

MAXIM

MAX3969 Evaluation Kit

General Description

The MAX3969 evaluation kit (EV kit) is a fully assembled and tested demonstration board for the MAX3969 limiting amplifier. The EV kit allows easy programming of the power-detect threshold, is designed for 50Ω test interfaces, and provides layout options for alternate output terminations.

Component List

| DESIGNATION | QTY | DESCRIPTION |
|----------------------|-----|--|
| C1, C10, C20 | 3 | 0.1μF ±10% ceramic capacitors (0402) |
| C2, C3, C4 | 3 | 0.01μF ±5% ceramic capacitors (0402) |
| C5 | 1 | 0.027μF ±10% ceramic capacitor (0603) |
| C6, C26 | 2 | 33μF ±10% tantalum capacitors AVX TAJB336K010R |
| C7, C27 | 2 | 3.3μF ±10% ceramic capacitors (0805) |
| J1–J4 | 4 | SMA connectors (edge mount) EF Johnson 142-0701-801 |
| J5, J6, J7, TP1–TP13 | 16 | Test points Digi-Key 5000K-ND |
| JU2, JU4, JU6 | 3 | 2-pin headers, 0.1in centers Digi-Key S1012-36-ND |
| JU2, JU4, JU6 | 3 | Shunts Digi-Key S9000-ND |
| L1, L2 | 2 | 1.2μH inductors Coilcraft 1008LS-122XJBC |
| R1 | 1 | 10kΩ ±5% resistor (0402) |
| R2, R3, R10 | 3 | Not installed |
| R6 | 1 | 10kΩ variable resistor |
| R7 | 1 | 200kΩ variable resistor |
| R8 | 1 | 100kΩ ±5% resistor (0402) |
| R11, R12 | 2 | 84.5Ω ±1% resistors (0402) |
| R5, R24, R25 | 3 | 49.9Ω ±1% resistors (0402) |
| R27, R28 | 2 | 4.7kΩ ±5% resistors (0402) |
| R29, R30 | 2 | 0Ω ±5% resistors (0402) |
| SB9 | 1 | Solder bridge, open |
| U1 | 1 | MAX3969ETP 20-pin Thin QFN |
| None | 1 | MAX3969ETP EV kit circuit board, Rev B |

Features

- ◆ Easy +2.97V to +5.5V Electrical Evaluation
- ◆ Fully Assembled and Tested
- ◆ Easy Power-Detect Threshold Programming
- ◆ Designed for 50Ω Test Interfaces
- ◆ Allows Alternate Output Terminations

Ordering Information

| PART | TEMP RANGE | IC PACKAGE |
|-----------------|----------------|-------------|
| MAX3969ETPEVKIT | -40°C to +85°C | 20 Thin QFN |

Component Suppliers

| SUPPLIER | PHONE | FAX |
|-----------|--------------|--------------|
| AVX | 843-448-9411 | 843-626-3123 |
| Coilcraft | 847-639-6400 | 847-639-1469 |
| Digi-Key | 800-344-4539 | 218-681-3380 |
| Murata | 770-436-1300 | 770-436-3030 |

Note: Please indicate that you are using the MAX3969 when ordering from these suppliers.

Quick Start

- 1) Remove the shunt from JU4 and place shunts on JU2 and JU6.
- 2) Apply a 155Mbps differential signal (4mV_{P-P} to 1.5V_{P-P}) between SMA connectors J3 (IN-) and J4 (IN+).
- 3) Connect an oscilloscope with 50Ω terminations to SMA connectors J1 (OUT-) and J2 (OUT+). (To avoid overloading the oscilloscope, use 20dB of attenuation between the outputs and the oscilloscope inputs.)
- 4) Connect a +2V power supply to J5 (V_{CC}), a -0.97V to -3.5V power supply to J7 (V_{EE}), and the power-supply ground to J6 (GND).
- 5) Monitor LOS by connecting a voltage meter between TP13 and TP6.
- 6) Adjust the power-detect threshold with R6 and R7.

Evaluates: MAX3969

MAX3969 Evaluation Kit

Detailed Description

The MAX3969 EV kit simplifies evaluation of the MAX3969 limiting amplifier. The EV kit provides the external components necessary to evaluate all the MAX3969 functions.

Setting the Power-Detect Threshold

Jumpers JU4 and JU6 control the resistor used to set the power-detect threshold. To use the variable resistors R6 and R7, place a shunt on JU6 and remove the shunt from JU4. If a fixed resistor is required, solder a resistor to R10, remove the shunt from JU6, and place a shunt on JU4.

Enabling Squelch Function

Jumper JU2 controls the squelch function. Place a shunt on JU2 to enable squelch. Remove the shunt from JU2 to disable squelch.

Monitoring RSSI Output

Test point TP1 provides access to the received-signal-strength-indicator (RSSI). Monitor RSSI by connecting a voltage meter between TP1 and TP6.

Monitoring LOS Outputs

The EV kit provides 4.7k Ω pullup resistors for the LOS outputs. Monitor LOS by connecting a voltage meter between TP13 and TP6. Monitor $\overline{\text{LOS}}$ by connecting a voltage meter between TP7 and TP6.

Data-Input Terminations

The EV kit has a 100 Ω differential-input termination. If the input is driven single-ended, terminate both sides of the input with 50 Ω to ground by shorting solder bridge SB9.

PECL-Output Terminations

The data outputs (OUT+, OUT-) and signal detect output (SD) are PECL compatible and any standard termination technique can be used. Figure 1 illustrates typical DC and AC terminations.

Monitor OUT+ and OUT- with a 50 Ω -terminated oscilloscope. To avoid overloading the oscilloscope, use 20dB of attenuation between the data outputs and the oscilloscope inputs.

Monitor the SD output by connecting a voltage meter between TP12 and TP11. This will provide the output voltage relative to V_{CC}.

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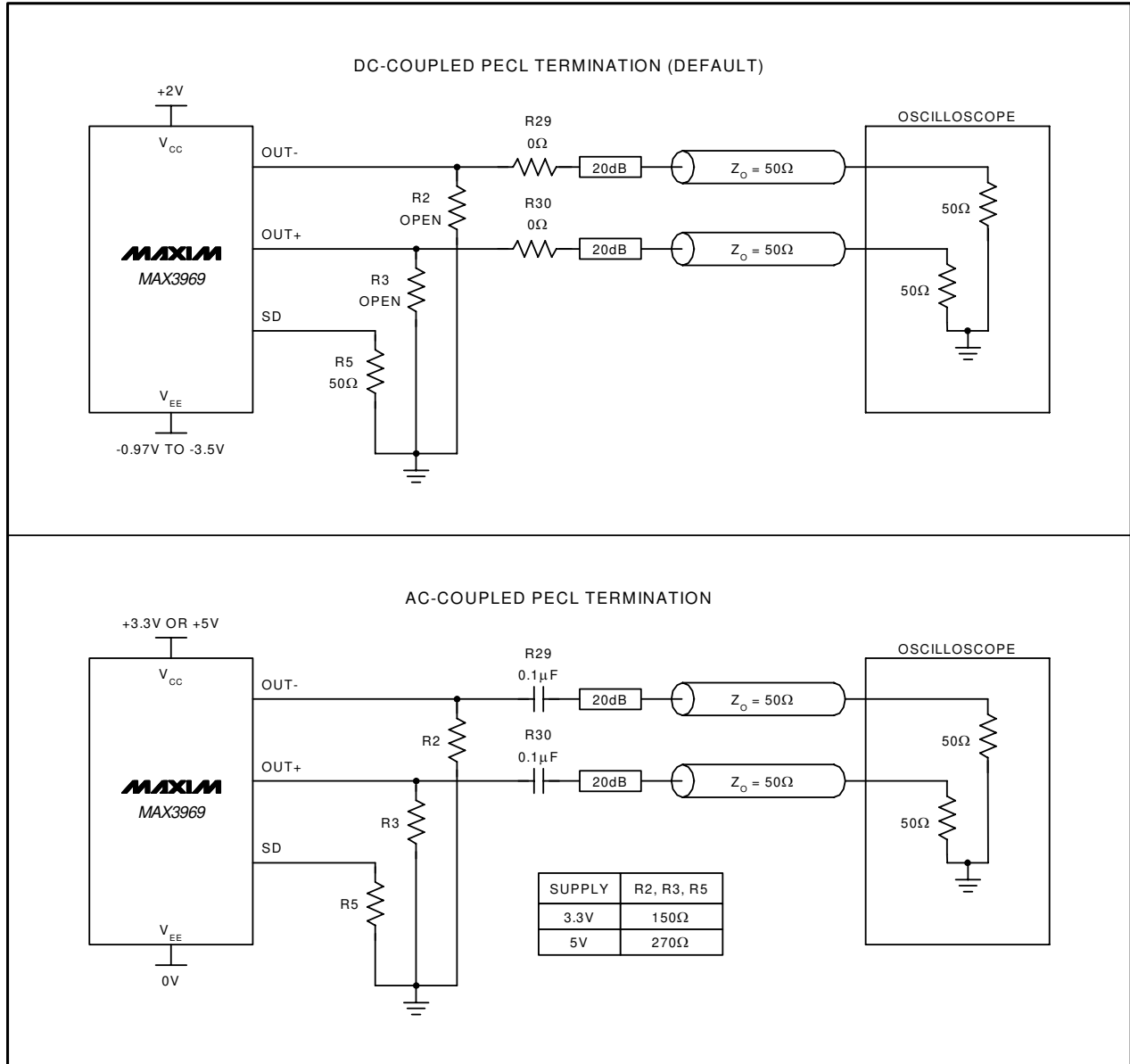


Figure 1. PECL-Output Terminations

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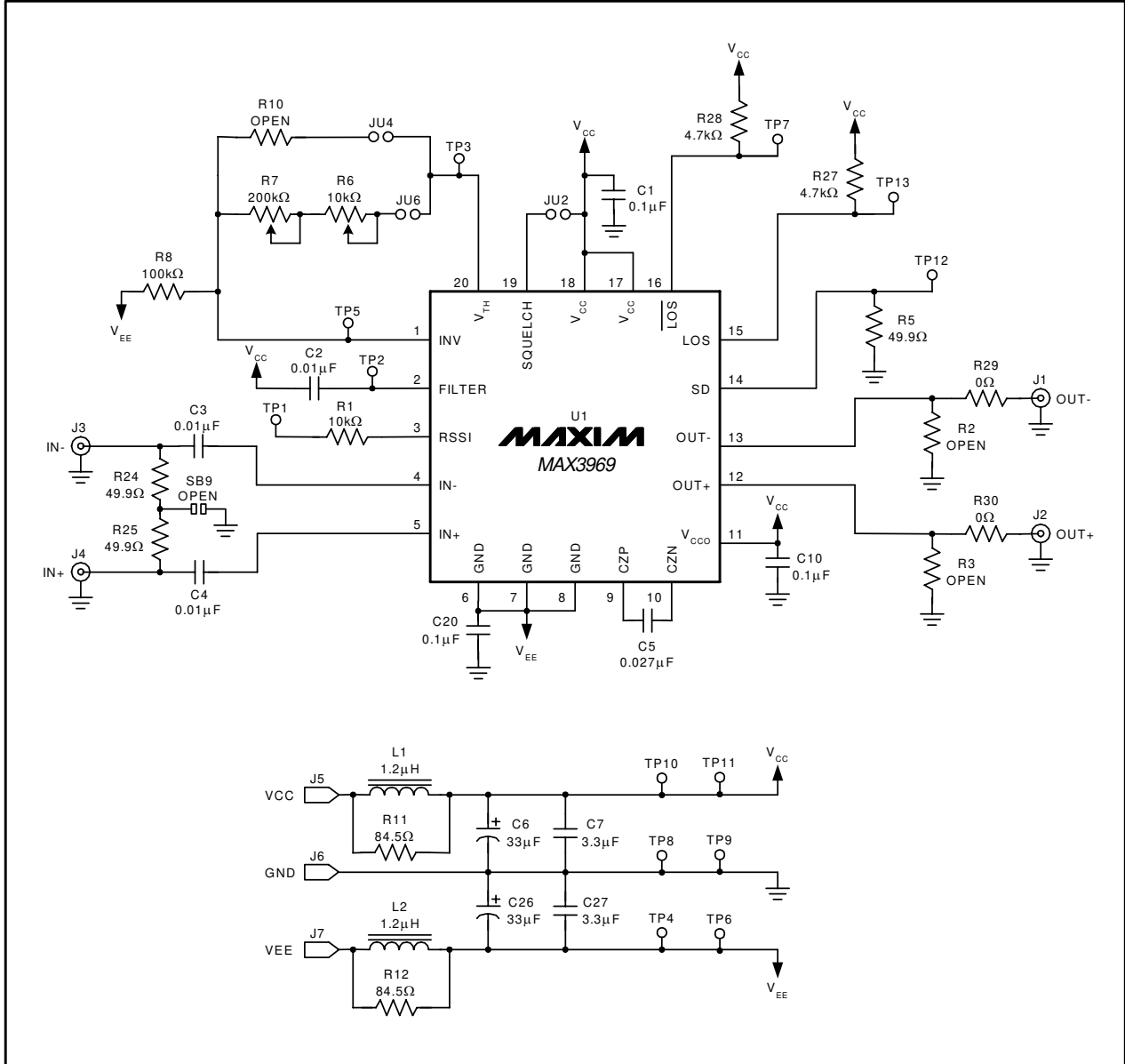


Figure 2. MAX3969 EV Kit Schematic

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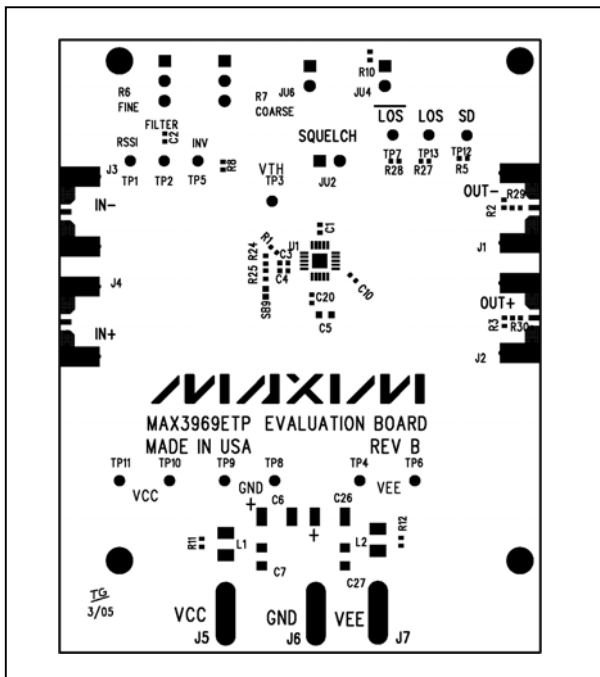


Figure 3. MAX3969 EV Kit Component Placement Guide—Component Side

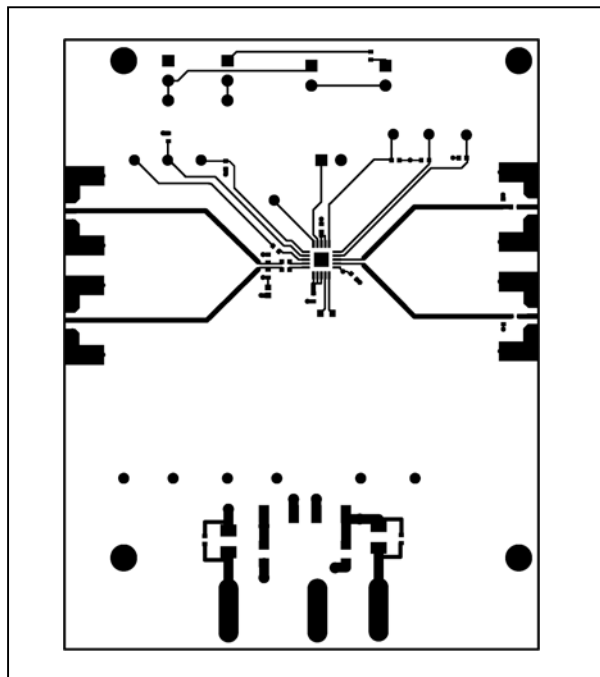


Figure 4. MAX3969 EV Kit PC Board Layout—Component Side

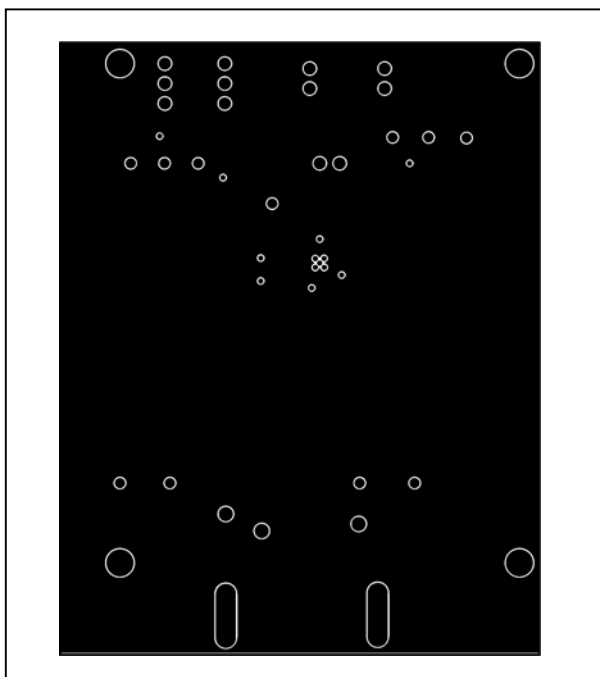


Figure 5. MAX3969 EV Kit PC Board Layout—Ground Plane

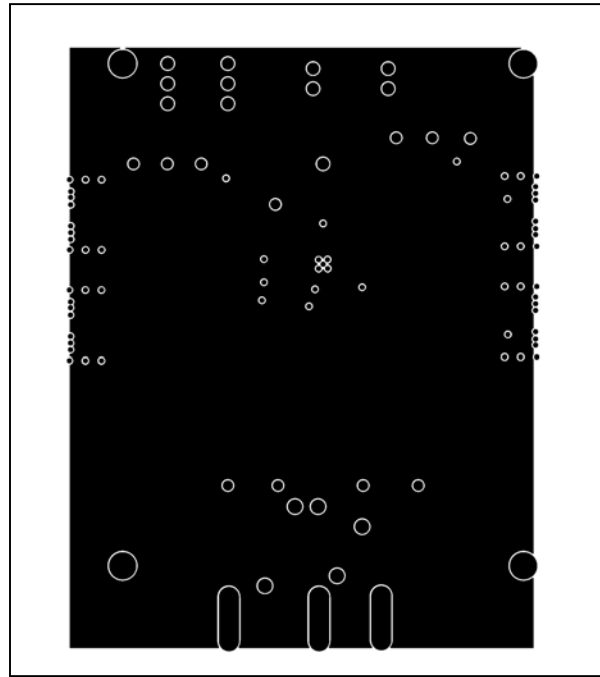


Figure 6. MAX3969 EV Kit PC Board Layout—Power Plane

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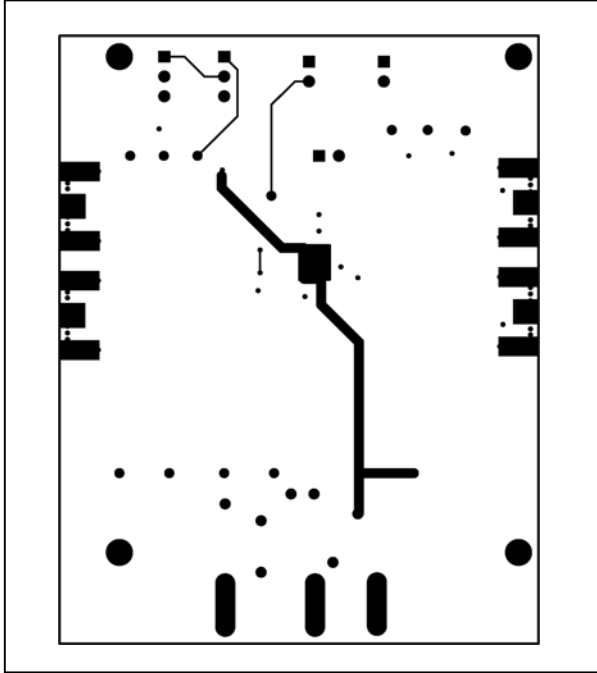


Figure 7. MAX3969 EV Kit PC Board Layout—Solder Side

Revision History

- Rev 1; 3/05: Changed PCB in BOM to Rev B (page 1); updated Figures 3 and 5 (page 5).
- Rev 2; 6/07: Changed part number in *Ordering Information* table from MAX3969EVKIT to MAX3969ETPEVKIT (page 1).

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