

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

Component Suppliers

SUPPLIER	PHONE	FAX
Coilcraft Sprague	(847) 639-6400 (603) 224-1961	(847) 639-1469 (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 50 Ω to (V_{CC} - 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 100 Ω 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 50 Ω Input Oscilloscopes*). When driving an LVDS input that already includes 100 Ω differential termination, remove the termination resistor corresponding to the appropriate LVDS output.

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

All signal inputs and outputs use coupled 50 Ω 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 50 Ω Input Oscilloscopes

To monitor an LVDS signal on a 50 Ω 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 50 Ω 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 50 Ω 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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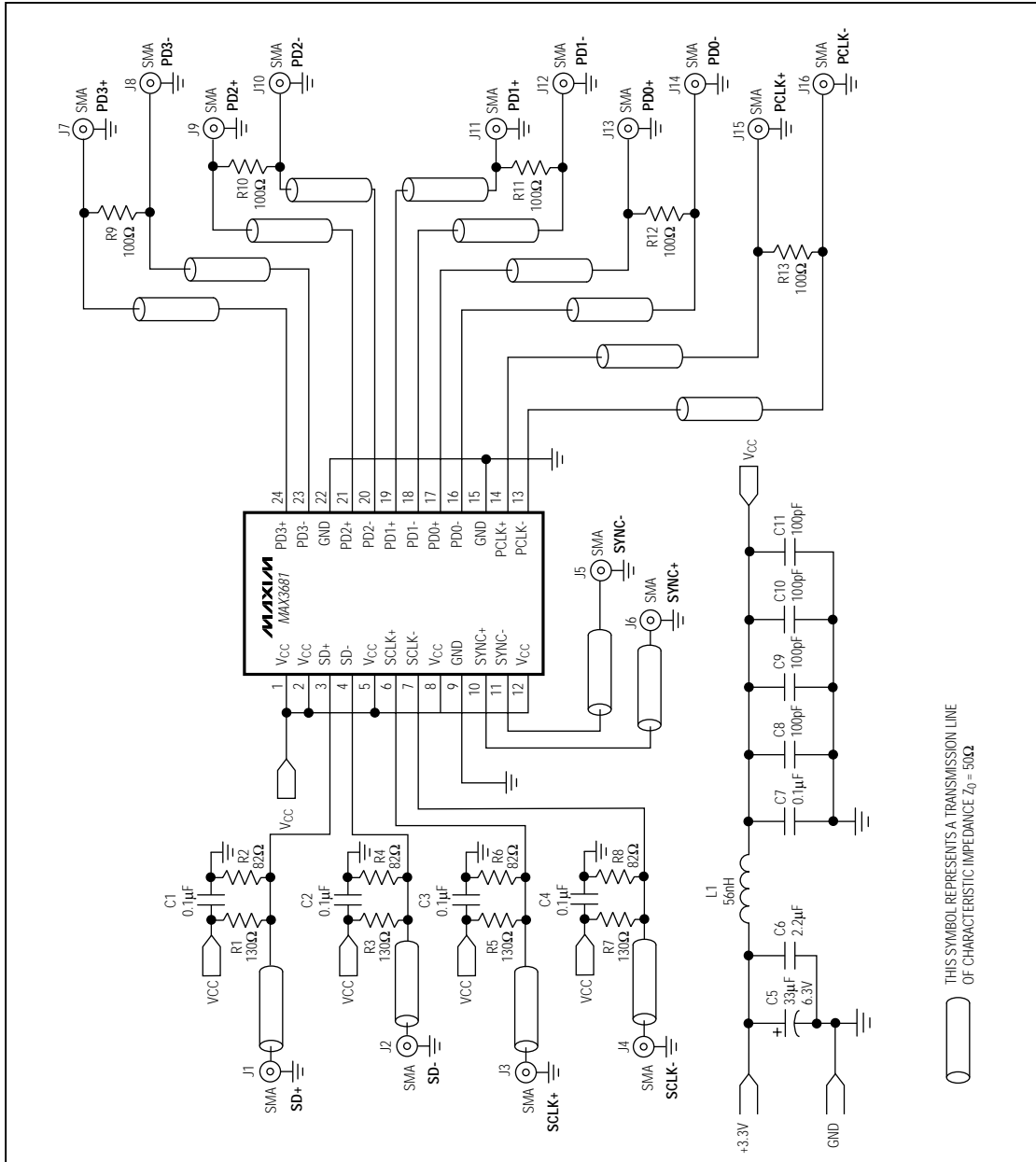


Figure 1. MAX3681 EV Kit Schematic

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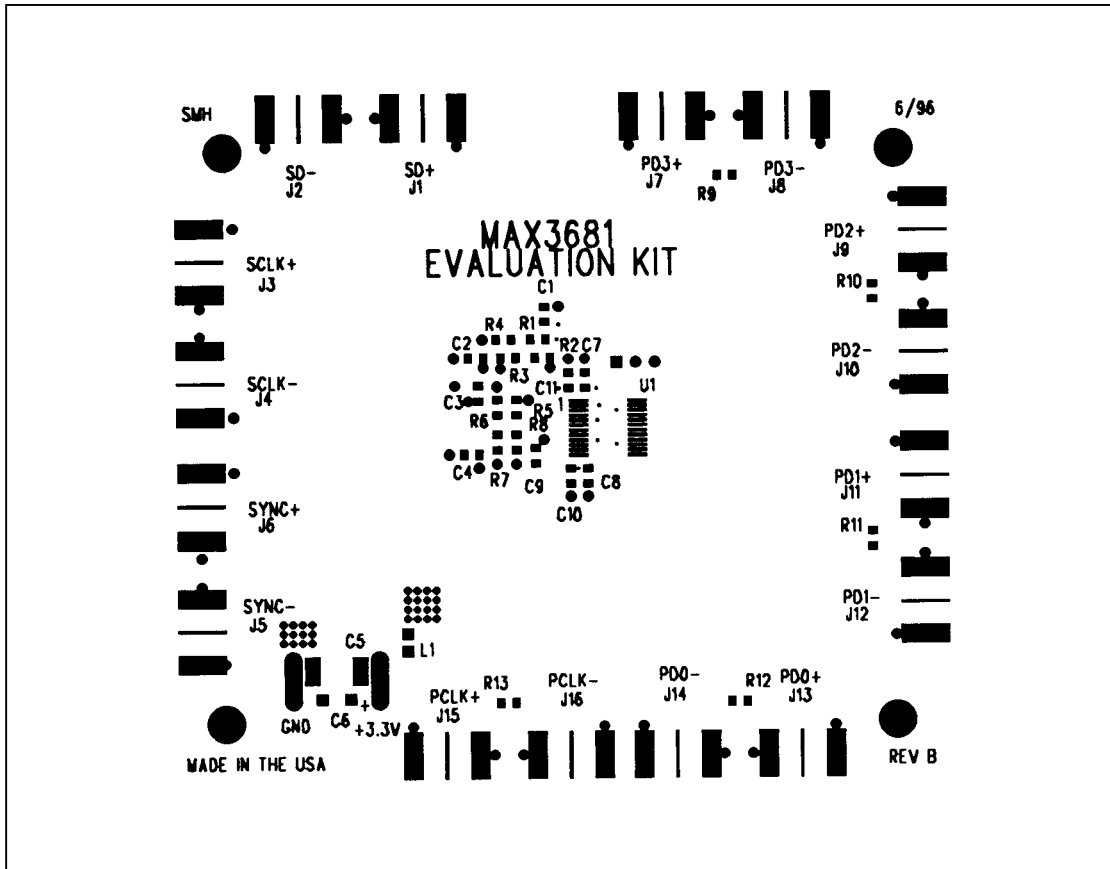


Figure 2. MAX3681 EV Kit Component Placement Guide—Component Side

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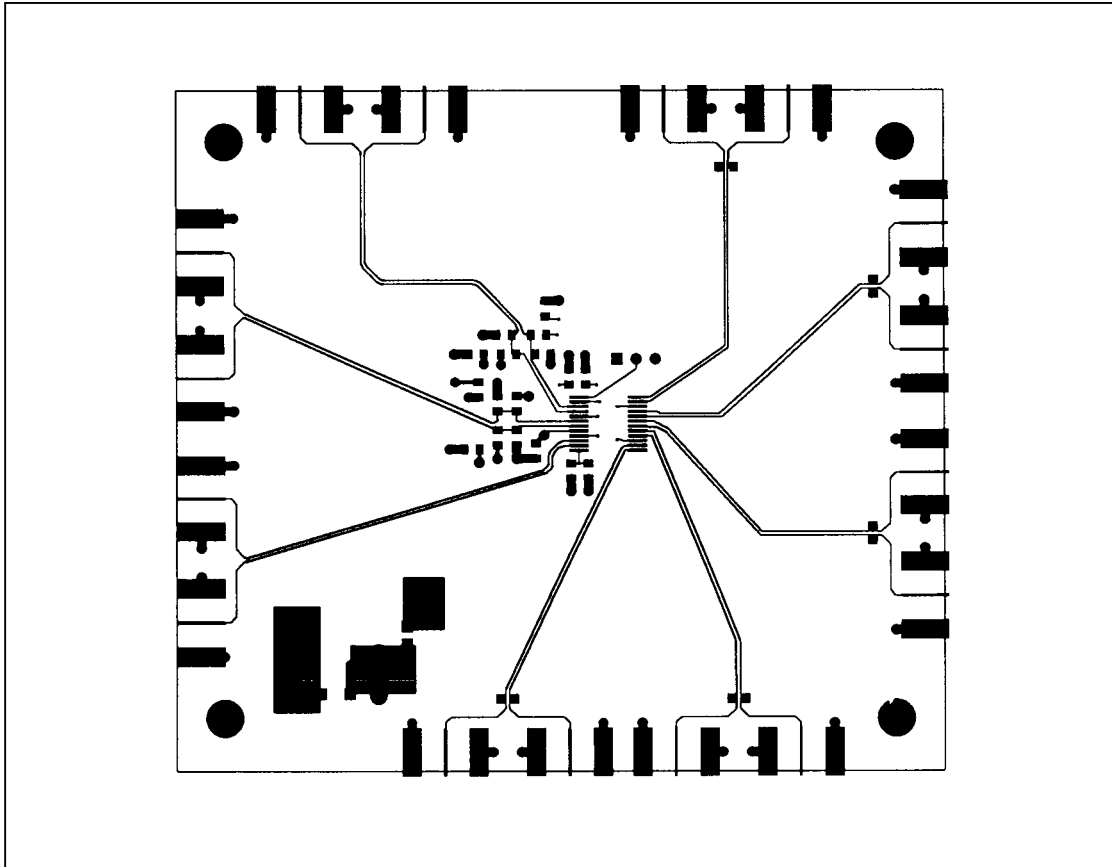


Figure 3. MAX3681 EV Kit PC Board Layout—Component Side

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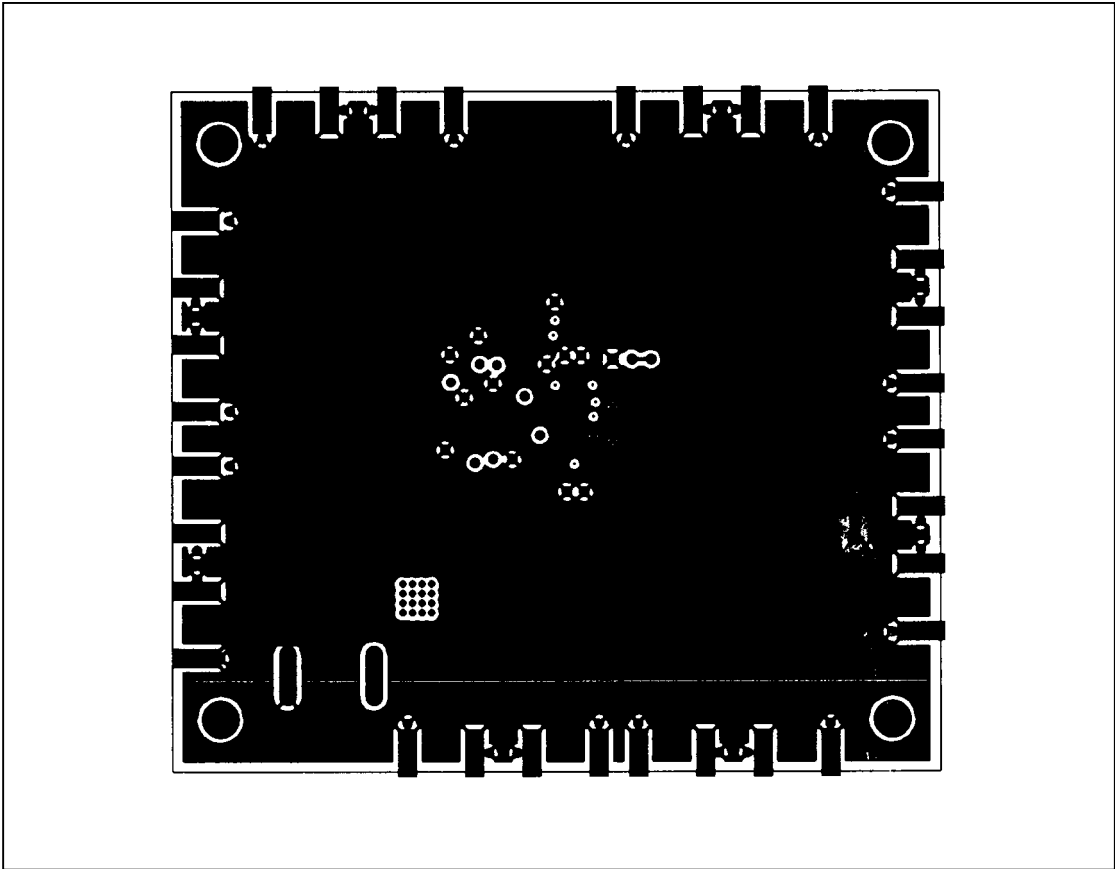


Figure 4. MAX3681 EV Kit PC Board Layout—Solder Side

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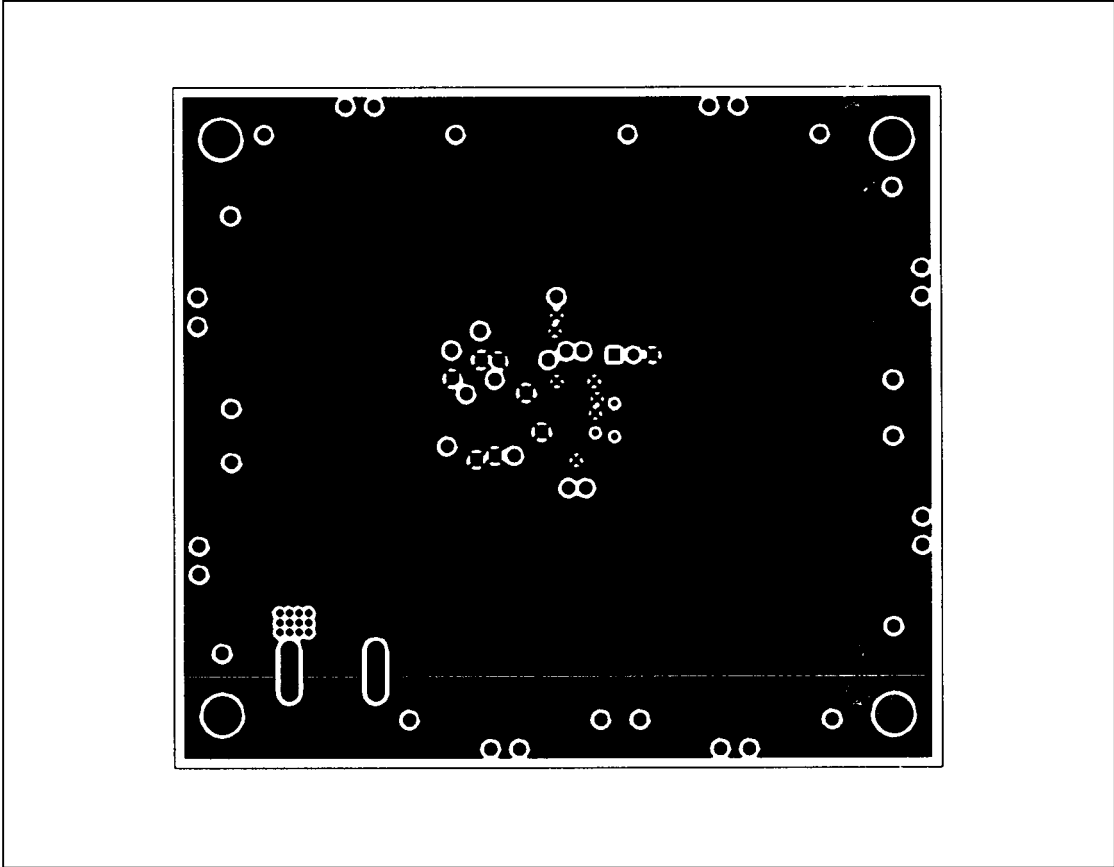


Figure 5. MAX3681 EV Kit PC Board Layout—Power Plane

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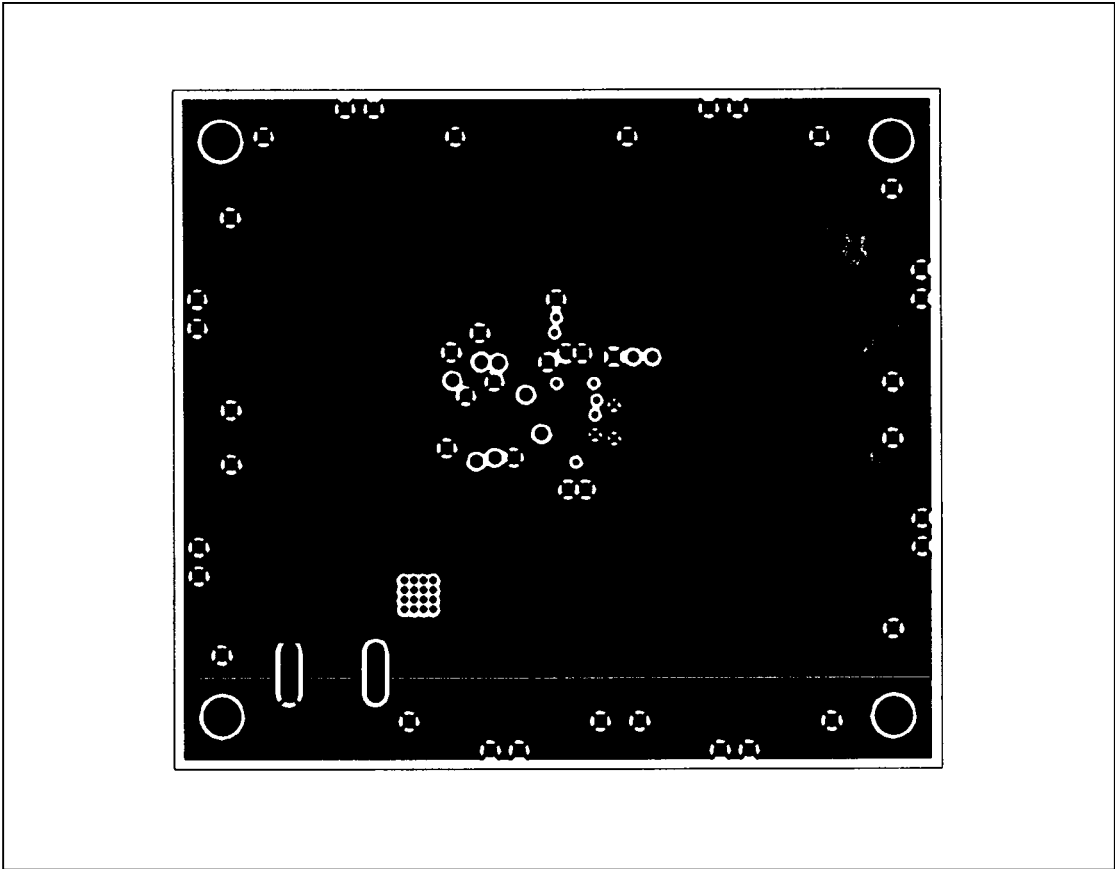


Figure 6. MAX3681 EV Kit PC Board Layout—Ground Plane

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