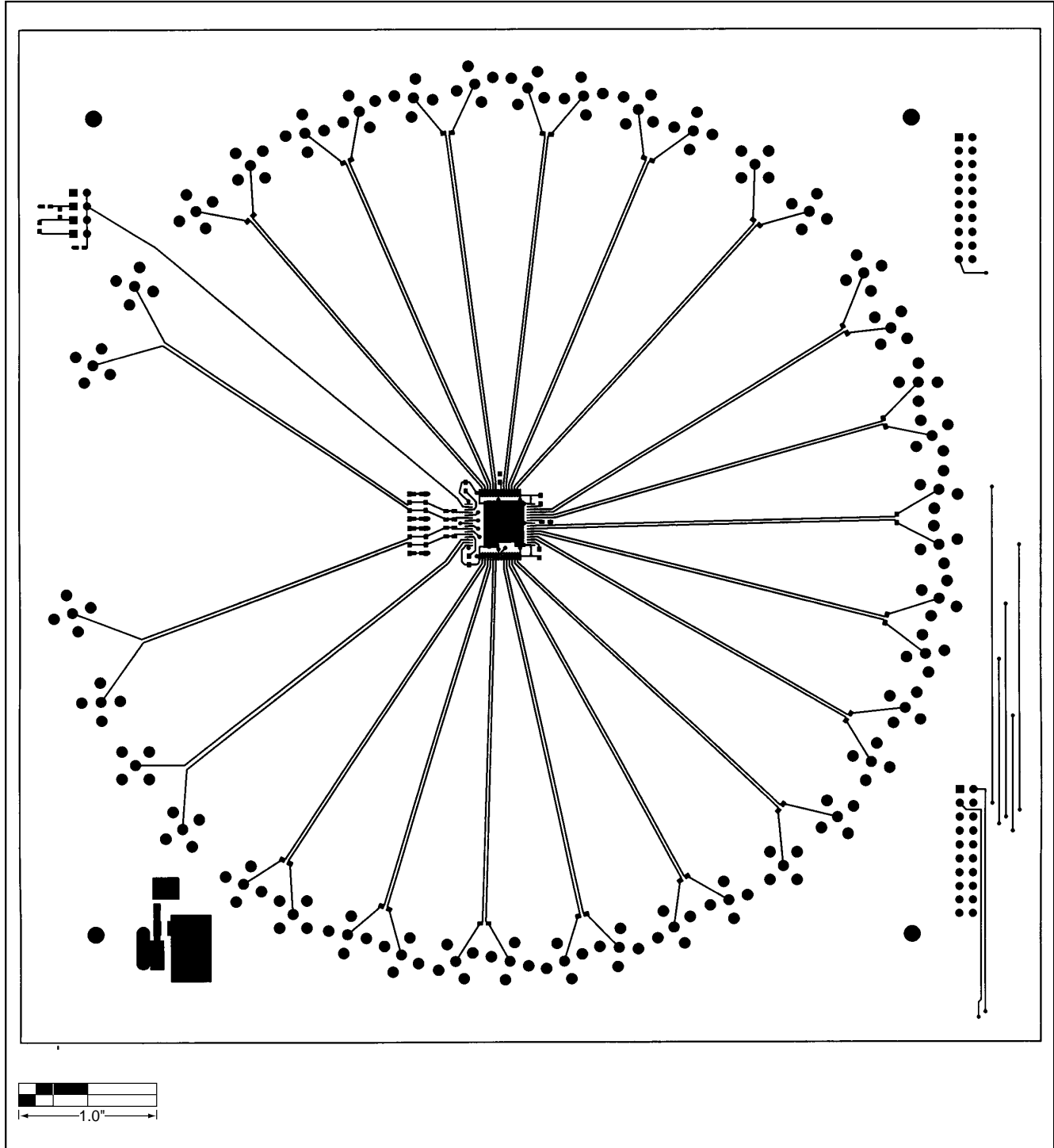


Figure 4. MAX3885 EV Kit PC Board Layout—Component Side



# MAX3885 Evaluation Kit

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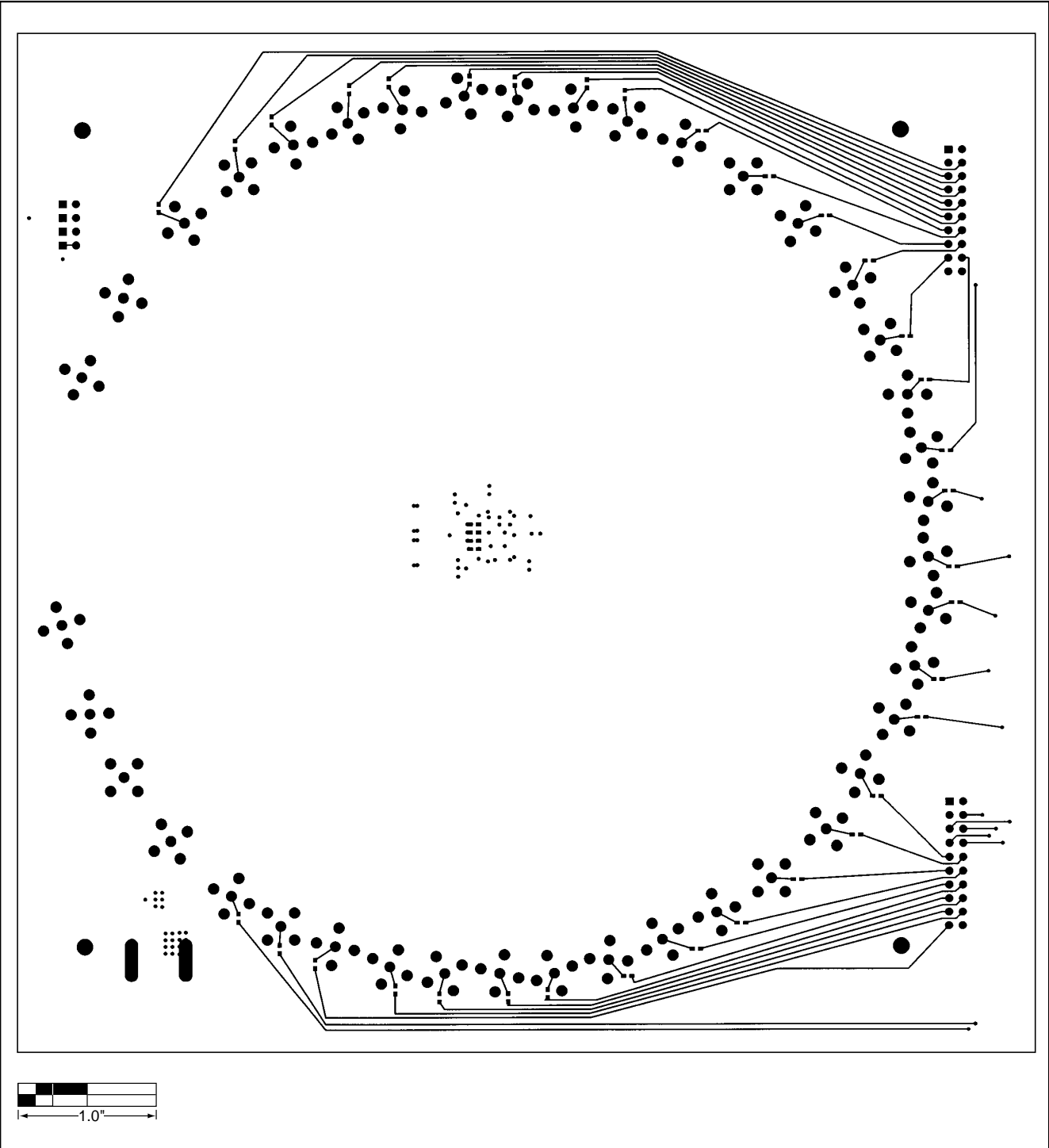


Figure 5. MAX3885 EV Kit PC Board Layout—Solder Side

# MAX3885 Evaluation Kit

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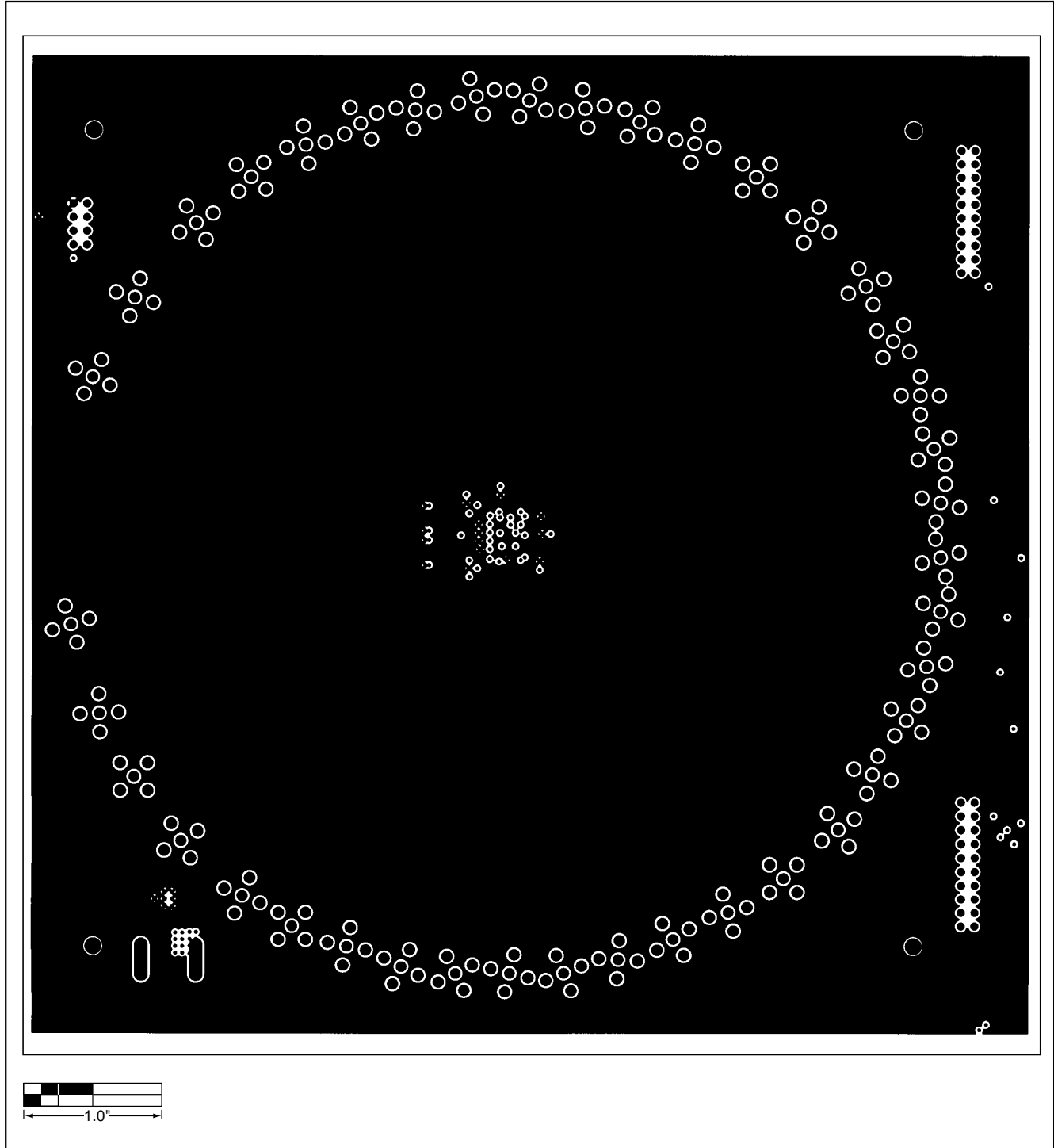


Figure 6. MAX3885 EV Kit PC Board Layout—Power Plane

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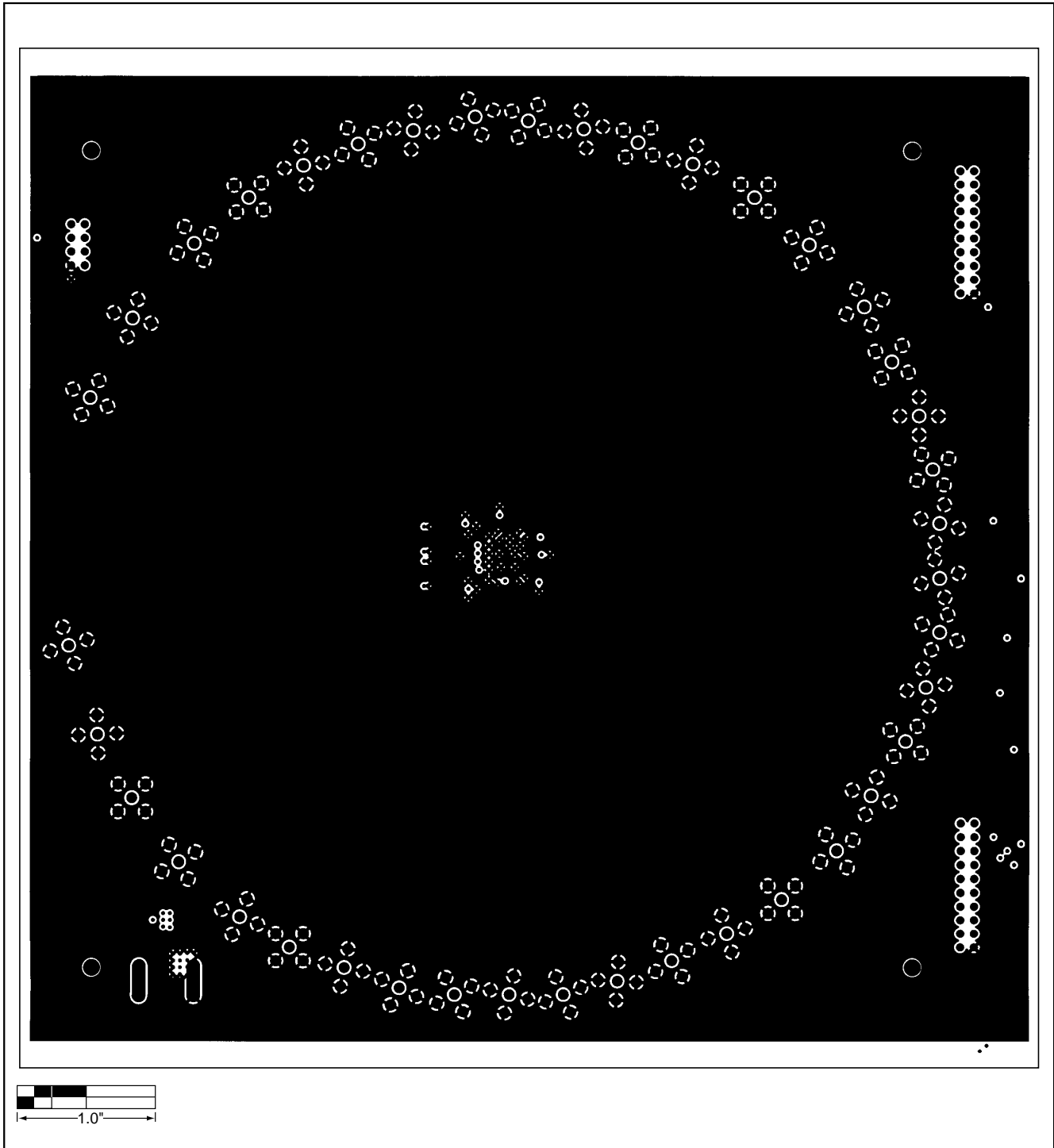


Figure 7. MAX3885 EV Kit PC Board Layout—Ground Plane

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## NOTES

*Maxim cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim product. No circuit patent licenses are implied. Maxim reserves the right to change the circuitry and specifications without notice at any time.*

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