MAXIM
MAX3966 Evaluation Kit

Evaluates: MAX3966

_____General Description

The MAX3966 evaluation kit (EV kit) is an assembled, surface-mount demonstration board.

_____Component List

DESIGNATION	QTY	DESCRIPTION
C1, C8	2	10µF, 16V (min), ±10% tantalum capacitors AVX TAJC106K016
C2, C5, C6, C7, C9, C11, C16	7	0.01µF, 25V (min), 10% ceramic capacitors
C3, C4, C14, C15	4	0.22µF, 10V (min), 10% ceramic capacitors
C10, C12, C13	—	Open
D1	1	LED (customer supplied)
D2	1	Diode Central Semiconductor CMPD7000BK
I$_{OUT+}$, I$_{OUT-}$, IN+, IN-	4	SMA connectors (edge mount) E.F. Johnson 142-0701-801
JU1–JU5	5	2-pin headers (0.1" centers)
L1	1	Ferrite bead Murata BLMIIP300S
L2	1	1µH inductor Coilcraft 1008CS-102XKBC
R1	1	100kΩ potentiometer
R2	1	820Ω, 5% resistor
R3	1	5kΩ potentiometer
R4, R5, R11	3	49.9Ω, 1% resistors
R6	1	121Ω, 1% resistor
R7	1	221Ω, 1% resistor
R8	1	Open
R9, R10	2	10Ω, 1% resistors
R12, R13	2	453Ω, 1% resistors
SW1, SW2	2	3-position dip switches Digi-Key GH1103-ND
U1	1	MAX3966CEG
U2	1	MAX664CSA
U3	1	PNP transistor Zetex FMMT591A
None	3	Shunts for JU1, JU4, and JU5

_____Features

♦ **Examines the MAX3966 Outputs with Oscilloscope or LED Load**

♦ **PECL Termination Provided**

♦ **Single-Ended or Differential Input**

♦ **Adjustment of Modulation-Current Temperature Coefficient (tempco)**

♦ **Fully Assembled and Tested**

_____Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX3966EVKIT-SO	0°C to +70°C	Surface Mount (24 QSOP)

_____Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(803) 946-0690	(803) 626-3123
Central Semiconductor	(516) 435-1110	(516) 435-1824
Murata Electronics	(770) 436-1300	(770) 436-3030
Zetex	(516) 543-7100	(516) 864-7630

_____Quick Start

The MAX3966 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) Install shunts on jumper JU4 (nominal TC) and JU5 (VTT). Remove shunts from jumpers JU1 (VBB), JU2 (MINTC), and JU3 (VARTC). Apply a differential signal to J4 (IN+) and J3 (IN-) with 1V differential signal amplitude and 100Mbps data rate.

2) Connect an oscilloscope to J6 and J7 (I$_{OUT+}$ and I$_{OUT-}$) using matched 50Ω cables and 50Ω oscilloscope terminations.

3) Apply a 3.3V power source to the VCC terminal. Set the current limit between 200mA and 300mA.

4) Adjust the oscilloscope vertical gain of both channels to 10mV/div. Set the oscilloscope to display the differential signal (I$_{OUT+}$ - I$_{OUT-}$).

5) Adjust R3 (R$_{MOD}$) until a signal is observed on the screen. The conversion gain from the MAX3966 current output to the oscilloscope is 0.5mV/mA. For example, a 100mA current output from the MAX3966 produces a 50mVp-p signal on the oscilloscope.

MAXIM _____ *Maxim Integrated Products* 1
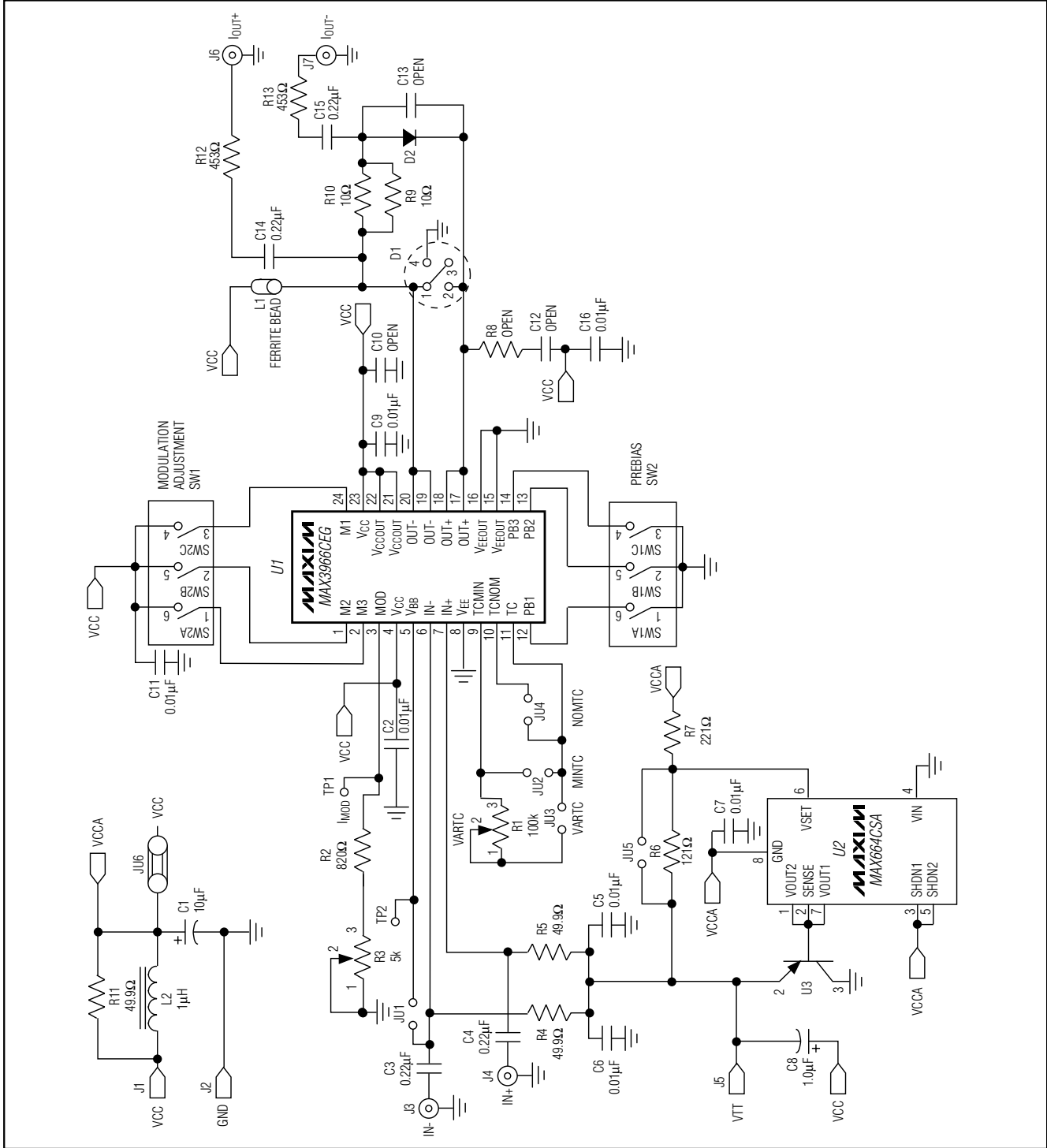
For free samples and the latest literature, visit www.maxim-ic.com or phone 1-800-998-8800.
For small orders, phone 1-800-835-8769.

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Figure 1. MAX3966 EV Kit Schematic

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Table 1. Adjustments and Controls

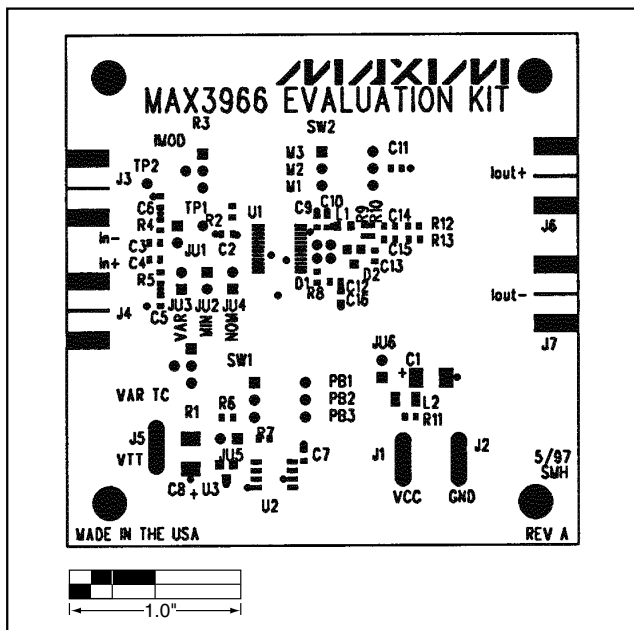| CONTROL	NAME	FUNCTION
D1	LED	D1 is a socket for an LED in a TO-46 header. Remove R9, R10, C14, C15, and D2 before inserting an LED into socket D1.
JU1	VBB	Shunt JU1 if a single-ended input is used. Be certain to remove termination resistor R4 if JU1 is shunted.
JU2	MIN TC	Shunt JU2 to obtain the minimum modulation-current tempco. Remove JU3 and JU4 if JU2 is shunted.
JU3	VAR TC	Shunt JU3 if variable modulation-current tempco is desired. Remove JU2 and JU4 if JU3 is shunted.
JU4	NOM TC	Shunt JU4 if the nominal modulation-current tempco is desired. Remove JU2 and JU3 if JU4 is shunted.
JU5	VTT	The input termination voltage (V_{TT}) is selectable with jumper JU5. Short JU5 to set $V_{TT} = V_{CC}$ - 1.3V when using AC-coupled inputs. Remove JU5 to set $V_{TT} = V_{CC}$ - 2V when using DC-coupled inputs. The inputs can be DC coupled by shorting C3 and C4.
JU6	VCC	Supply current can be measured accurately by cutting JU6 and installing a current meter.
S1	MOD ADJ	Use S1 to provide fine adjustment of the modulation-current amplitude using the MAX3966's M1, M2, and M3 pins (see MAX3966 data sheet, Table 2).
S2	PREBIAS	Use S2 to provide adjustment of the LED prebias voltage using pins PB1, PB2, and PB3 (see MAX3966 data sheet, Table 1).

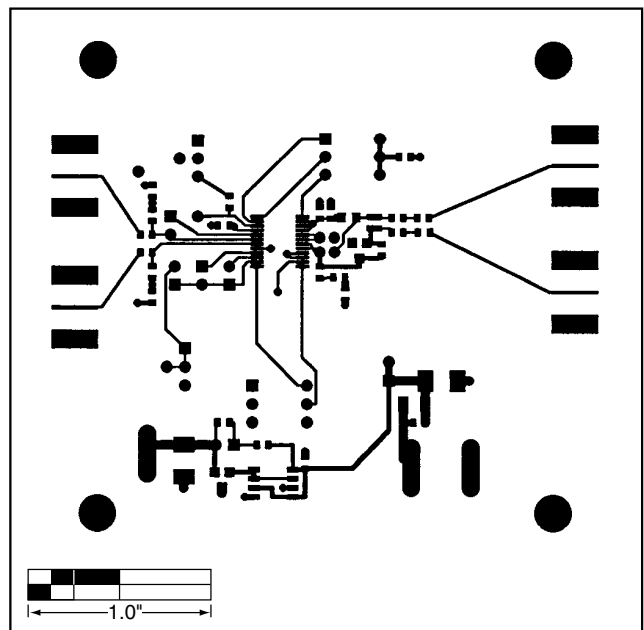Figure 2. MAX3966 EV Kit Component Placement Guide—Component Side

Figure 3. MAX3966 EV Kit PC Board Layout—Top Side
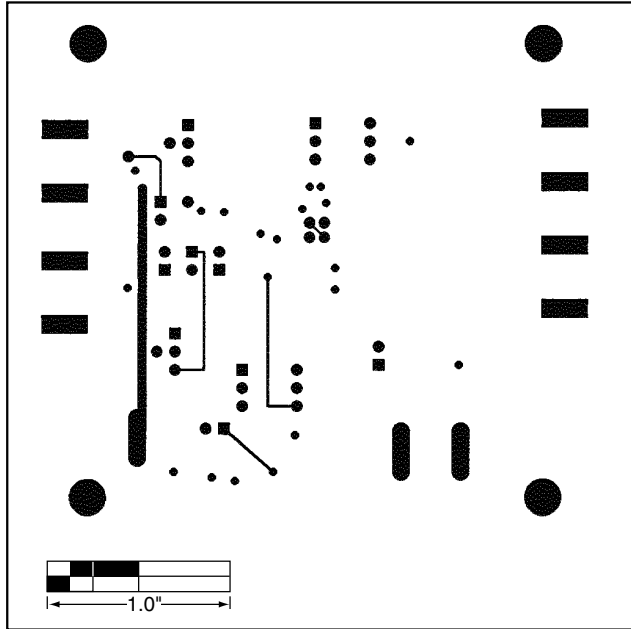
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Figure 4. MAX3966 EV Kit PC Board Layout—Solder Side
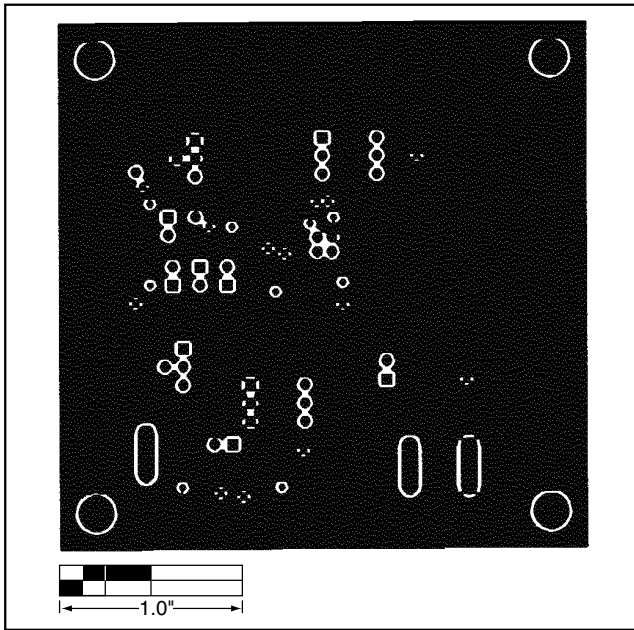

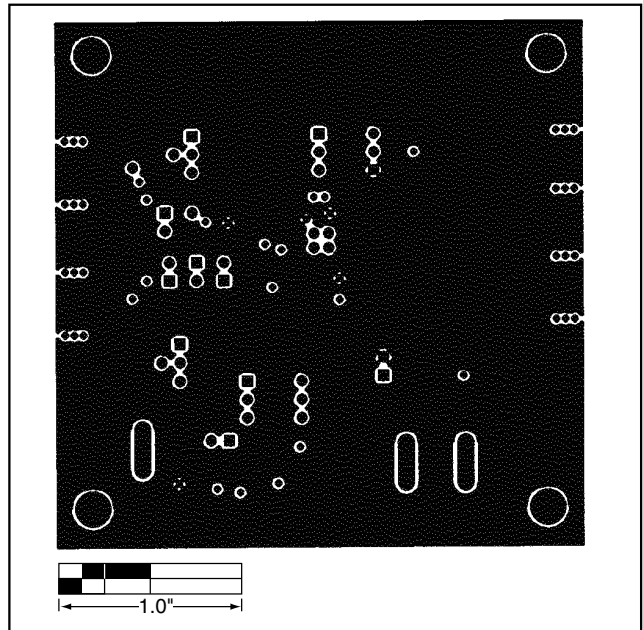Figure 5. MAX3966 EV Kit PC Board Layout—Ground Plane

Figure 6. MAX3966 EV Kit PC Board Layout—Power Plane

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