MAX14984 Evaluation Kit

Evaluates: MAX14984

General Description

The MAX14984 evaluation kit (EV kit) is a fully assembled and tested surface-mount PCB that evaluates the MAX14984 VGA port protector and dual USB power switches IC.

The EV kit provides jumpers and LEDs to evaluate the device's two enable inputs, monitor detection output, and two fault outputs. VGA input and output connectors are provided to easily interface the EV kit with VGA-compatible devices.

Features

♦ **VGA Input and Output Connectors**

♦ **Enable Inputs**

♦ **Monitor Detection Output**

♦ **Fault Outputs**

♦ **Proven PCB Layout**

♦ **Fully Assembled and Tested**

Ordering Information **appears at end of data sheet.**

Component List

DESIGNATION	QTY	DESCRIPTION
C1–C4, C7, C10, C11	7	1µF ±10%, 10V X7R ceramic capacitors (0603) Murata GRM188R71A105K
C5, C6	0	Not installed, ceramic capacitors (0603)
C8, C9	2	0.1µF ±10%, 16V X7R ceramic capacitors (0603) Murata GRM188R71C104K
D1, D2	2	40V, 500mA Schottky diodes (SOT563) Central Semi CMLSH05-4+
D3–D9	7	Green LEDS (1206)
JU1	1	2-pin header
JU2, JU3	2	3-pin headers
J1, J2	2	15-pin VGAs, HD sub-D, 15-pin female connectors
Q1, Q2, Q3	3	General-purpose pnp transistors (SOT23) Fairchild MMBT5087

DESIGNATION	QTY	DESCRIPTION
R1, R4, R5, R6, R9, R10, R11	7	560Ω ±5% resistors (0603)
R2, R3	2	3.3kΩ ±5% resistors (0603)
R7, R8	2	39Ω ±5% resistors (0603)
R12, R13, R14	3	100kΩ ±5% resistors (0603)
R15, R16, R17	3	47kΩ ±5% resistors (0603)
R18, R19, R20	0	Not installed, resistors
U1	1	1:1 switch/VGA port protector (24 TQFN-EP*) Maxim MAX14984ETG+
U2	1	3.3V low-dropout linear regulator (5 SC70) Maxim MAX8511EXK33+
—	3	Shunts
—	1	PCB: MAX14984 EVALUATION KIT

EP = Exposed pad.

Component Suppliers

SUPPLER	PHONE	WEBSITE
Central Semiconductor Corp.	631-435-1110	www.centralsemi.com
Fairchild Semiconductor	888-522-5372	www.fairchildsemi.com
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com

Note: *Indicate that you are using the MAX14984 when contacting these component suppliers.*

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

Quick Start

Recommended Equipment

- MAX14984 EV kit
- 5V power supply (VCC)
- VGA-compatible output (e.g., notebook computer docking stations)
- VGA-compatible input (e.g., monitor)

Procedure

The EV kit is a fully assembled and tested surface-mount PCB. Follow the steps below to verify the board operation:

1) Verify that all jumpers are configured as shown in Table 1.

2) Connect the positive terminal of the 5V power supply to the VCC test pad on the EV kit. Connect the negative terminal of the power supply to the GND test pad on the EV kit.

3) Connect the VGA source to connector J1 (VGA host).

4) Connect the VGA output to connector J2 (VGA monitor).

5) Enable the 5V power supply.

6) Enable the VGA source.

7) Visually verify that the VGA monitor shows the information from the source.

Detailed Description

The MAX14984 EV kit provides jumpers and LEDs to evaluate the MAX14984 device's two enable inputs, monitor detection output, and two fault outputs. VGA input and output connectors are provided to easily interface the EV kit with VGA-compatible devices.

Jumper Settings

Table 1 summarizes the EV kit's jumper settings.

Automatic Switching

Jumpers JU1 and JU2 can configure the device into automatic switching. When configured in automatic mode, the device automatically connects the graphics controller when a monitor is plugged in. To configure automatic mode, remove the shunt on JU2 and install a shunt on JU1 (connect $\overline{MD}$ to $\overline{ENV}$).

Video Enable Input

Jumper JU2 controls the video enable input. The video enable input controls the high-bandwidth switches to route the standard VGA R, G, and B signals from the graphics controller to the VGA port. Drive $\overline{ENV}$ low to connect the VGA signals to the VGA port. JU1 must be removed if video enable is set manually by JU2.

USB Enable Input

Jumper JU3 controls the USB enable input. Drive $\overline{ENU}$ low to simultaneously enable the two 5V USB power outputs.

Monitor Detection Output and Fault Outputs

The EV kit provides LED D4 to indicate the status of the device's monitor detection output, $\overline{MD}$. When a monitor is detected, $\overline{MD}$ is pulled to logic-low and D4 turns on.

The EV kit provides LEDs D5 and D6 to indicate the status of the fault outputs. Two active-low fault outputs ($\overline{F1}$ and $\overline{F2}$) assert when a fault is detected on USB1 or USB2, respectively. D5 turns on when a fault condition is detected on USB1. Likewise, D6 turns on when a fault condition is detected on USB2.

Table 1. Jumper Settings

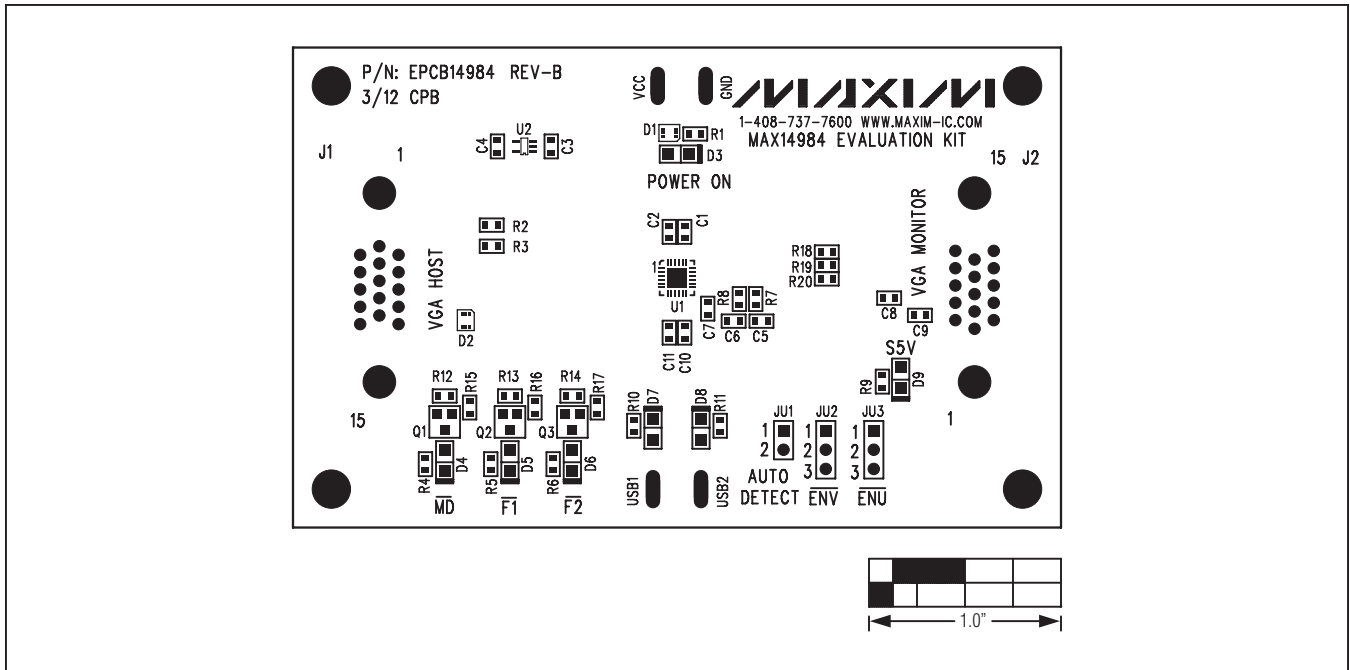| JUMPER	SHUNT POSITION	DESCRIPTION
JU1	Installed	Automatic switching mode
	Not installed*	Manual switching mode
JU2	1-2	VGA signals not connected to the VGA port
	2-3*	VGA signals connected to the VGA port
JU3	1-2	USB1 and USB2 power outputs disabled
	2-3*	USB1 and USB2 power outputs enabled

*Default position.

Figure 1. MAX14984 EV Kit Schematic

Figure 2. MAX14984 EV Kit Component Placement Guide—Top Silkscreen
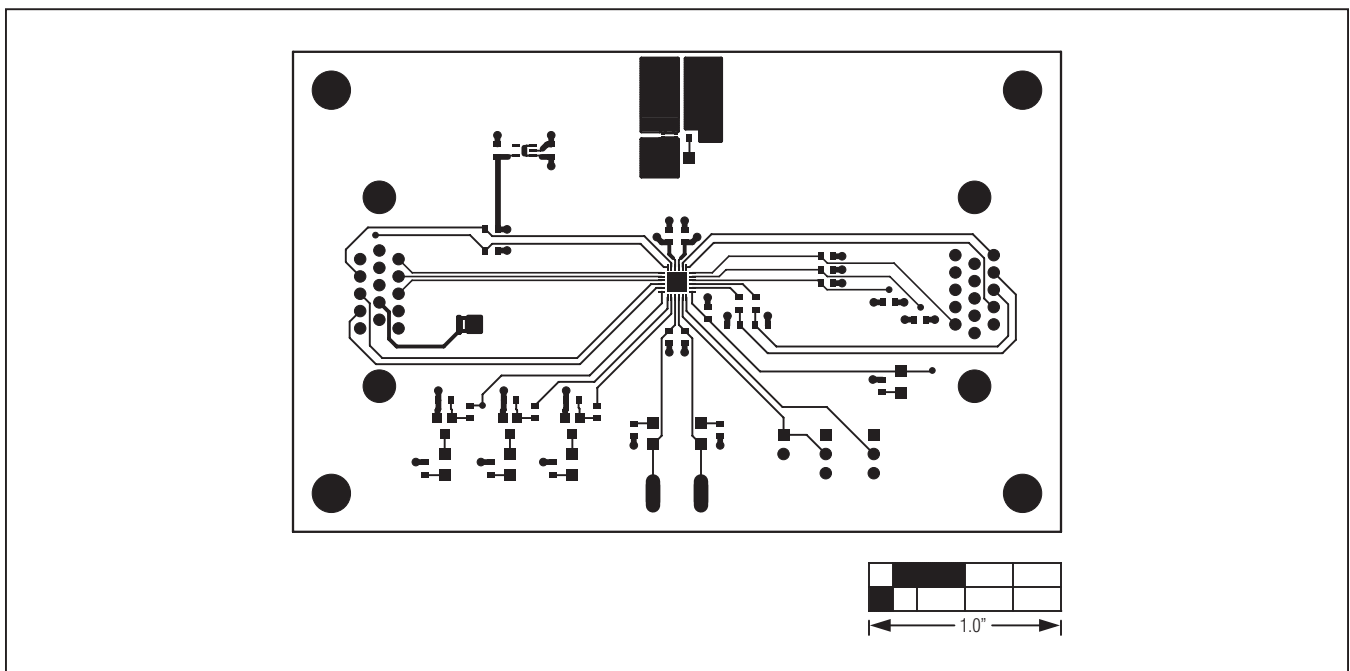
Figure 3. MAX14984 EV Kit PCB Layout—Component Side

Figure 4. MAX14984 EV Kit PCB Layout—GND Layer 2
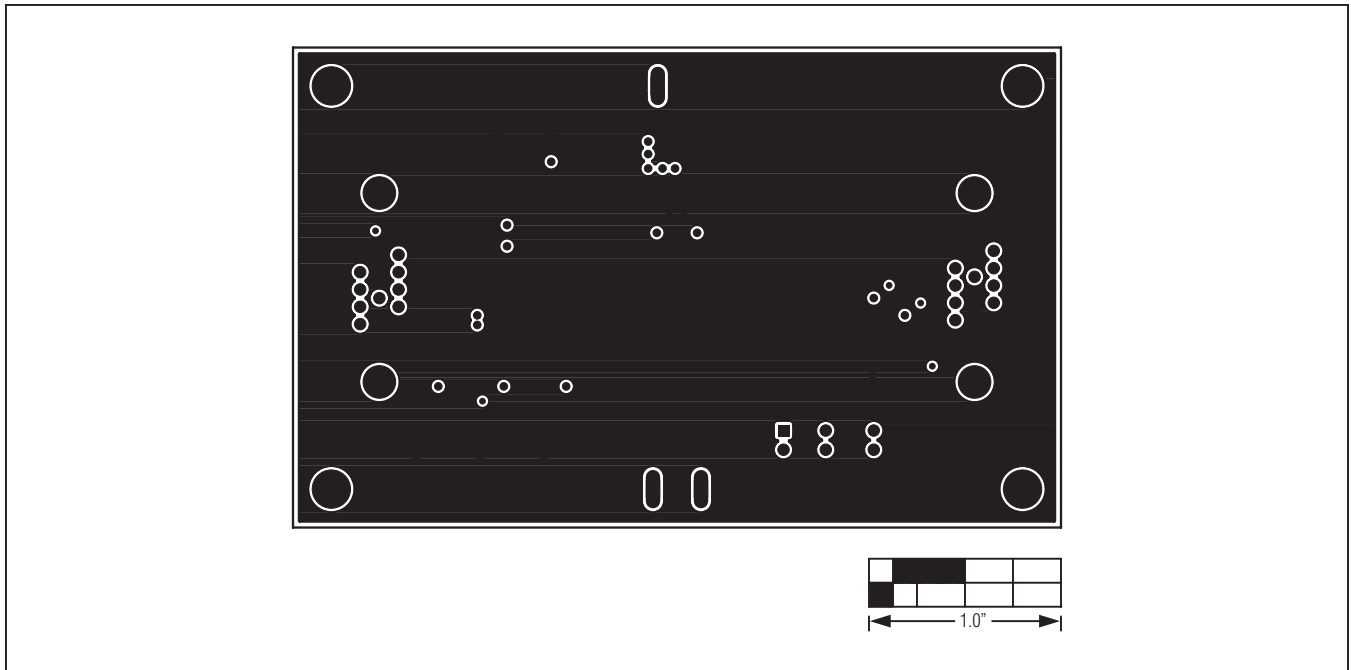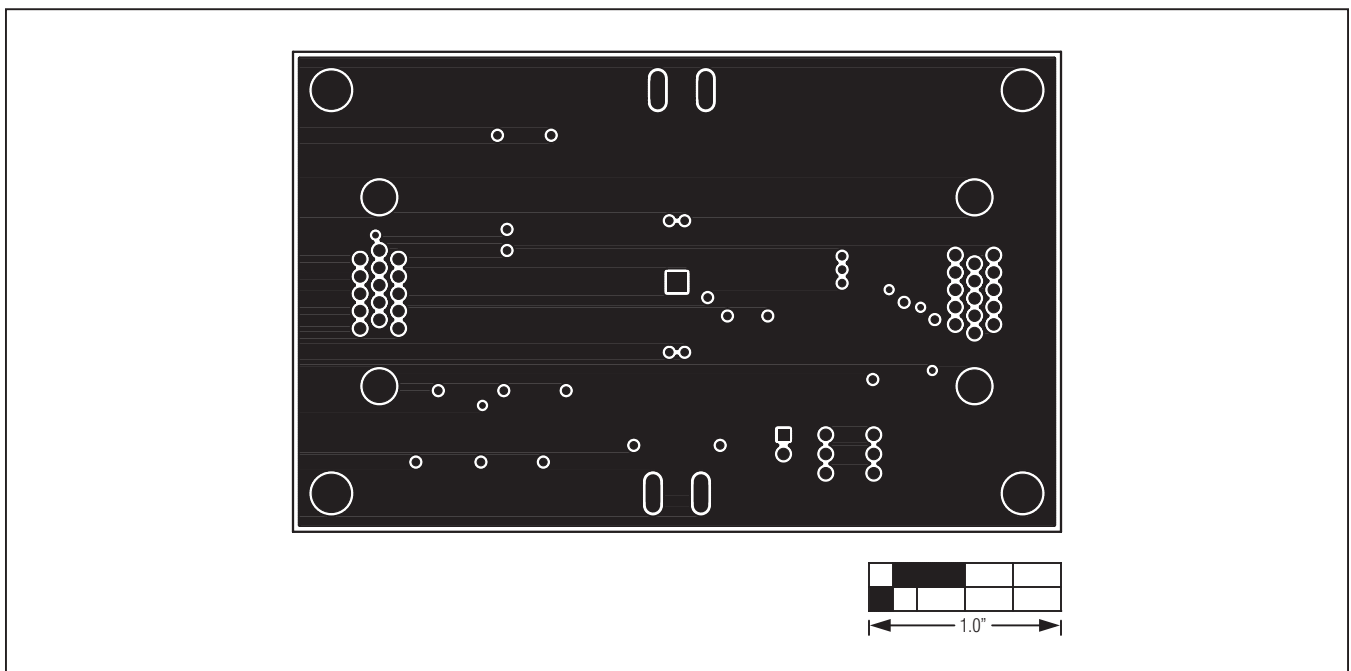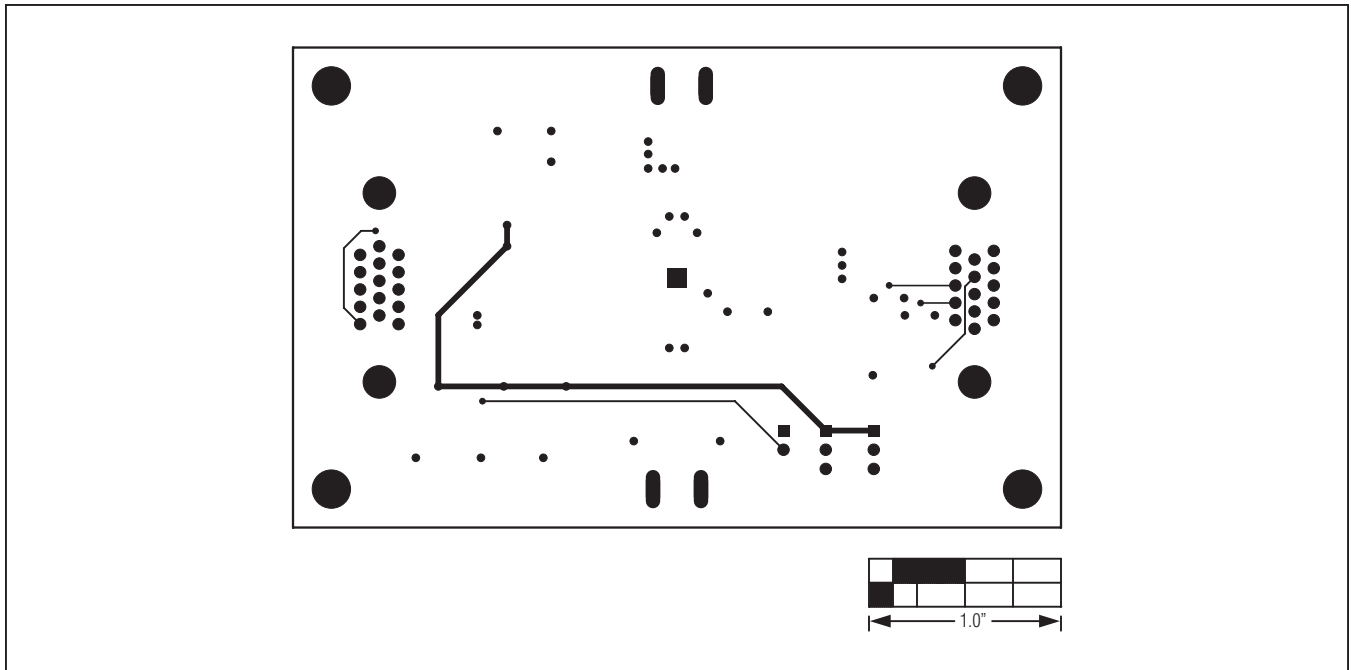

Figure 5. MAX14984 EV Kit PCB Layout—GND Layer 3

Figure 6. MAX14984 EV Kit PCB Layout—Solder Side
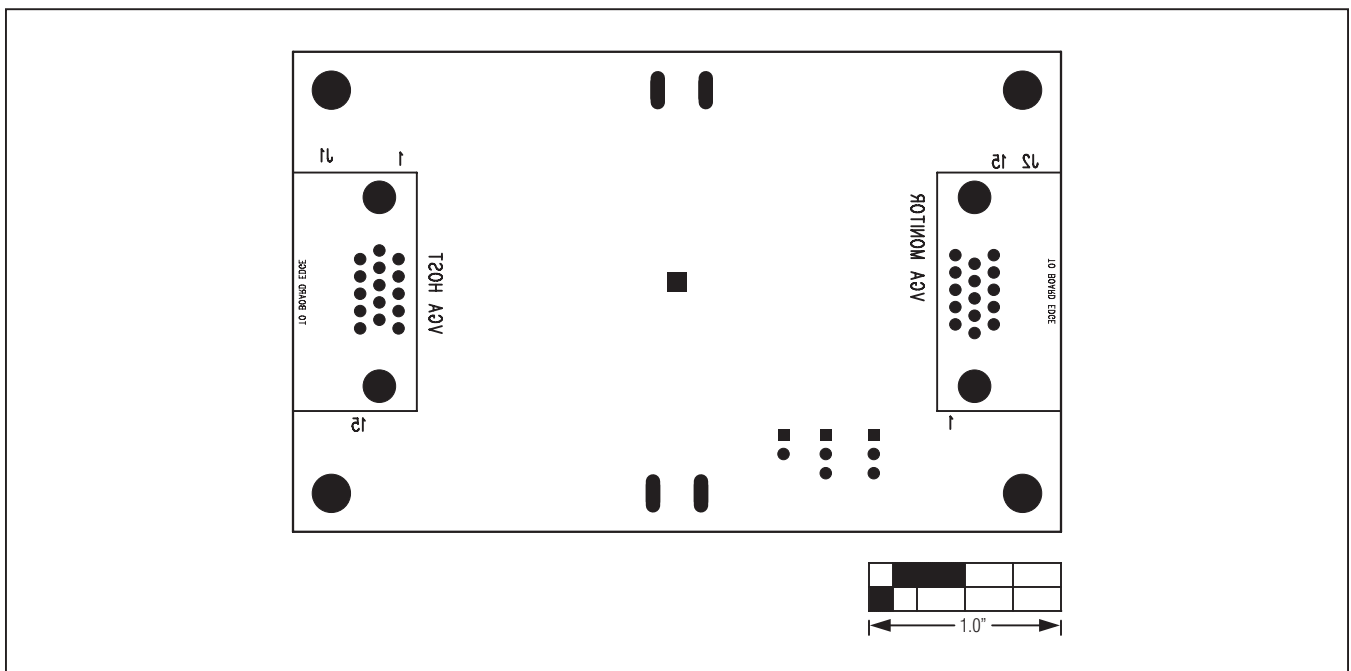
Figure 7. MAX14984 EV Kit Component Placement Guide—Bottom Silkscreen

Ordering Information

PART	TYPE
MAX14984EVKIT#	EV Kit

#Denotes RoHS compliant.

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	5/12	Initial release	—