



# 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 $\mu$ H inductor Coilcraft 1008CS-102 XKBB, 10%
R1	1	500 $\Omega$ potentiometer
R2	1	150 $\Omega$ , 1% resistor (0402)
R3, R7	2	1k $\Omega$ , 1% resistors (0402)
R5, R8	2	49.9 $\Omega$ , 1% resistors (0402)
R6	1	1k $\Omega$ potentiometer
R9	1	1M $\Omega$ 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 $\Omega$  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 $\Omega$  SMA cables from a 50 $\Omega$  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 $\Omega$  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 $\Omega$  cable between the output of a 50 $\Omega$  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 $\Omega$  / 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.

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## 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. <b>Do not apply any external voltages at this point.</b> 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 3 $\mu$ A to 2.5mA, respectively (voltage at input) / (R3 = 1k $\Omega$ ). Note that the EV kit input is terminated for a 50 $\Omega$ source.
J4, J5	OUTP, OUTM	Signal Outputs (AC-coupled). Note that the EV kit outputs are designed for 50 $\Omega$ termination.
R1	—	Sets the LOP Threshold. For normal operation, Maxim recommends R8 + R1 = 510 $\Omega$ . However, if other values are desired, please refer to the <i>Typical Operating Characteristics</i> section (Assert/Deassert vs. R <sub>PD</sub> ) 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.

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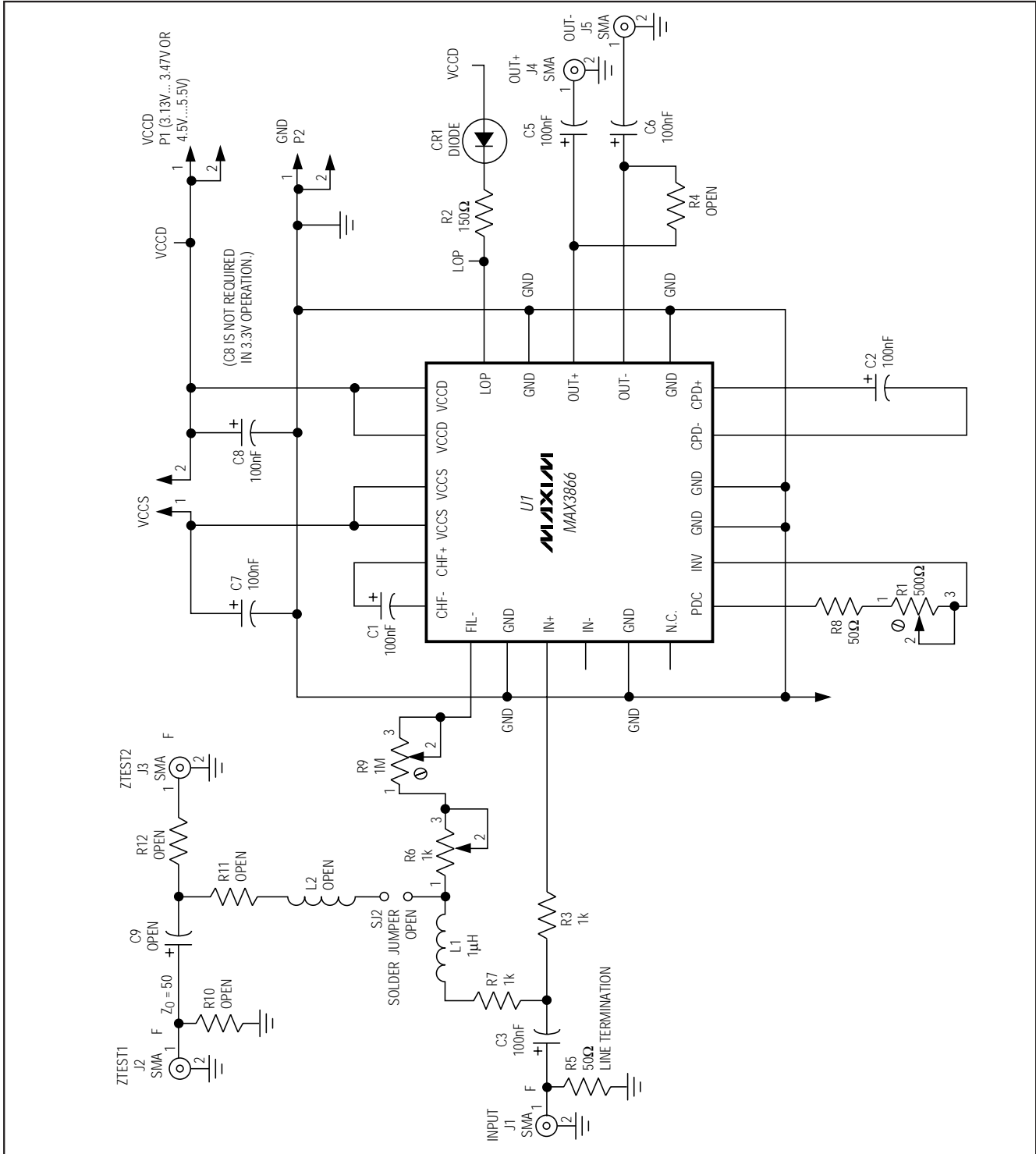


Figure 1. MAX3866 EV Kit Schematic

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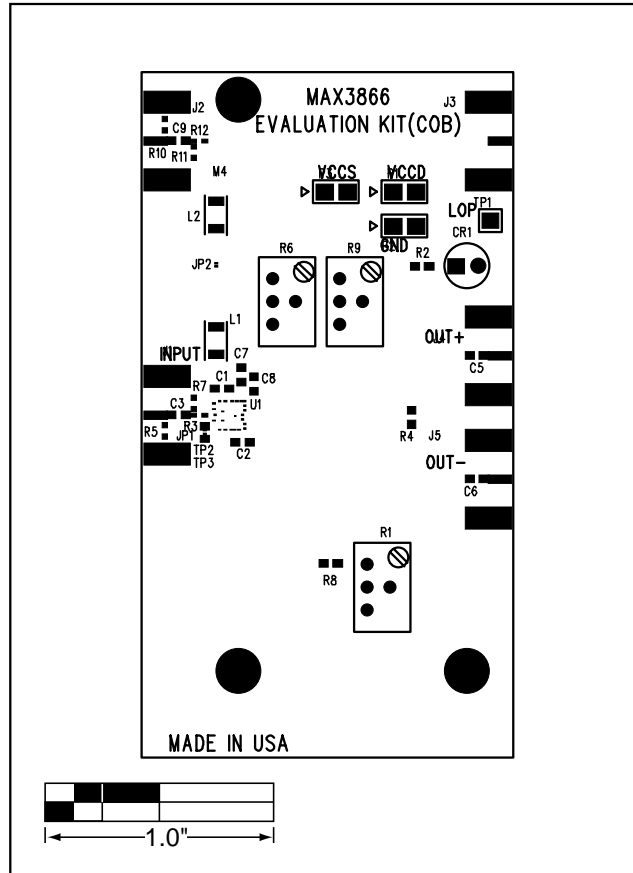


Figure 2. MAX3866 EV Kit Component Placement Guide—Component Side

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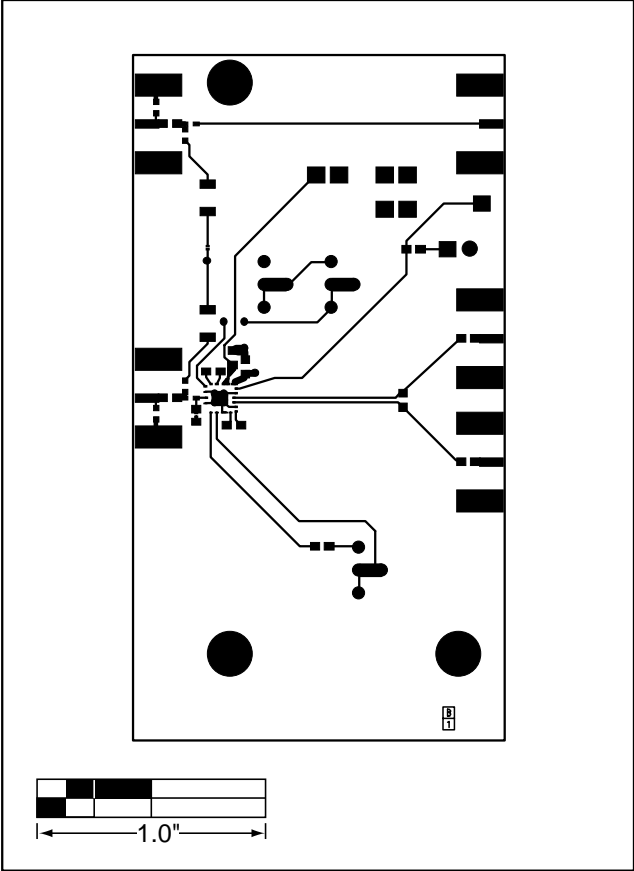


Figure 3. MAX3866 EV Kit PC Board Layout—Component Side

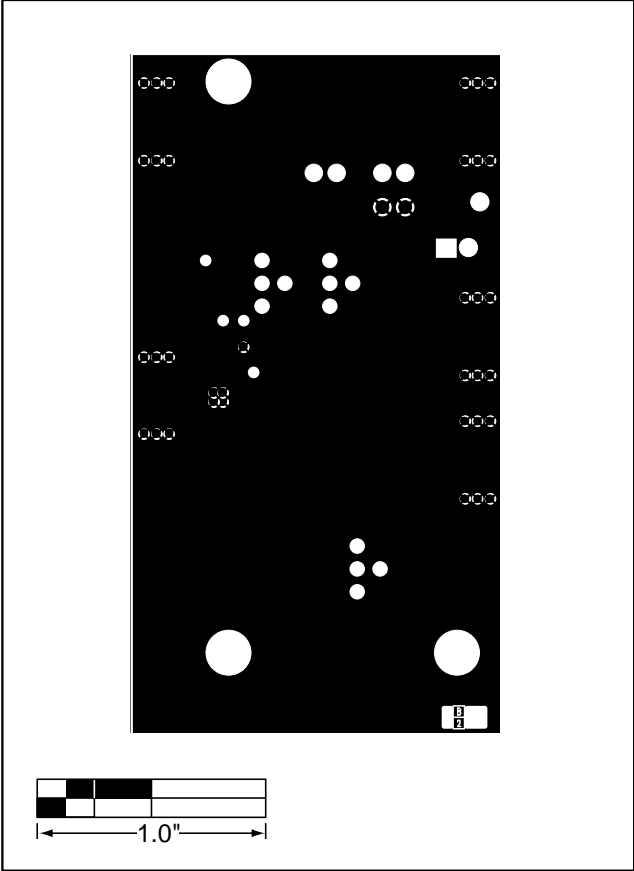


Figure 4. MAX3866 EV Kit—Ground Plane

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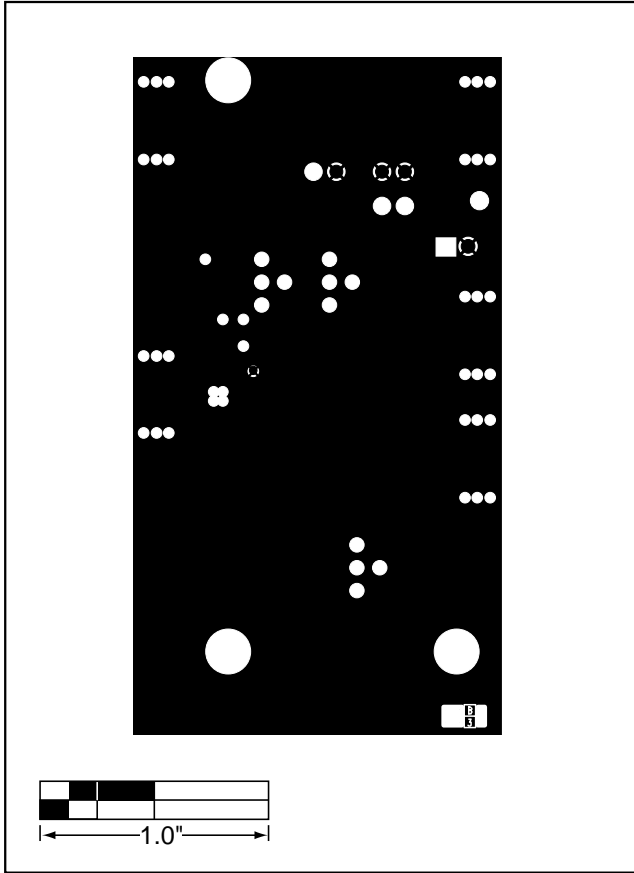


Figure 5. MAX3866 EV Kit—Power Plane

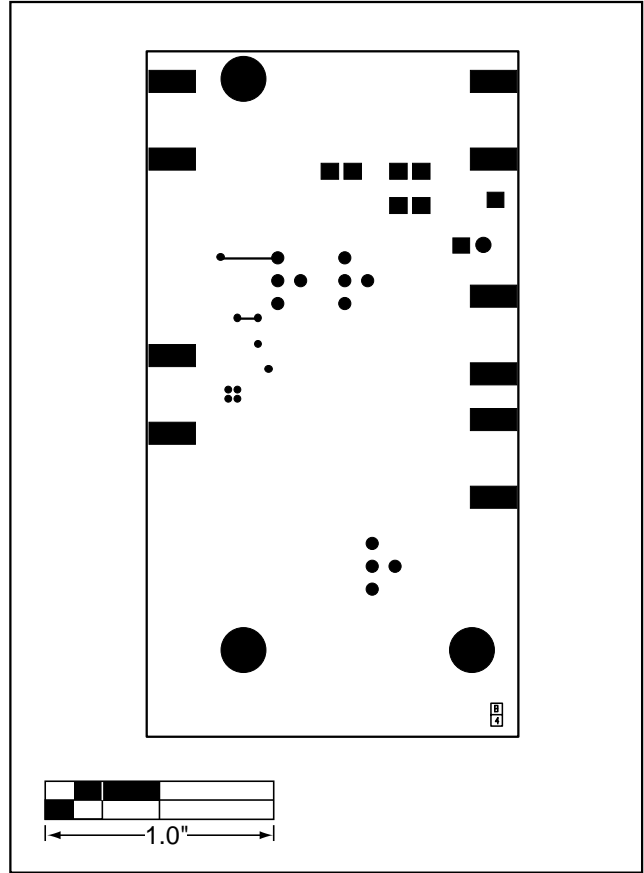


Figure 6. MAX3866 EV Kit PC Board Layout—Solder Side

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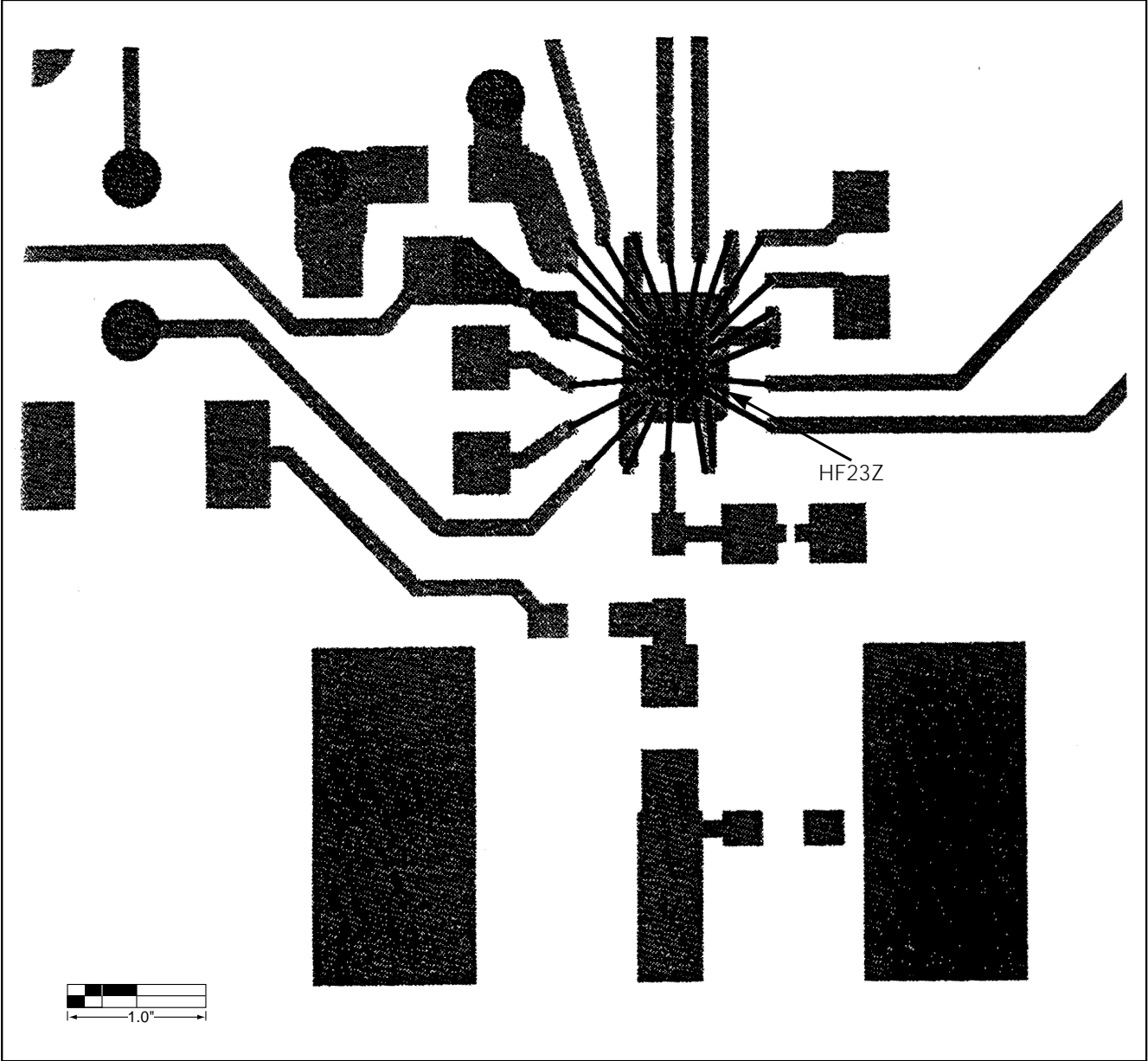


Figure 7. MAX3866 EV Kit—Bond Diagram

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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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