

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.

TABLE OF CONTENTS

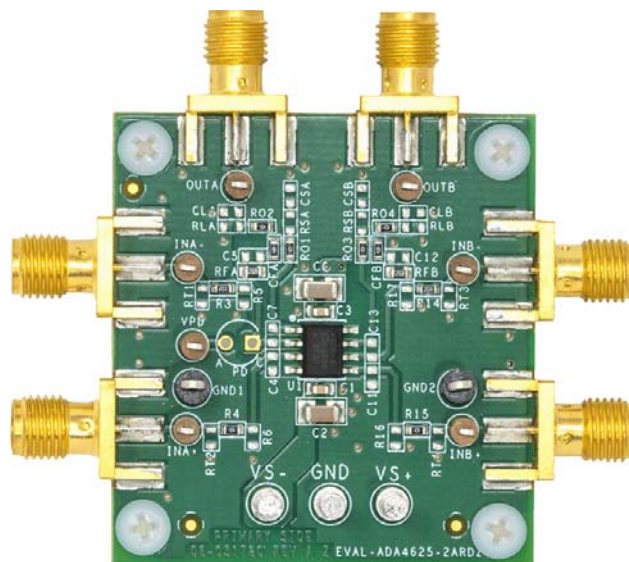
Features	1	Power Supply Configuration.....	4
Evaluation Kit Contents.....	1	Initial Configuration.....	4
Equipment Needed.....	1	Power-Up Procedure.....	4
Documents Needed.....	1	Evaluation Board Schematics.....	5
General Description	1	Evaluation Board Layouts	6
Revision History	2	Ordering Information.....	7
Evaluation Board Photographs	3	Bill of Materials.....	7
Evaluation Board Quick Start Procedure	4		
Overview.....	4		

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

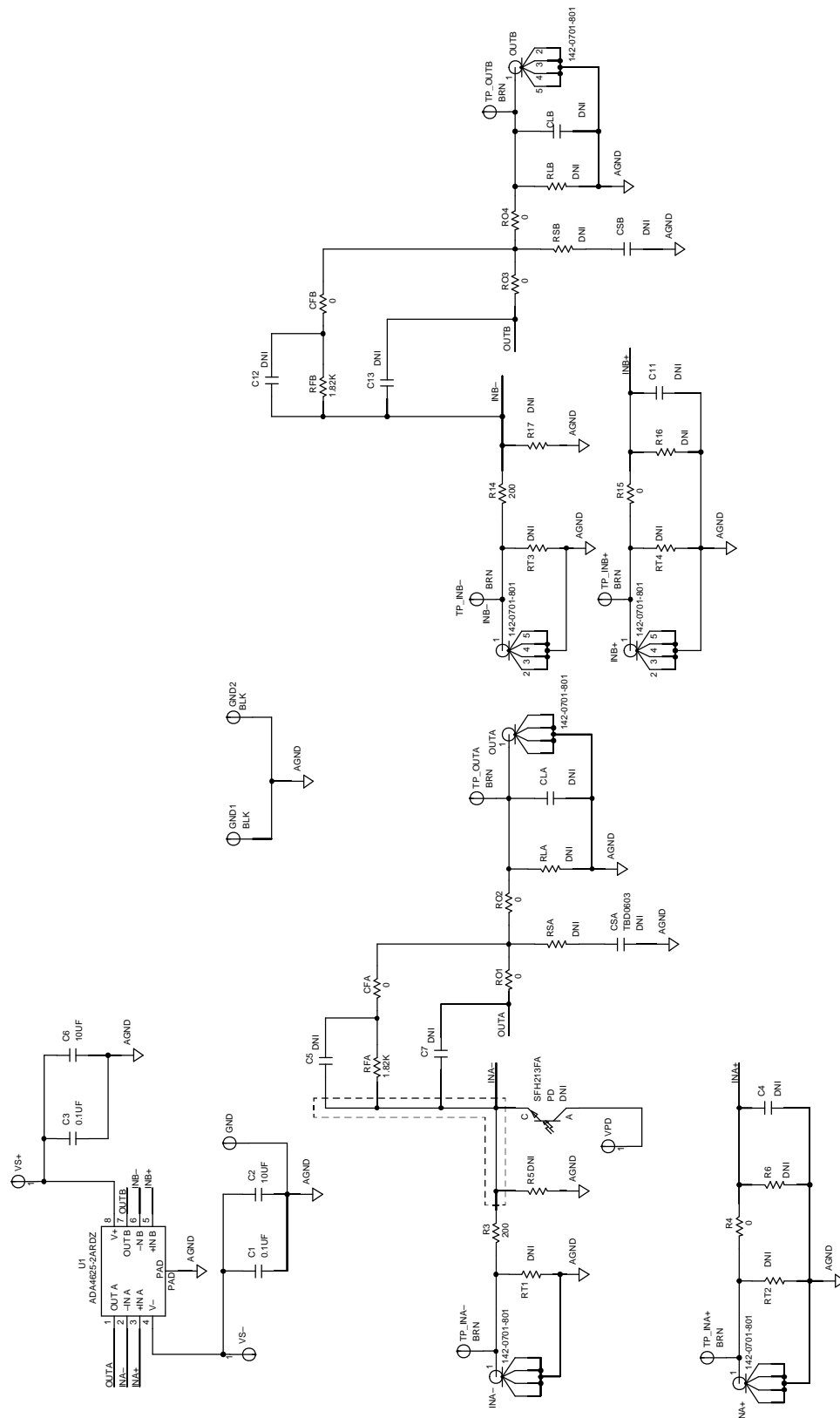


Figure 3. EVAL-ADA4625-2ARDZ Evaluation Board Schematic

EVALUATION BOARD LAYOUTS

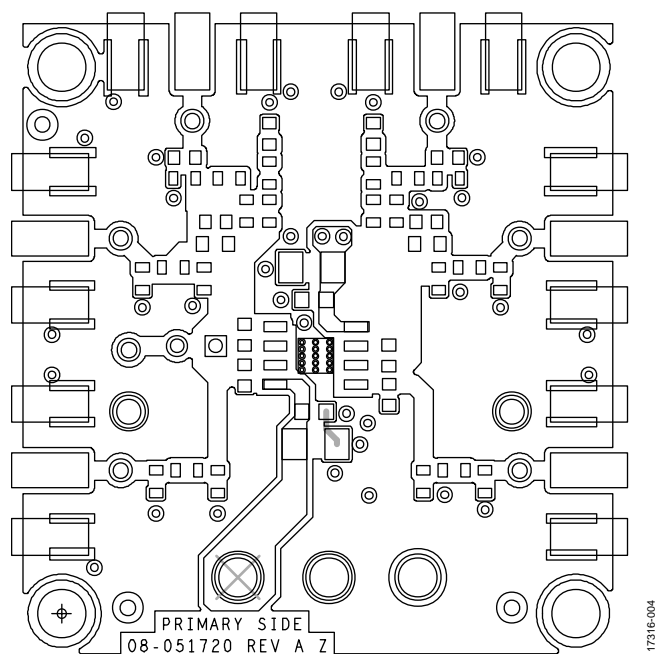


Figure 4. EVAL-ADA4625-2ARDZ Evaluation Board Component Side Layout

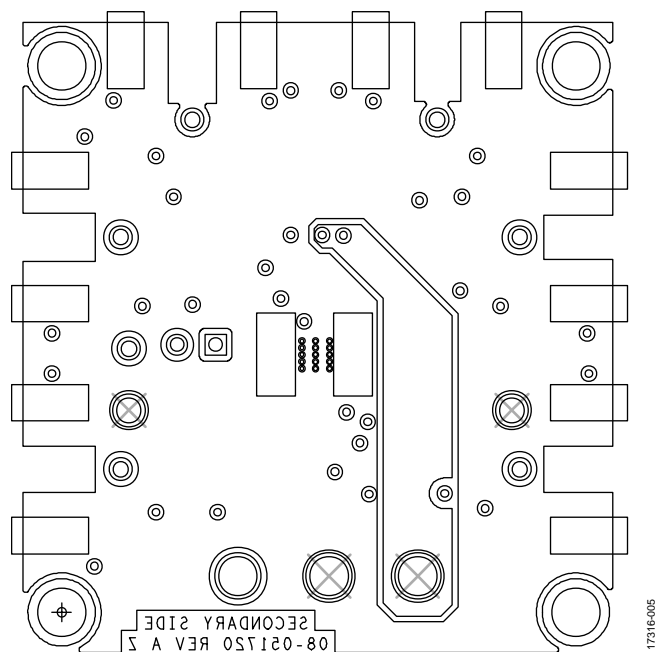


Figure 5. EVAL-ADA4625-2ARDZ Evaluation Board Circuit Side Layout

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 μ F, 50 V	Vishay	VJ0603Y104KXAAC31X
2	C2, C6	Ceramic capacitors, X5R, 1206, 10 μ F, 50 V	TDK	C3216X5R1H106K160AB
2	R3, R14	Resistor, 200 Ω	Panasonic	ERA-3AEB201V
2	RFA, RFB	Resistor, 1.82 k Ω	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.

Legal Terms and Conditions

By using the evaluation board discussed herein (together with any tools, components documentation or support materials, the "Evaluation Board"), you are agreeing to be bound by the terms and conditions set forth below ("Agreement") unless you have purchased the Evaluation Board, in which case the Analog Devices Standard Terms and Conditions of Sale shall govern. Do not use the Evaluation Board until you have read and agreed to the Agreement. Your use of the Evaluation Board shall signify your acceptance of the Agreement. This Agreement is made by and between you ("Customer") and Analog Devices, Inc. ("ADI"), with its principal place of business at One Technology Way, Norwood, MA 02062, USA. Subject to the terms and conditions of the Agreement, ADI hereby grants to Customer a free, limited, personal, temporary, non-exclusive, non-sublicensable, non-transferable license to use the Evaluation Board FOR EVALUATION PURPOSES ONLY. Customer understands and agrees that the Evaluation Board is provided for the sole and exclusive purpose referenced above, and agrees not to use the Evaluation Board for any other purpose. Furthermore, the license granted is expressly made subject to the following additional limitations: Customer shall not (i) rent, lease, display, sell, transfer, assign, sublicense, or distribute the Evaluation Board; and (ii) permit any Third Party to access the Evaluation Board. As used herein, the term "Third Party" includes any entity other than ADI, Customer, their employees, affiliates and in-house consultants. The Evaluation Board is NOT sold to Customer; all rights not expressly granted herein, including ownership of the Evaluation Board, are reserved by ADI. CONFIDENTIALITY. This Agreement and the Evaluation Board shall all be considered the confidential and proprietary information of ADI. Customer may not disclose or transfer any portion of the Evaluation Board to any other party for any reason. Upon discontinuation of use of the Evaluation Board or termination of this Agreement, Customer agrees to promptly return the Evaluation Board to ADI. ADDITIONAL RESTRICTIONS. Customer may not disassemble, decompile or reverse engineer chips on the Evaluation Board. Customer shall inform ADI of any occurred damages or any modifications or alterations it makes to the Evaluation Board, including but not limited to soldering or any other activity that affects the material content of the Evaluation Board. Modifications to the Evaluation Board must comply with applicable law, including but not limited to the RoHS Directive. TERMINATION. ADI may terminate this Agreement at any time upon giving written notice to Customer. Customer agrees to return to ADI the Evaluation Board at that time. LIMITATION OF LIABILITY. THE EVALUATION BOARD PROVIDED HEREUNDER IS PROVIDED "AS IS" AND ADI MAKES NO WARRANTIES OR REPRESENTATIONS OF ANY KIND WITH RESPECT TO IT. ADI SPECIFICALLY DISCLAIMS ANY REPRESENTATIONS, ENDORSEMENTS, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, RELATED TO THE EVALUATION BOARD INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. IN NO EVENT WILL ADI AND ITS LICENSORS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM CUSTOMER'S POSSESSION OR USE OF THE EVALUATION BOARD, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DELAY COSTS, LABOR COSTS OR LOSS OF GOODWILL. ADI'S TOTAL LIABILITY FROM ANY AND ALL CAUSES SHALL BE LIMITED TO THE AMOUNT OF ONE HUNDRED US DOLLARS (\$100.00). EXPORT. Customer agrees that it will not directly or indirectly export the Evaluation Board to another country, and that it will comply with all applicable United States federal laws and regulations relating to exports. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the substantive laws of the Commonwealth of Massachusetts (excluding conflict of law rules). Any legal action regarding this Agreement will be heard in the state or federal courts having jurisdiction in Suffolk County, Massachusetts, and Customer hereby submits to the personal jurisdiction and venue of such courts. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement and is expressly disclaimed.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Analog Devices Inc.:](#)

[EVAL-ADA4625-2ARDZ](#)