

MAXIM

MAX3783 Evaluation Kit

Evaluates: MAX3783

General Description

The MAX3783 evaluation kit (EV kit) is an assembled demonstration board that provides easy evaluation of the MAX3783 multiplexer/buffer. The MAX3783 EV kit provides 100Ω differential output terminations on-board, simplifying termination of unused outputs.

Component List

DESIGNATION	QTY	DESCRIPTION
C1–C40	40	0.1μF ±10% ceramic capacitors (0402) Murata GRM36X5R104K010AD
C41	1	33μF ±10% tantalum capacitor (C) AVX TAJC336K010
C42	1	2.2μF ±10% tantalum capacitor (C) AVX TAJC225K035
J1–J28	28	SMA connectors (edge-mount)
J29, J30	2	Test points
JU1–JU6	6	1 × 2-pin headers (0.1in centers)
L1	1	47nH inductor (0805) Coilcraft 0805CS-470XKBC
R1–R6	6	1kΩ ±1% resistors (0603)
R7–R13	7	100Ω ±1% resistors (0603)
U1	1	MAX3783UCM 48-pin TQFP-EP (exposed pad)
None	6	Shunts
None	1	MAX3783 evaluation board
None	1	MAX3783 data sheet

Features

- ◆ Fully Assembled and Tested
- ◆ Single +3.3V Power-Supply Operation
- ◆ Termination of Unused Outputs Provided On-Board
- ◆ Easy Selection of Operating Modes

Ordering Information

PART	TEMP. RANGE	IC PACKAGE
MAX3783EVKIT	0°C to +85°C	48 TQFP-EP*

*Exposed pad

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

Quick Start

- 1) Remove R12 (differential termination resistor) from the evaluation board. **Note:** Be sure to clean flux residue thoroughly.
- 2) Apply +3.3V to the VCC pin (J29). Connect power-supply ground to the GND pin (J30).
- 3) Shunt jumper JU5 (SELA). Refer to Table 1 for other configurations.
- 4) Apply up to 3.125Gbps differential data to LI2A± (J17 and J18).
- 5) Connect SOA± (J23 and J24) to a high-speed 50Ω oscilloscope.

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Detailed Description

Connecting CML Outputs to 50Ω Oscilloscopes

CML outputs have a common-mode voltage near VCC, which is incompatible with oscilloscopes terminated in 50Ω to ground. To avoid interfering with the common-mode voltage, all MAX3783 CML outputs are AC-coupled on-board with 0.1μF capacitors. The CML outputs should not be connected directly through 50Ω to ground.

Terminating Unused Outputs

The MAX3783 EV kit has 100Ω differential resistors placed across all outputs. These resistors must be removed before connecting the outputs to a 50Ω oscilloscope. For best performance, keep all outputs terminated, either to a 50Ω measurement device or to the 100Ω differential resistor.

Control Lines

Jumpers JU1–JU6 are provided to set the operating mode of the MAX3783. Shorting these jumpers pulls the corresponding TTL control line to a logical zero. All TTL control lines are internally pulled high through 15kΩ resistors. See Table 1 to set operating modes.

Exposed Pad (EP) Package

The exposed pad 48-pin TQFP-EP provides a very low thermal-resistance path for heat removal from the IC. The pad is also electrical ground on the MAX3783 and must be soldered to the circuit board for proper thermal and electrical performance.

Table 1. Operating Modes

SEL ₋	SO ₋	$\overline{\text{LB}}_{-}$	LO ₋
0	LI2 ₋	0	LI ₋
1	LI1 ₋	1	SI ₋

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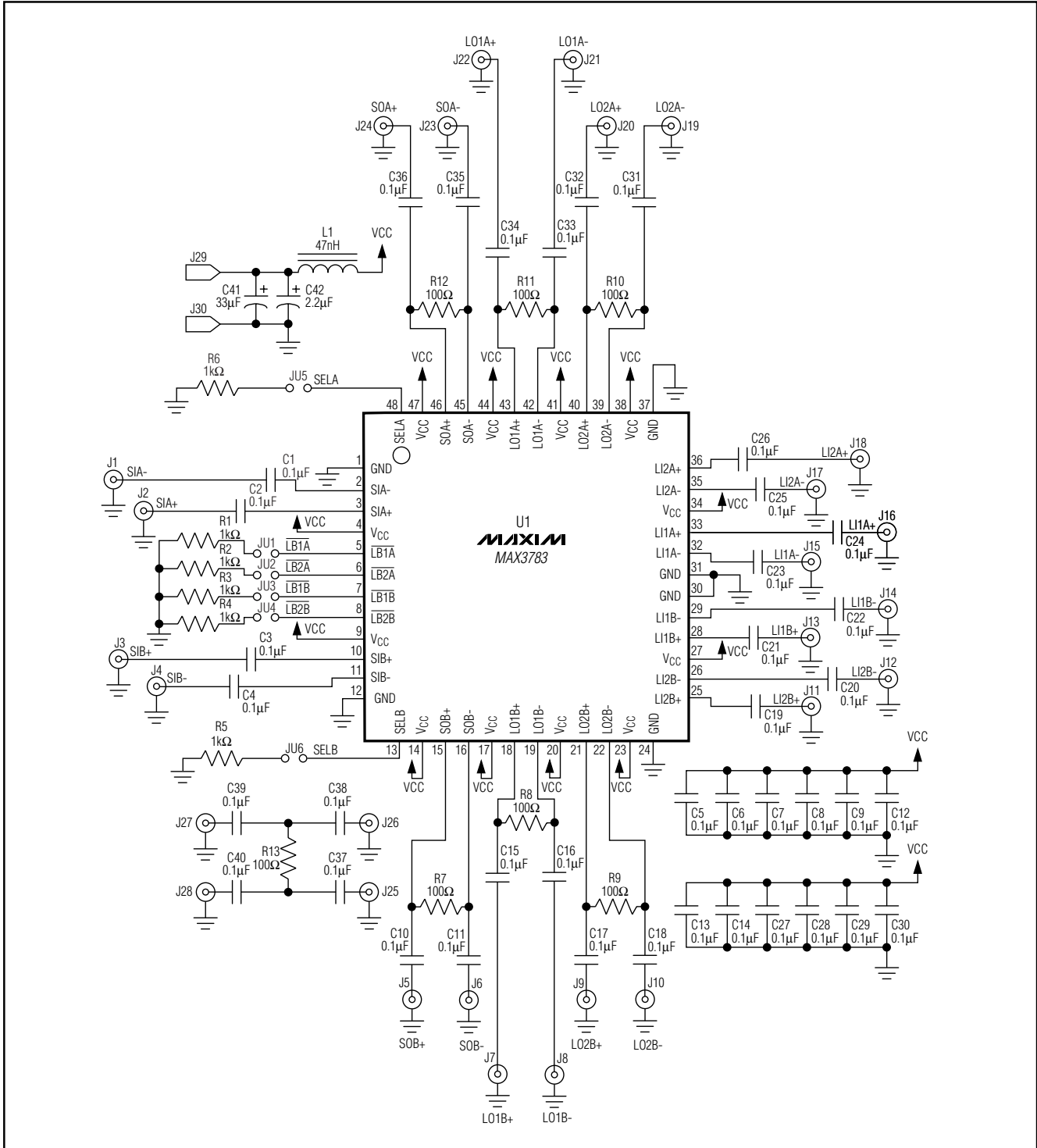


Figure 1. MAX3783 EV Kit Schematic

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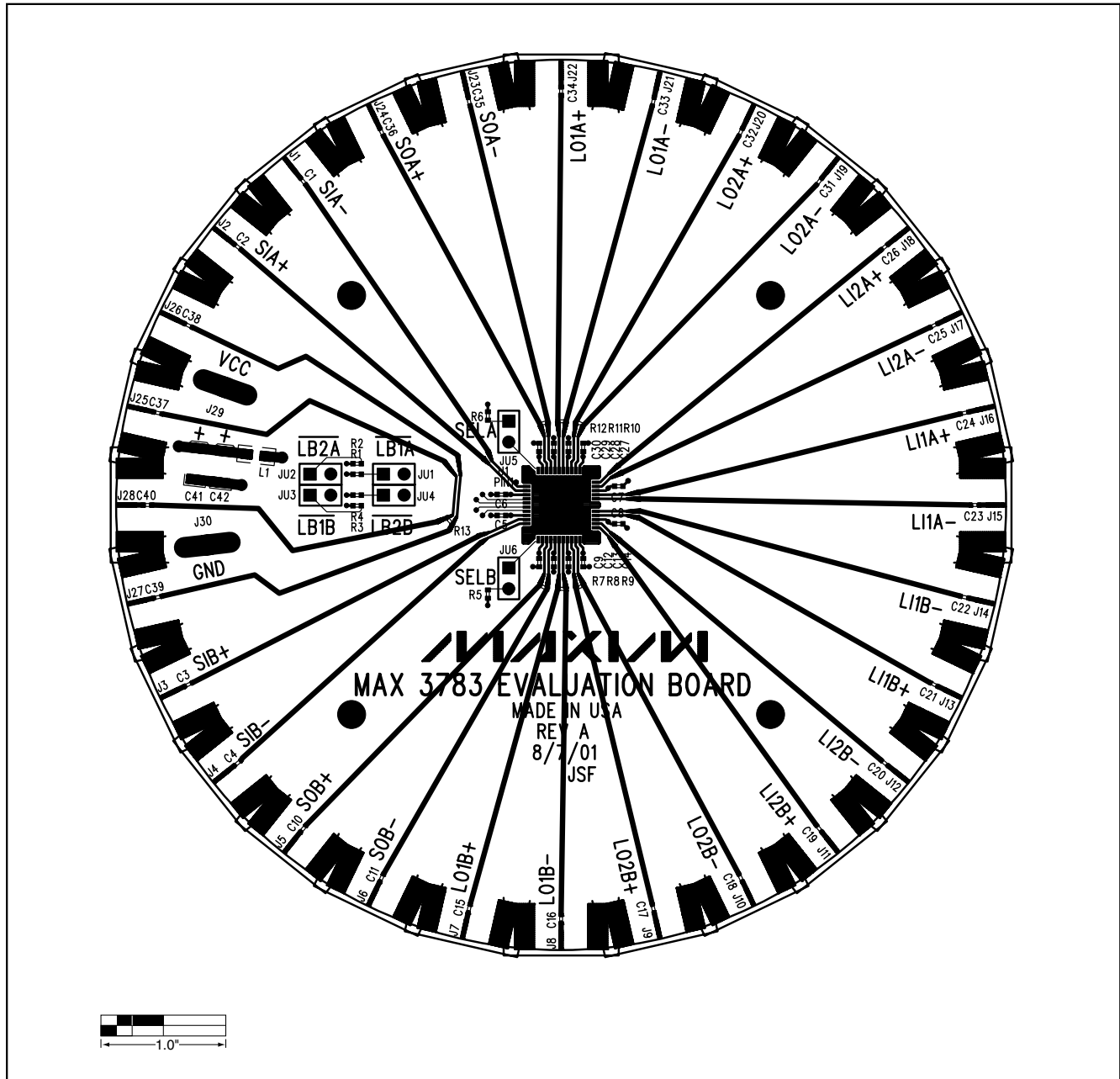


Figure 2. MAX3783 EV Kit Component Placement Guide—Component Side

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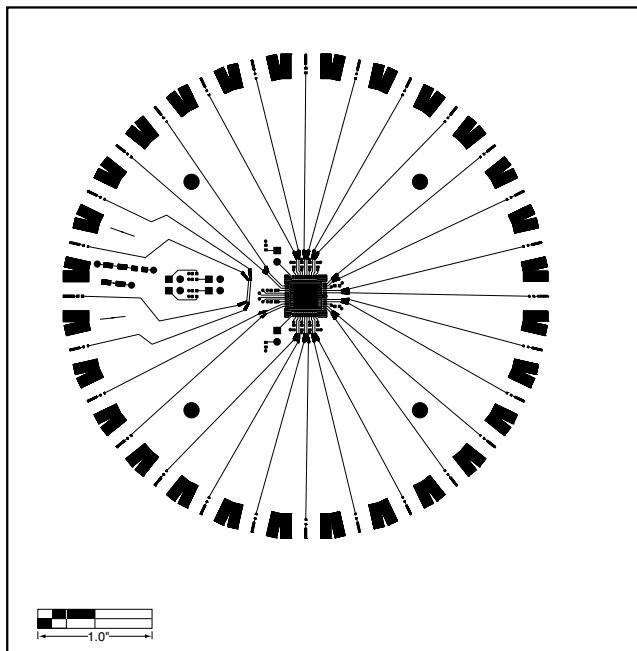


Figure 3. MAX3783 EV Kit PC Board Layout—Component Side

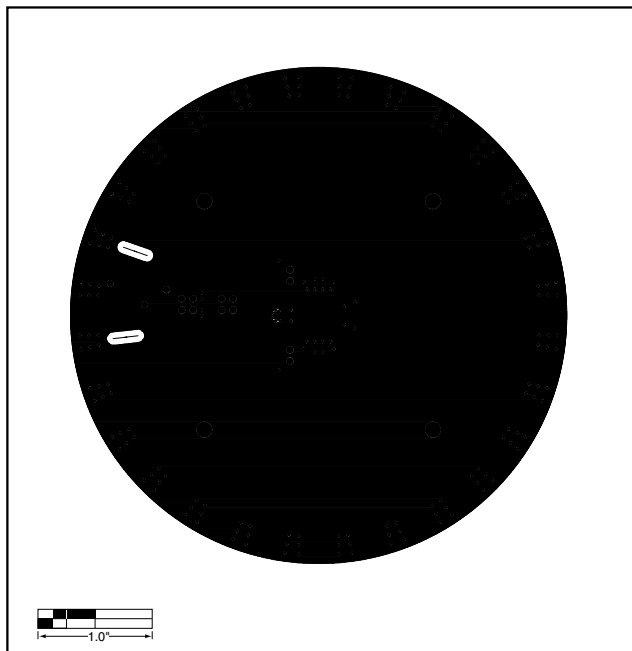


Figure 4. MAX3783 EV Kit PC Board Layout—Ground Plane

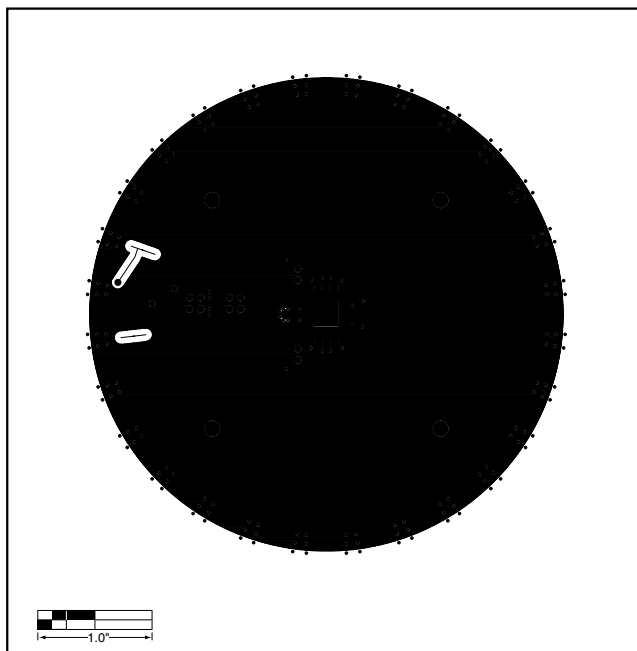


Figure 5. MAX3783 EV Kit PC Board Layout—Power Plane

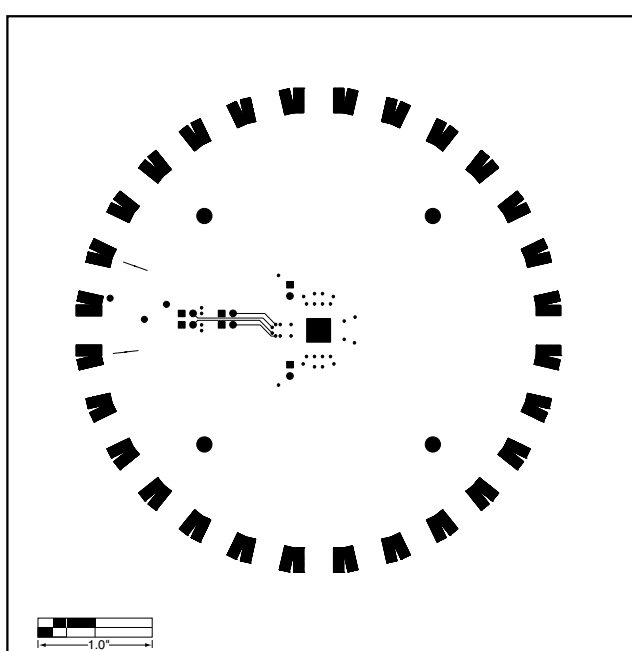


Figure 6. MAX3783 EV Kit PC Board Layout—Solder Side

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