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MAX3967A Evaluation Kit

Evaluates: MAX3967A

General Description

The MAX3967A evaluation kit (EV kit) is an assembled demonstration board that provides complete electrical or optical evaluation of the MAX3967A.

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	10µF ±10% tantalum capacitor (B case)
C2	1	0.1µF ±5% ceramic capacitor (0603)
C4, C7, C8	3	0.01µF ±5% ceramic capacitors (0603)
C5, C6, C9, C11	4	0.22F ±5% ceramic capacitors (0603)
D1	1	LED, user supplied
J1 – J4	4	SMA side mount connectors, tab contact
JU1, JU2, JU9	3	3-pin headers, 0.1in centers
JU3, JU4, JU5, JU7, JU8	5	2-pin headers, 0.1in centers
L1	1	1µH inductor 1008CS-102xjb
L2	1	Ferrite bead (0603) Murata BLM18PG300SN1
Q1	1	Zetex FMMT591A PNP transistor (SOT-23)
R1	1	100kΩ variable resistor BOURNS 3296W-1-104 DIGI-KEY3296W-1-104-ND
R2	1	4.99Ω ±1% resistor (0603)
R3, R4	2	453Ω resistors (0603)
R5	1	1.0kΩ ±1% resistor (0603)
R6	1	698Ω ±1% resistor (0603)
R7	1	5kΩ variable resistor DIGI-KEY3296W-1-502-ND
R8, R9	2	82.5Ω ±1% resistors (0603)
R10, R12	2	121Ω ±1% resistors (0603)
R11	1	49.9Ω ±1% resistor (0603)
R13	1	20.0kΩ ±1% resistor (0603)
TP1-3, TP7	4	Test pointsDIGI-KEY 5000K-ND
U1	1	MAX3967AETG
None	8	Shunts DIGIKEY 9000-ND
None	1	MAX3967A EV board, rev B

Features

♦ **Fully Assembled and Tested**

♦ **Single +3.3V Power Supply Operation**

♦ **AC-Coupling Provided On-Board**

♦ **Allows Electrical or Optical Evaluation**

Ordering Information

PART	TEMP RANGE	IC-PACKAGE
MAX3967AEVKIT	-40℃ to +85℃	24 Thin QFN

Component Suppliers

SUPPLIER	PHONE	FAX
AVX	803-946-0690	803-626-3123
Coilcraft	847-639-6400	847-639-1469
Murata	814-237-1431	814-238-0490
Zetex	516-543-7100	516-864-7630

Note: *Please indicate that you are using the MAX3967A when contacting these component suppliers.*

QuickStart

Electrical Evaluation

For electrical evaluation of the MAX3967A, configure the evaluation kit as follows:

1) Remove all jumpers if there are any. Then reinstall JU3 and JU4.

2) To enable the output, connect TX_DISABLE to GND by placing a shunt on the right side of JU9, or leave JU9 open.

3) Connect an oscilloscope to JU1 and JU2 (OUT+ and OUT-) using 50Ω cables and 50Ω oscilloscope terminations.

4) Using a multimeter on the right side of JU8 and ground, adjust the potentiometer R7 to be 300Ω. Attach MODSET to the potentiometer by placing a jumper on JU8.

5) Install a shunt on jumper the right side of JU1 (TCNOM). See Figure 7 for jumper table.

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For pricing, delivery, and ordering information, please contact Maxim/Dallas Direct! at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

6) Apply a differential signal to J4 (IN+) and J3 (IN-) with 1V differential signal amplitude and 100Mbps data rate.

7) Adjust the oscilloscope vertical gain of both channels to 10mV/div. Set the oscilloscope to display the differential signal [(OUT+) - (OUT-)].

8) Attach a 3.3V power source to the V_{CC} and GND terminals (J6 and J10). Set the current limit to 300mA.

9) Place an ammeter across JU7 to measure the I_{MON} current.

10) The output signal is approximately 40mV$_{p-p}$. Adjust R7 to vary the level of the signal.

Optical Evaluation

For optical evaluation of the MAX3967A, configure the evaluation kit as follows:

1) Remove resistor R2 from the evaluation kit.

2) Disconnect cables from J1 (OUT+) and J2 (OUT-).

3) Solder LED onto socket D1, see the Figure 1 for socket layout. Connect the anode to OUT- and the cathode to OUT+.

4) Attach MODSET to the potentiometer by placing a jumper on JU8.

5) Install a shunt on jumper the right side of JU1 to set the tempco to "nominal" (TC connected to TCNOM).

6) Connect output of LED to an optical-to-electrical (O-to-E) converter and connect the output of the O-to-E to an oscilloscope.

7) Apply a differential signal to J4 (IN+) and J3 (IN-) with 1V differential signal amplitude and 100Mbps data rate.

8) Attach a 3.3V power source to the V_{CC} and GND terminals (J6 and J10). Set the current limit to 300mA.

9) To enable the output, connect TX_DISABLE to GND by placing a shunt on the right side of JU9, or leave JU9 open.

Table 1. Adjustment and Control Descriptions (see Quick Start first)

COMPONENT	NAME	FUNCTION
D1	LED	D1 is a socket for an LED in a TO-46 header. Remove R2 before inserting an LED into socket D1.
JU1	TCNOM	JU1 connects TC to either TCNOM or TCMIN. Place a jumper on the right two pins to connect TC to TCNOM. Place a jumper on the left two pins to connect TC to the jumper JU2.
JU2	TCMIN	JU1 must have the left two pins shorted in order for JU2 to be operable. JU2 will connect TC directly to TCMIN when the right two pins are shorted or connect TC to TCMIN through R1 when the left two pins are shorted.
JU3	PB1	Shorting JU3 connects PB1 to ground. See MAX3967A data sheet, table 1.
JU4	PB2	Shorting JU4 connects PB2 to ground. See MAX3967A data sheet, table 1.
JU5	PB3	Shorting JU5 connects PB3 to ground. See MAX3967A data sheet, table 1.
JU7	MON	JU7 connect MON to ground through a 1kΩ resistor.
JU8	MODSET	Place a jumper on JU8 to connect MODSET to potentiometer R7.
JU9	TX_DISABLE	Enables/disables the output modulation. Shunt across the left two pins of JU9 to force a static zero at the outputs. TX_DISABLE has an internal pull down resistor to enable the part when this pin is left open.
R1	R_{TC}	When the left two pins of JU1 and JU2 have been shorted this potentiometer is used to set the tempco of the modulation current.
R7	R_{MODSET}	When JU8 is shunted, R7 allows adjustment of the LED modulation-current amplitude.

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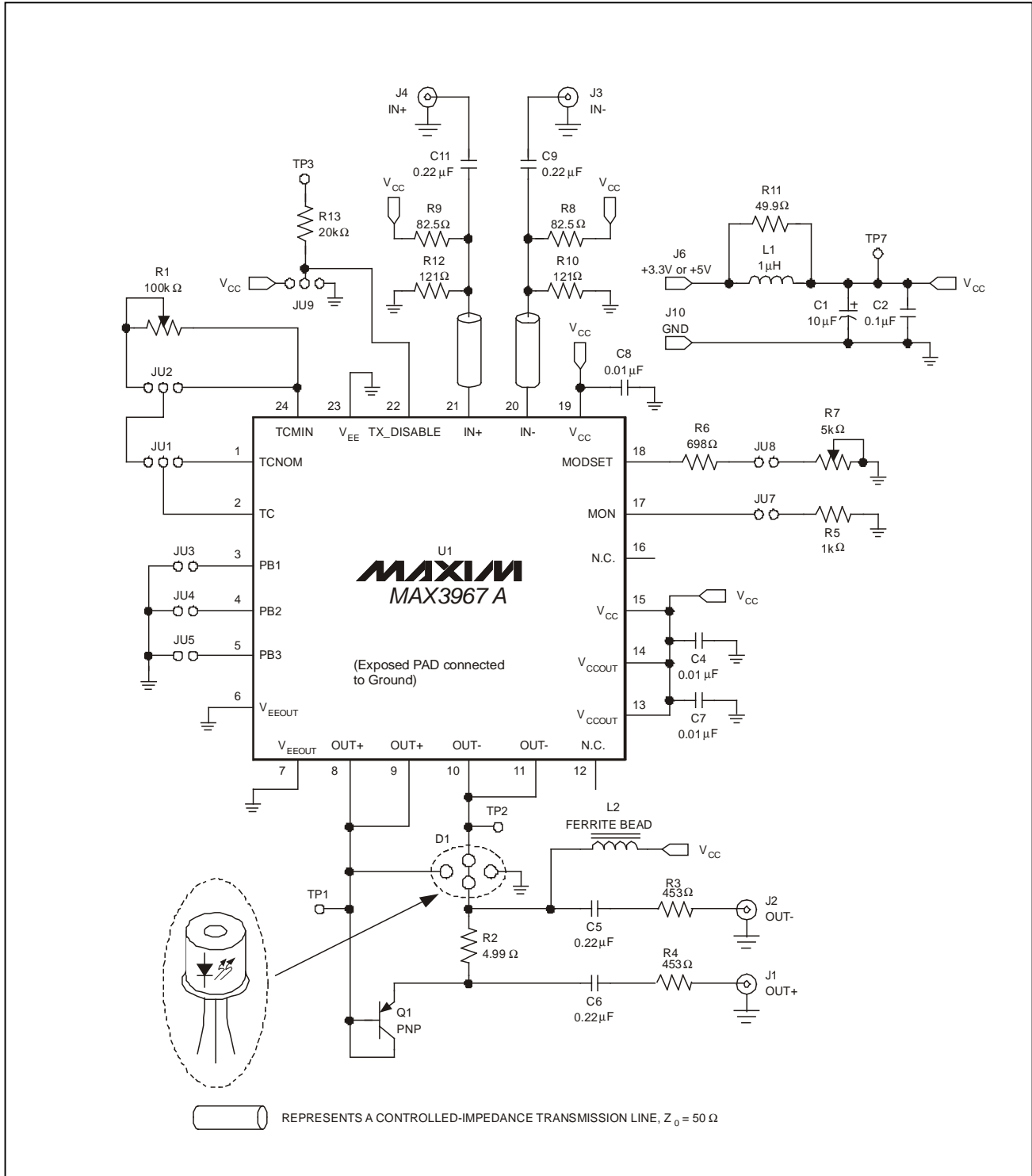
Figure 1. MAX3967A EV Kit Schematic
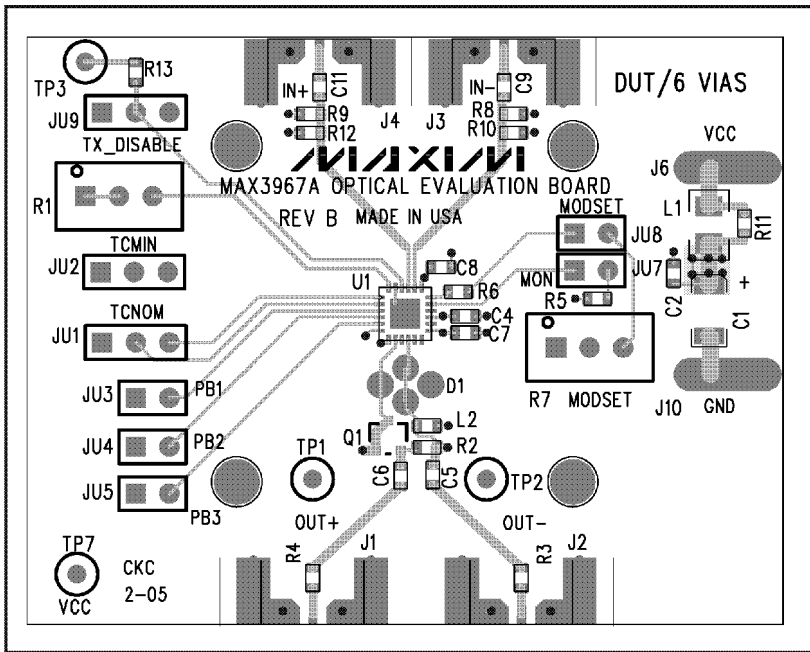
Figure 2. MAX3967A EV Kit PC Component Placement Guide - Component Side
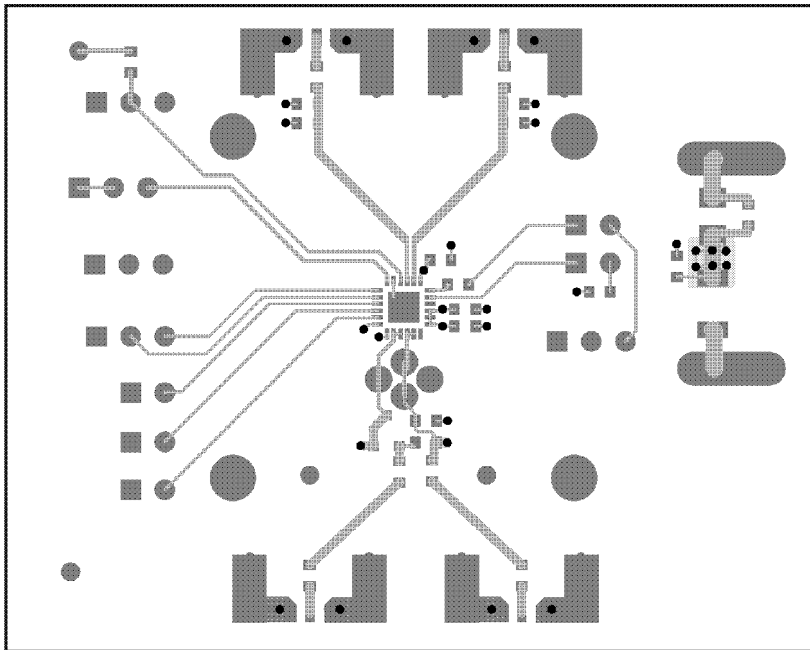
Figure 3. MAX3967A EV Kit PC Board Layout - Component Side
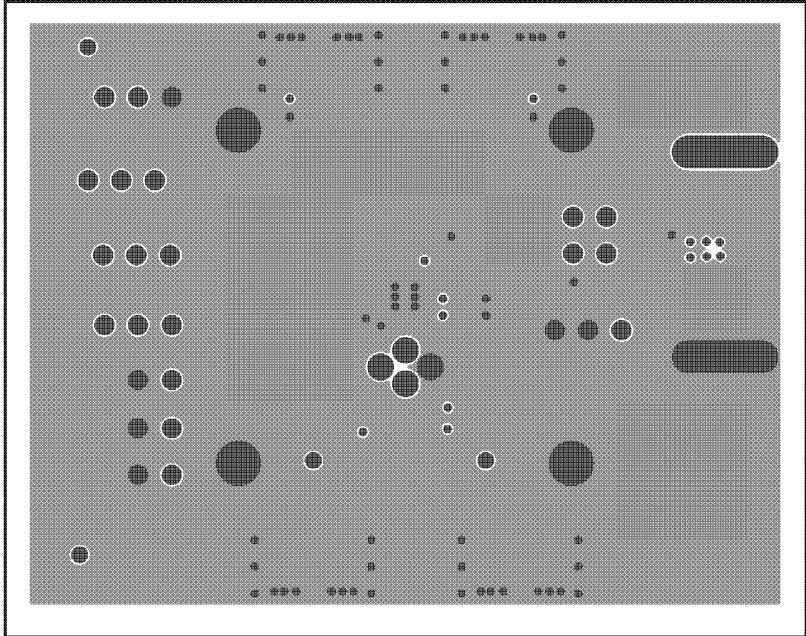
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Figure 4. MAX3967A EV Kit PC Board Layout - Ground Plane.
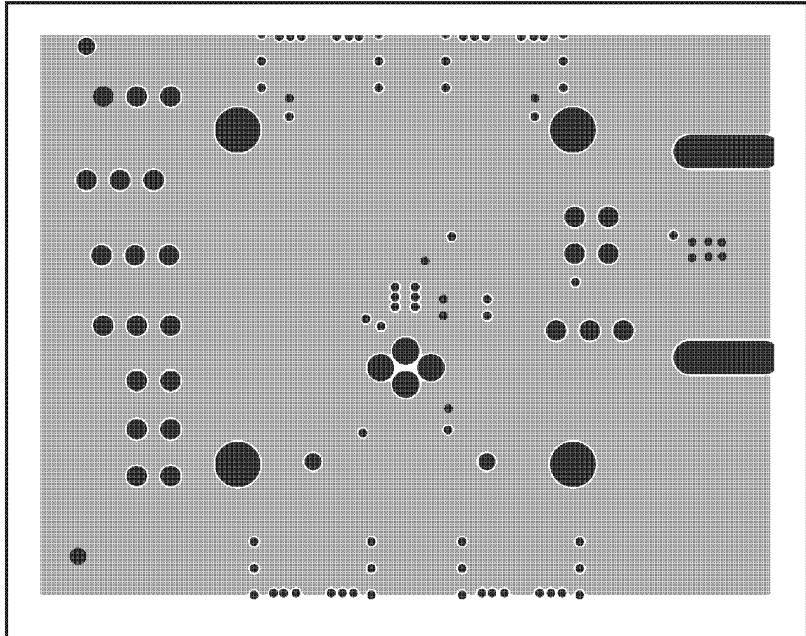

Figure 5. MAX3967A EV Kit PC Board Layout - Power Plane.

MAX3967A Evaluation Kit
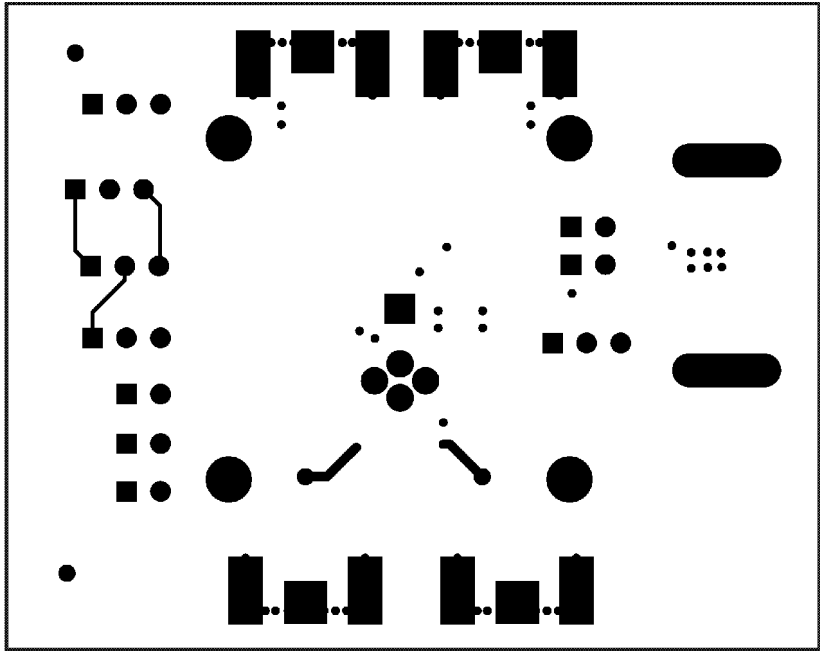
Figure 6. MAX3967A EV Kit PC Board Layout - Solder Side..

Temperature Coefficient	JU1	JU2
Nominal Temp Co	BC	open
Minimum Temp Co	AB	EF
Maximum Temp Co	open	open
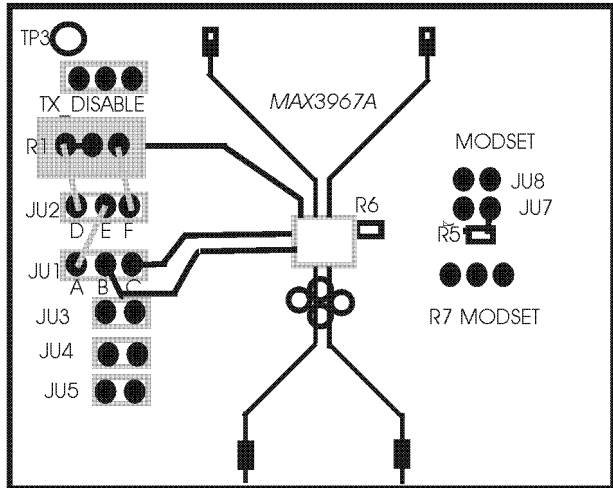
Figure 7. Temperature Coefficient Jumper Table.