19-1451; Rev 0; 3/99

MAXIM

MAX3866 Evaluation Kit

Evaluates: MAX3866

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	1µH inductor Coilcraft 1008CS-102 XKBB, 10%
R1	1	500Ω potentiometer
R2	1	150Ω, 1% resistor (0402)
R3, R7	2	1kΩ, 1% resistors (0402)
R5, R8	2	49.9Ω, 1% resistors (0402)
R6	1	1kΩ potentiometer
R9	1	1MΩ 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 50Ω 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 50Ω SMA cables from a 50Ω 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 50Ω 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 50Ω cable between the output of a 50Ω 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 / 1kΩ / 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.

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 *Figure 1*.)
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 *Typical Operating Characteristics* section (Assert/Deassert vs. R_{PD}) 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.

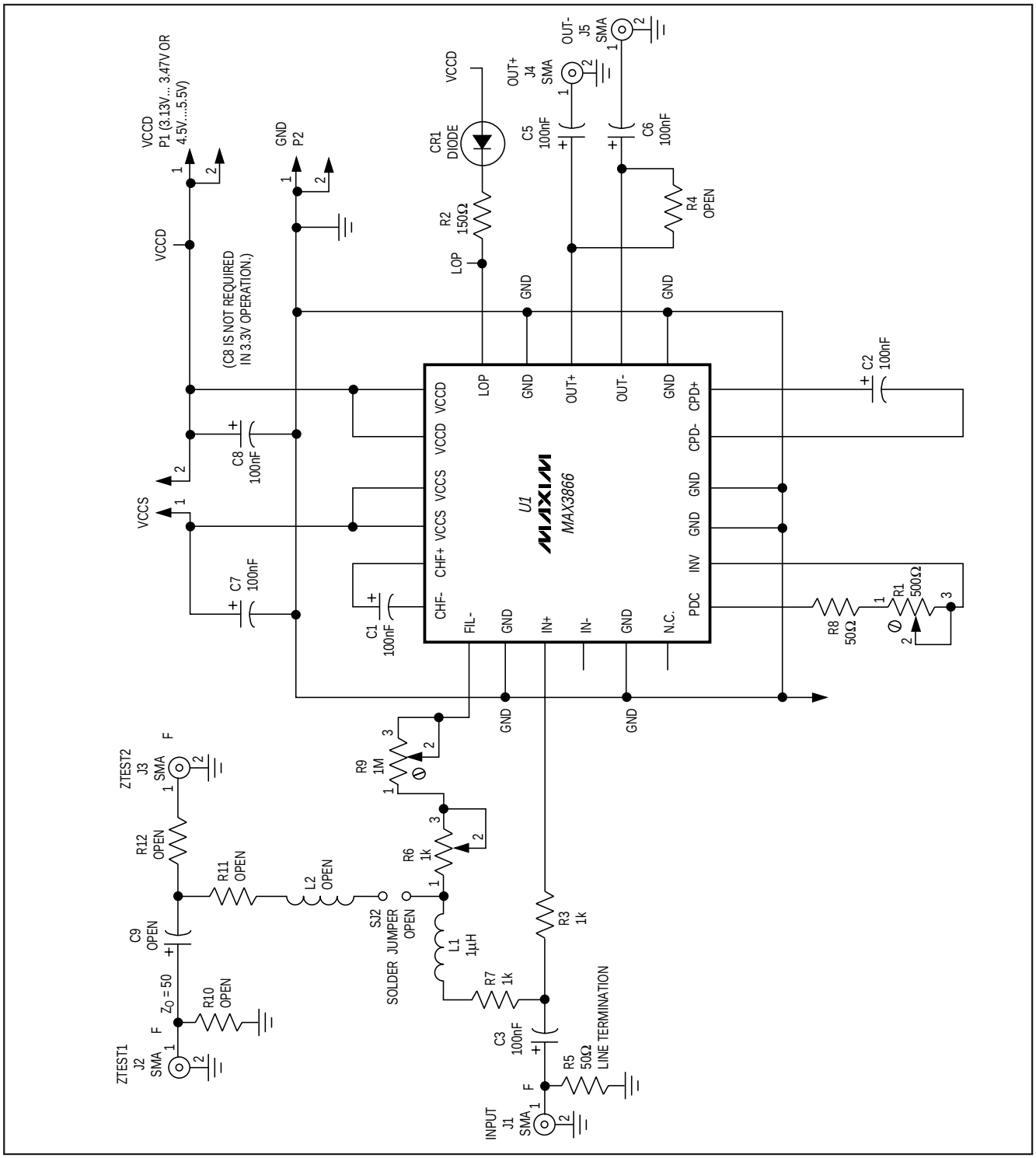

Figure 1. MAX3866 EV Kit Schematic

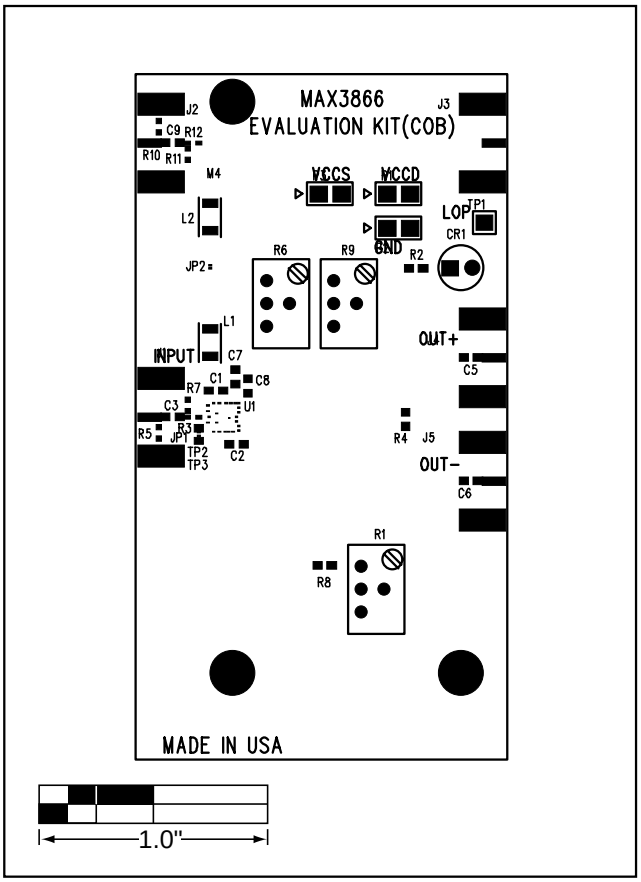

Figure 2. MAX3866 EV Kit Component Placement Guide—Component Side

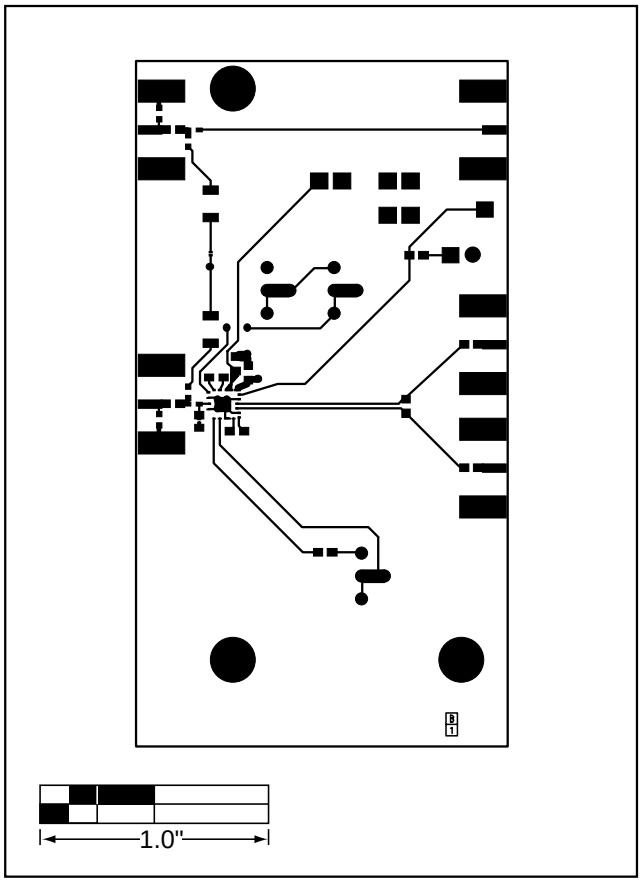

Figure 3. MAX3866 EV Kit PC Board Layout—Component Side

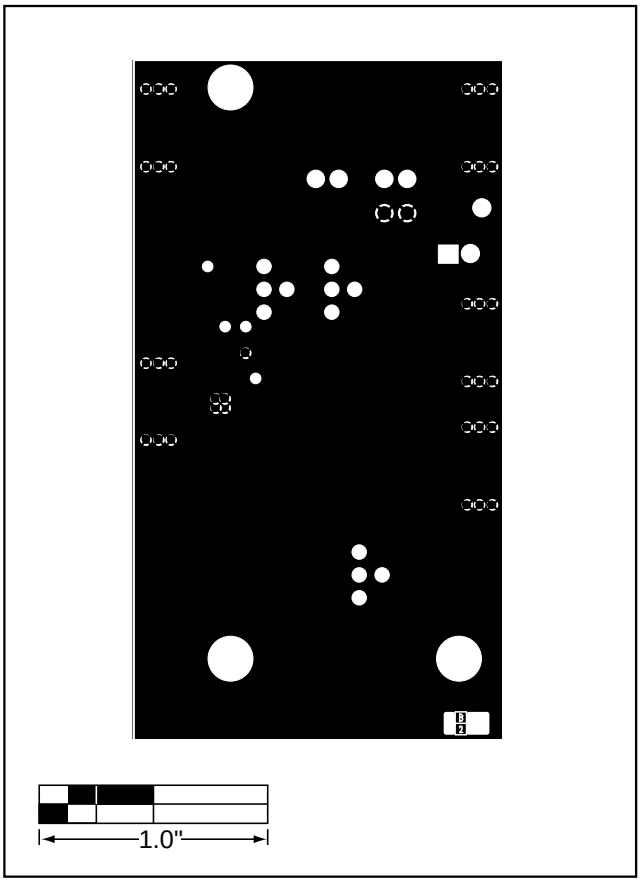

Figure 4. MAX3866 EV Kit—Ground Plane

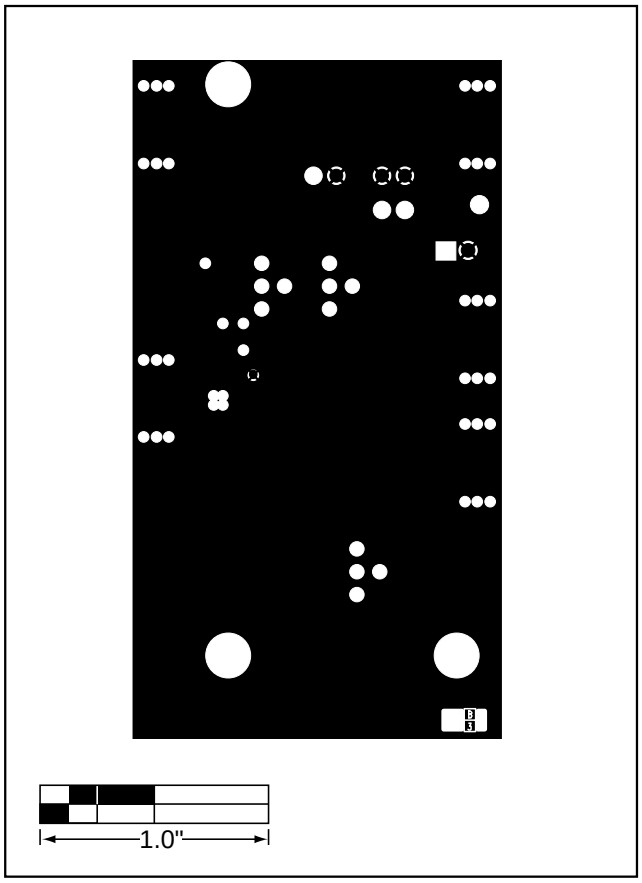

Figure 5. MAX3866 EV Kit—Power Plane

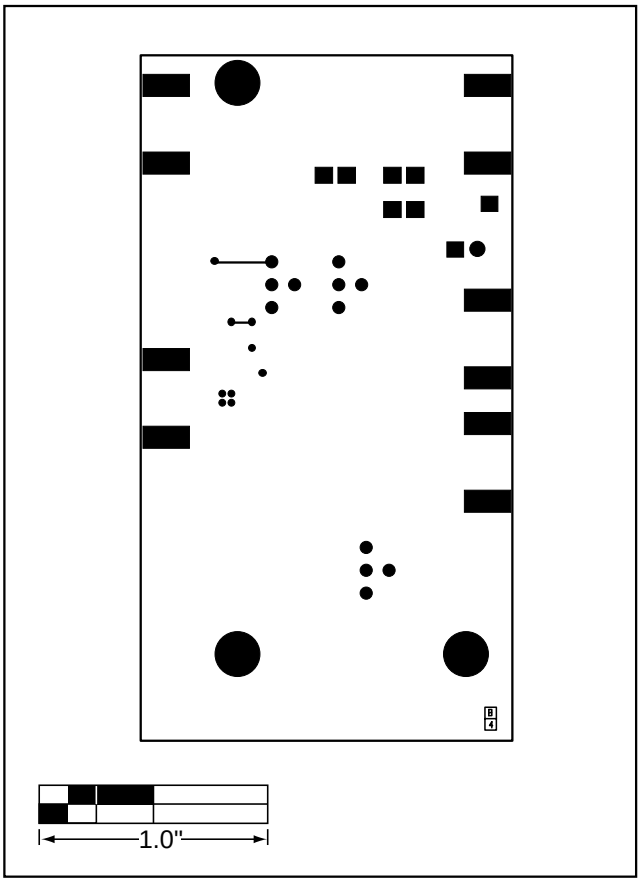

Figure 6. MAX3866 EV Kit PC Board Layout—Solder Side

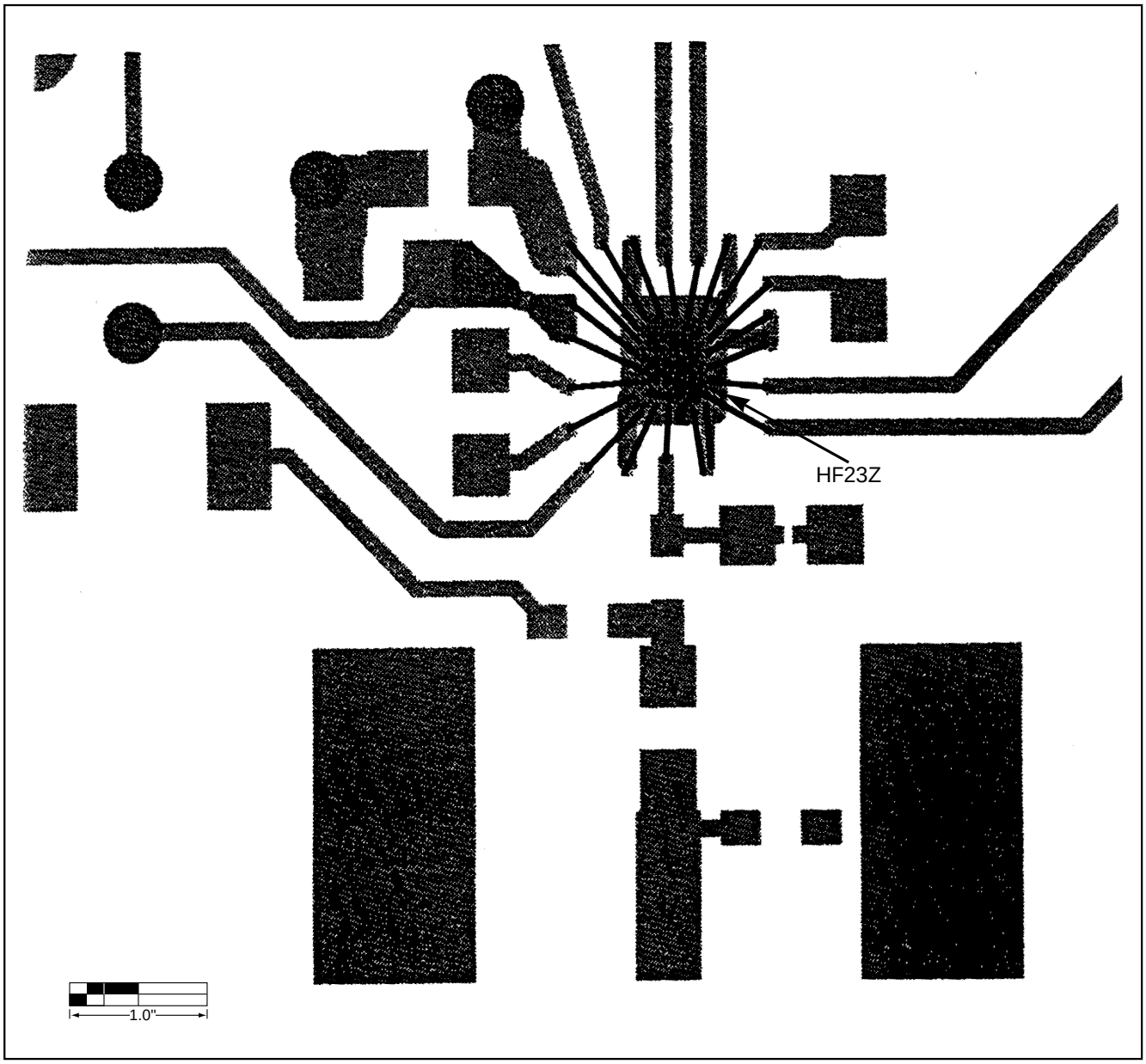

Figure 7. MAX3866 EV Kit—Bond Diagram

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