



MAX9486 Evaluation Kit

General Description

The MAX9486 EV kit evaluates the MAX9486, a high-performance clock synthesizer with an 8kHz input reference clock. The EV kit provides six buffered 35.328MHz outputs, CLK1–CLK6, and a jitter-suppressed 8kHz output REO. The EV kit operates from a single 3.3V power supply.

Features

- ◆ **Single 3.3V Supply**
- ◆ **Controlled 50Ω Microstrip Traces**
- ◆ **On-Board Adjustable Charge Pump Current**
- ◆ **Fully Assembled and Tested**

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX9486EVKIT	0°C to +70°C	24 TSSOP

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2, C3	3	10μF ±20%, 6.3V X5R ceramic capacitors (0805) Taiyo Yuden JMK212BJ106M TDK C2012X5R0J106M
C4, C5, C6	3	0.01μF ±10%, 16V X7R ceramic capacitors (0402) Taiyo Yuden EMK105BJ103K Murata GRM36X7R103K016K
C7, C8, C9	3	0.001μF ±10%, 50V X7R ceramic capacitors (0402) TDK C1005X7R1H102K
C10, C13–C18	0	Not installed, ceramic capacitors (0603)
C11, C12	2	4.7pF ±0.1pF, 50V C0G ceramic capacitors (0603) TDK C1608COG1H4R7B
C19	1	560pF ± 5%, 50V COG ceramic capacitor (0603) TDK C1608COG1H561J

DESIGNATION	QTY	DESCRIPTION
C20	1	0.022μF ±10%, 50V X7R ceramic capacitor (0603) TDK C1608X7R1H223K
R1	1	49.9Ω ±1% resistor (0603)
R2	1	13kΩ ±1% resistor (0603)
R3	1	1MΩ ±5% resistor (0603)
R4	1	200kΩ 12-turn potentiometer
R5–R11	7	464Ω ±1% resistors (0603)
REIN, SMA1–SMA7	8	SMA edge-mount connectors Johnson Components 142-0701-801
Y1	1	17.664MHz through-hole crystal resonator (with 14pF load cap) Ecliptek ECX-5866-17.664M
JU1	1	3-pin header
JU2–JU9	8	2-pin headers
None	1	Shunt
None	1	MAX9486 PC board
U1	1	MAX9486EUG (24-pin TSSOP)

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Quick Start

The MAX9486 EV kit is fully assembled and tested. **Do not turn on the power supplies until all connections are completed.**

Recommended Equipment

- 3.3V, 500mA power supply
- 8.000kHz \pm 200ppm frequency source (or function generator)
- Frequency counter(s)/500MHz oscilloscope

Procedure

- 1) Verify that a shunt is across JU1 (pins 1 and 2) ($\overline{\text{SHDN}} = \text{DVDD}$).
- 2) Verify that there is no shunt across JU2–JU9.
- 3) Connect frequency counter(s) to the SMA connector(s) SMA1/2/3/4/5/6.
- 4) Connect the 8.000kHz frequency source to the REIN SMA connector.
- 5) Connect the positive of the power supply to the VDD, VDDP, and DVDD pads.
- 6) Connect the power ground to the GND pads.
- 7) Turn on the power supply, and enable the frequency source (or function generator).
- 8) Verify output frequencies SMA1/2/3/4/5/6 are at 35.328MHz \pm 200ppm.
- 9) Vary the 8.000kHz input by \pm 200ppm, then verify the output SMA1/2/3/4/5/6 tracks with the input and is at 35.328MHz \pm 200ppm.

Detailed Description

The MAX9486 EV kit is a fully assembled and tested PC board. The EV kit evaluates the MAX9486, a high-performance clock synthesizer with an 8kHz input reference clock. The MAX9486 EV kit operates with a single 3.3V power supply, and provides six 35.328MHz outputs (CLK1–CLK6) and a jitter-suppressed 8kHz output REO. The output signals SMA1–SMA7 from the EV kit are scaled down by approximately 10 times to accommodate low 50 Ω impedance of equipment.

Adjustable Charge Pump Current

The MAX9486 EV kit provides on-board adjustable charge-pump current options. To set the desired charge-pump current in μA , adjust the 200k Ω potentiometer R4 (k Ω) so:

$$I_{\text{Charge_Pump_Current}} = 2400 / [(R4+13) + 1]$$

where R4 is set to 0 Ω at default.

Jumper Selection

Jumper JU1 is incorporated to control the $\overline{\text{SHDN}}$ pin of the MAX9486 device. See Table 1 for the JU1 function.

Table 1. JU1 Function

SHUNT LOCATION	$\overline{\text{SHDN}}$ PIN	EV KIT FUNCTION
Pins 1 and 2	Connected to DVDD	Enabled
Pins 2 and 3	Connected to GND	Disabled

Component Suppliers

SUPPLIER	PHONE	FAX	WEBSITE
Ecliptek	800-433-1280	714-433-1234	www.ecliptek.com
Murata	770-436-1300	770-436-3030	www.murata.com
Taiyo Yuden	800-348-2496	847-925-0899	www.t-yuden.com
TDK	847-803-6100	847-390-4405	www.component.tdk.com

Note: Indicate that you are using the MAX9486 when contacting these component suppliers.

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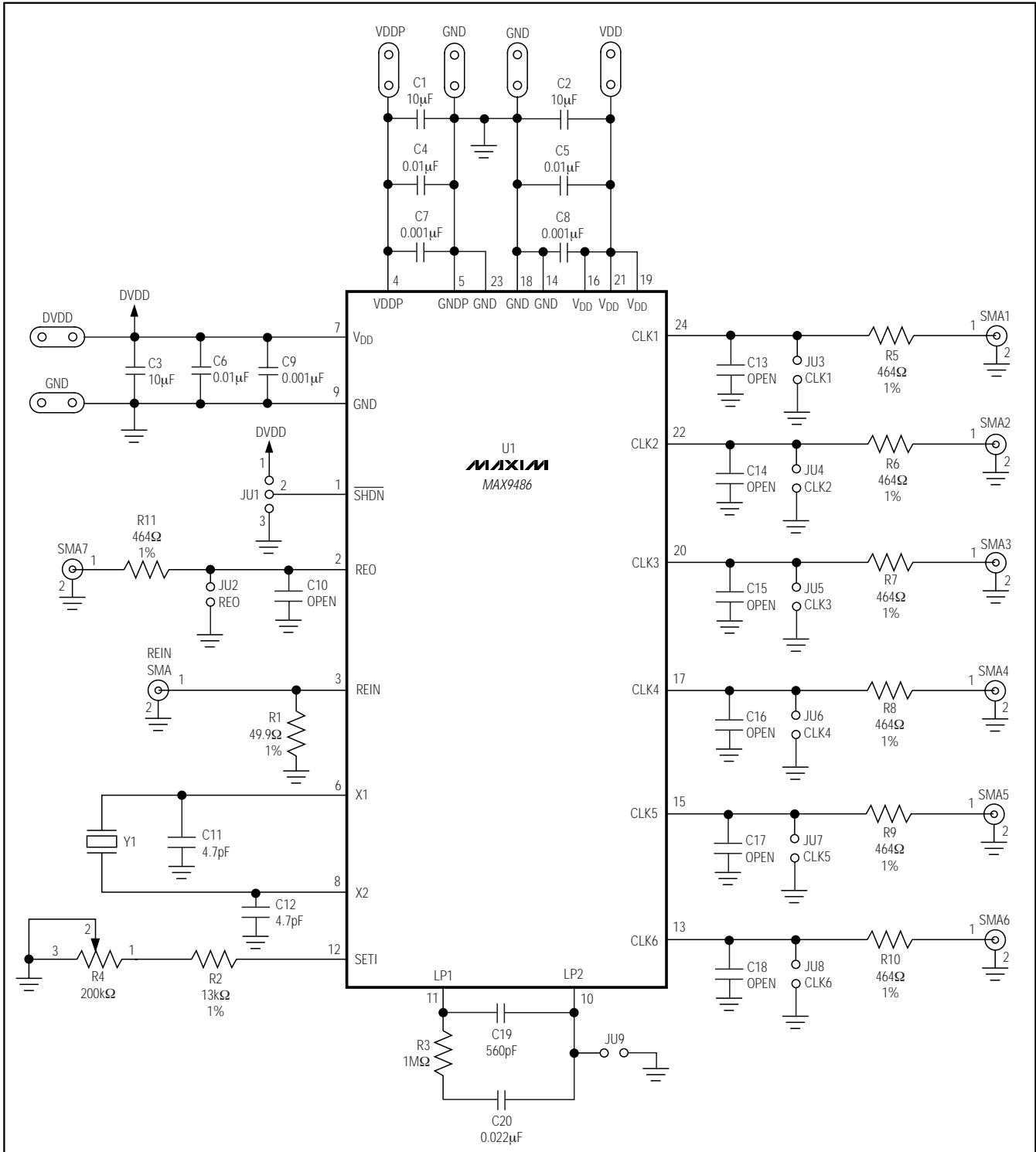


Figure 1. MAX9486 EV Kit Schematic

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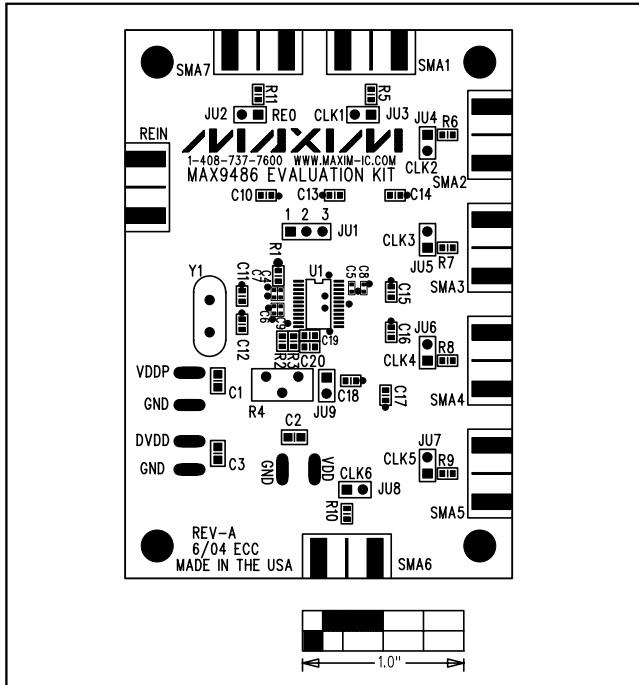


Figure 2. MAX9486 EV Kit Component Placement Guide—Component Side

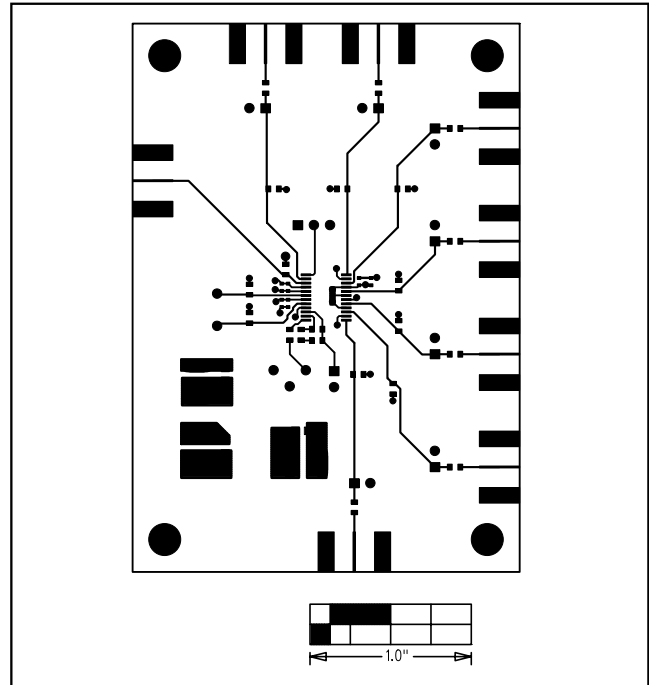


Figure 3. MAX9486 EV Kit PC Board Layout—Component Side

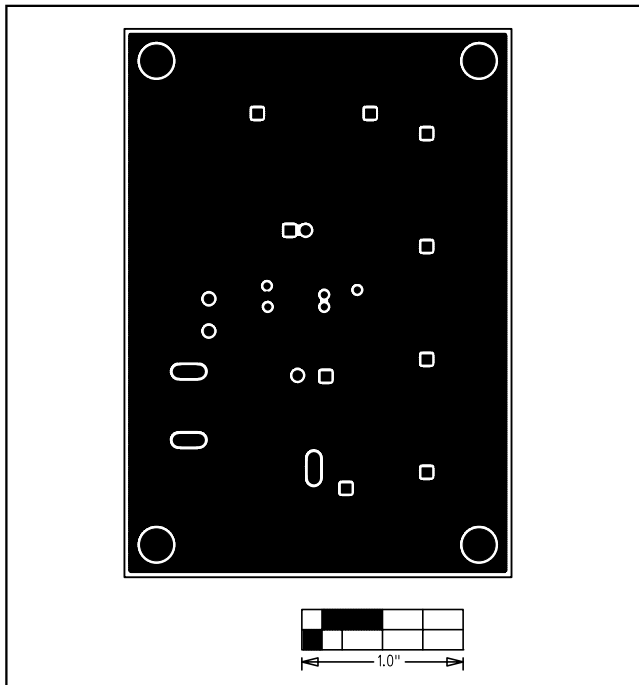


Figure 4. MAX9486 EV Kit PC Board Layout—Inner Layer 2 (GND Layer)

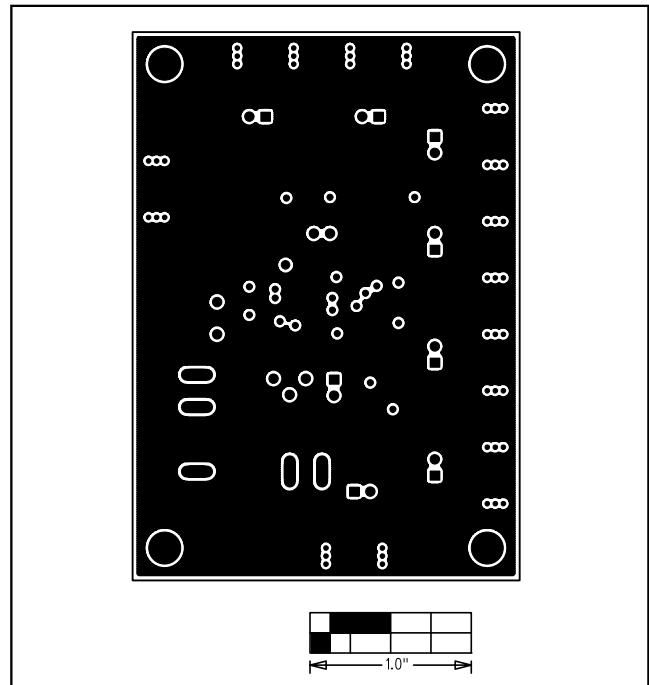


Figure 5. MAX9486 EV Kit PC Board Layout—Inner Layer 3 (DVDD Layer)

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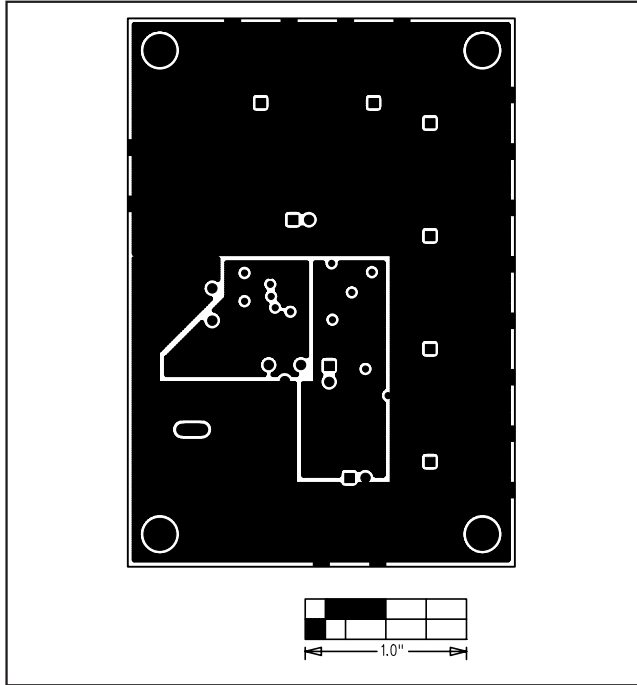


Figure 6. MAX9486 EV Kit PC Board Layout—Solder Side

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