

# MAXIM

## MAX3681 Evaluation Kit

Evaluates: MAX3681

### General Description

The MAX3681 evaluation kit (EV kit) simplifies evaluation of the MAX3681 622Mbps, SDH/SONET 1:4 deserializer. The EV kit requires only a single +3.3V supply and includes all the external components necessary to interface with 3.3V PECL and LVDS logic. The board can be connected directly to the output of a clock-and-data-recovery circuit (such as the MAX3675) and to the input of an LVDS device (such as an overhead termination circuit). A signal generator or stimulus system can be used with an oscilloscope, to evaluate the MAX3681's basic functionality.

### Ordering Information

| PART            | TEMP. RANGE    | BOARD TYPE    |
|-----------------|----------------|---------------|
| MAX3681EVKIT-SO | -40°C to +85°C | Surface Mount |

### Component List

| DESIGNATION    | QTY | DESCRIPTION                                             |
|----------------|-----|---------------------------------------------------------|
| C1-C4, C7      | 5   | 0.1μF ceramic capacitors                                |
| C5             | 1   | 33μF, 6.3V tantalum capacitor<br>Sprague 293D336X06R3C2 |
| C6             | 1   | 2.2μF ceramic capacitor                                 |
| C8-C11         | 4   | 100pF ceramic capacitors                                |
| J1-J16         | 16  | SMA connectors (PC edge mount)                          |
| L1             | 1   | 56nH inductor<br>Coilcraft 0805CS-560                   |
| R1, R3, R5, R7 | 4   | 130Ω, 5% resistors                                      |
| R2, R4, R6, R8 | 4   | 82Ω, 5% resistors                                       |
| R9-R13         | 5   | 100Ω, 5% resistors                                      |
| U1             | 1   | MAX3681EAG                                              |
| +3.3V, GND     | 2   | 2-pin headers                                           |
| None           | 1   | MAX3681 data sheet                                      |

### Component Suppliers

| SUPPLIER             | PHONE                            | FAX                              |
|----------------------|----------------------------------|----------------------------------|
| Coilcraft<br>Sprague | (847) 639-6400<br>(603) 224-1961 | (847) 639-1469<br>(603) 224-1430 |

### Features

- ♦ Single +3.3V Supply
- ♦ Inputs and Outputs Terminated for Interfacing with 3.3V PECL and LVDS Logic
- ♦ Fully Assembled and Tested

### Detailed Description

The MAX3681 EV kit simplifies evaluation of the MAX3681. The EV kit operates from a single +3.3V supply and includes all the external components necessary to interface with 3.3V PECL and LVDS logic.

Each PECL input (SCLK+, SCLK-, SD+, SD-) is terminated on the EV board with the Thevenin equivalent of 50Ω to (V<sub>CC</sub> - 2V). These inputs can be driven directly by the output of any 3.3V PECL device, such as a clock-and-data-recovery circuit (e.g., the MAX3675).

All LVDS outputs (PCLK+, PCLK-, PD+, PD-) are differentially terminated with 100Ω resistors between complementary outputs. Each output can directly drive an LVDS input or a high-impedance input oscilloscope (see the section *Connecting LVDS Outputs to 50Ω Input Oscilloscopes*). When driving an LVDS input that already includes 100Ω differential termination, remove the termination resistor corresponding to the appropriate LVDS output.

The synchronization inputs (SYNC+, SYNC-) are internally terminated LVDS inputs with 100Ω differential input resistance. Ensure that LVDS devices driving these inputs are not redundantly terminated.

All signal inputs and outputs use coupled 50Ω transmission lines. All input signal lines are of equal length to minimize propagation-delay skew. Likewise, all output signal lines are of equal length.

### Applications Information

#### Connecting LVDS Outputs to 50Ω Input Oscilloscopes

To monitor an LVDS signal on a 50Ω input oscilloscope, remove the differential load resistor between the complementary outputs and AC couple each output to an oscilloscope input. For example, to observe the PD0 signal on a 50Ω input instrument, remove resistor R12 from the EV board and place a capacitor or DC block in series with each output (PD0+ or PD0-) and the instrument input. **Do not connect MAX3681 outputs directly to 50Ω inputs or terminations to ground.** Choose a coupling capacitor large enough in value to prevent pattern-dependent distortion of the output signal.

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## MAX3681 Evaluation Kit

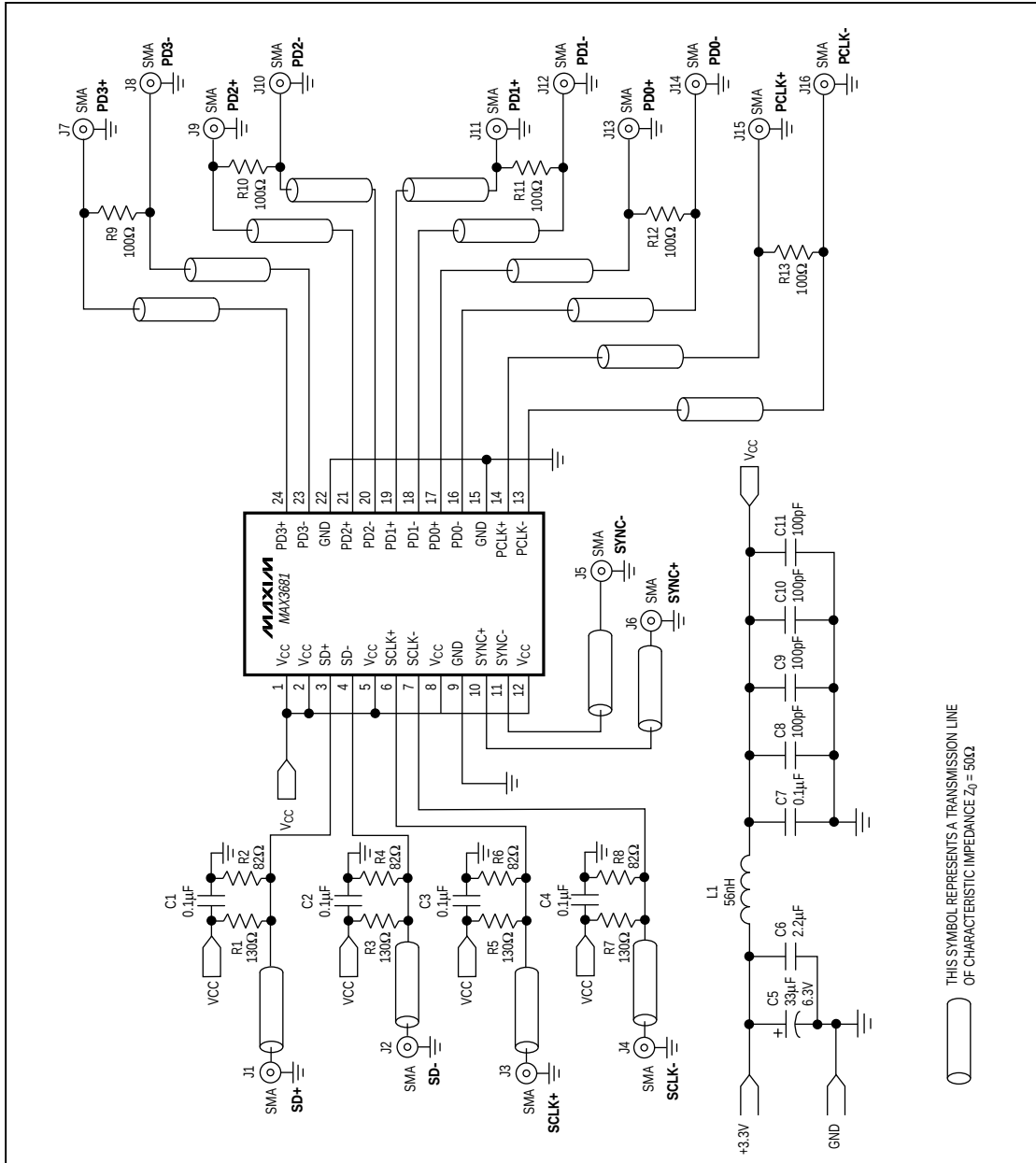


Figure 1. MAX3681 EV Kit Schematic

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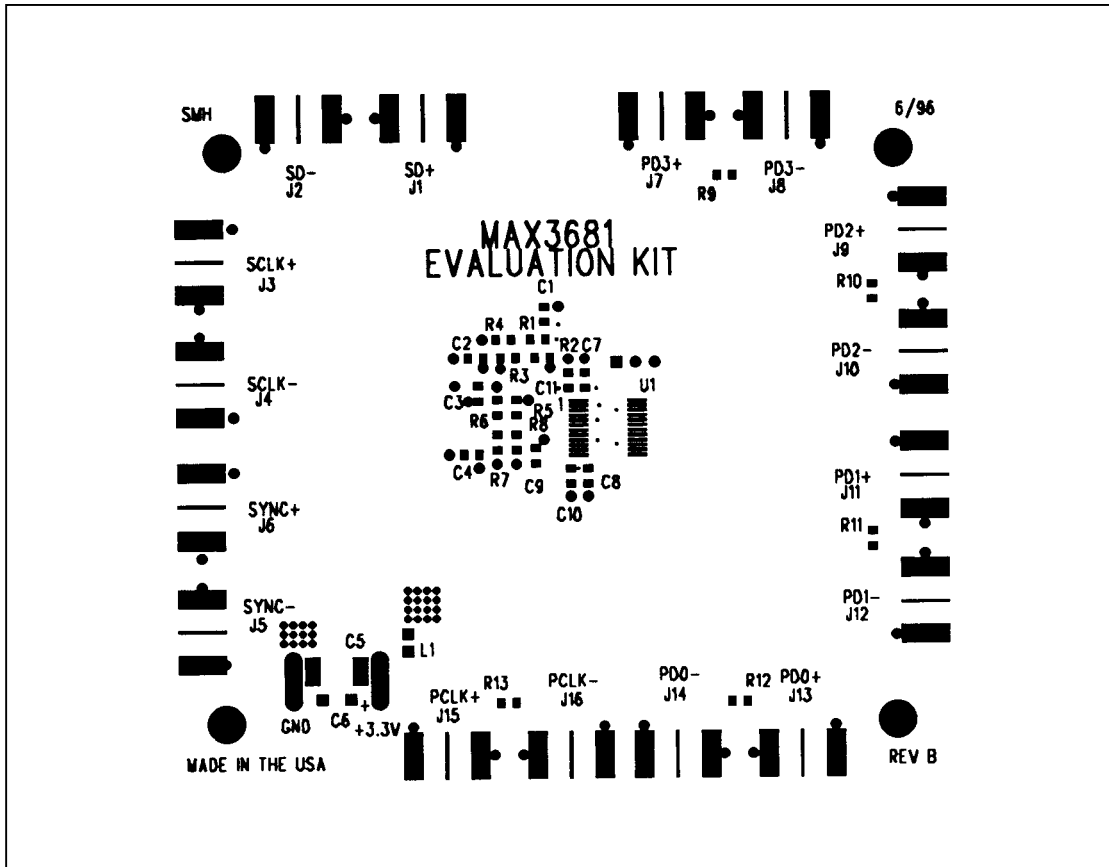


Figure 2. MAX3681 EV Kit Component Placement Guide—Component Side

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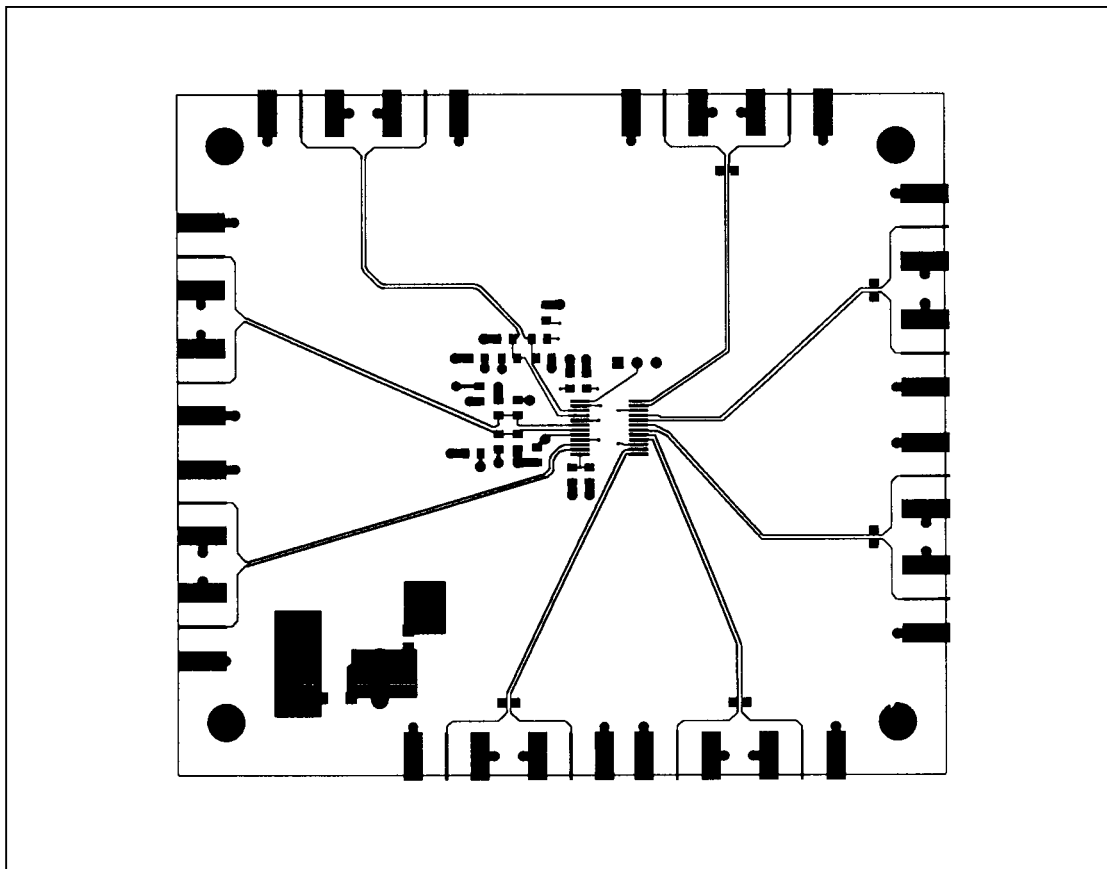


Figure 3. MAX3681 EV Kit PC Board Layout—Component Side

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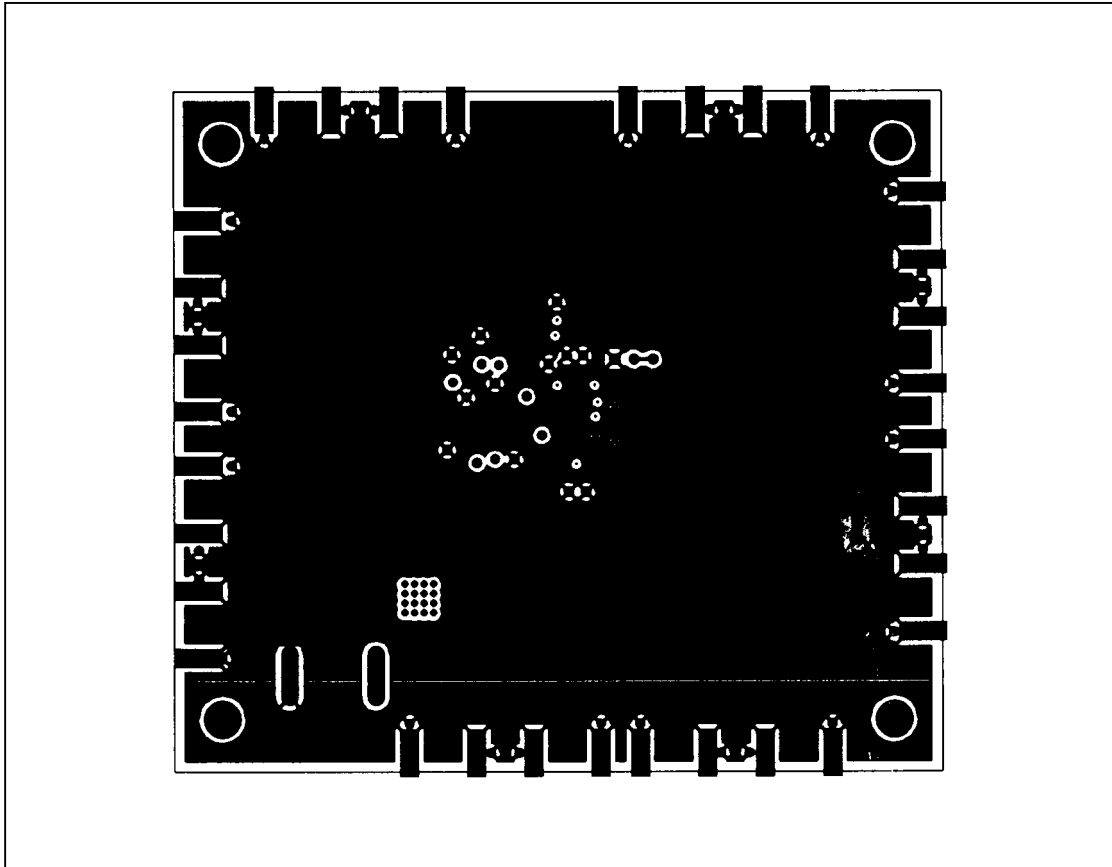


Figure 4. MAX3681 EV Kit PC Board Layout—Solder Side

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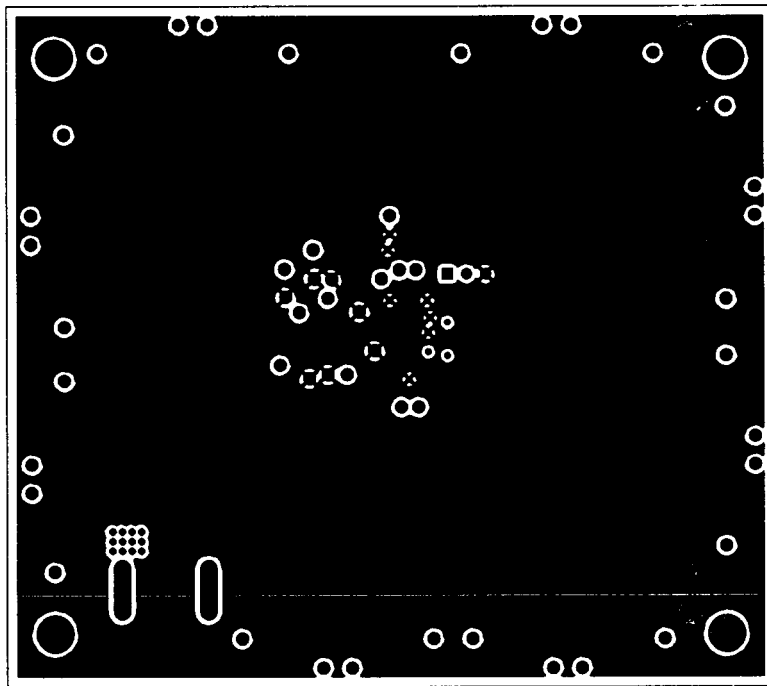


Figure 5. MAX3681 EV Kit PC Board Layout—Power Plane

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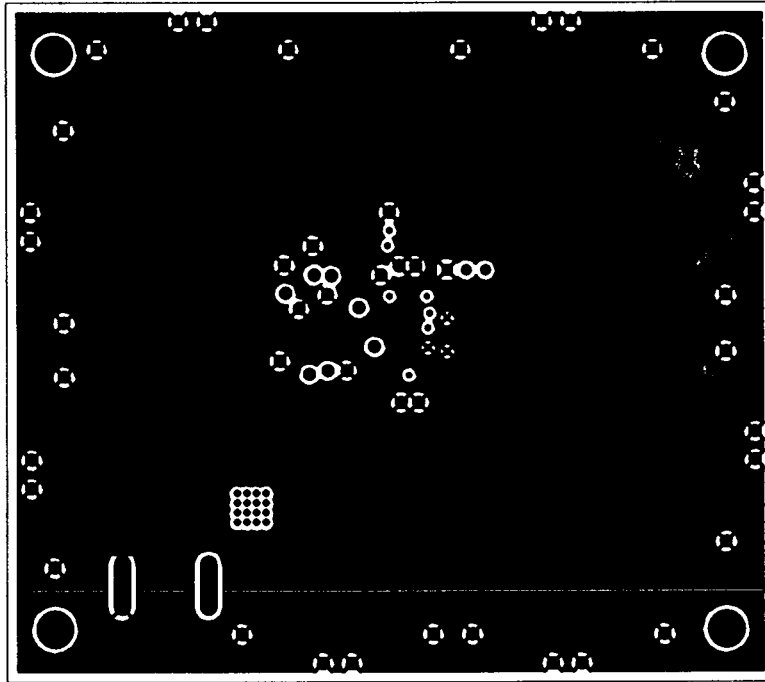


Figure 6. MAX3681 EV Kit PC Board Layout—Ground Plane

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## MAX3681 Evaluation Kit

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