



MAX3866 Evaluation Kit

General Description

The MAX3866 evaluation kit (EV kit) is a fully assembled, chip-on-board (COB) electrical demonstration kit. It provides easy evaluation of the MAX3866 2.5Gbps, +3.3V combined transimpedance/limiting amplifier.

Component List

| DESIGNATION | QTY | DESCRIPTION |
|---|-----|---|
| C1, C2, C3, C5-C8 | 7 | 100nF, 25V min, 10% ceramic capacitors (0603) |
| C9, J2, J3, L2, R4, R10, R11, R12, TP2, TP3 | 0 | Leave site open |
| L1 | 1 | 1 μ H inductor Coilcraft 1008CS-102 XKBB, 10% |
| R1 | 1 | 500 Ω potentiometer |
| R2 | 1 | 150 Ω , 1% resistor (0402) |
| R3, R7 | 2 | 1k Ω , 1% resistors (0402) |
| R5, R8 | 2 | 49.9 Ω , 1% resistors (0402) |
| R6 | 1 | 1k Ω potentiometer |
| R9 | 1 | 1M Ω potentiometer |
| CR1 | 1 | LED |
| INPUT (J1), OUT+ (J4), OUT- (J5) | 3 | SMA connectors (edge mount) E.F. Johnson 142-0701-801 or Digi-Key J502-ND |
| LOP | 1 | Test point Mouser 151-203 |
| VCCS, VCCD, GND | 3 | 2-pin headers (0.1" centers) Digi-Key S1012-36-ND |
| VCCS | 1 | Shunt (installed) Digi-Key S9000-ND |
| U1 | 1 | MAX3866E/D |
| None | 2 | MAX3866 circuit boards, Rev. B |
| None | 1 | MAX3866 data sheet |
| None | 1 | MAX3866 EV kit data sheet |
| None | 3 | 0.5" spacers |
| None | 6 | Screws for the spacers |

Features

- ◆ Easy +3.3V or +5.0V Electrical Evaluation of MAX3866
- ◆ Evaluation of Adjustable Loss-of-Power (LOP)
- ◆ Fully Assembled and Tested
- ◆ EV Kit Designed for 50 Ω I/O Interface

Ordering Information

| PART | TEMP. RANGE |
|--------------|----------------|
| MAX3866EVKIT | -40°C to +85°C |

Component Suppliers

| SUPPLIER | PHONE | FAX |
|-----------------------|--------------|--------------|
| AVX | 803-946-0690 | 803-626-3123 |
| Central Semiconductor | 516-435-1110 | 516-435-1824 |
| Murata | 814-237-1431 | 814-238-0490 |
| Zetex | 516-543-7100 | 516-864-7630 |

Note: Please indicate that you are using the MAX3866 when ordering from these suppliers.

Electrical Quick Start

- 1) Attach matched 50 Ω SMA cables from a 50 Ω oscilloscope to OUT+ and OUT-. Set the oscilloscope to 20mV/div and 200ps/div. A single-ended evaluation is acceptable; however, the cable not terminated into the scope should be terminated with a 50 Ω load at the end of the cable.
- 2) Ensure that there is a shunt across the VCCS pins. (Remove shunt for 5.0V operation.)
- 3) Attach ground to either side of the GND 2-pin header and +3.3V (or +5.0V) to either side of the VCCD 2-pin header.
- 4) Connect a 50 Ω cable between the output of a 50 Ω source and the input of the EV kit. Set the source to produce a 2.0Vp-p, 2.5Gbps 1-0 pattern.
- 5) Adjust R9 and R6 to produce a DC current of 1mA (1mA = 2.0Vp-p / 1k Ω / 2) through R7. This can be verified by checking for a 1V drop across R7.
- 6) Verify that the input pattern is present at the output.

Evaluates: MAX3866



MAX3866 Evaluation Kit

Evaluates: MAX3866

Adjustment and Control Description

| CONTROL | NAME | FUNCTION/MANIPULATION |
|---------|------------|--|
| VCCD | VCCD | Power-Supply Voltage. Both pins of this dual-pin header are the same point. |
| VCCS | VCCS | Power-Supply Select Jumper. Do not apply any external voltages at this point. Both pins of this 2-pin header are not connected electrically. Depending on what the operating voltage is, either place a shunt at VCCS or remove the shunt from VCCS. When evaluating at 3.14V to 3.47V, ensure that there is a shunt on VCCS. If the evaluation voltage is 5.0V to 5.5V, remove this shunt and place a 100nF capacitor in location C8. (EV kit is shipped with 100nF in the C8 location; see <i>Figure 1</i> .) |
| J1 | INPUT | Single-Ended Input, 3mVp-p to 2.5Vp-p range. This translates into a current of 3μA to 2.5mA, respectively (voltage at input) / (R3 = 1kΩ). Note that the EV kit input is terminated for a 50Ω source. |
| J4, J5 | OUTP, OUTM | Signal Outputs (AC-coupled). Note that the EV kit outputs are designed for 50Ω termination. |
| R1 | — | Sets the LOP Threshold. For normal operation, Maxim recommends R8 + R1 = 510Ω. However, if other values are desired, please refer to the <i>Typical Operating Characteristics</i> section (Assert/Deassert vs. RPD) of the MAX3866 data sheet. |
| R6, R9 | — | Micro and Macro Current Adjustment. Simulates the average DC current portion of a diode. The amount of current that should be set through these potentiometers is calculated by the formula (AC current into MAX3866) / 2 = DC bias current. |
| CR1 | DIODE | LOP is active high. Therefore, when an LOP condition exists, the LED will be off. |
| SJ2 | — | Solder Jumper. For normal operation, ensure that this solder jumper is open. |
| TP1 | LOP | TTL Output, active high. Probe this test point only with a high-impedance lead. |

MAX3866 Evaluation Kit

Evaluates: MAX3866

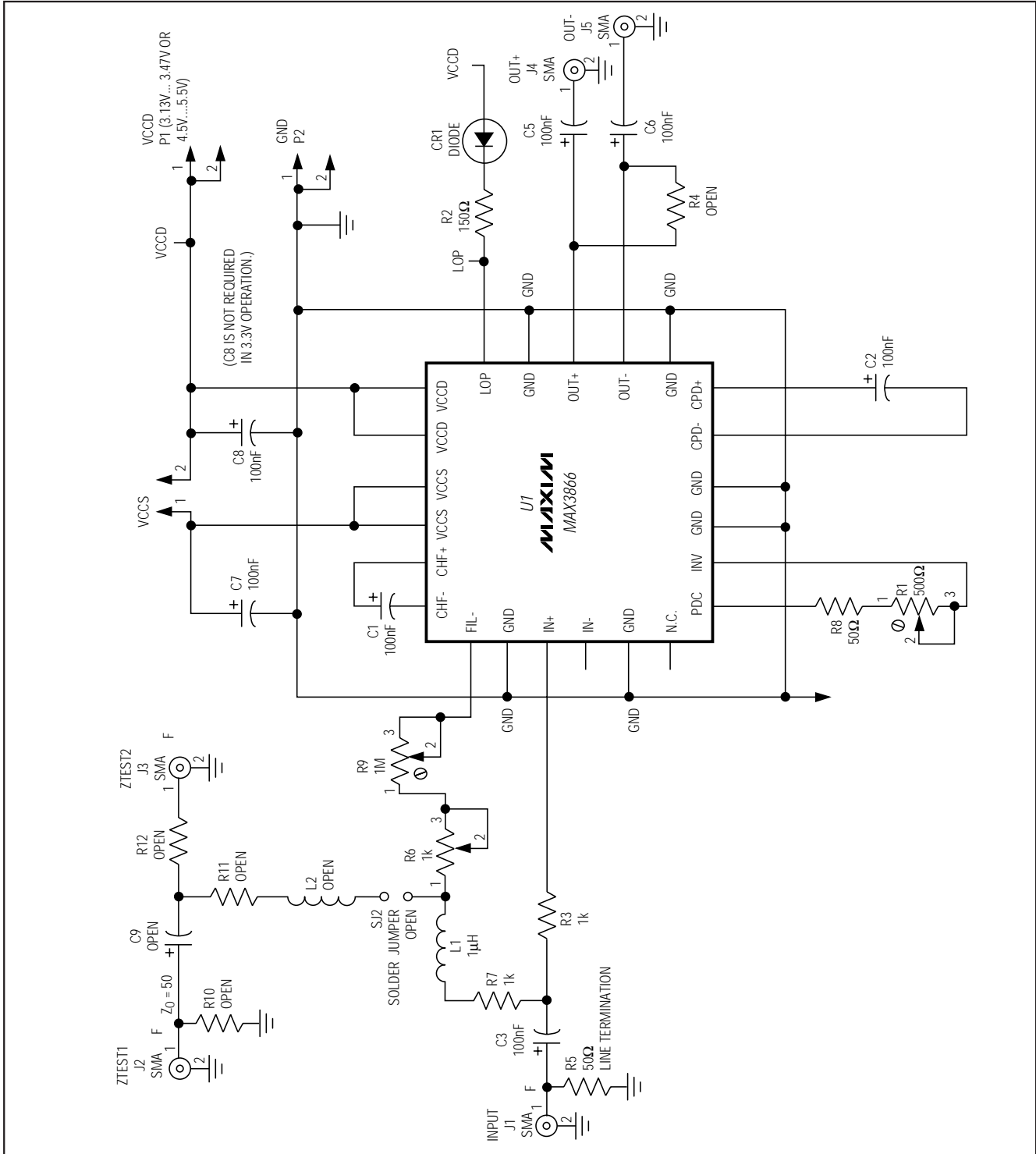


Figure 1. MAX3866 EV Kit Schematic

MAX3866 Evaluation Kit

Evaluates: MAX3866

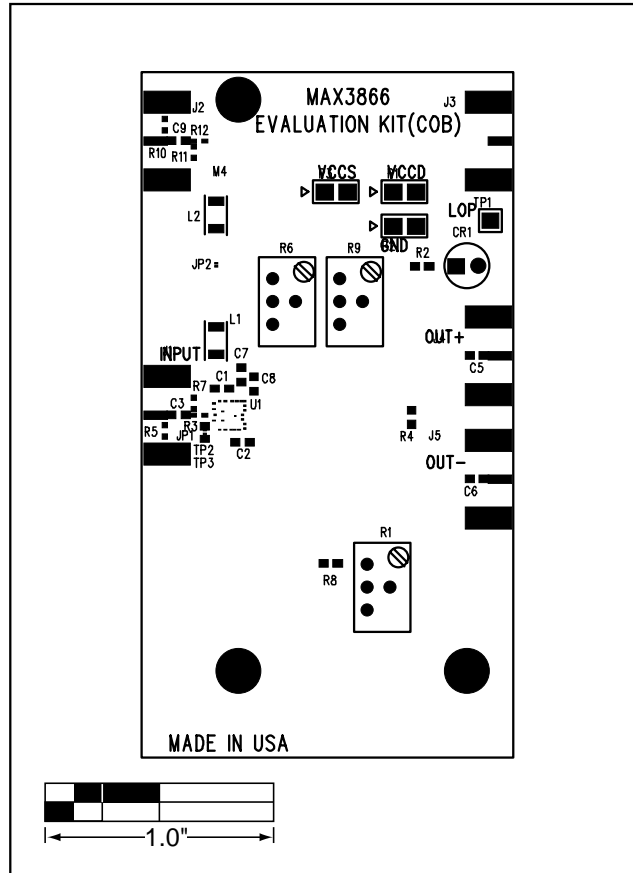


Figure 2. MAX3866 EV Kit Component Placement Guide—Component Side

MAX3866 Evaluation Kit

Evaluates: MAX3866

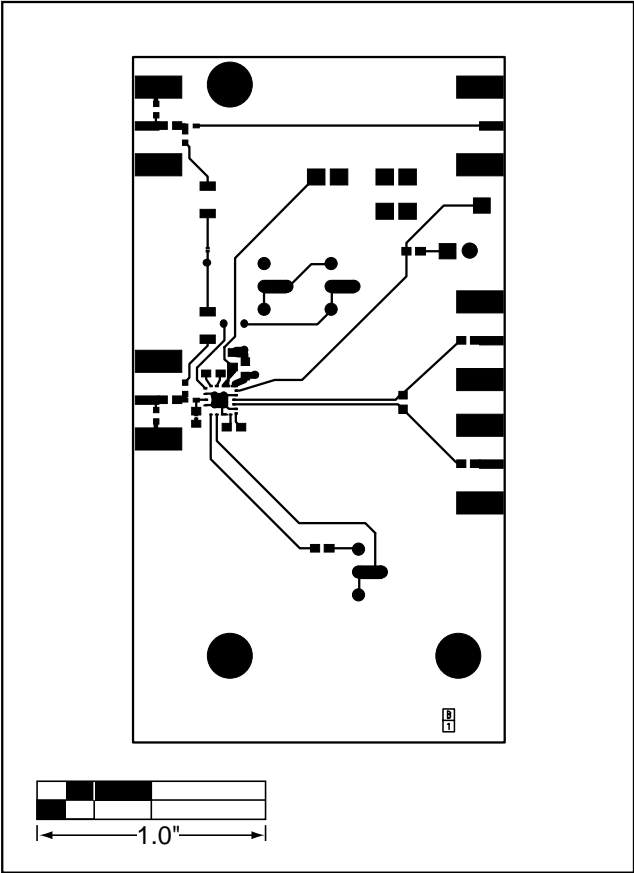


Figure 3. MAX3866 EV Kit PC Board Layout—Component Side

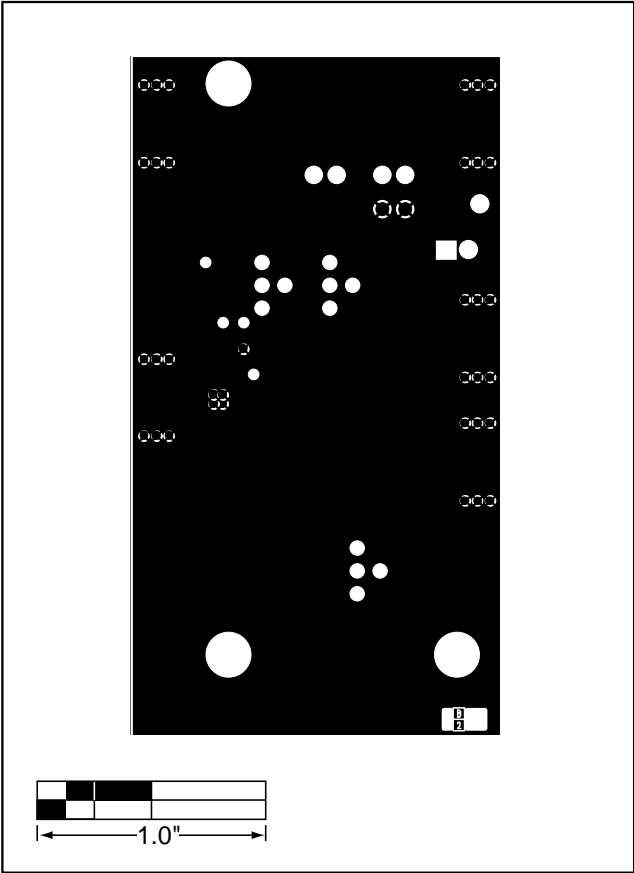


Figure 4. MAX3866 EV Kit—Ground Plane

MAX3866 Evaluation Kit

Evaluates: MAX3866

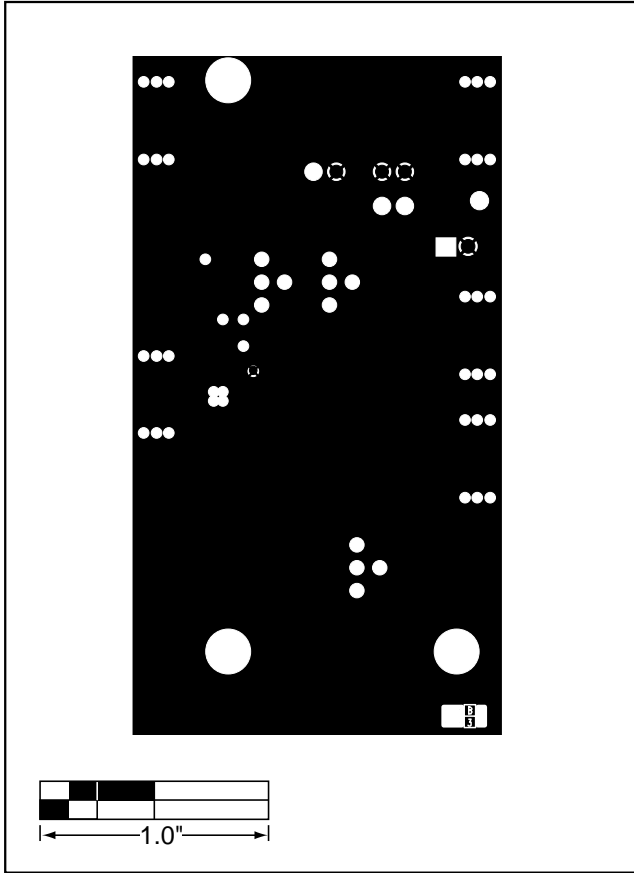


Figure 5. MAX3866 EV Kit—Power Plane

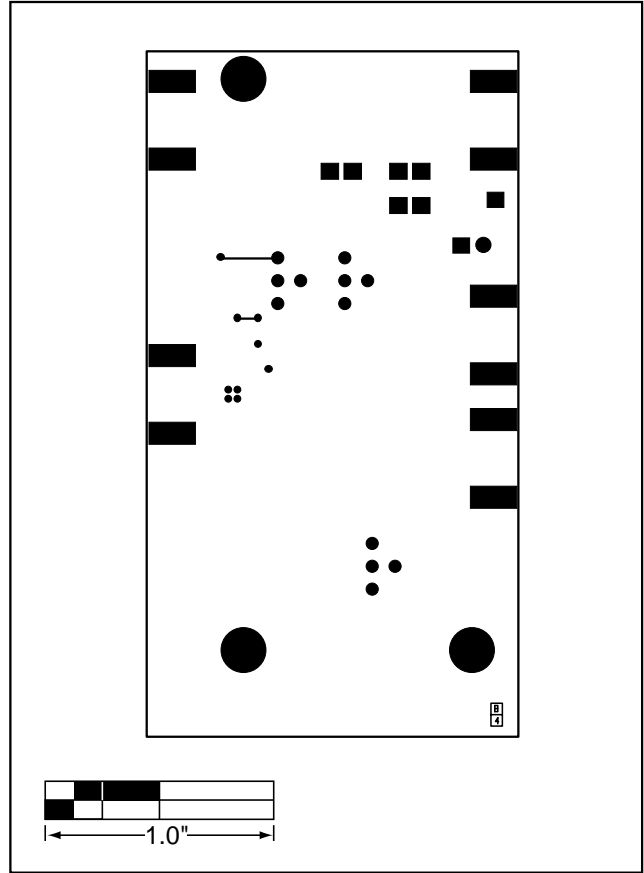


Figure 6. MAX3866 EV Kit PC Board Layout—Solder Side

MAX3866 Evaluation Kit

Evaluates: MAX3866

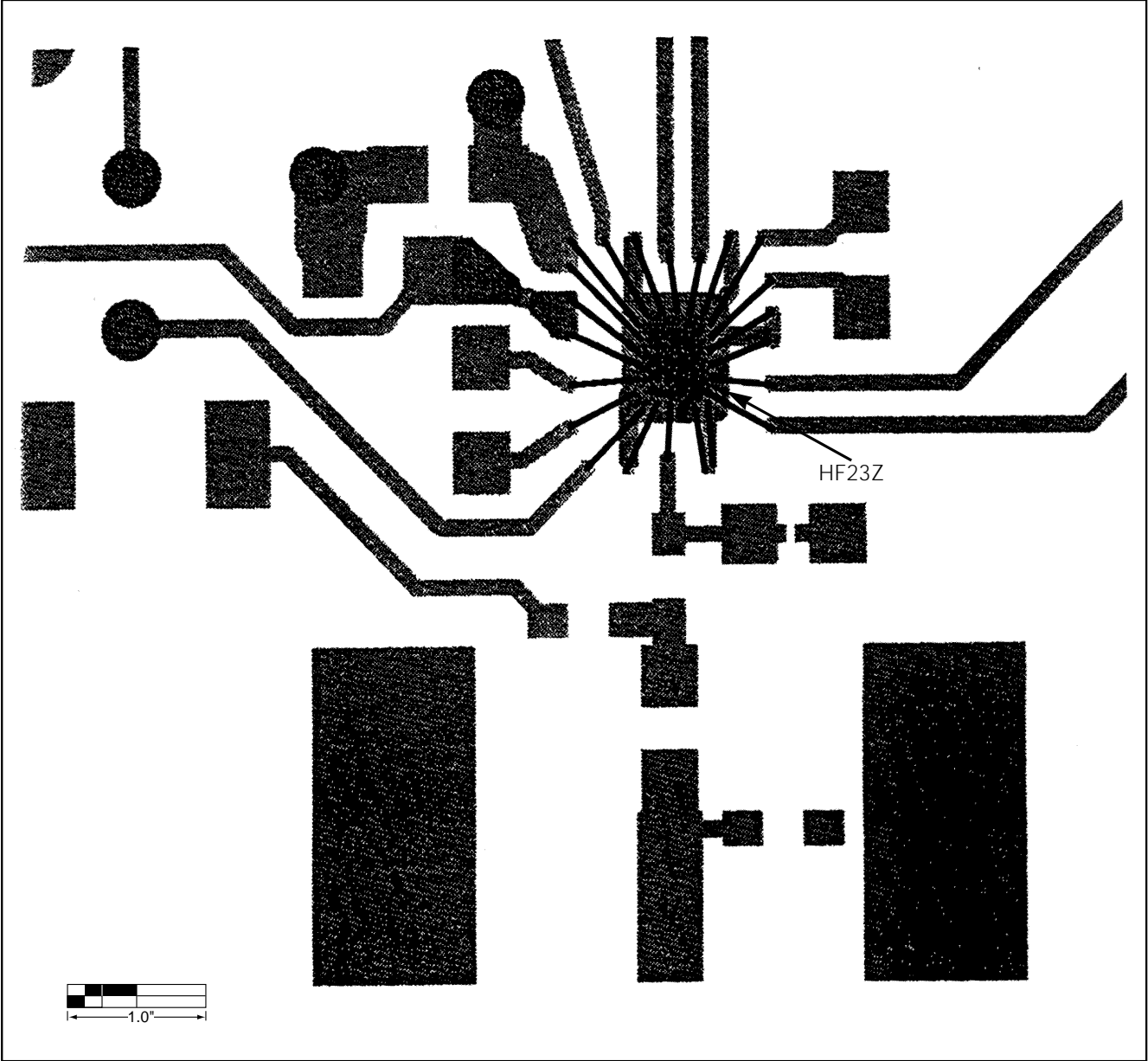


Figure 7. MAX3866 EV Kit—Bond Diagram

MAX3866 Evaluation Kit

Evaluates: MAX3866

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.

8 _____ Maxim Integrated Products, 120 San Gabriel Drive, Sunnyvale, CA 94086 408-737-7600

© 1999 Maxim Integrated Products

Printed USA

MAXIM is a registered trademark of Maxim Integrated Products.