

Evaluation Board User Guide for the **ADA4625-2** Low Noise, Fast Settling, Single Supply, RRO, JFET Op Amp

FEATURES

Full featured evaluation board for the [ADA4625-2](#)
Enables quick prototyping
User defined circuit configuration
Edge mounted SMA connector provisions
Easy connection to test equipment and other circuits

EVALUATION KIT CONTENTS

EVAL-ADA4625-2ARDZ evaluation board

EQUIPMENT NEEDED

1 signal generator
1 dual-output dc power supply
1 oscilloscope with a bandwidth of at least 20 MHz
2 SMA to Bayonet Neill-Concelman (BNC) male cables
3 banana plug to hook plug cables
1 3 inch test hook jumper (optional)
1 SMA short (optional)

DOCUMENTS NEEDED

[ADA4625-2 data sheet](#)

GENERAL DESCRIPTION

This user guide describes the evaluation board for the [ADA4625-2](#) low noise, fast settling, single-supply, rail-to-rail output (RRO), junction field effect transistor (JFET) op amp in an 8-lead small outline integrated circuit (SOIC) package with an exposed pad.

The design of this evaluation board emphasizes simplicity and ease of use. This evaluation board is a two layer board that accommodates edge mounted Subminiature Version A (SMA) connectors on the inputs and outputs. The SMA connectors provide efficient connection to test equipment or other circuitry.

The evaluation board ground plane, component placement, and power supply bypassing are optimized for maximum circuit flexibility and performance. The exposed pad of the [ADA4625-2](#) is connected to the ground plane on the evaluation board to enhance thermal and noise performance. The evaluation board uses a combination of surface mount technology (SMT) component case size 0603, with the exception of the C2 and C6 bypass capacitors, which have a maximum standard size of 1206. The evaluation board features a variety of unpopulated resistor and capacitor pads that provide the user with multiple choices and extensive flexibility for different application circuits and configurations, such as active loop filters, transimpedance amplifiers (TIAs), and charge amplifiers.

Consult the [ADA4625-2](#) data sheet for full details. The data sheet must be used in conjunction with this user guide when using the evaluation board.

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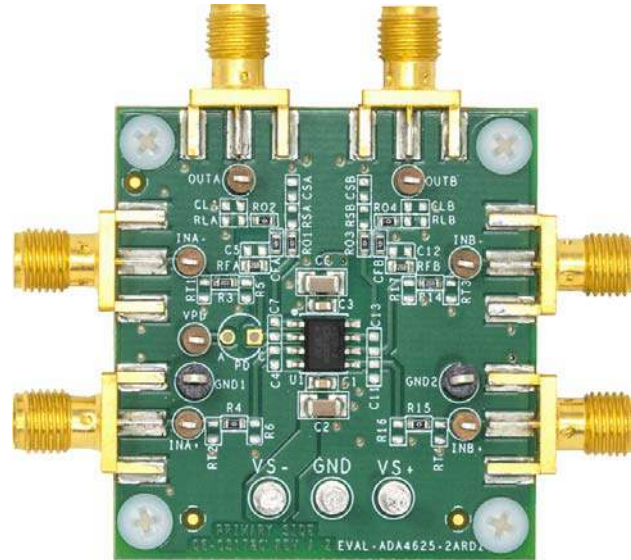
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REVISION HISTORY

6/2019—Revision 0: Initial Version

EVALUATION BOARD PHOTOGRAPHS

Figure 1 shows the top view of the EVAL-ADA4625-2ARDZ evaluation board, and Figure 2 shows the bottom view of the EVAL-ADA4625-2ARDZ evaluation board.



17316-001

Figure 1. EVAL-ADA4625-2ARDZ Evaluation Board Top View



17316-002

Figure 2. EVAL-ADA4625-2ARDZ Evaluation Board Bottom View

EVALUATION BOARD QUICK START PROCEDURE

OVERVIEW

This section outlines the basic configuration of the [ADA4625-2](#) evaluation board to test basic functionality of the device. For first time users, quick start operation is the best option to use the evaluation board immediately.

The input signal is applied to the edge mounted SMA radio frequency (RF) connectors, INN and INP. The output signal is accessible via the edge mounted SMA connector, VO.

Additional components are required to operate the evaluation board. See the Equipment Needed section for details.

POWER SUPPLY CONFIGURATION

The turrets, VS+, VS-, and GND, power the evaluation board. Connect the dc power with the proper polarity and voltage. Reverse polarity or overvoltage can permanently damage the evaluation board. Permissible supply voltages range from 5 V to 36 V. Higher voltages can damage the amplifier. Decoupling capacitors of 10 μ F and 0.1 μ F are preinstalled on the board for immediate operation.

INITIAL CONFIGURATION

To start the initial evaluation board configuration, use the following procedure:

1. Ensure the power supply is off. Using the banana to hook cables, connect the positive supply, negative supply, and ground to the VS+, VS-, and GND turrets, respectively.
2. Connect the signal source to INA+ or Test Point INA+ and connect INA- to the ground. Terminate or connect INB+ and INB- to the ground.
3. Connect the output SMA connector (OUTA) to the oscilloscope using an SMA to BNC cable. Set the oscilloscope to 1 M Ω input impedance.

POWER-UP PROCEDURE

After completing the initial configuration, use the following procedure to power up the board:

1. Set the V+ supply to 15 V and the V- supply to -15 V.
2. Turn on the power supply. The typical supply current of the [ADA4625-2](#) is 8.0 mA. Current drawn from the power supply must not exceed 10 mA.
3. Configure the signal source to output a 1 kHz sine wave of 1 V p-p.
4. Enable the signal source. The oscilloscope must be able to measure a 10 V p-p sine wave at the output of the [ADA4625-2](#).

EVALUATION BOARD SCHEMATICS

17316-003

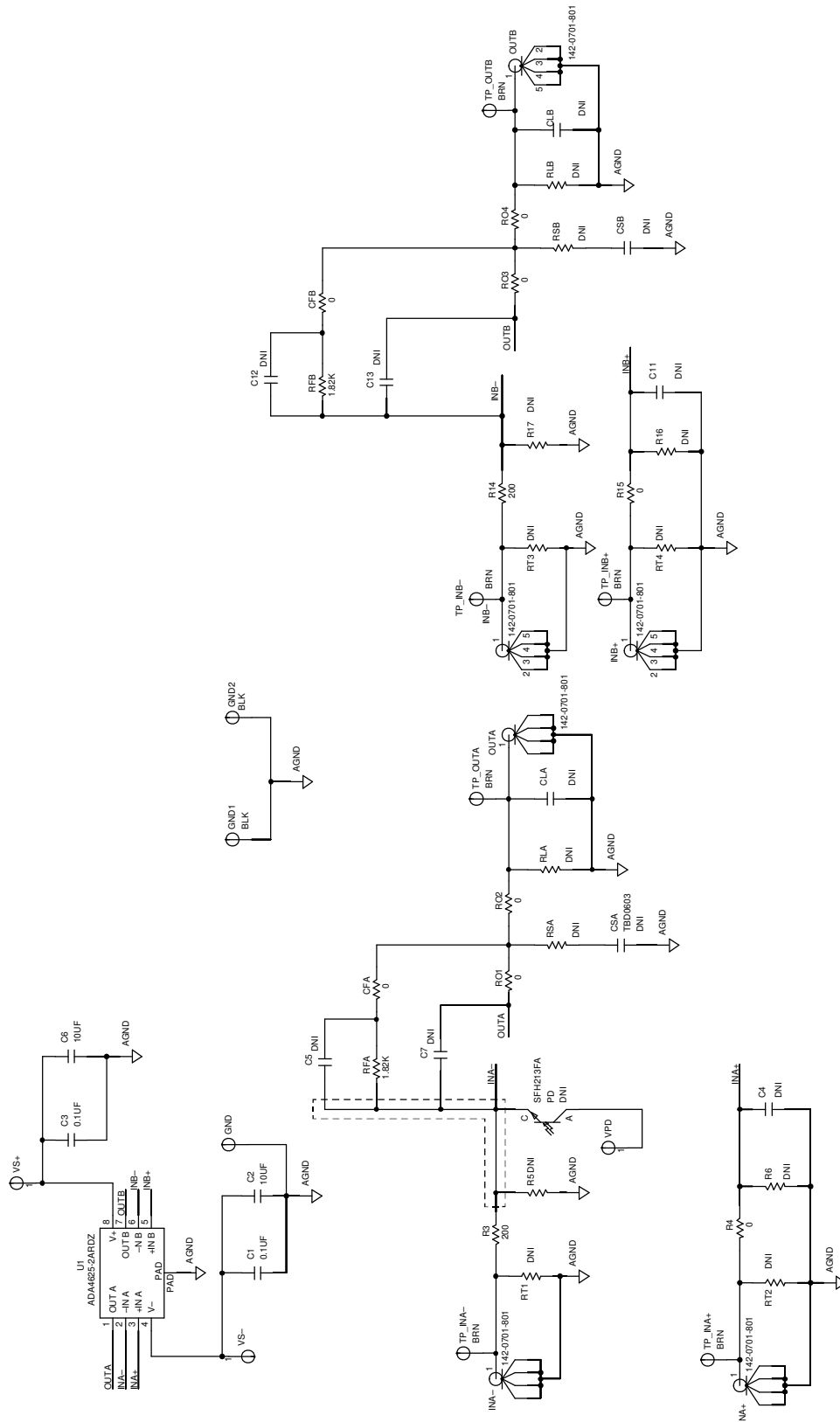


Figure 3. EVAL-ADA4625-2ARDZ Evaluation Board Schematic

EVALUATION BOARD LAYOUTS

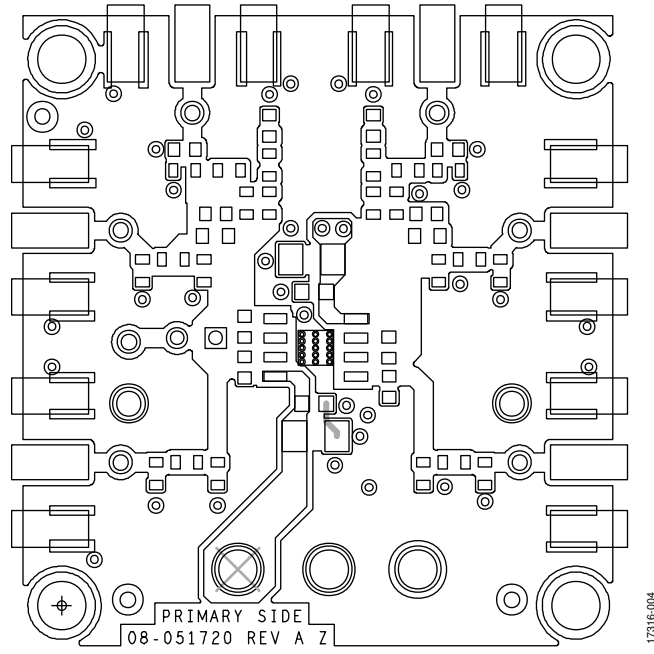


Figure 4. EVAL-ADA4625-2ARDZ Evaluation Board Component Side Layout

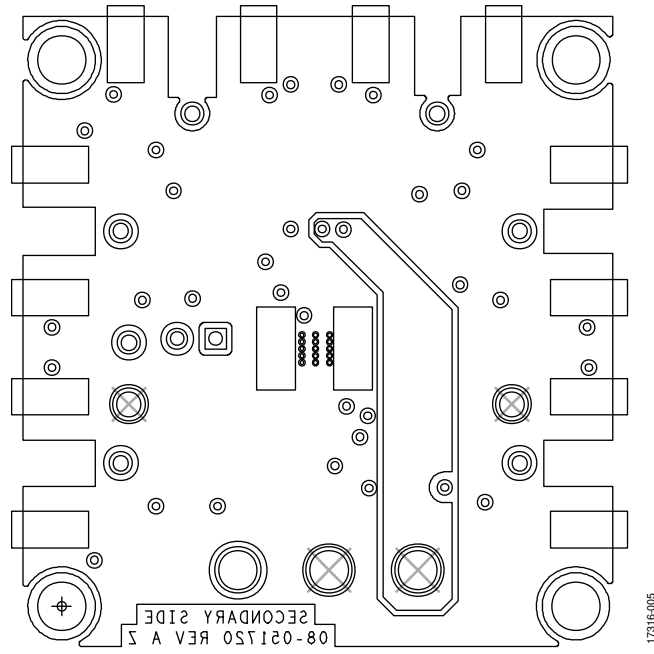


Figure 5. EVAL-ADA4625-2ARDZ Evaluation Board Circuit Side Layout

ORDERING INFORMATION

BILL OF MATERIALS

Table 1.

Qty	Reference Designator	Description	Supplier	Part Number
1	U1	36 V, 18 MHz, low noise, fast settling single supply, RRO, JFET op amp	Analog Devices, Inc.	ADA4625-2ARDZ
2	C1, C3	Ceramic capacitors, X7R, 0603, 0.1 μF, 50 V	Vishay	VJ0603Y104KXAAC31X
2	C2, C6	Ceramic capacitors, X5R, 1206, 10 μF, 50 V	TDK	C3216X5R1H106K160AB
2	R3, R14	Resistor, 200 Ω	Panasonic	ERA-3AEB201V
2	RFA, RFB	Resistor, 1.82 kΩ	Yageo	RT0603BRD071K82L
12	C4, C5, C7, C11, C12, C13, CFA, CFB, CLA, CLB, CSA, CSB	User defined capacitors; CFA and CFB is shorted with a 0 Ω resistor		
19	RT1, RT2, RT3, RT4, R4, R5, R6, R15, R16, R17, RO1, RO2, RO3, RO4, RSA, RSB, RLA, RLB	User defined resistors; R4, R15, RO1, RO2, RO3, and RO4 are shorted with 0 Ω resistors		
6	INA+, INA-, INB+, INB-, OUTA, OUTB	Coaxial, SMA, end launch	Cinch Connectivity Solutions	142-0701-801
2	GND1, GND2	PCB connector, test points black	Components Corporation	TP-104-01-00
7	INA+, INA-, INB+, INB-, OUTA, OUTB, VPD	PCB connector, test points brown	Keystone Electronics	5115
3	VS+, VS-, GND	PCB connector, solder terminal turrets	Mill-Max	2501-2-00-80-00-00-07-0



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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