19-3396; Rev 0; 8/04

MAX9486 Evaluation Kit

Evaluates: MAX9486

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
C20	1	0.022uF±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)

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 ±200ppm frequency source (or function generator)
- Frequency counter(s)/500MHz oscilloscope

Procedure

1) Verify that a shunt is across JU1 (pins 1 and 2) ($\overline{SHDN}$ = 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 ±200ppm.
9) Vary the 8.000kHz input by ±200ppm, then verify the output SMA1/2/3/4/5/6 tracks with the input and is at 35.328MHz ±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 50Ω 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 200kΩ potentiometer R4 (kΩ) so:

$$I_{Charge\_Pump\_Current} = 2400 / [(R4+13) +1]$$

where R4 is set to 0Ω at default.

Jumper Selection

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

Table 1. JU1 Function

SHUNT LOCATION	$\overline{SHDN}$ 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.*

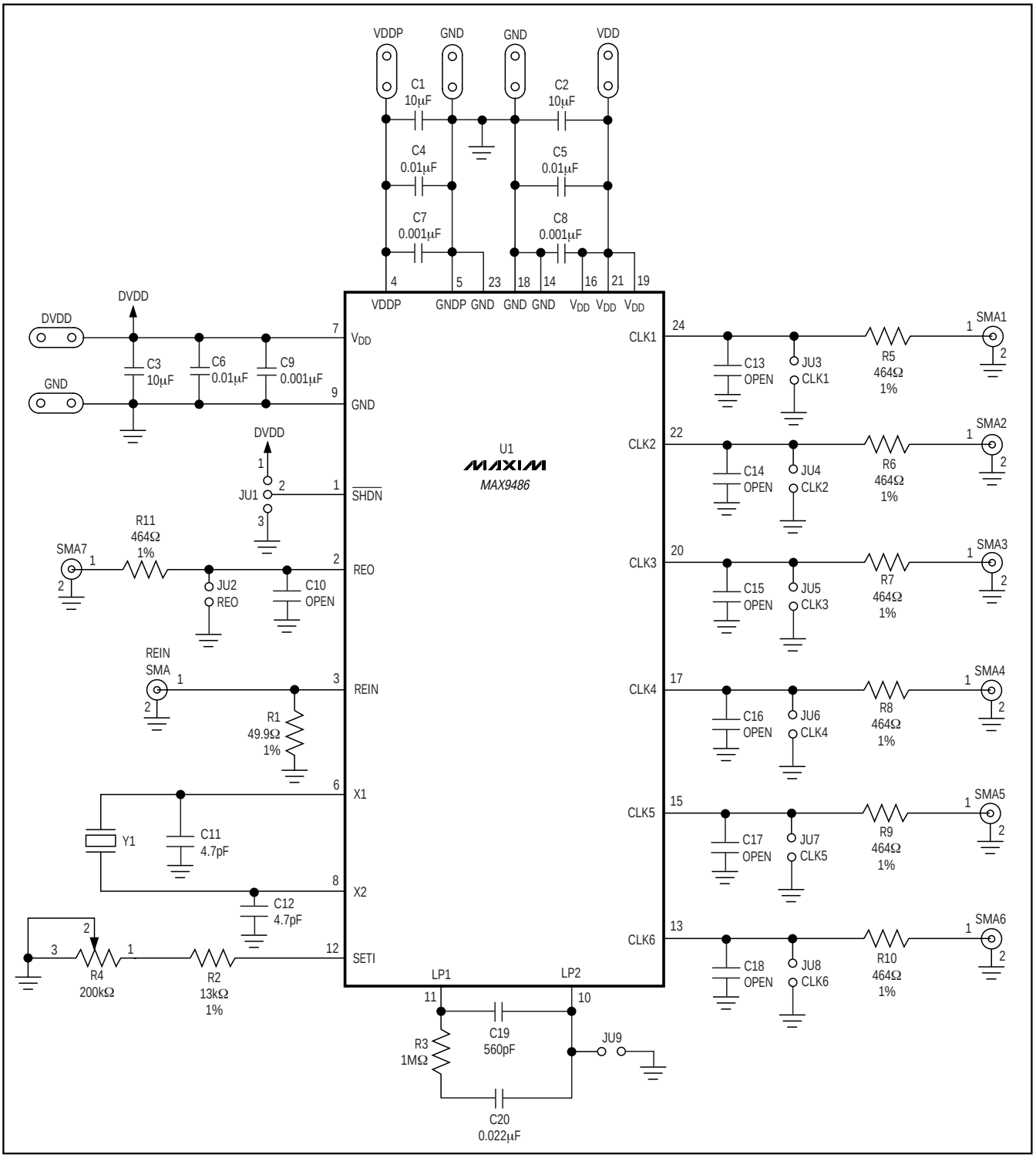

Figure 1. MAX9486 EV Kit Schematic

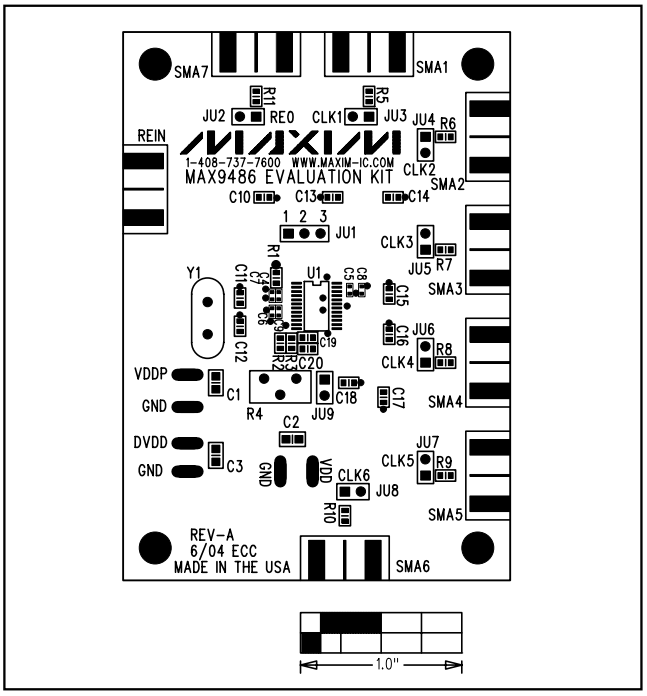

Figure 2. MAX9486 EV Kit Component Placement Guide—Component Side

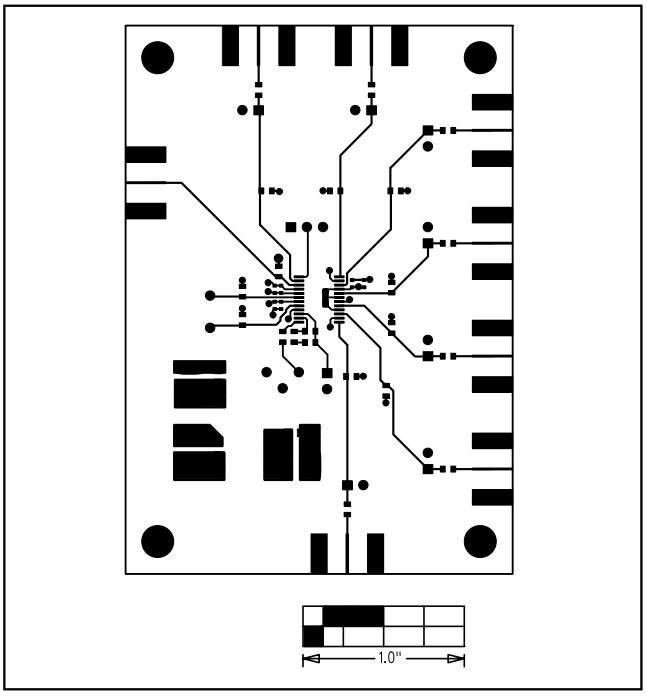

Figure 3. MAX9486 EV Kit PC Board Layout—Component Side

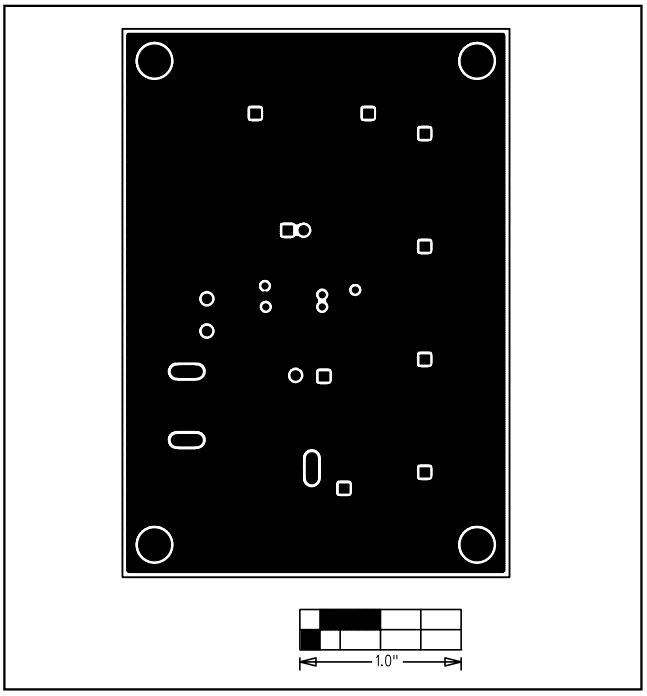

Figure 4. MAX9486 EV Kit PC Board Layout—Inner Layer 2 (GND Layer)

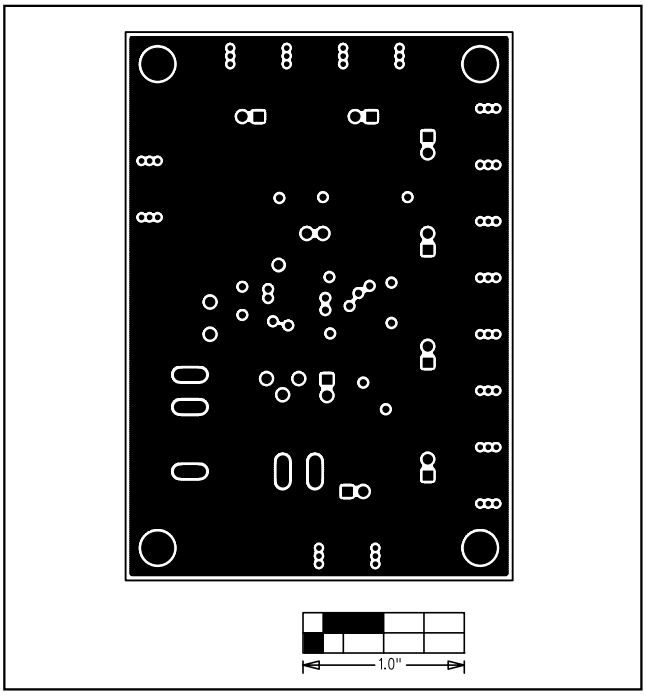

Figure 5. MAX9486 EV Kit PC Board Layout—Inner Layer 3 (DVDD Layer)

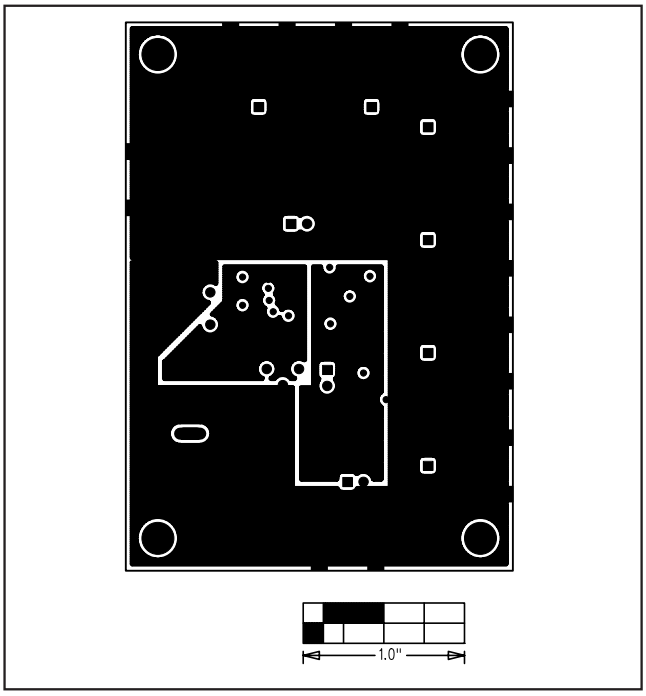

Figure 6. MAX9486 EV Kit PC Board Layout—Solder Side