

Evaluating the **ADMV8416** and **ADMV8432** Tunable Band-Pass Filters

FEATURES

- Enables quick breadboarding and prototyping
- User defined circuit configuration
- End launch 2.4 mm connector provisions
- Easy connection to test equipment and other circuits

GENERAL DESCRIPTION

The ADMV8416-EVALZ/ADMV8432-EVALZ evaluation boards aid in the evaluation of the **ADMV8416** and **ADMV8432** band-pass filters with selectable pass band frequency.

The ADMV8416-EVALZ/ADMV8432-EVALZ evaluation boards have end launch 2.4 mm connectors on both the input and the output to allow an efficient connection to test equipment and other circuitry.

Optimized power and ground planes ensure low noise and high speed operation. Component placement and power supply bypassing are optimized for maximum circuit flexibility and performance.

All components are placed on the primary side. No components are placed on the secondary side (see Figure 1 and Figure 2). Note that the ADMV8432-EVALZ evaluation board is labeled ADMV8416-EVALZ. The **ADMV8416** and **ADMV8432** are evaluated using the same printed circuit board (PCB).

The **ADMV8416** and **ADMV8432** data sheets, available at www.analog.com, provide full specifications for the **ADMV8416** and **ADMV8432**. Consult the ADMV8416 and ADMV8432 data sheets in conjunction with this user guide when using the evaluation boards.

ADMV8416-EVALZ/ADMV8432-EVALZ EVALUATION BOARD PHOTOGRAPHS

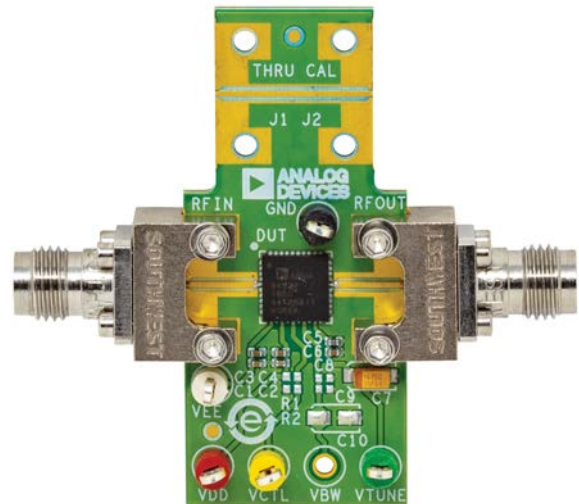


Figure 1. ADMV8416-EVALZ Primary Side

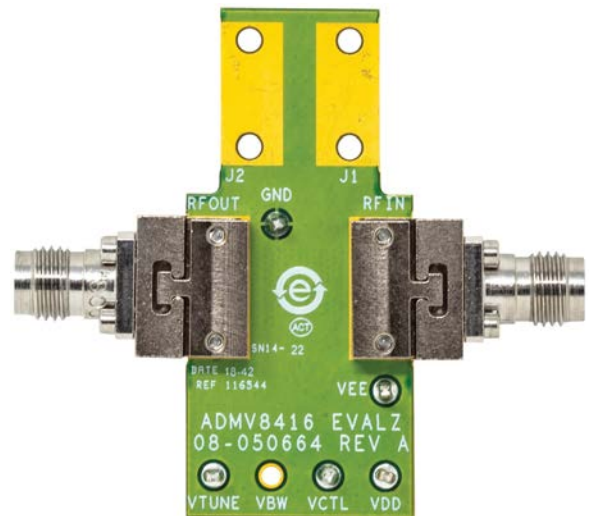


Figure 2. ADMV8416-EVALZ Secondary Side

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REVISION HISTORY

6/2019—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

RF CONNECTIONS

The RF input and output of the [ADMV8416](#) and [ADMV8432](#) are accessible by connecting to the J3 and J4. A THRU CAL trace is available on the evaluation boards by means of installing end launch connectors onto J1 and J2.

POWER SUPPLY SETUP

Connect a power supply to VDD and set the voltage to 5V. Connect a power supply to VEE and set the voltage to -5 V. Both VDD and VEE draw minimal current within the microampere range.

FILTER CONTROL

The VCTL pin allows users to select either the low band or high band portion of the device. Connect a power supply to the VCTL pin and set the voltage to 0 V to select the high band-pass filter or set the voltage to 2.5 V to select the low band-pass filter. The center frequency is adjustable by supplying the VTUNE voltage, which varies from 0 V to 15 V.

EVALUATION BOARD STACKUP

All RF traces are routed on Layer 1 (primary side), and all other layers are ground planes that provide a solid ground for RF transmission lines, as shown in Figure 3. The top dielectric material is Rogers 4350, offering low loss performance. The prepreg material in Layer 2 attaches the core layers together, which includes a 370HR laminate with copper traces above and below. Both the prepreg material and the Isola 370HR core layer are used to achieve the required board finish thickness.

The circuit board used in the application uses RF circuit design techniques. Signal lines must have 50 Ω impedance while the package ground leads and exposed pad must be connected directly to the ground plane (see Figure 3). Use a sufficient number of via holes to connect the top and bottom ground planes. The ADMV8416-EVALZ/ADMV8432-EVALZ evaluation boards are available from Analog Devices, Inc., upon request.

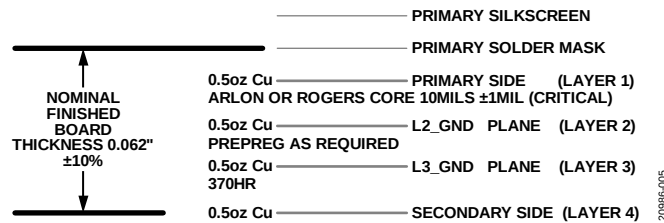


Figure 3. 4-Layer Stackup

EVALUATION BOARD SCHEMATIC AND ARTWORK

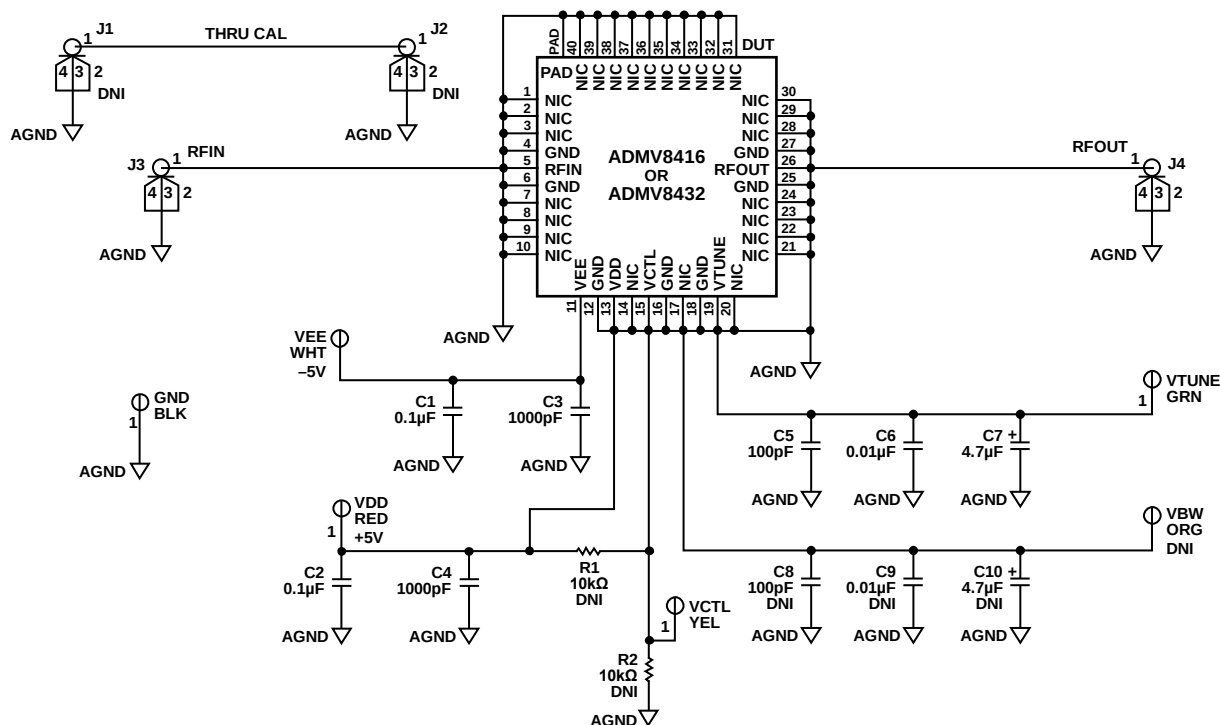


Figure 4. ADMV8416-EVALZ/ADMV8432-EVALZ Evaluation Board Schematic

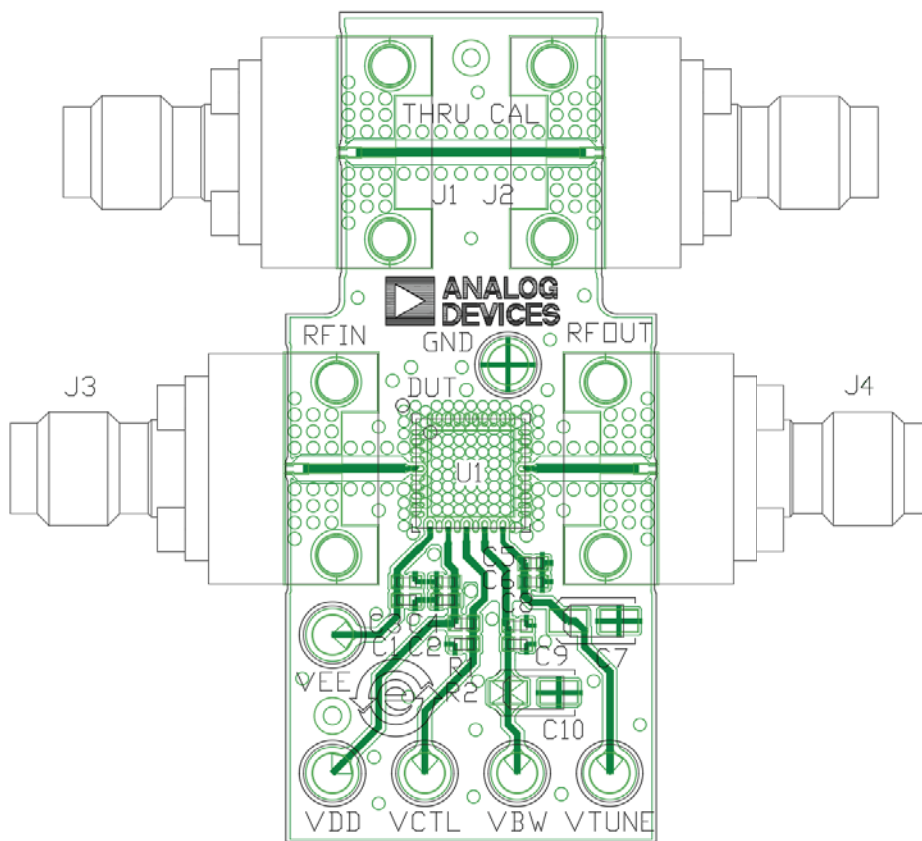


Figure 5. ADMV8416-EVALZ/ADMV8432-EVALZ Top Layer

ORDERING INFORMATION

BILL OF MATERIALS

Table 1.

Item	Description
J1 to J2	Unpopulated end launch connectors
J3 to J4	End launch connectors
VEE, VDD, VCTL, VTUNE, GND	Through hole mount test points
VBW	Unpopulated through hole mount test point
U1	ADMV8416 or ADMV8432
C1, C2	0.1 μ F capacitors, 0402 package
C3, C4	1000 pF capacitors, 0402 package
C5	100 pF capacitors, 0402 package
C6	0.01 μ F capacitors, 0402 package
C7	4.7 μ F capacitors, 3216 package
C8,C9	Unpopulated 0402 capacitors
C10	Unpopulated 3216 capacitor
R1, R2	Unpopulated 0402 resistors
08-050664 ¹	Evaluation PCB ²

¹ Circuit board material: Arlon 25FR or Rogers 25FR.

² 08-050664 is the raw bare PCB identifier.



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.

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