

MAXIM

MAX3746 Evaluation Kit

General Description

The MAX3746 evaluation kit (EV kit) simplifies evaluation of the MAX3746 limiting amplifier. The EV kit allows for quick threshold level selections, provides a RSSI output signal (when used with the MAX3744) and includes a calibration circuit. The MAX3746 EV kit is fully assembled and tested.

Component List

| DESIGNATION | QTY | DESCRIPTION |
|----------------------------------|-----|--|
| C1, C2, C7, C10 | 4 | 1000pF 10% 10V min ceramic capacitor (0201) |
| C3, C4, C6, C8, C9, C11, C14-C18 | 12 | 0.1 μ F, 10% 10V min ceramic capacitor (0402) |
| C20 | 1 | 2.2 μ F, 10%, 10V min ceramic capacitor (0805) |
| C21 | 1 | 33 μ F 10V min 5% tantalum |
| R1 | 1 | 30.1k Ω , 1% resistor (0402) |
| R3 | | 2k Ω , 1% resistor (0402) |
| R4 | 1 | 14k Ω , 1% resistor (0402) |
| R5 | 1 | 24.9k Ω , 1% resistor (0402) |
| R6 | 1 | 4.75k Ω , 1% resistor (0402) |
| R7 | 1 | 10k Ω , 1% resistor (0402) |
| R8 | 1 | 3.01k Ω , 1% resistor (0402) |
| L1 | 1 | 1.2 μ H, 5% Chip inductor |
| JU2-JU5, JU9, | 5 | Jumper blocks, 2 Pins 0.1" spacing |
| JU6, JU7 | 3 | Jumper blocks, 3 Pins 0.1" |
| JU8 | 1 | Jumper block, 3 Pins +1 Pin 0.1" |
| TP2, TP3, TP9, TP10 | 4 | Test point Digikey 5000K-ND |
| JU2-JU9 | 8 | Shunts |
| J1-J8 | 8 | SMA edge mount tab Johnson 142-0701-851 |
| U1 | | MAX3746EGE |
| | 1 | MAX3746 Rev A Evaluation Circuit Board |

Features

- ◆ Fully Assembled and Tested
- ◆ Test Point for Easy Monitoring of LOS
- ◆ Polarity Reversal Control
- ◆ Jumpers Allow Quick Selection for Loss of Signal Threshold Level

Ordering Information

| PART | TEMP. RANGE | IC PACKAGE |
|--------------|----------------|------------|
| MAX3746EVKIT | -40°C to +85°C | 16 QFN |

Component Suppliers

| SUPPLIER | PHONE | FAX |
|-----------|--------------|--------------|
| AVX | 843-444-2863 | 843-626-3123 |
| Coilcraft | 847-639-6400 | 847-639-1469 |
| Murata | 415-964-6321 | 415-964-8165 |

Note: Please indicate that you are using the MAX3746 when ordering from these suppliers.

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Quick Start

- 1) Connect OUT+ and OUT- to a 50 Ω terminated oscilloscope.
- 2) Connect IN+ and IN- to a 500mV_{P-P}, 3.2Gbps differential data stream.
- 3) Remove all shunts.
- 4) Shunt JU8 to V_{CC} so that there is no inversion of signal polarity. (OUTPOL, V_{CC}). Figure 2 shows the jumper diagram for the board.
- 5) Shunt JU4 connecting R3 = 13k Ω (R_{TH}).
- 6) Shunt JU6 connecting R7 = 10k Ω (R_{LOS}).
- 7) Shunt JU5 connecting pin LOS to DISABLE.
- 8) Connect TP2 to V_{CC}.
- 9) Connect the power-supply ground to the GND pad and then connect a +3.3V power supply to the V_{CC}.
- 10) Observe a limited signal at the output, roughly 0.8V_{P-P}.
- 11) Lower the amplitude of the input signal from 500mV_{P-P} to 15mV_{P-P} or less. The output signal is squelched.

Adjustment and Control Descriptions (see Quick Start first)

| NAME | FUNCTION |
|---------------|---|
| JU2, JU3, JU4 | Selects loss of signal assert/deassert level. |
| JU5 | Shunt to connect the LOS pin to the DISABLE pin (Squelch) |
| JU6 | Shunt to connect series resistor from LOS to test point TP2. Make sure TP2 is connected to a positive supply. |
| JU7 | Disable. Shunting to V _{CC} holds the outputs static. |
| JU8 | Shunt center pin (OUTPOL) to V _{CC} for full-swing non-inverted output signal. Shunt to GND to have an inverted full-swing output. Leave open for reduced-amplitude non-inverted output. Connect to 30k Ω for reduced-amplitude inverted output signal. |
| JU9 | Shunt to connect RSSI output to RSSI resistor R8. |

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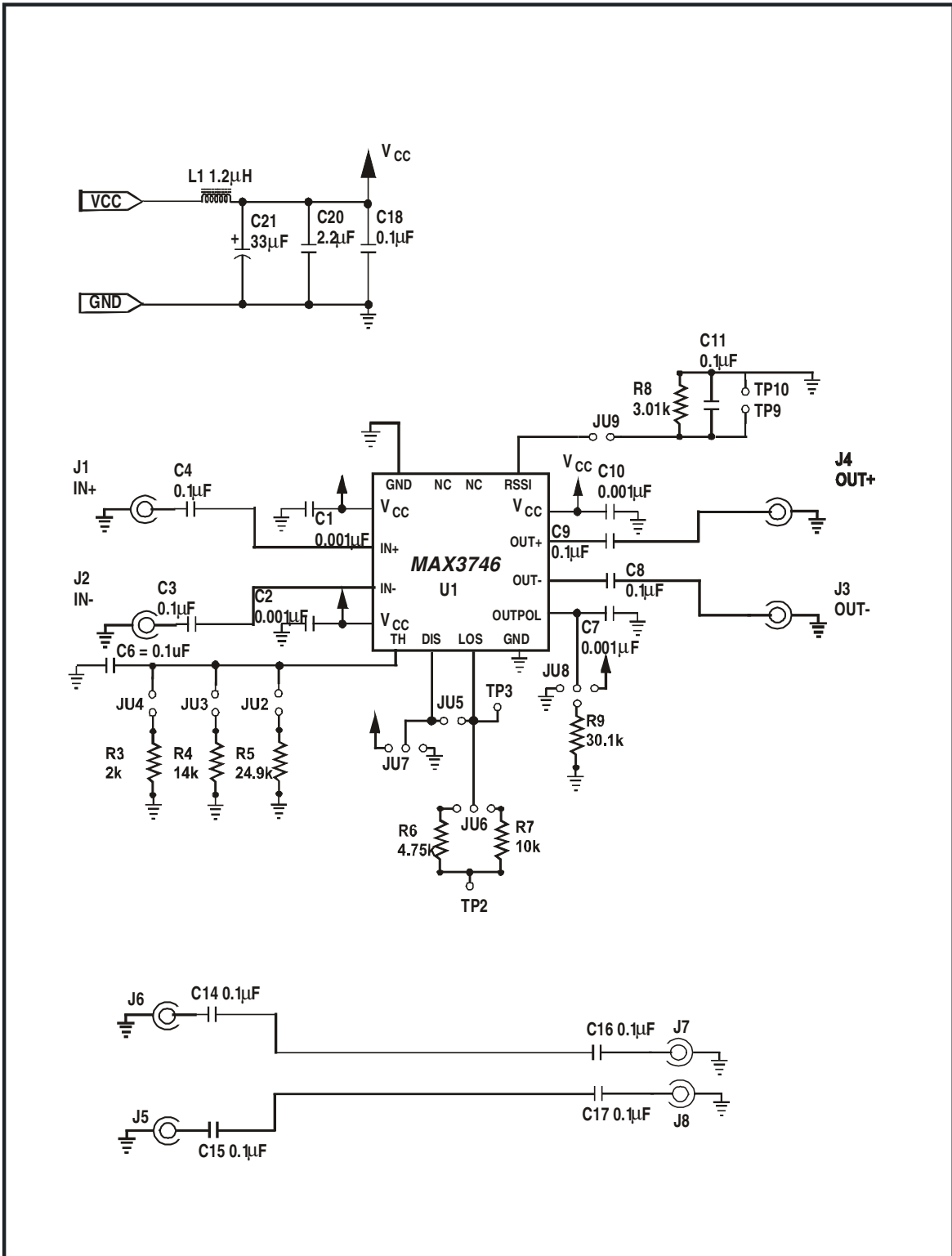


Figure 1. MAX3746 electrical schematic.

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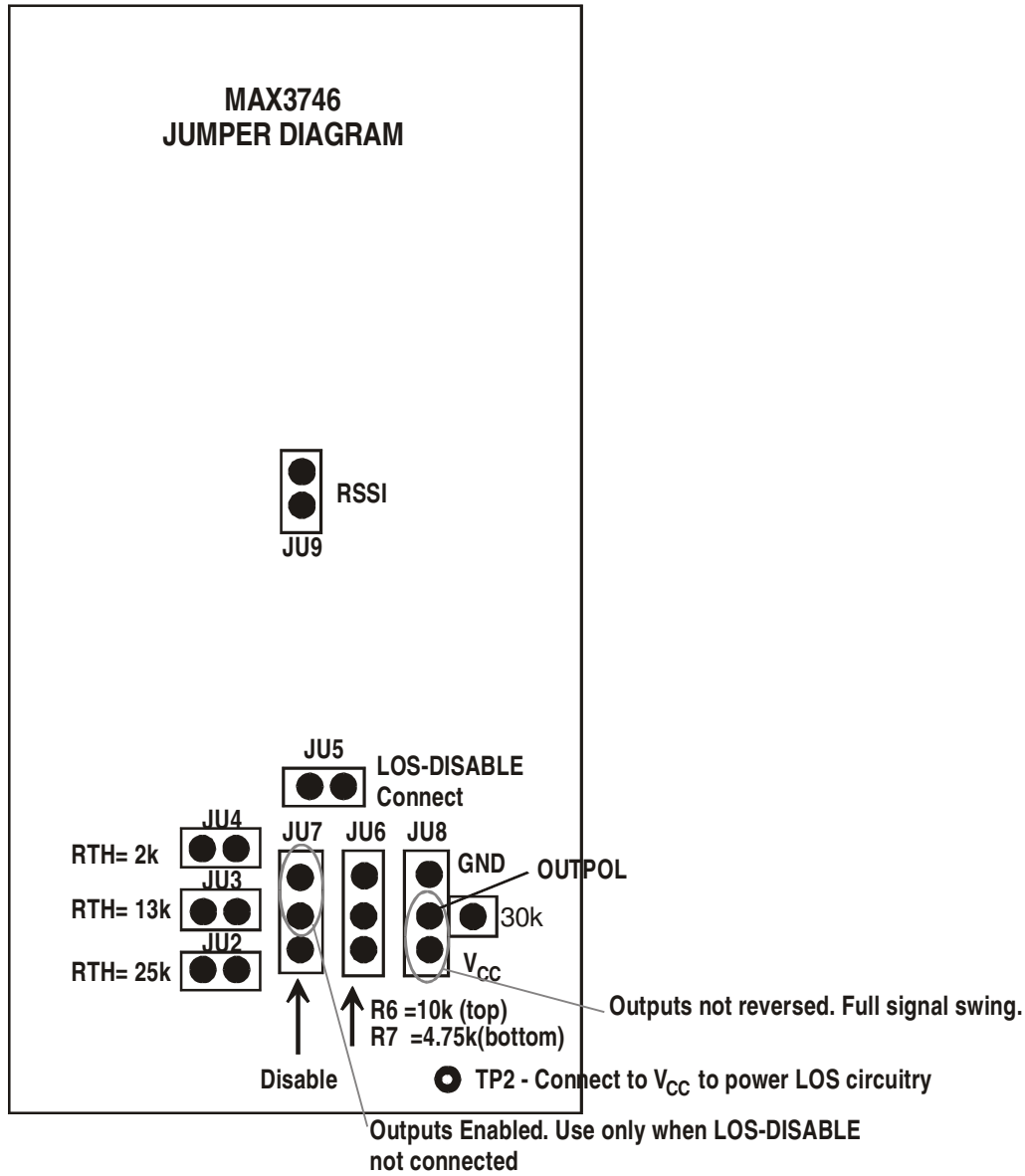


Figure 2. Jumper Diagram.

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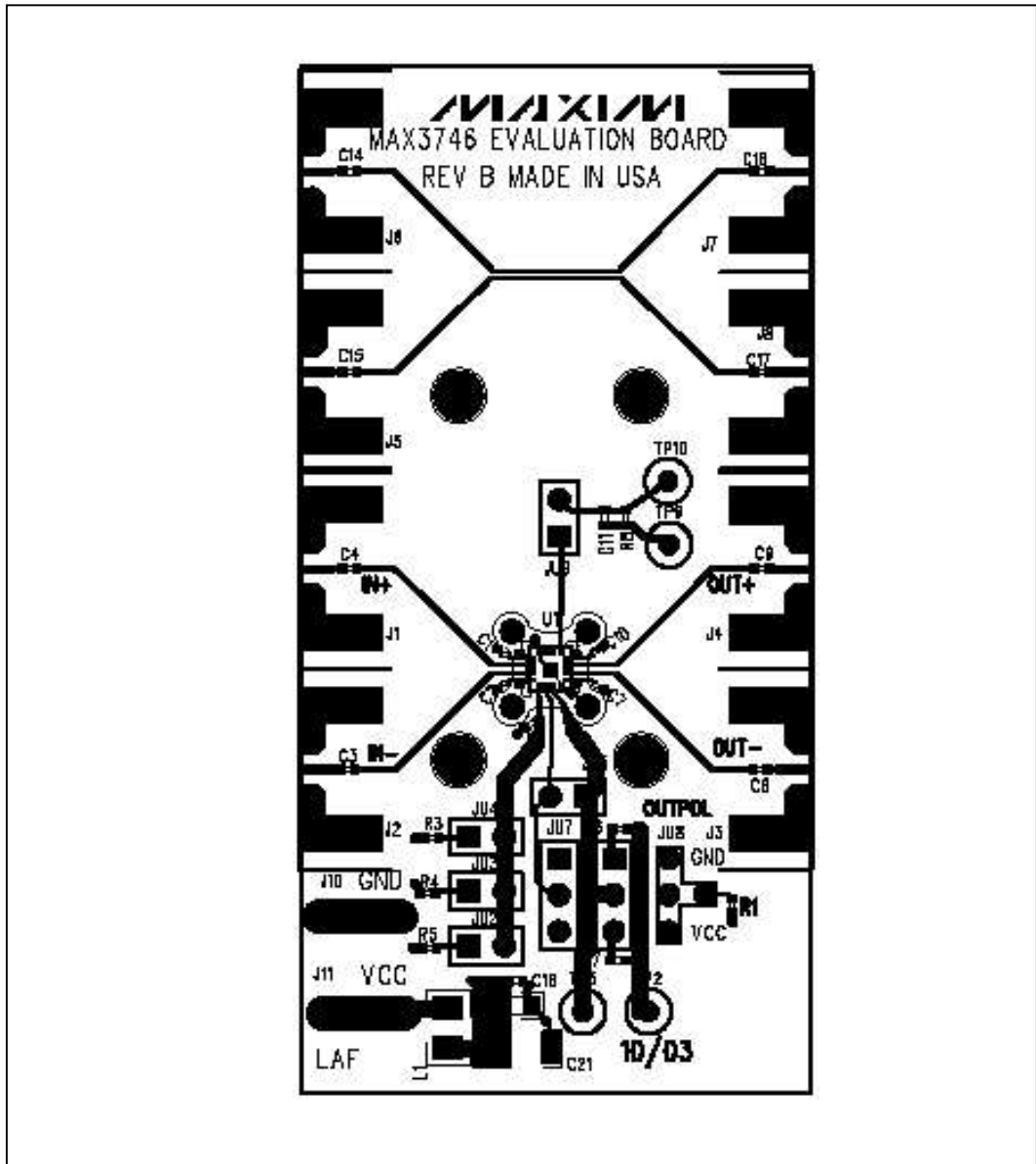


Figure 3. MAX3746 EV Kit Component Placement Guide – Component Side (2X)

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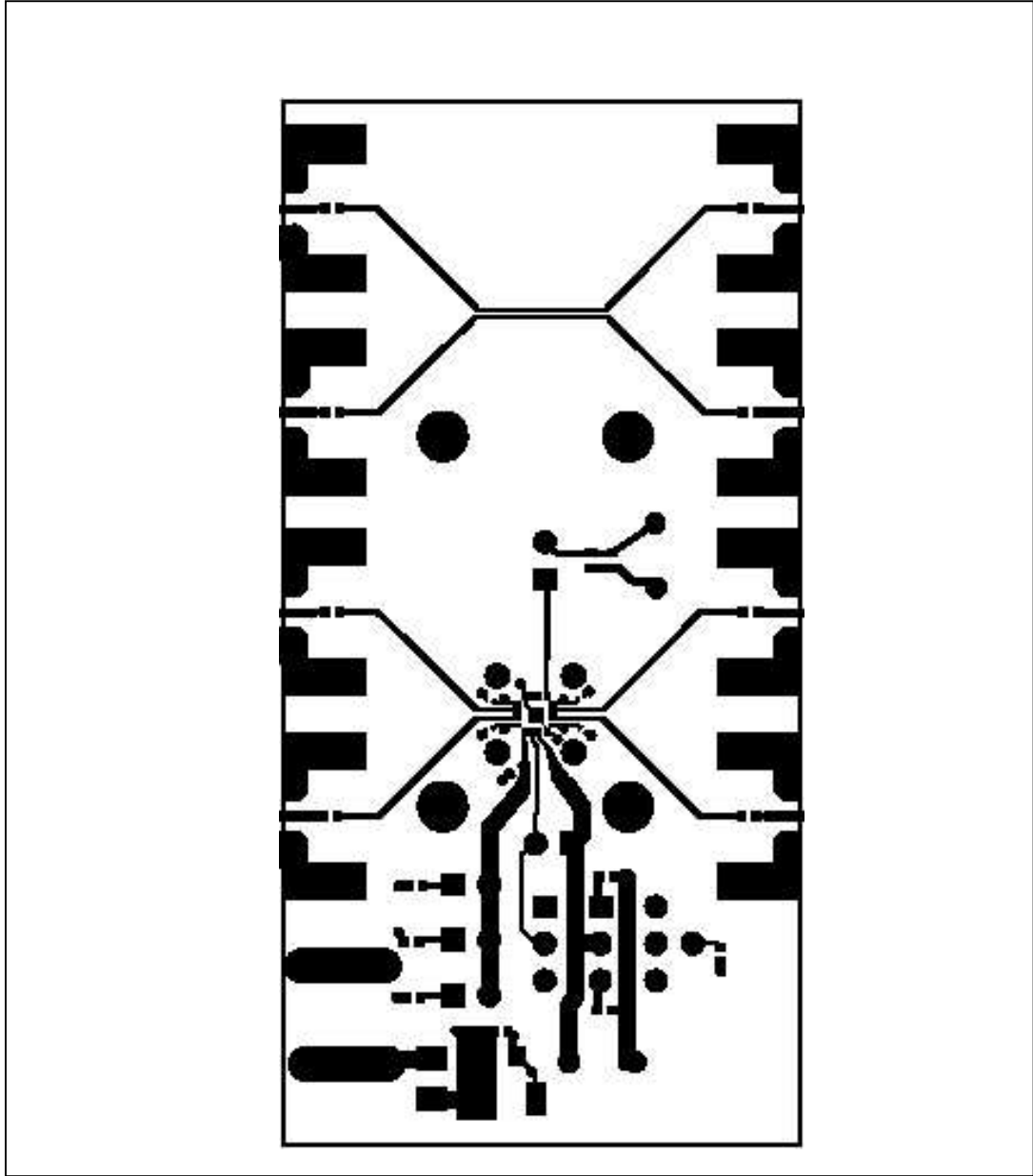


Figure 4. MAX3746 EV Kit PC Board Layout – Component Side (2X)

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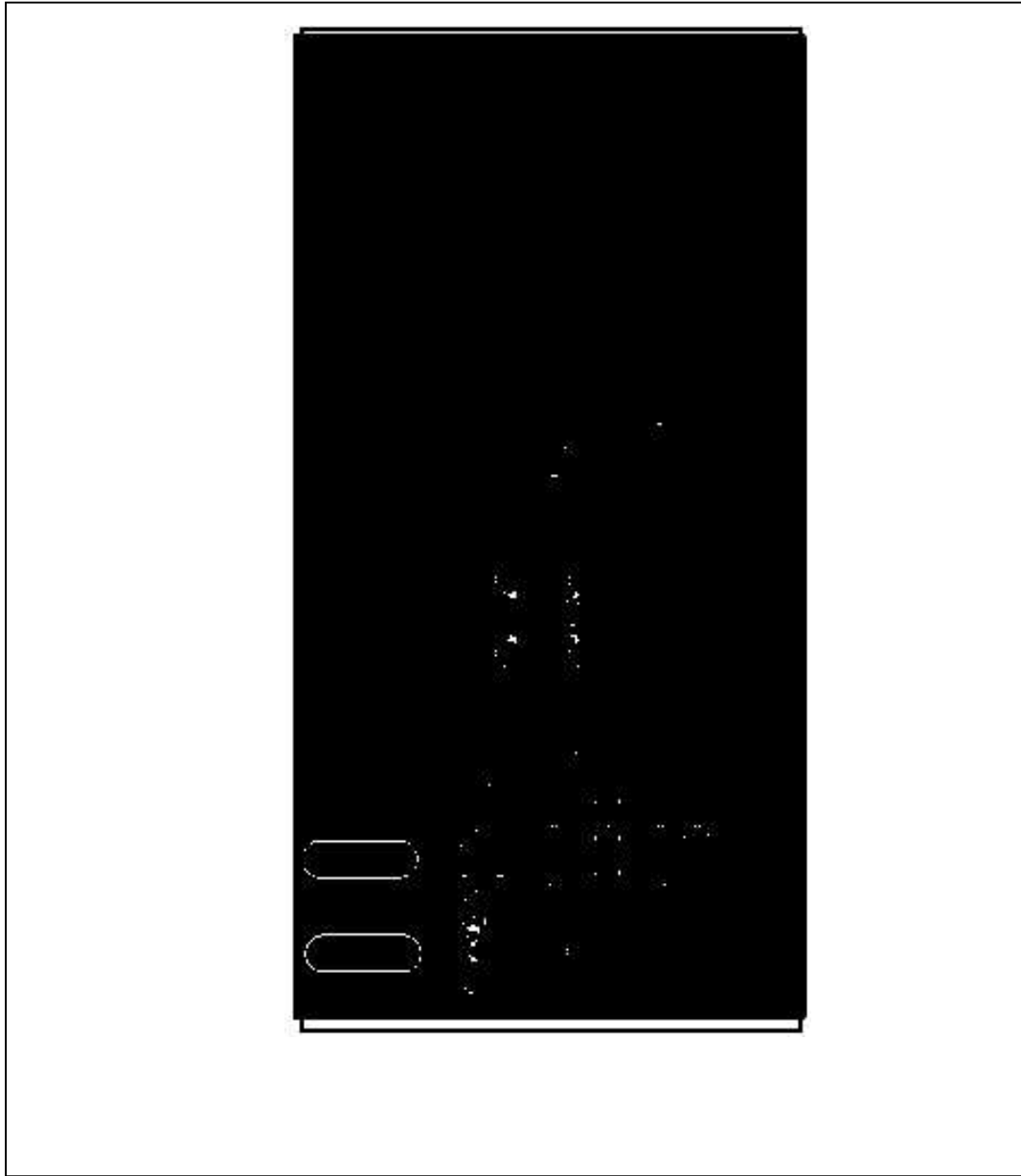


Figure 5. MAX3748A EV Kit PC Board Layout – Ground Plane (2X)

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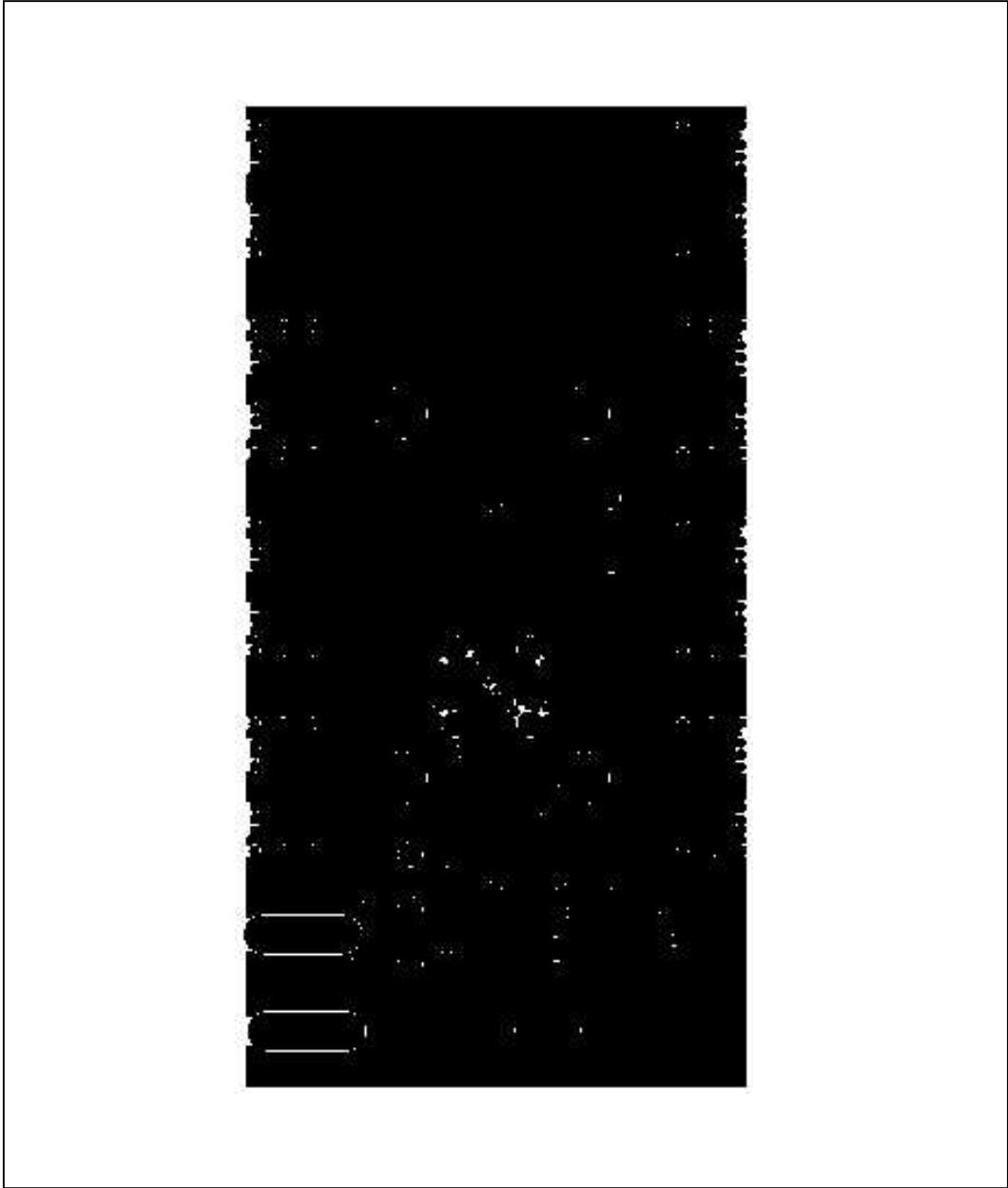


Figure 6. MAX3746 EV Kit PC Board Layout – Power Plane (2X)

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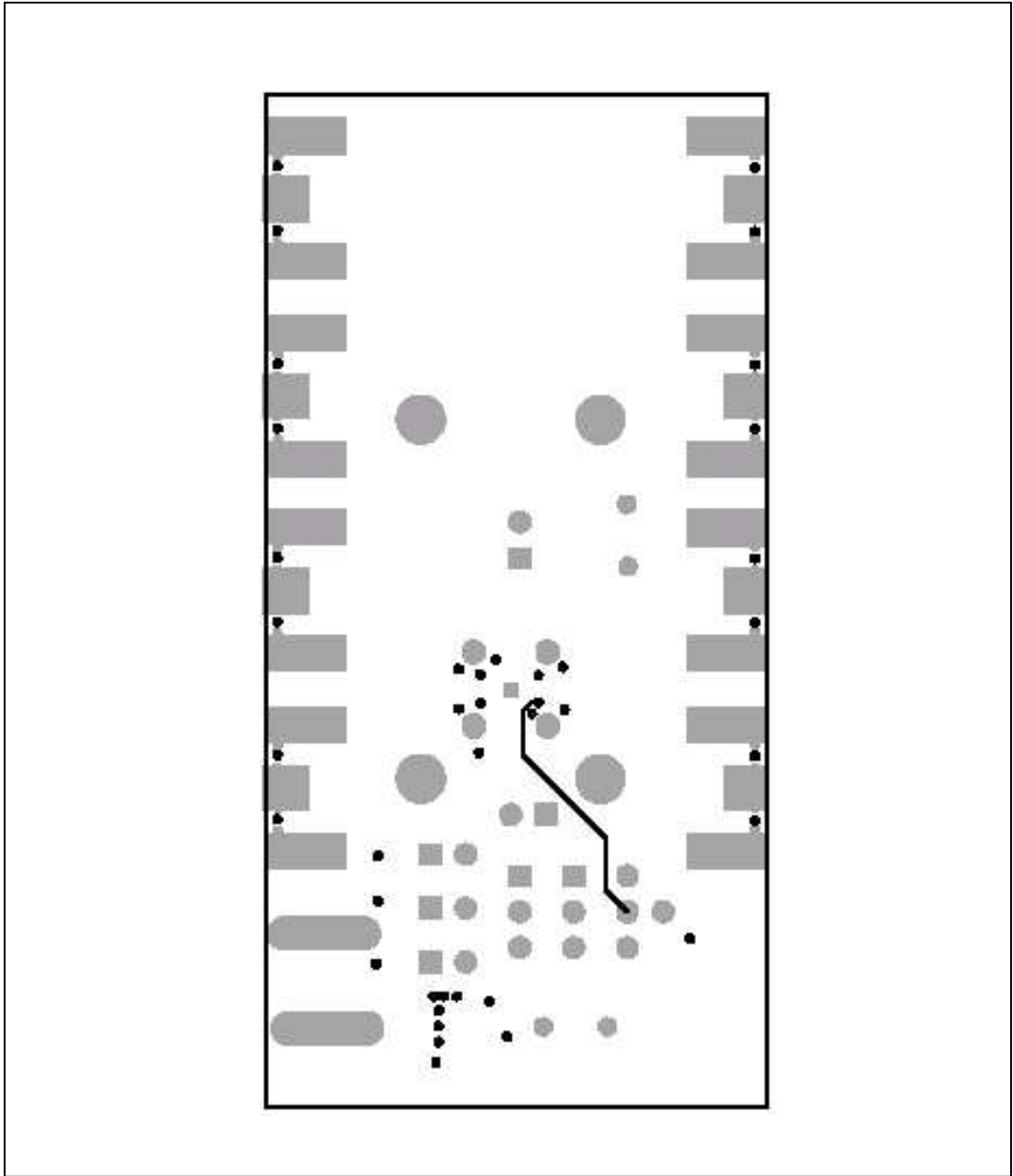


Figure 7. MAX3746 EV Kit PC Board Layout – Solder Side (2X)

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