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Setting Up the Evaluation Board for the ADCLK914

PACKAGE LIST

Evaluation board with component installed
Applicable documents (schematic, layout, and so on)

GENERAL DESCRIPTION

This user guide describes how to set up and use the evaluation board for the ADCLK914. The same printed circuit board (PCB) is used to evaluate three other devices in addition to the ADCLK914 (the ADCLK905, ADCLK907, and ADCLK925).

The ADCLK914 data sheet should be used in conjunction with this user guide. The data sheet contains full technical details about the specifications and operation of the device.

The ADCLK914 clock buffer is very fast, making it important to use adequate high bandwidth instruments to evaluate it. To that end, the evaluation board is fabricated using a high quality dielectric material between layers to maintain high signal integrity. Transmission line paths are kept as close to 50 Ω as possible.

DIGITAL PICTURE OF THE EVALUATION BOARD

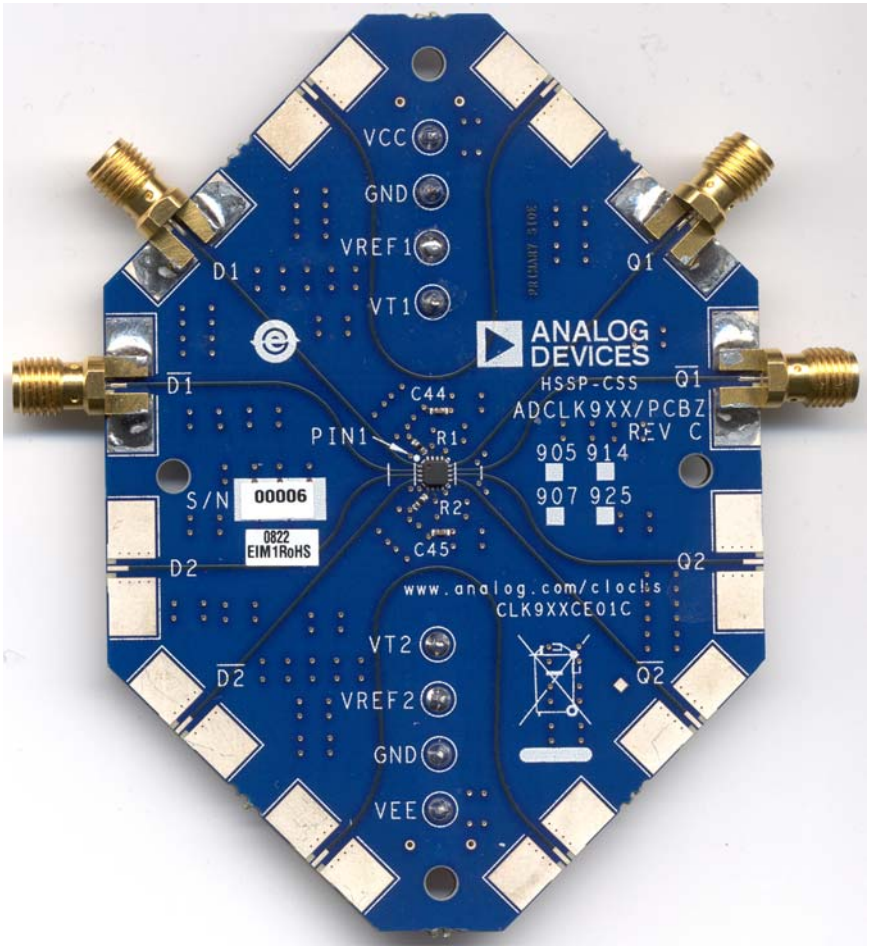


Figure 1. ADCLK914/ADCLK905/ADCLK907/ADCLK925 Evaluation Board

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REVISION HISTORY

9/09—Revision 0: Initial Version

RECOMMENDED BOARD SETUP

The recommended setup for the evaluation board is shown in Figure 2. Note that there is no output termination on the evaluation board. HVDS termination is accomplished via the 50 Ω input of the oscilloscope. In this case, V_{CC} is set to GND and V_{EE} is set to −3.3 V. This also meets the requirement for $V_{CC} - V_{EE} = 3.3$ V.

Table 1. Basic Equipment Required

Quantity	Description
1	Single power supply
1	Signal source
1	High bandwidth oscilloscope
4	Matched high speed cables

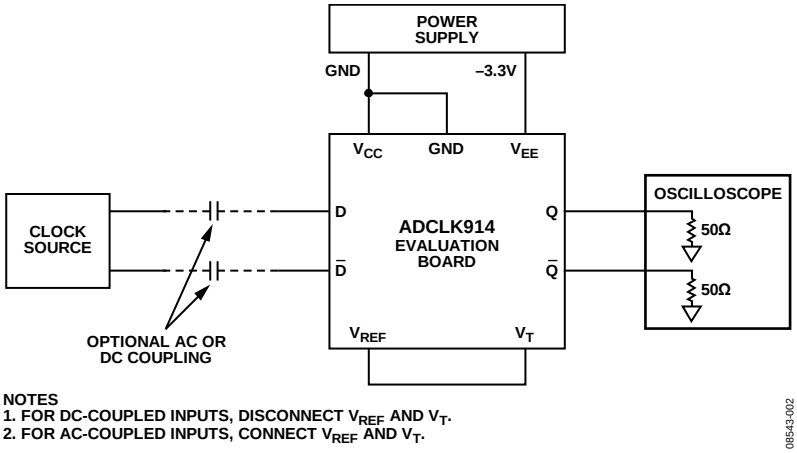


Figure 2. Recommended Setup for Device Evaluation

CLOCK INPUT CONFIGURATION

The clock inputs of the ADCLK914 on the evaluation board are dc-coupled to the SMA connectors. Therefore, the user must ac-couple the clock source, or the clock source must supply the appropriate dc common-mode voltage with adequate input swing.

It is recommended that the clock source be ac-coupled and that V_{REF} and V_T be tied together. For single-ended operation, ac-couple the unused input to ground with a 0.1 µF capacitor. For more information about input configurations, refer to the data sheet for the ADCLK914. Figure 3 is the block diagram for the ADCLK914.

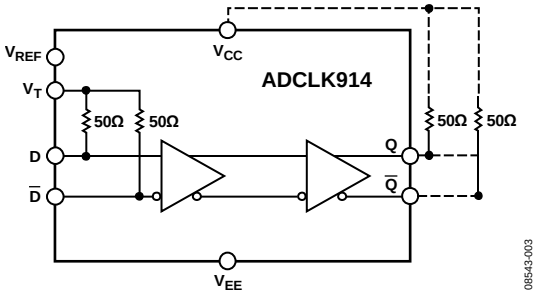


Figure 3. ADCLK914 1:1 Clock/Data Buffer

Table 2. Jumper Connections

Jumper	Connection
TP1 (GND)	Connect to GND
TP2 (VCC)	Connect to GND
TP3 (VEE)	Connect to −3.3 V
TP4 (GND)	Connect to GND
TP5 (VREF1)	Short TP5 and TP6 for input ac coupling, else no connection
TP6 (VT1)	Short TP5 and TP6 for input ac coupling, else no connection
TP7 (VT2)	No connection
TP8 (VREF2)	No connection

EVALUATION BOARD SCHEMATICS AND ARTWORK

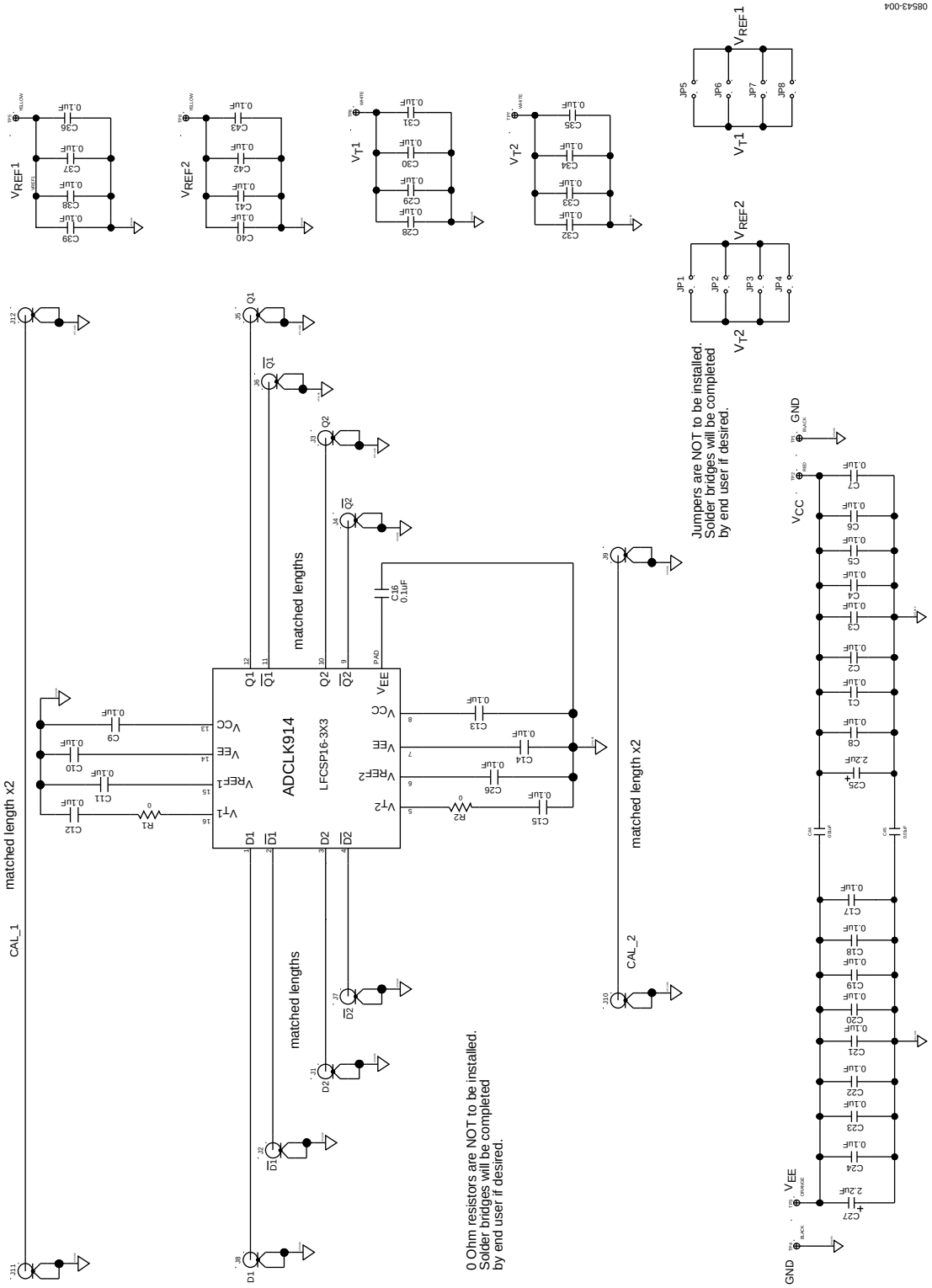


Figure 4. ADCLK914 Evaluation Board Schematic

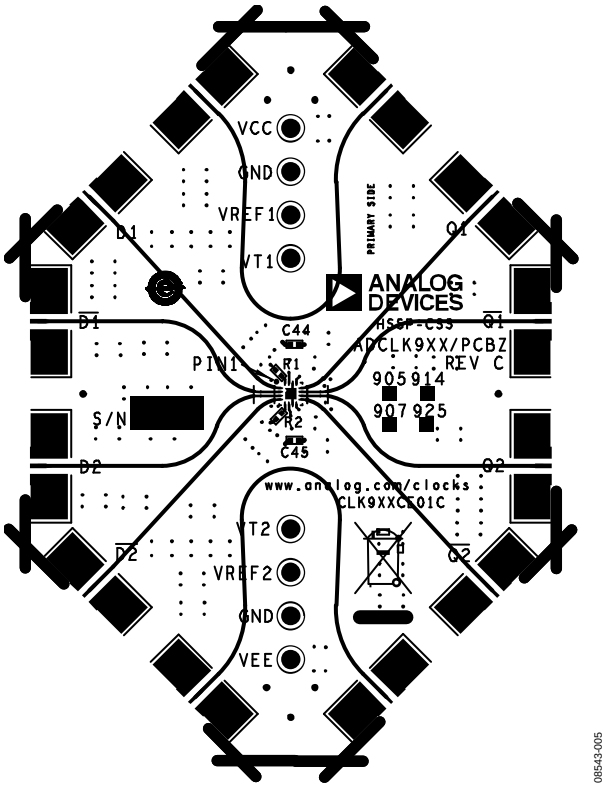


Figure 5. Top Trace Layer

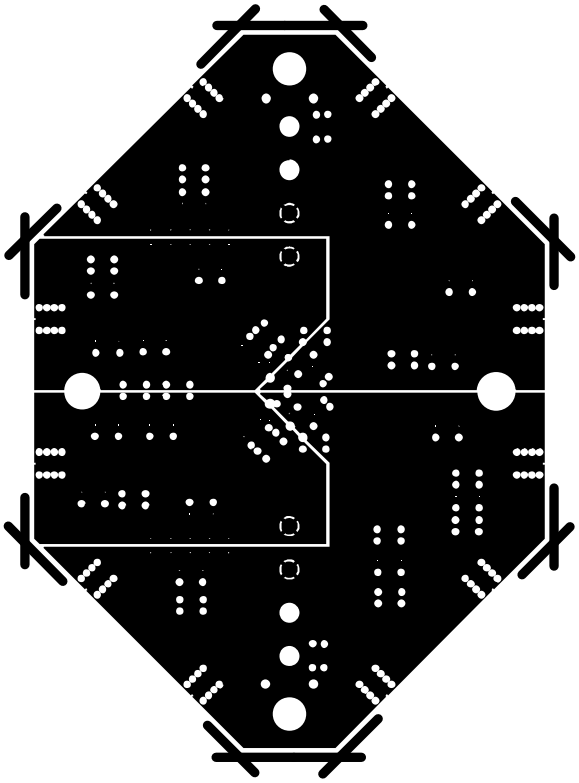


Figure 7. V_{REF} and V_T Plane Layers

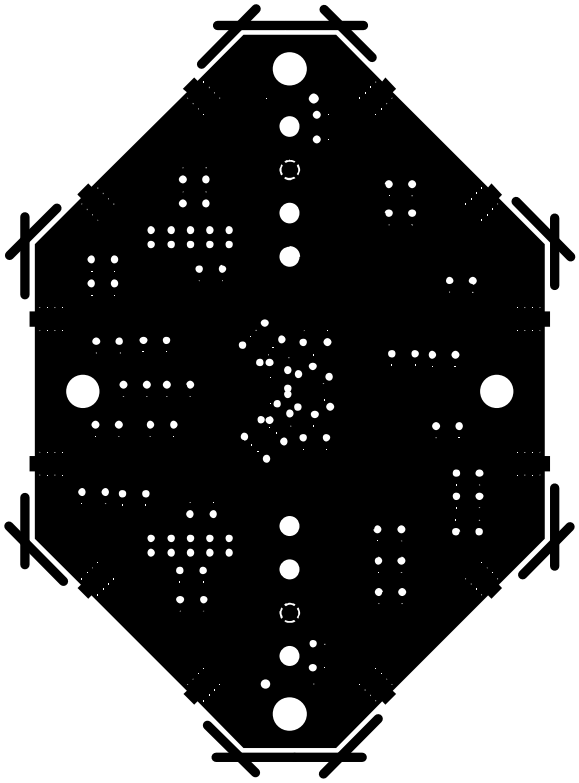


Figure 6. Ground Plane Layer

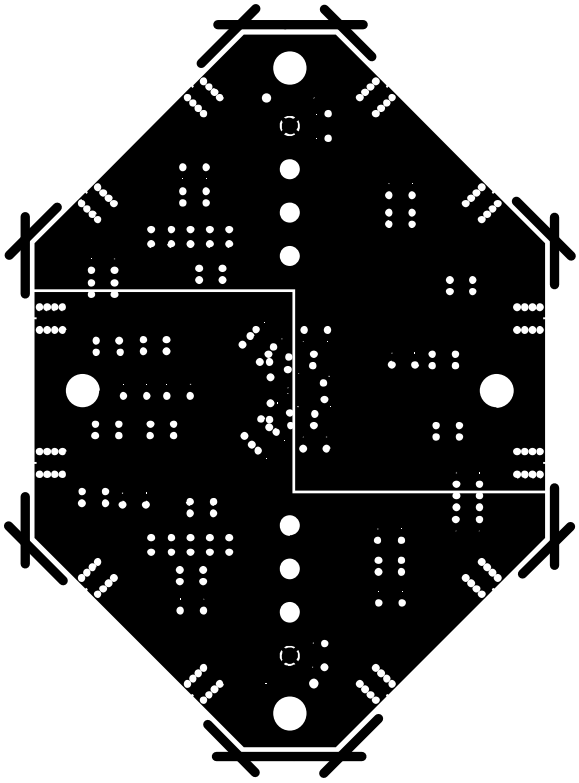


Figure 8. V_{CC} and V_{EE} Power Plane Layer

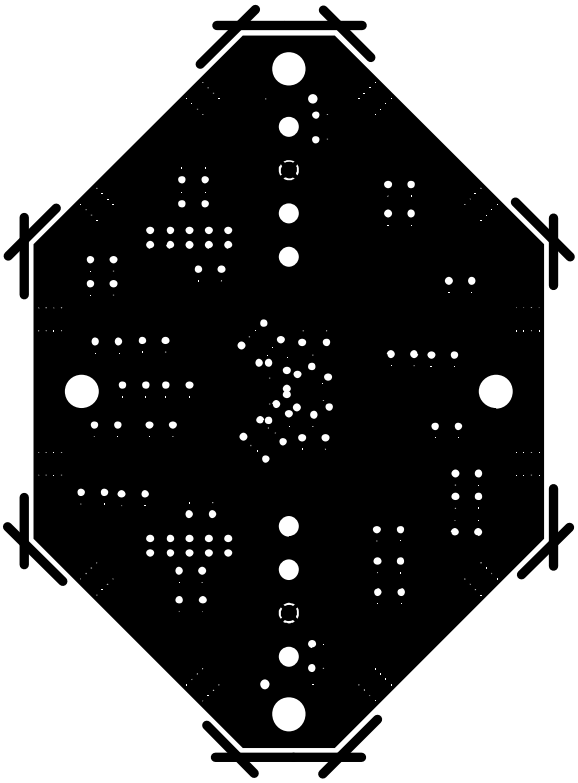
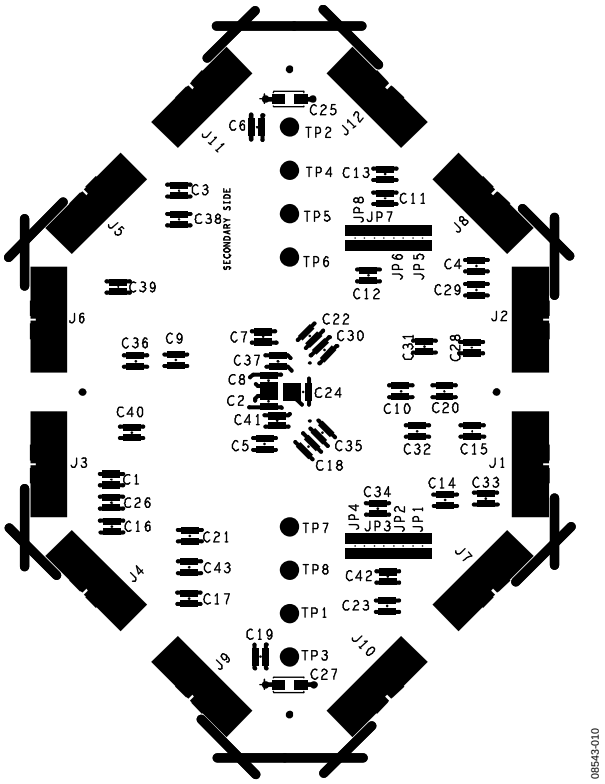


Figure 9. Second Ground Plane Layer



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Figure 10. Bottom Trace Layer

ESD CAUTION



ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

NOTES

Evaluation boards are only intended for device evaluation and not for production purposes. Evaluation boards are supplied "as is" and without warranties of any kind, express, implied, or statutory including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. No license is granted by implication or otherwise under any patents or other intellectual property by application or use of evaluation boards. Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Analog Devices reserves the right to change devices or specifications at any time without notice. Trademarks and registered trademarks are the property of their respective owners. Evaluation boards are not authorized to be used in life support devices or systems.

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