



MAX3991/MAX3992 Evaluation Kit

General Description

The MAX3991/MAX3992 evaluation kit (EV kit) simplifies evaluation of both receiver (MAX3991) and transmitter (MAX3992) XFP signal conditioning ICs. This EV kit allows testing of all the MAX3991 and MAX3992 features. A single reference clock provides timing for both the MAX3991 and MAX3992. The recovered clock outputs can be enabled for jitter testing.

Features

- ◆ Fully Assembled and Tested
- ◆ Low Loss Dielectric Transmission Lines
- ◆ SMA Connectors for Ease in Lab Testing
- ◆ Separate +3.3V Supply Operation

Ordering Information

PART	TYPE
MAX3991EVKIT#	EV Kit

#Denotes RoHS compliant.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C4, C6, C9	4	0.1 μ F \pm 10%, 10V ceramic capacitors (0402)
C2, C3, C7, C8	4	22 μ F \pm 5%, 10V min tantalum capacitors (B case)
C5, C19, C20, C22, C23, C27, C28, C33, C34, C38, C39, C41, C42, C44, C45	15	0.01 μ F \pm 5%, 10V ceramic capacitors (0402)
C18, C21, C25, C26, C29–C32, C35, C40, C43, C51	12	0.01 μ F \pm 10%, 6.3V ceramic capacitors (0201)
C24, C52	2	0.047 μ F \pm 10%, 10V ceramic capacitors (0402)
D1–D4	4	Red LEDs (T1 package)
J1–J4	4	Test points
J5–J12, J14–J19	14	SMA connectors, side-mount tab Digi-Key J502-ND
JU1–JU6	6	3-pin headers, 0.1in spacing
L1, L2	2	4.7 μ H \pm 10% inductors Coilcraft 1008LS-472XKBC

DESIGNATION	QTY	DESCRIPTION
Q1–Q4	4	npn transistors (SOT23) FMMT491A
R12, R16, R19, R29	4	511 Ω 1% resistors (0603)
R13, R17, R25, R30	4	4.7k Ω 5% resistors (0603)
R31, R34	2	20k Ω variable resistors Bourns 3296W-1-203LF
R32, R35	2	10k Ω \pm 5% resistors (0402)
R33, R36	2	1k Ω \pm 5% resistors (0402)
TP1–TP4, TP11–TP14	8	Test points
U6	1	10Gbps clock and data recovery with limiting amplifier (24 QFN) Maxim MAX3991UTG
U7	1	10Gbps clock and data recovery with equalizer (24 QFN) Maxim MAX3992UTG
None	6	Shunts
None	1	PCB: MAX3991/MAX3992 EV Kit Board

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Component Suppliers

SUPPLIER	PHONE	WEBSITE
AVX	843-946-0238	www.avxcorp.com
Coilcraft	847-639-6400	www.coilcraft.com
Murata Electronics North America	770-436-1300	www.murata-northamerica.com
Zetex Semiconductors	631-543-7100	www.zetex.com

Note: Please indicate that you are using the MAX3991/MAX3992 when contacting these component suppliers.

MAX3991 Quick Start

- 1) Connect the data signal to J5 (SDI+) and J6 (SDI-).
- 2) Connect a reference clock at 1/16th or 1/64th the data rate to J18 and J19.
- 3) Connect SDO+ and SDO- to the 50Ω inputs of a high-speed oscilloscope at J9 and J10.
- 4) Connect a +3.3V supply to the VCC terminal J1 and ground to the GND terminal J2. (There is a voltage drop across L1, so verify VCC = 3.3V at TP11.)
- 5) Set VTH (using R31) to 10x the desired LOS assert level. For example, 200mV at TP13 results in a typical assert level of 20mV_{p-p}. Alternatively, the LOS circuit can be disabled by turning R31 fully clockwise.
- 6) Set the FCTL1 pins (JU1 and JU2) to ground. Doing so disables SCLKO. Refer to Table 1 for other control options.

MAX3992 Quick Start

- 1) Connect the data signal to J16 (SDI-) and J17 (SDI+).
- 2) Connect a reference clock at 1/16th or 1/64th the data rate to J18 and J19.
- 3) Connect SDO+ and SDO- to the 50Ω inputs of a high-speed oscilloscope at J11 and J12.
- 4) Connect a +3.3V supply to the VCC terminal J3 and ground to the GND terminal J4. (There is a voltage drop across L2, so verify VCC = 3.3V at TP12.)
- 5) Disable the LOS detector by turning R34 fully clockwise.
- 6) Set the FCTL2 pins (JU3 and JU4) to ground. Doing so disables SCLKO. Refer to Table 1 for other control options.

Table 1. Adjustments and Control Descriptions

COMPONENT	NAME	FUNCTION		
		FCTL1-1	FCTL1-2	MODE
JU1, JU2	FCTL1-1, FCTL1-2 (MAX3991)	GND	GND	Normal operation—serial clock disabled.
		VCC	GND	Standby—power-down mode.
		GND	VCC	Serial data output disabled.
		VCC	VCC	Serial clock output enabled for jitter testing.
JU3, JU4	FCTL2-2, FCTL2-1 (MAX3992)	FCTL2-2	FCTL2-1	MODE
		GND	GND	Normal operation—serial clock disabled.
		VCC	GND	Standby—power-down mode.
		GND	VCC	Serial data output disabled.
		VCC	VCC	Serial clock output enabled for jitter testing.
JU5, JU6	POLARITY	Polarity Control. Set to VCC or leave open for standard polarity.		
R31, R34	VTH	Apply the desired threshold for loss of signal.		
D1, D4	LOL2, LOL1	Loss-of-lock indicator.		
D2, D3	LOS2, LOS	Loss-of-signal indicator.		

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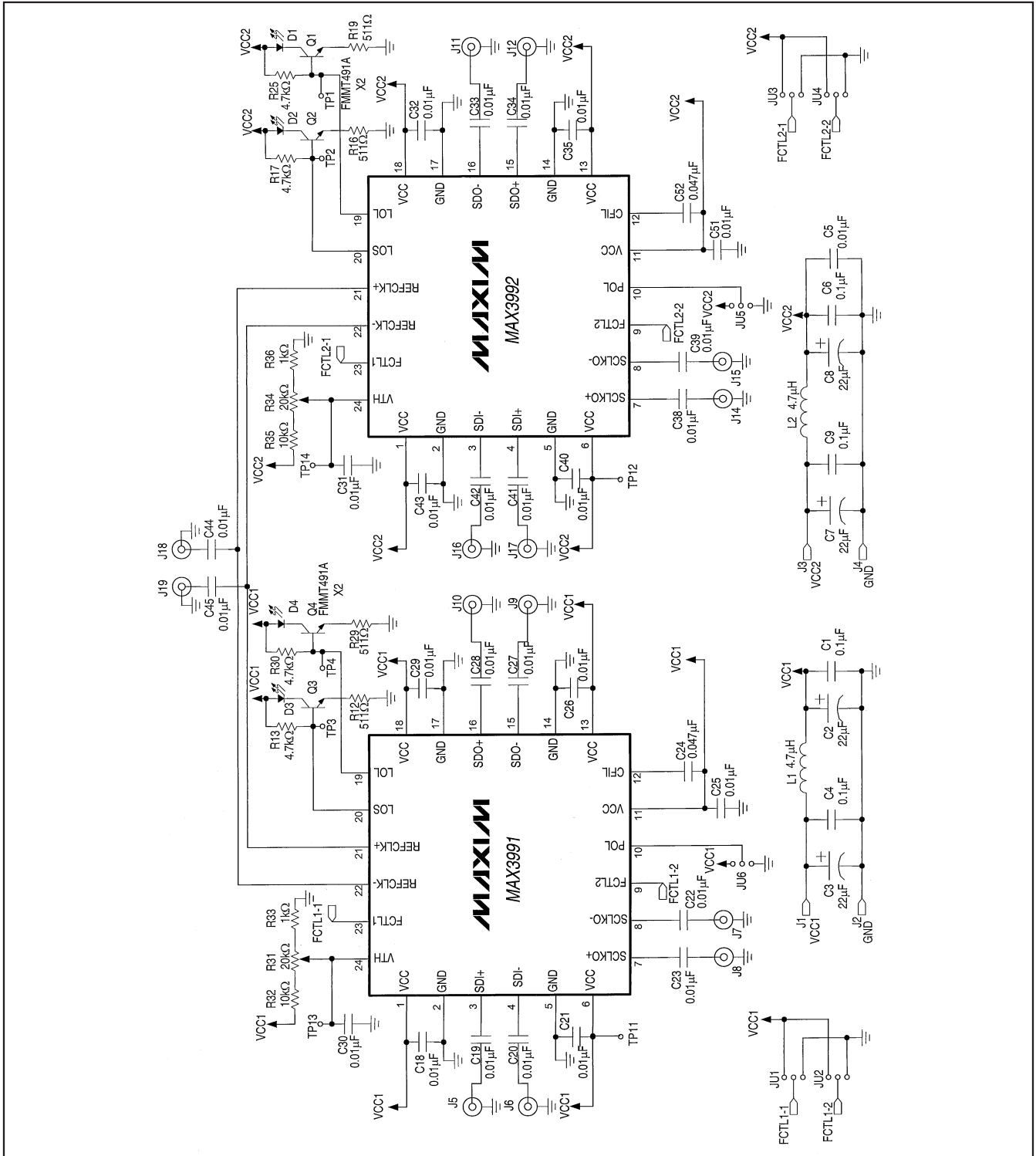


Figure 1. MAX3991/MAX3992 EV Kit Schematic

MAX3991/MAX3992 Evaluation Kit

Evaluate: MAX3991/MAX3992

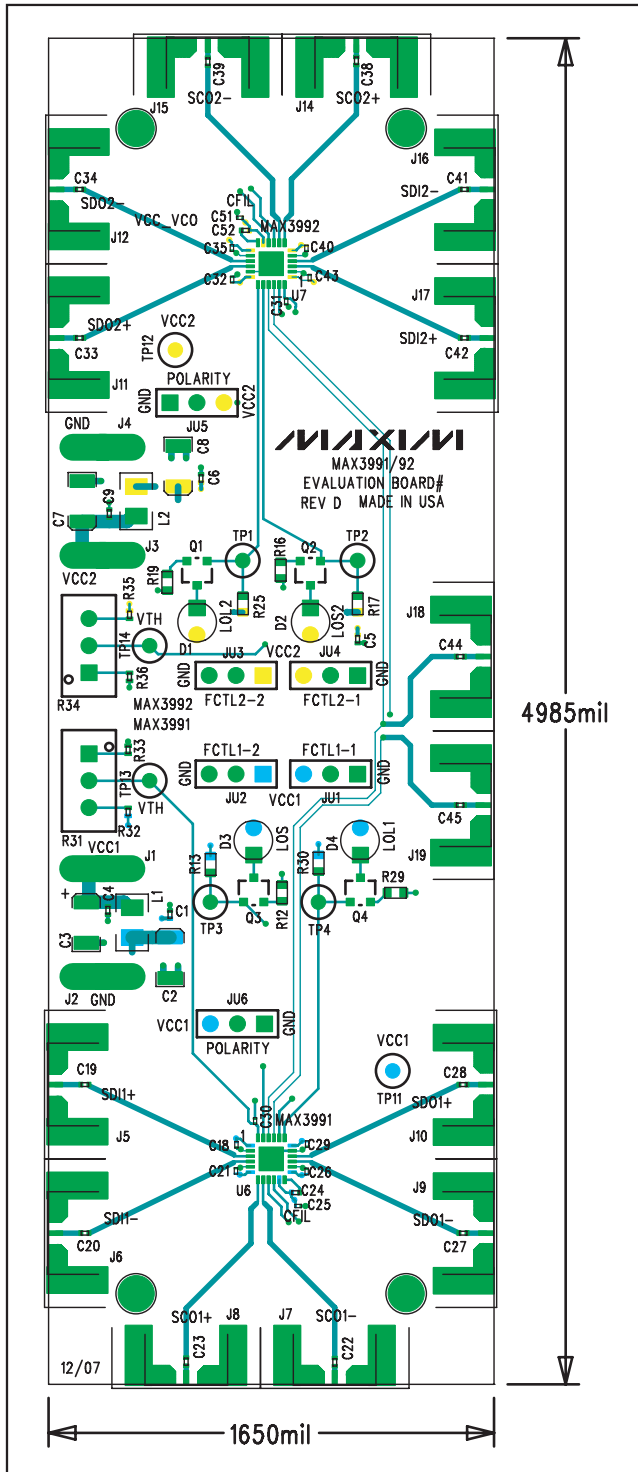


Figure 2. MAX3991/MAX3992 EV Kit PCB Component Placement Guide—Component Side

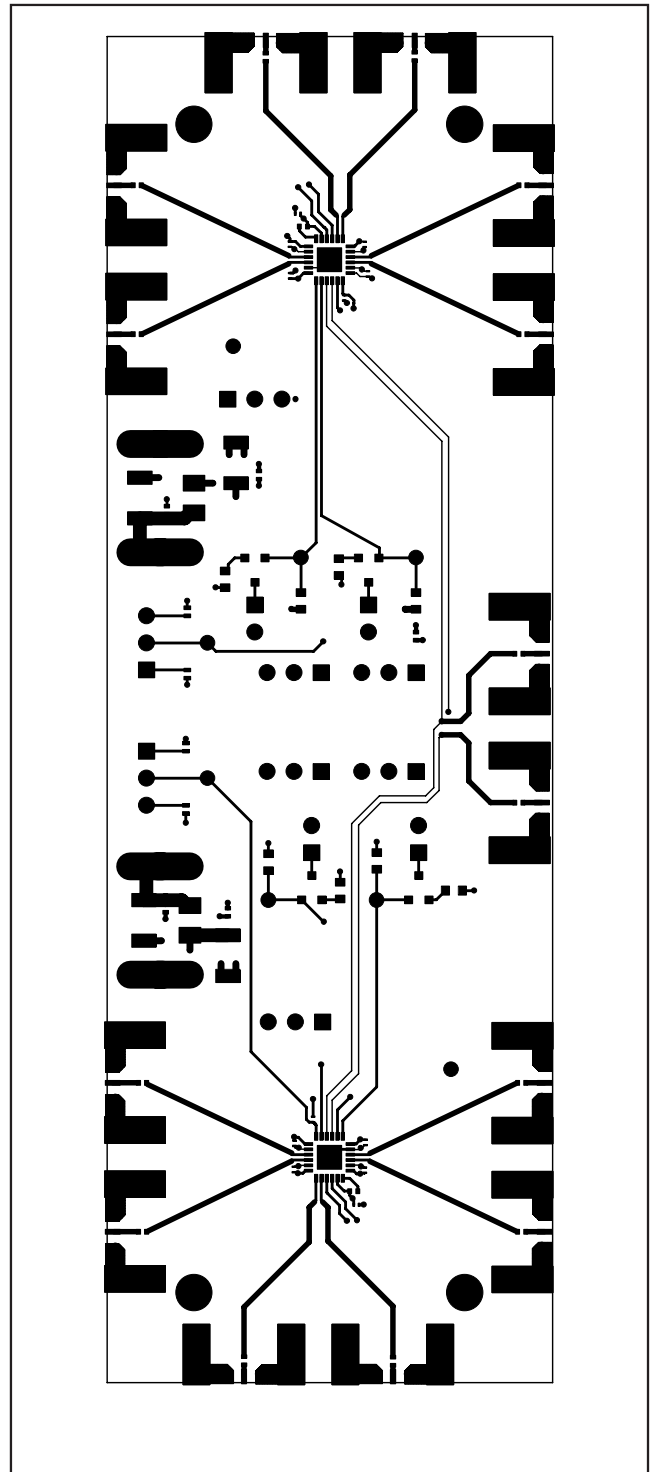


Figure 3. MAX3991/MAX3992 EV Kit PCB Layout—Component Side

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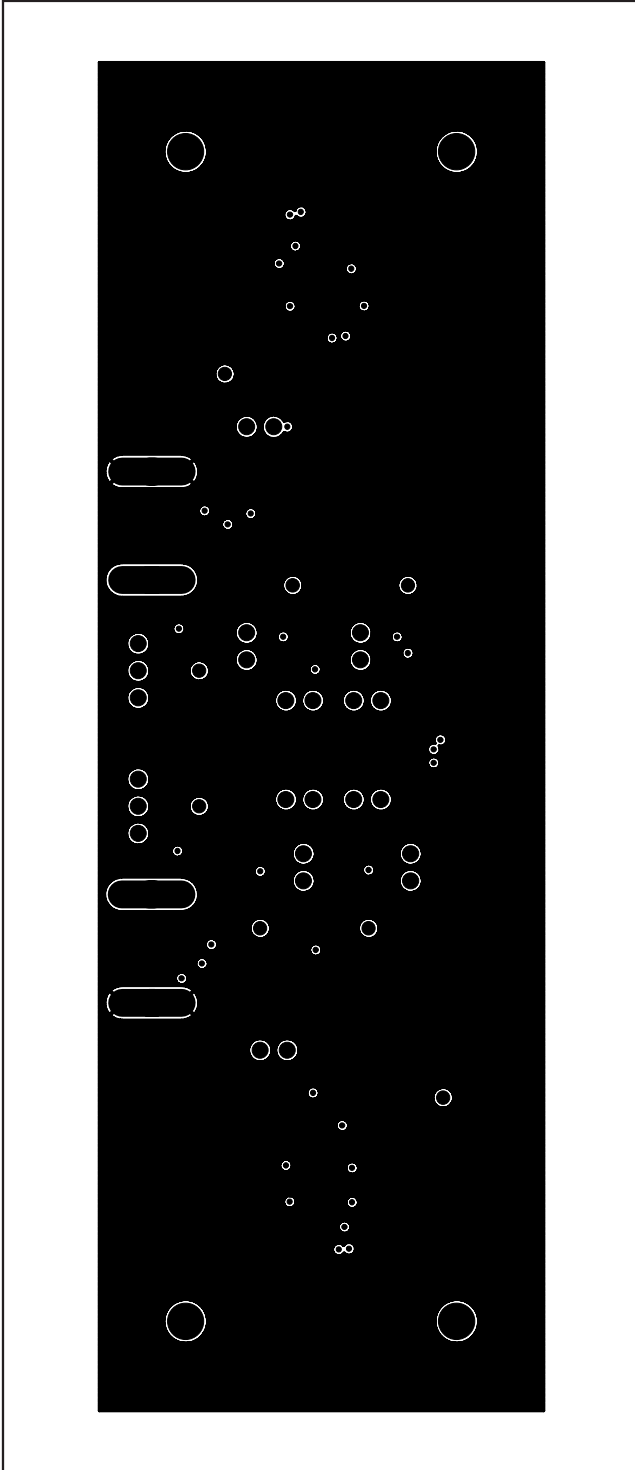


Figure 4. MAX3991/MAX3992 EV Kit PCB Layout—Ground Plane

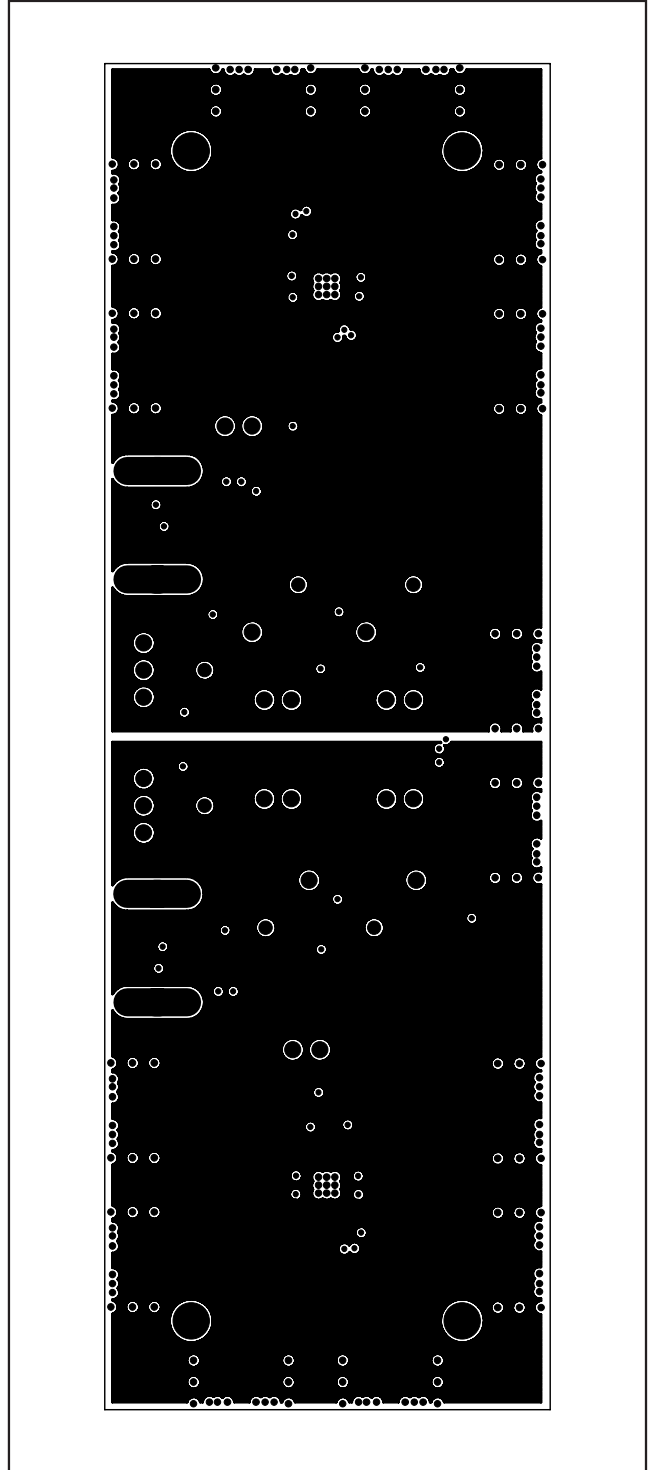


Figure 5. MAX3991/MAX3992 EV Kit PCB Layout—Power Plane

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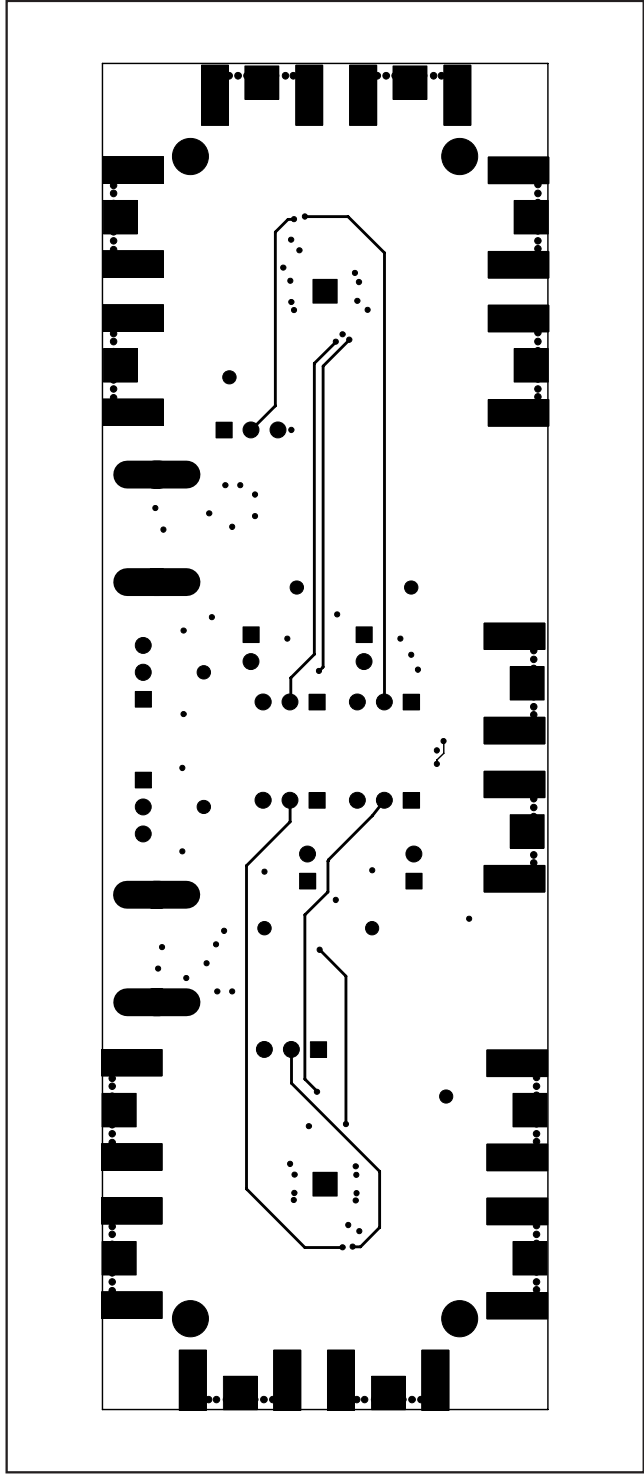


Figure 6. MAX3991/MAX3992 EV Kit PCB Layout—Solder Side

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Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	1/05	Initial release.	—
1	11/08	Complete rewrite due to crosstalk issue.	All

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