MAX464/MAX466 Evaluation Kit

Evaluates: MAX464/MAX466

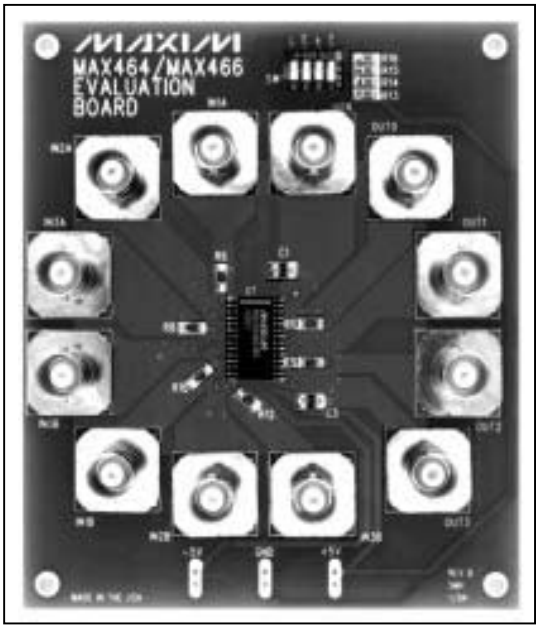
General Description

The MAX464/MAX466 evaluation kit (EV kit) simplifies the evaluation of the MAX464 and MAX466 quad buffered video switches. Both ICs combine high-accuracy amplifiers with high-performance video switches. Amplifier gains are set to 1V/V for the MAX464 and 2V/V for the MAX466. Fast switching times, low differential phase/gain errors, and 75Ω output drivers make the MAX464 and MAX466 ideal for all video applications.

Component List

DESIGNATION	QTY	DESCRIPTION
U1	1	Maxim MAX466CWI
C1, C2, C3	3	0.33µF ceramic capacitors
R1-R12	12	75Ω, 5% resistors
R13-R16	4	10kΩ, 5% resistors
SW1	1	4-position DIP switch
IN0A-IN3A, IN0B-IN3B, OUT0-OUT3	12	BNC jacks
None	1	MAX464/MAX466 PC board
None	1	MAX463–MAX470 data sheet

EV Kit



Features

- **100MHz Unity-Gain Bandwidth**
- **75Ω Output Impedance**
- **300V/µs Slew Rate (MAX466)**
- **20ns Channel Switching Time**
- **Logic Disable Mode:**
  High-Z Outputs
  Reduced Power Consumption

Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX466EVKIT-SO	0°C to +70°C	Surface Mount

Quick Start

The MAX464/MAX466 EV kit is fully assembled and tested. Follow the steps below to verify board operation. **Do not turn on the power supply until all connections are completed.**

1) The circuit requires supply voltages of ±5V. Connect ±5V supplies to the corresponding pads marked +5V and -5V. Connect power-supply ground to the pad marked GND.
2) Apply a signal of ±1.25V maximum to the BNC jack input marked IN0A.
3) Connect the output marked OUT0A to an oscilloscope through a terminated 75Ω cable.
4) On DIP switch SW1, set LE, $\overline{EN}$, A0, and $\overline{CS}$ to the on position (logic 0).
5) Turn on the power supply and verify the output signal on the oscilloscope.
6) Refer to the *Amplifier and Channel Selection* section for additional modes of operation.

Detailed Description

The MAX464/MAX466 operate on ±5V, allowing input and output signals levels of ±2.5V. BNC jacks are provided for all input and output signals. Channel selection is controlled by a single TTL-compatible input pin, A0.

The MAX464 is configured for unity gain. The MAX466 is configured for a gain of 2V/V, making it ideal for driving back-terminated coaxial cable. The standard EV kit comes with the MAX466 installed. To evaluate a MAX464, contact Maxim's Sample Department to order a MAX464CWI sample. To modify the board for the MAX464, simply replace the MAX466 with the MAX464. No other changes are necessary.

Amplifier and Channel Selection

A 4-position DIP switch provides easy control of the MAX464/MAX466 logic inputs. The A0, $\overline{CS}$, $\overline{EN}$, and LE control lines have 10kΩ pull-up resistors to +5V. The DIP switch is oriented so that switch on = logic 0 and switch off = logic 1. Tables 1a and 1b are the truth tables for the control inputs. Refer to the *Digital Interface* section of the MAX463-MAX470 data sheet for further details.

Driving Coaxial Cable

High-speed performance, excellent output current capability, and an internally fixed gain of 2V/V make the MAX466 ideal for driving 50Ω or 75Ω back-terminated coaxial cables. The EV kit is configured with 75Ω terminating resistors on all inputs, and 75Ω back-terminating resistors on all outputs for 75Ω coaxial cable matching. Using the MAX466 results in an overall gain of one at the terminated cable's output. With the MAX464 installed, the overall gain is reduced to one-half the input signal when driving a terminated cable.

Layout Considerations

The MAX464/MAX466 EV kit layout is optimized for high-speed signals. All signal traces are kept the same length and as short as possible to maintain phase relationship and minimize inductance. Separate AC grounds surround each signal trace, to reduce crosstalk. Normally, latch enable (LE) is hard-wired to either V+ or ground near the device to prevent crosstalk to IN0A. Capacitor C1 is included on the EV board to shield IN0A from the logic input traces, which are located near IN0A. For further layout recommendations, see the *Power-Supply Bypassing and Board Layout* section of the MAX463-MAX470 data sheet.

Table 1a. Amplifier and Channel Selection with Switch LE = HIGH (Switch = OFF)

$\overline{CS}$	$\overline{EN}$	A0	FUNCTION
0	0	0	Enables amplifier outputs; selects channel A
0	0	1	Enables amplifier outputs; selects channel B
0	1	X	Disables amplifiers; outputs high-Z
1	X	X	Latches all input registers; changes nothing

Table 1b. Amplifier and Channel Selection with Switch LE = LOW (Switch = ON)

$\overline{CS}$	$\overline{EN}$	A0	FUNCTION
0	0	0	Enables amplifier outputs; selects channel A
0	0	1	Enables amplifier outputs; selects channel B
0	1	0	Disables amplifiers; outputs high-Z; A0 register = channel A
0	1	1	Disables amplifiers; outputs high-Z; A0 register = channel B
1	0	X	Enables amplifier outputs; latches A0 register; programs outputs to channel A or B according to the setting of A0 at $\overline{CS}$'s last edge.
1	1	X	Disables amplifiers; outputs high-Z

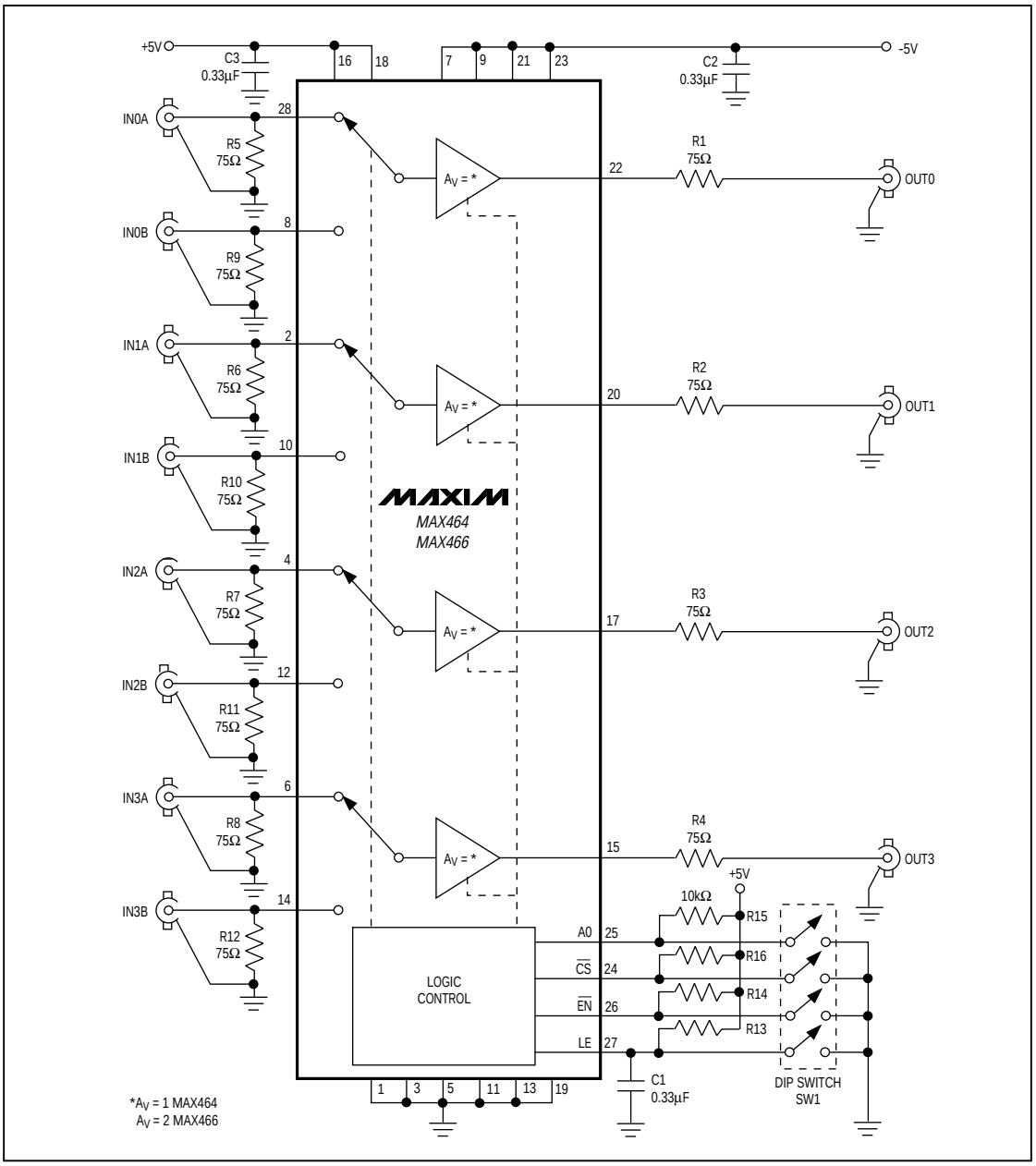


Figure 1. MAX464/MAX466 EV Kit Schematic

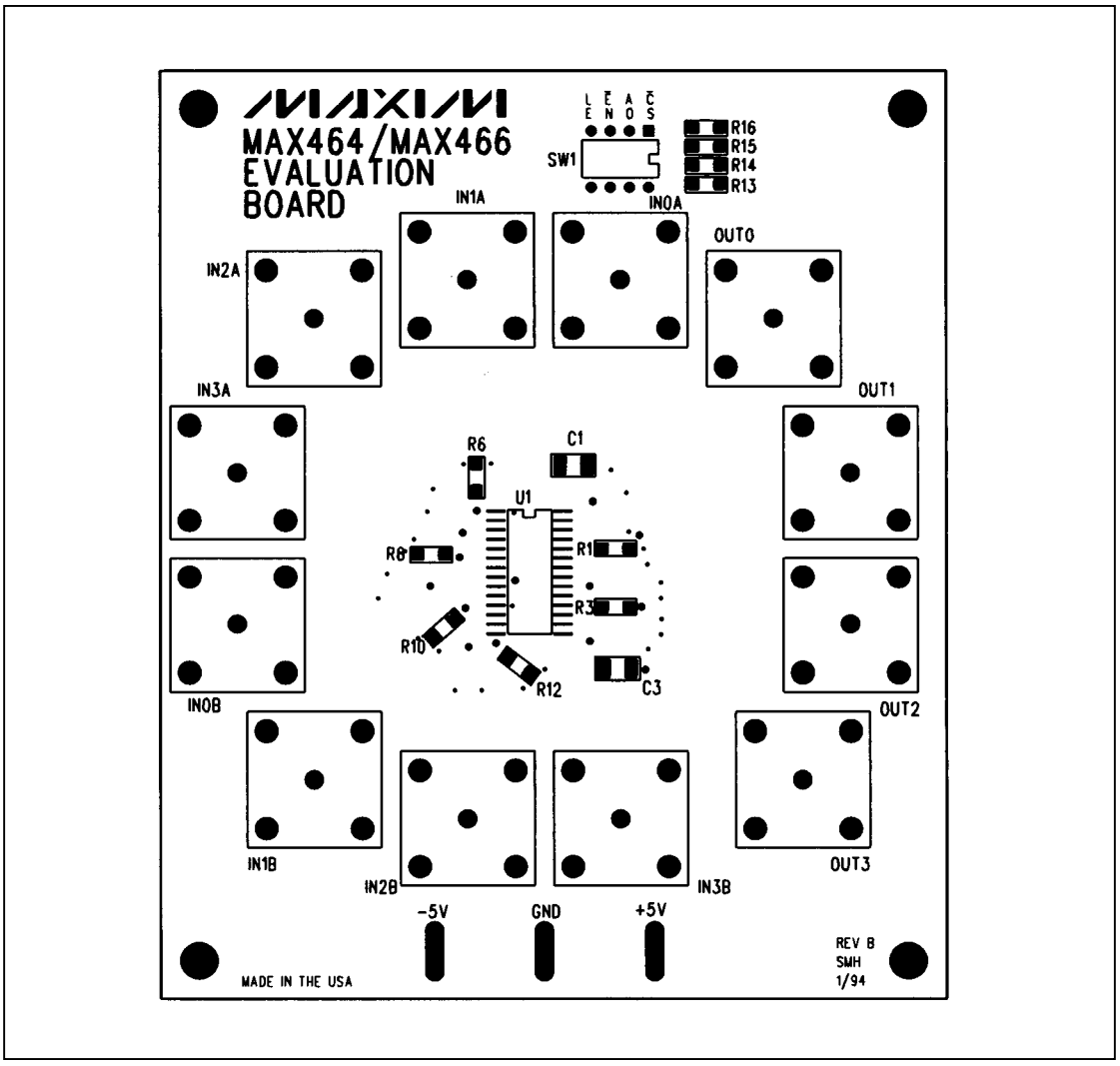


Figure 2. MAX464/MAX466 EV Kit Component Placement Guide—Component Side

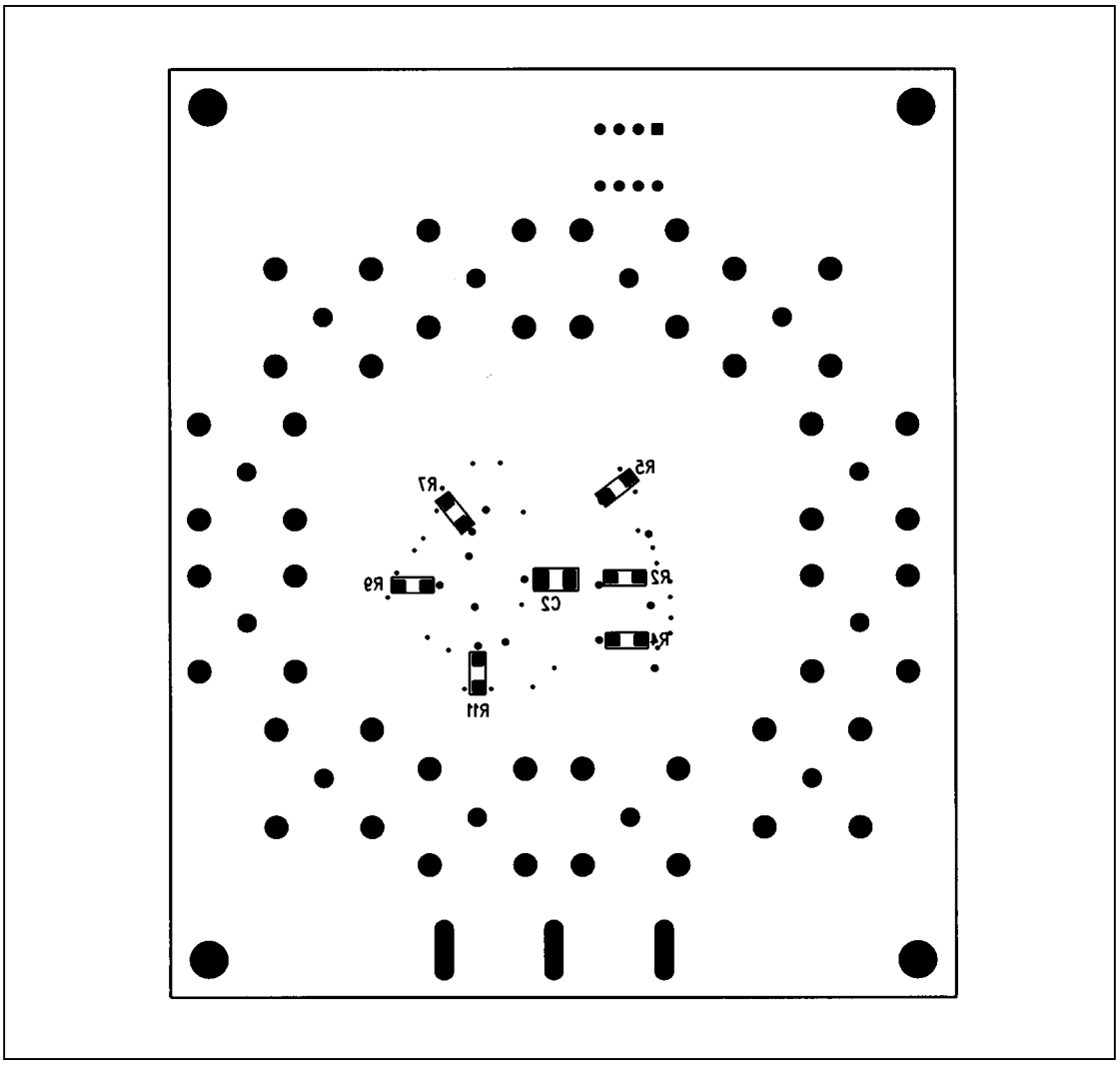


Figure 3. MAX464/MAX466 EV Kit Component Placement Guide—Solder Side

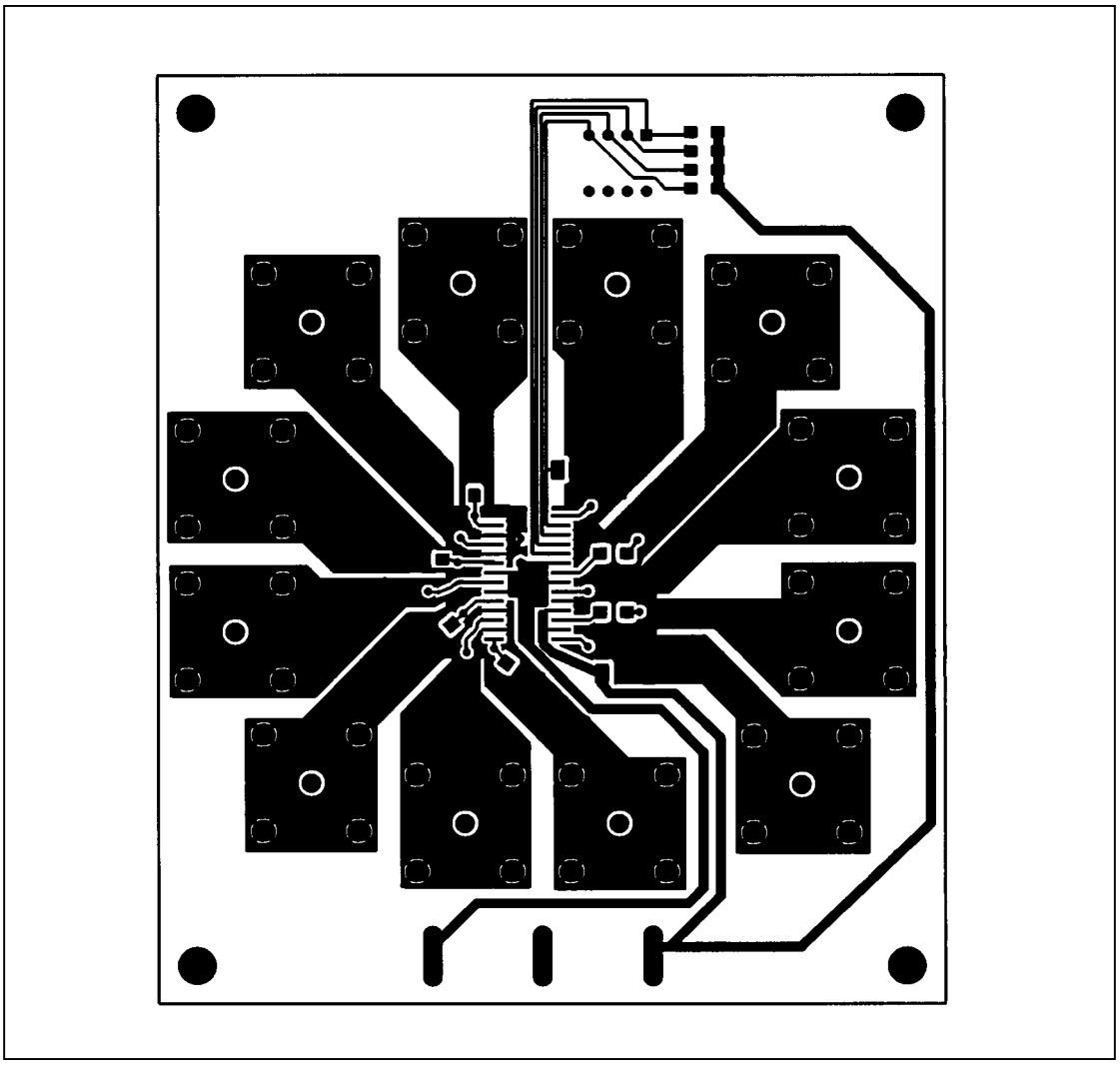


Figure 4. MAX464/MAX466 EV Kit PC Board Layout—Component Side

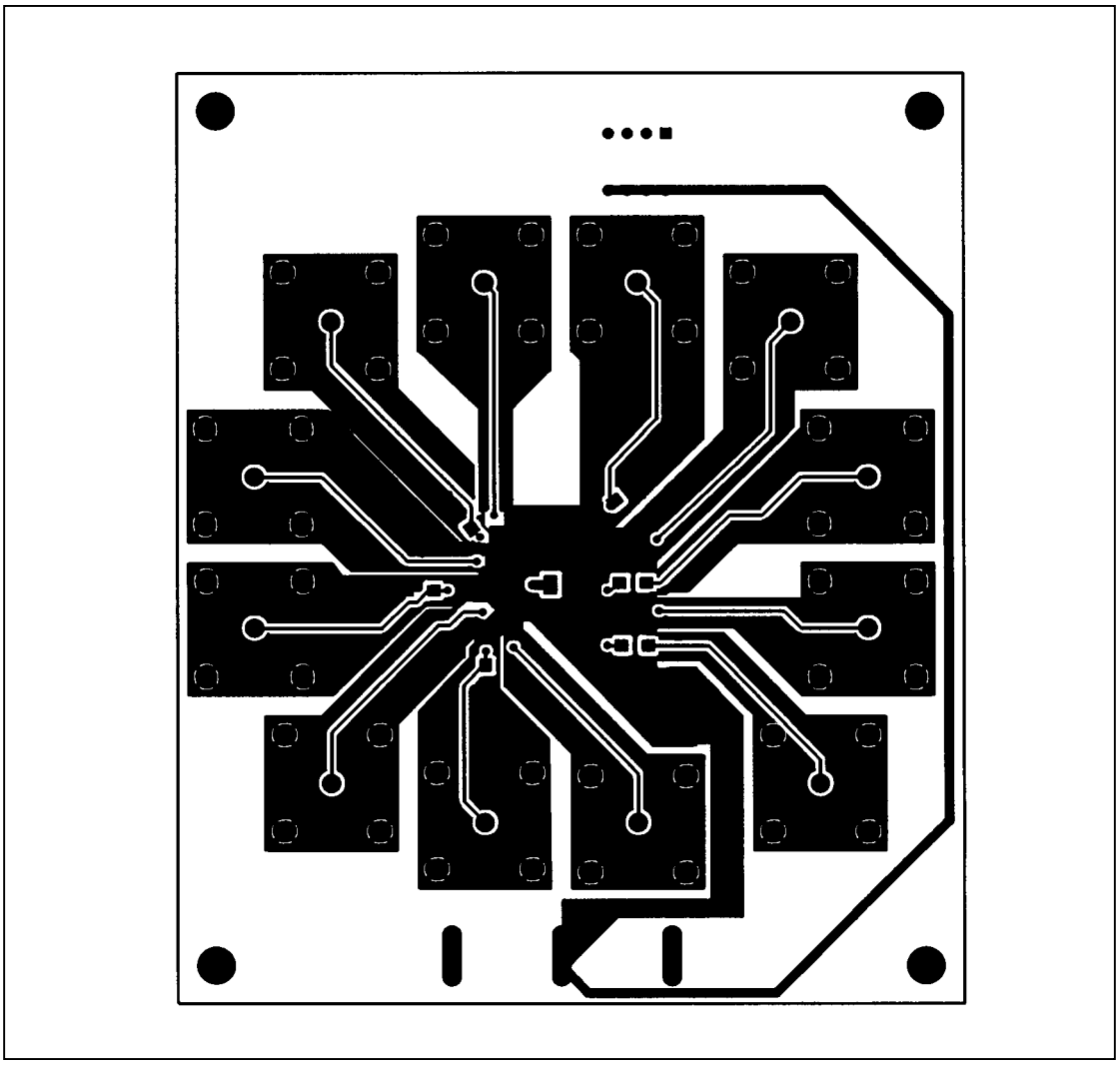


Figure 5. MAX464/MAX466 EV Kit PC Board Layout—Solder Side

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