

MAXIM

MAX3667 Evaluation Kit

General Description

The MAX3667 evaluation kit (EV kit) is an assembled, surface-mount demonstration board that provides easy optical evaluation of the MAX3667.

Ordering Information

PART	TEMP. RANGE	IC PACKAGE
MAX3667EVKIT	-40°C to +85°C	32 TQFP

Features

- ◆ Fully Assembled and Tested
- ◆ Board is Configured for 3.3V Operation
- ◆ PECL Input Termination Provided On-Board
- ◆ Independent Electrical Monitoring of Modulation and Bias Currents

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2, C4, C5, C7-C10, C12, C13, C15, C16, C17, C19	14	0.1 μ F \pm 10%, 25V min ceramic capacitors
C3	1	1000pF \pm 10%, 25V min ceramic capacitor
C6, C14	2	1 μ F \pm 10%, 25V min ceramic capacitors
C11	1	0.01 μ F \pm 10%, 25V min ceramic capacitor
C18, C20	2	100 μ F \pm 10%, 16V tantalum capacitors Digi-Key P5231-ND or Panasonic ECE-A1CGE101
R1, R2	2	130 Ω \pm 1% resistors
R3, R5, R13	3	50k Ω Bourne variable resistors Digi-Key 3296W-503-ND
R4, R6	2	1.5k Ω \pm 5% resistors
R7, R20	2	100 Ω \pm 1% resistors
R8, R9	2	82.5 Ω \pm 1% resistors
R11	1	4.75 Ω \pm 1% resistor
R12	1	20k Ω \pm 5% resistor
R15	1	2k Ω \pm 5% resistor

DESIGNATION	QTY	DESCRIPTION
R17, R18	2	49.9 Ω \pm 1% resistors
R19	1	232 Ω \pm 1% resistor
R21	1	22.1 Ω \pm 1% resistor
SJ1, SJ2, SJ4	3	Trace gap jumpers. Short with solder.
SJ5	1	Trace gap jumper. Leave open.
L1	1	470nH inductor Coilcraft 1008CS-471XKBC
J1-J4	4	SMA connectors (edge mount) E.F. Johnson 142-0701-801 Digi-Key J502-ND
JU1, JU3	2	3-pin headers (0.1" centers) Digi-Key S1012-36-ND
JU10	1	2-pin header (0.1" center) Digi-Key S1012-36-ND
VCC, GND	2	1-pin headers Mouser test point 151-203
JU1, JU3, JU10	3	Shunts Digi-Key S9000-ND
U1	1	MAX3667ECJ (32-pin TQFP)
None	1	MAX3667 circuit board
None	1	MAX3667 data sheet

Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(806) 946-0690 (800) 282-4975	(803) 626-3123
Central Semiconductor	(516) 435-1110	(516) 435-1824
Murata	(814) 237-1431 (800) 831-9172	(814) 238-0490
Zetex	(516) 543-7100	(516) 864-7630

Quick Start

- 1) Ensure that solder bridges SJ1, SJ2, and SJ4 are shorted.
- 2) Ensure that solder bridge SJ5 is open.
- 3) Install shunt JU3 between pins 1 and 2.
- 4) Install shunt JU1 between pins 2 and 3.
- 5) Open JU10.
- 6) Turn the R13 (APCSET) potentiometer counter-clockwise to 50k Ω (maximum turn).



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- 7) Turn the R3 (MODSET) potentiometer counter-clockwise to 50k Ω (maximum turn).
- 8) Attach a high-impedance voltmeter to J3 (BIASMON).
- 9) Attach a high-impedance oscilloscope to J4 (MODMON).
- 10) Apply a PECL-compatible differential input signal across J1 to J2.
- 11) Connect a TO46-style header laser diode and monitor (Figure 1).
- 12) Attach the laser diode output to an optical/electrical converter.
- 13) Power the board up with a +3.3V power source at the 3.3V pin and GND pin. Set the current limit to 300mA.
- 14) Adjust APCSET (R13) clockwise until the desired laser bias is achieved. Bias can be monitored at J3 (BIASMON). The conversion factor is $(V_{BIASMON} / 50) \times 38$ (typical) = I_{BIAS} . Power can also be monitored at the laser diode with an optical/electrical converter.
- 15) Adjust MODSET (R3) clockwise until the desired modulation current is achieved. Modulation can be monitored at J4 (MODMON). The conversion factor is $(V_{MODMON} / 50) \times 33$ (typical) = I_{MOD} . Modulation can also be observed on an oscilloscope connected to an optical/electrical converter.

Adjustment and Control Descriptions (see Quick Start first)

COMPONENT	NAME	FUNCTION
R5	BIASSET	In open-loop operation (APC not used) this potentiometer adjusts the bias current applied to the laser. Note that R6 limits the maximum bias current.
R13	APCSET	In closed-loop operation (APC engaged) this potentiometer adjusts the bias current applied to the laser. Note that R15 limits the maximum bias current.
R3	MODSET	This potentiometer adjusts the modulation current applied to the laser. Note that R4 limits the maximum modulation current.
JU1	DISABLE	Shunting between pins 1 and 2 (high) disables the part. Shunting pins 2 and 3 enables the part.
JU3	APC	In closed-loop operation (APC engaged) pins 1 and 2 must be shunted. In open-loop operation pins 2 and 3 must be shunted.
JU10	—	Open when in closed-loop mode. Shunted when in open-loop mode.
J3	BIASMON	Monitors the bias current at the laser. BIASMON is typically 1/38 of the actual laser bias current. When SJ1 is closed and using a high-impedance meter, current at BIASMON = $V_{BIASMON} / 49.9\Omega$.
J4	MODMON	Monitors the modulation current at the laser. If using a high-impedance scope, ensure that SJ2 is closed. $I_{MODMON} = (\text{voltage on oscilloscope}) / 49.9\Omega$. I_{MODMON} is typically 1/33 of the actual laser modulation current (I_{MOD}). If using a 50 Ω terminated scope, ensure that SJ2 is open. Conversion factor is the same as above.
SJ1	50 Ω termination	See BIASMON (J3).
SJ2	50 Ω termination	See MODMON (J4).
SJ4	—	When using APC, this solder jumper should be shorted. When APC is not being used, ensure that the solder jumper is open.
SJ5	—	When using APC, this solder jumper should be open. When APC is not being used, ensure that the solder jumper is shorted.

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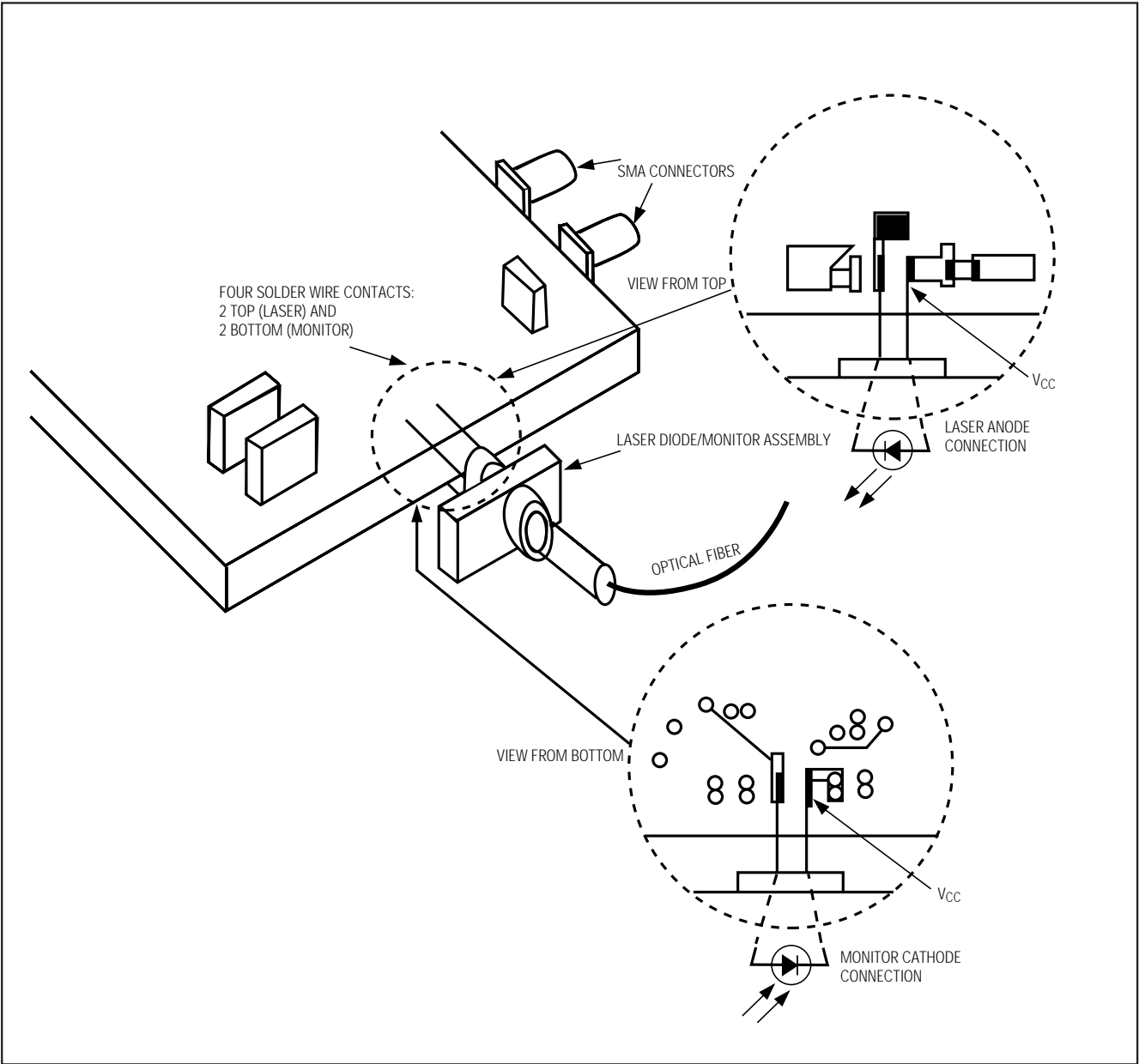


Figure 1. Attachment of Laser Diode/Monitor to MAX3667 EV Kit

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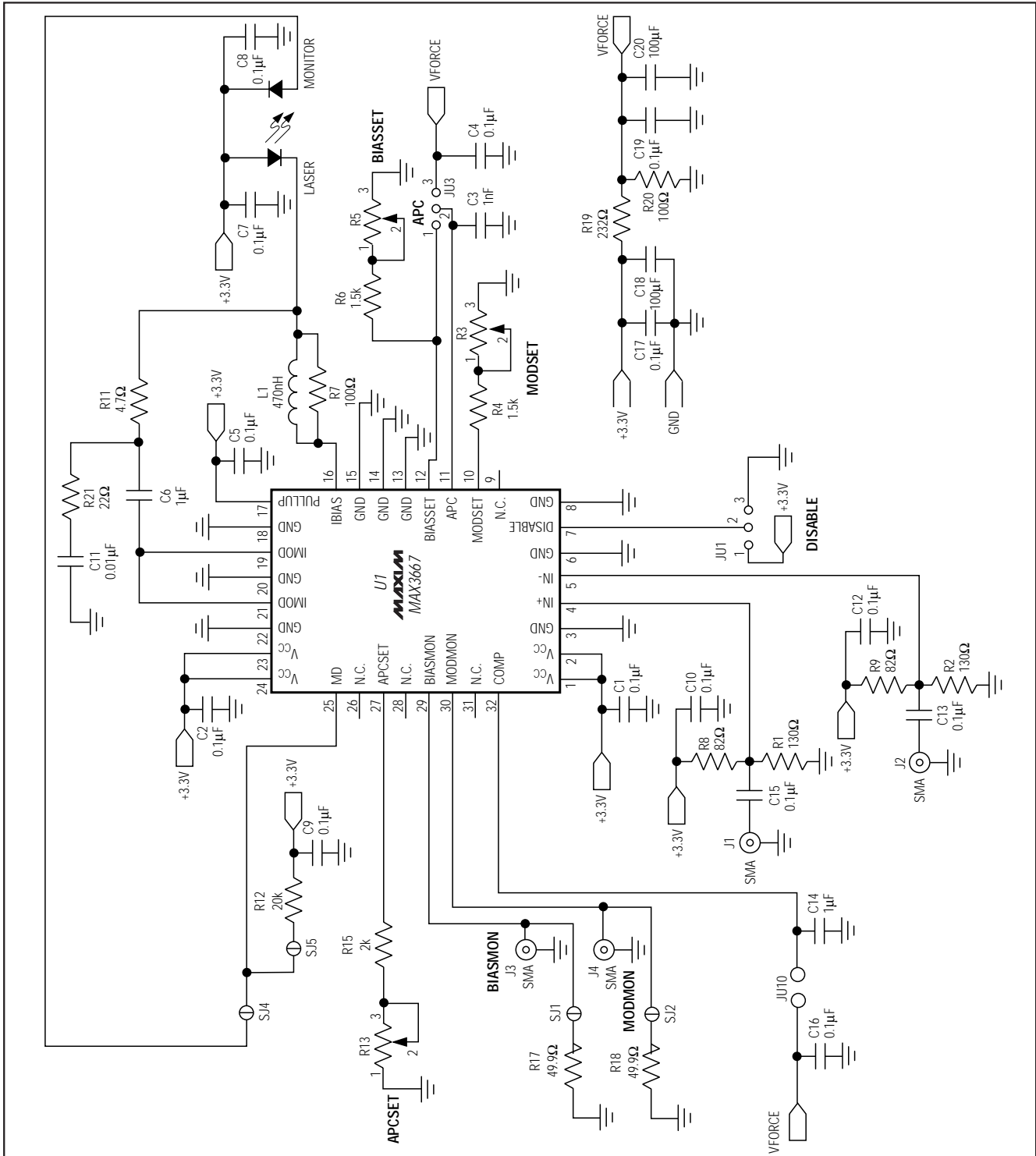


Figure 2. MAX3667 EV Kit Schematic

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Figure 3. MAX3667 EV Kit Component Placement Guide

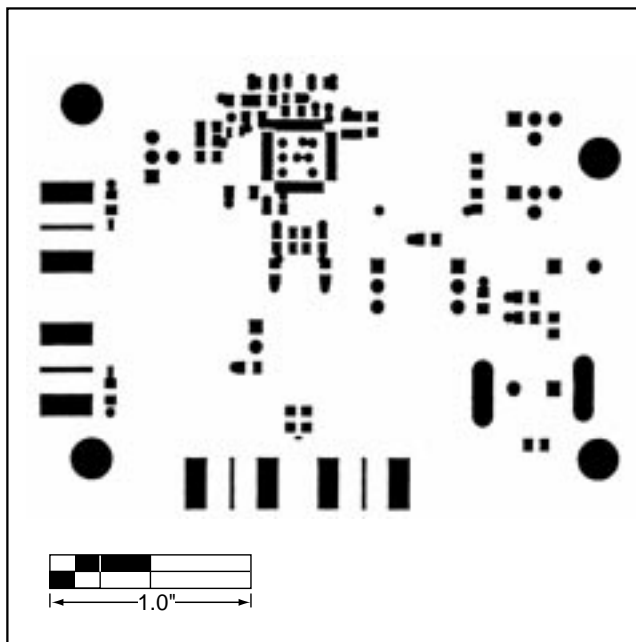


Figure 4. MAX3667 PC Board Layout—Top Solder Mask

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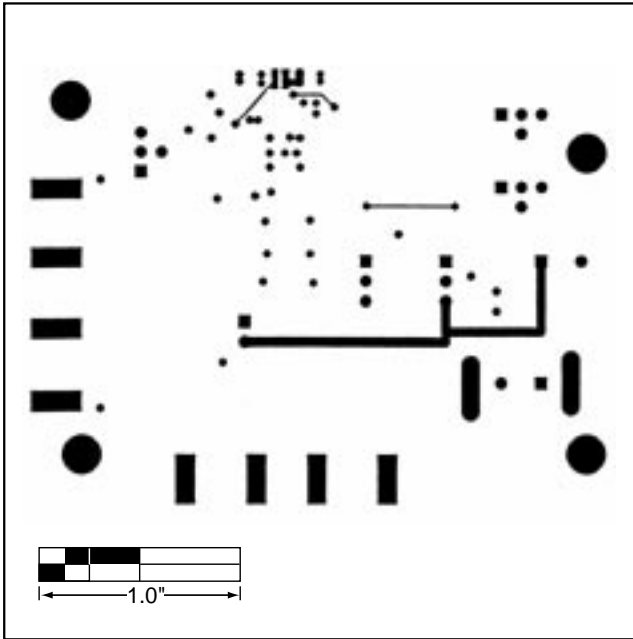


Figure 5. MAX3667 PC Board Layout—Solder Side

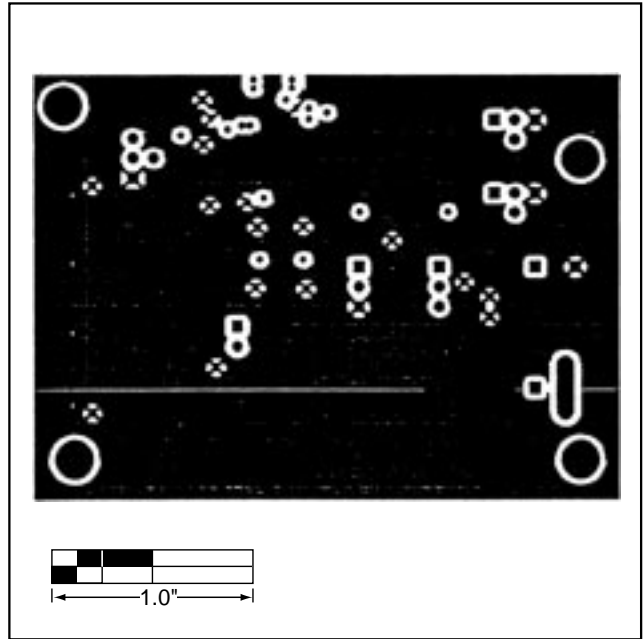


Figure 6. MAX3667 PC Board Layout—GND Plane

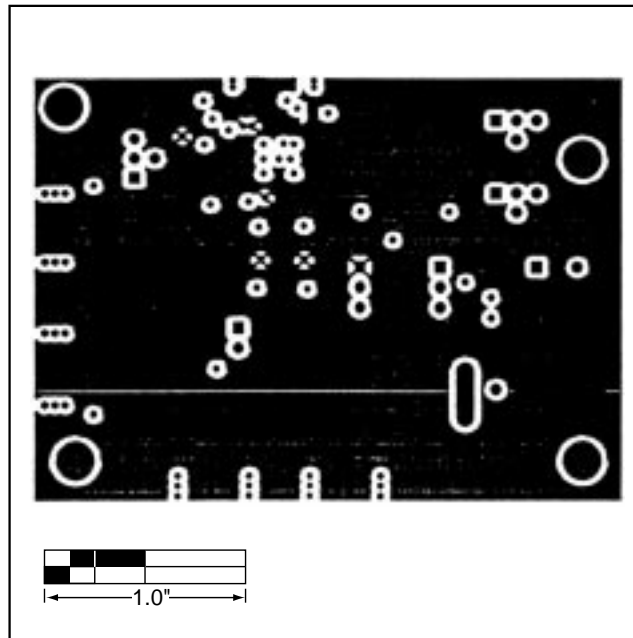


Figure 7. MAX3667 PC Board Layout—Power Plane

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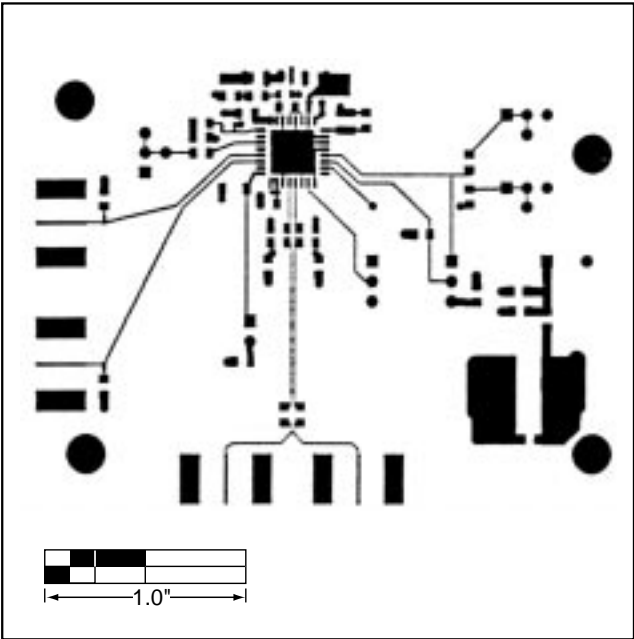


Figure 8. MAX3667 PC Board Layout—Component Side

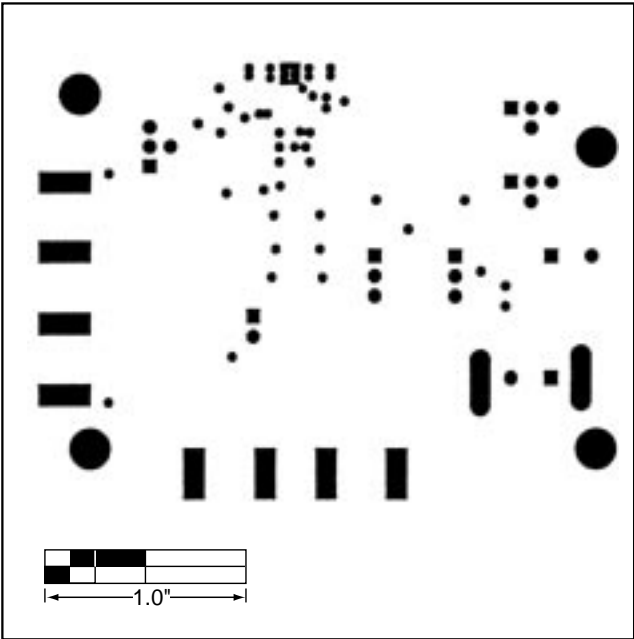


Figure 9. MAX3667 PC Board Layout—Bottom Solder Mask

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NOTES

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