

ADL5511-EVALZ: Evaluation Board

GENERAL DESCRIPTION

Figure 1 shows the schematic of the ADL5511 evaluation board. This 4-layer board is powered by a single supply in the 4.75 V to 5.25 V range. The power supply is decoupled by 100 pF and 0.1 μF capacitors.

Table 1 details the various configuration options of the evaluation board. Figure 2 and Figure 3 show the bottom side and top side layouts, respectively.

The RF input has a broadband match of 50 Ω using a single 75 Ω resistor at R5.

The VRMS output is accessible via a clip lead (a pad is also available where an SMA connector is installed). The VENV output is accessible via an SMA connector. For response-time critical measurements where stray capacitance must be minimized, R2 can be removed and a FET probe can be attached to JP1 (JP1 must be installed).

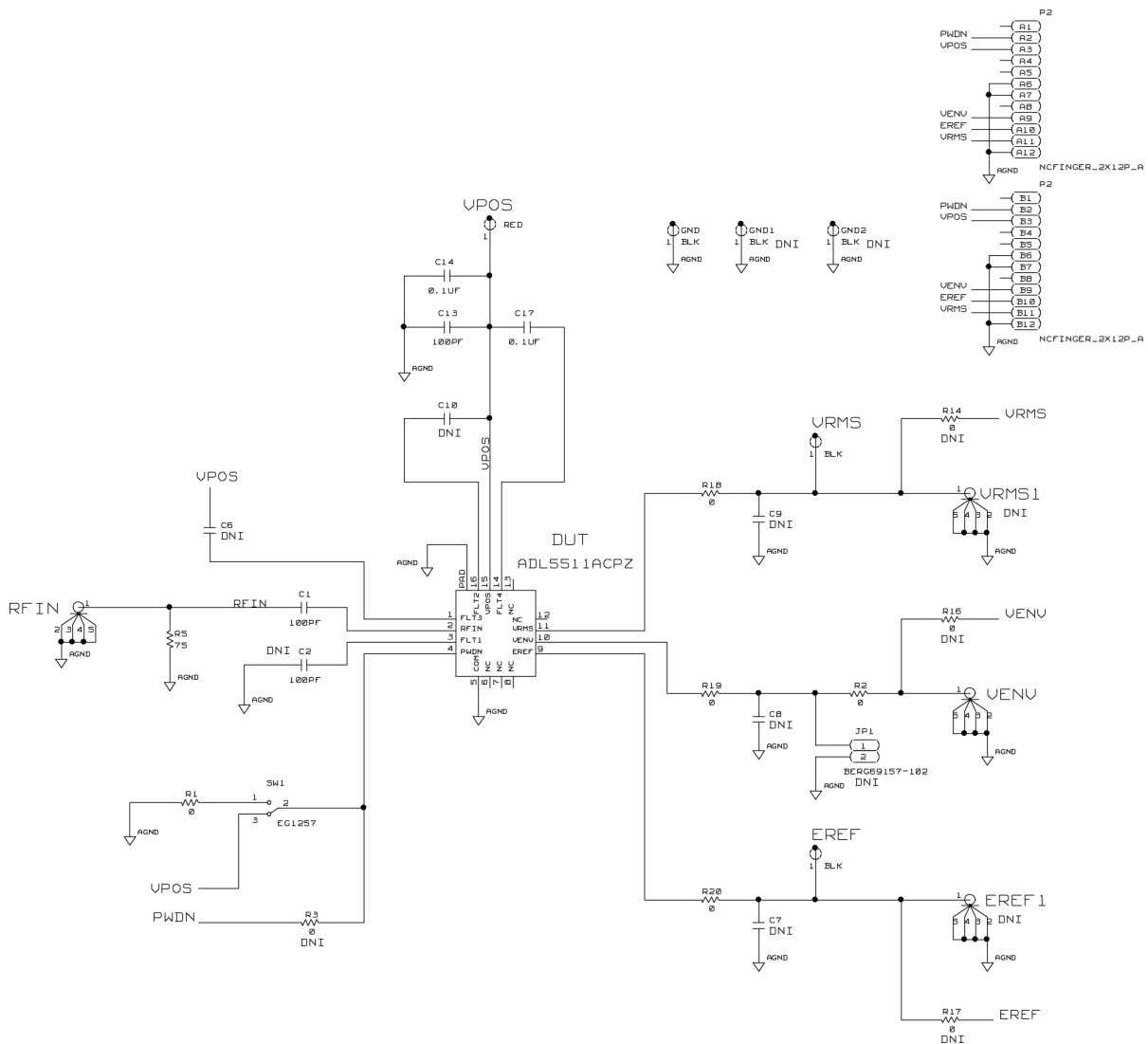


Figure 1. Evaluation Board Schematic

10445-001

EVALUATION BOARD LAYOUT

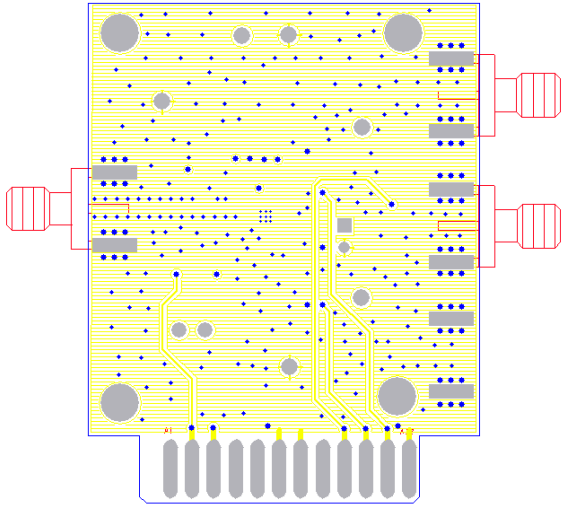


Figure 2. Layout of Evaluation Board, Bottom Side

10145-002

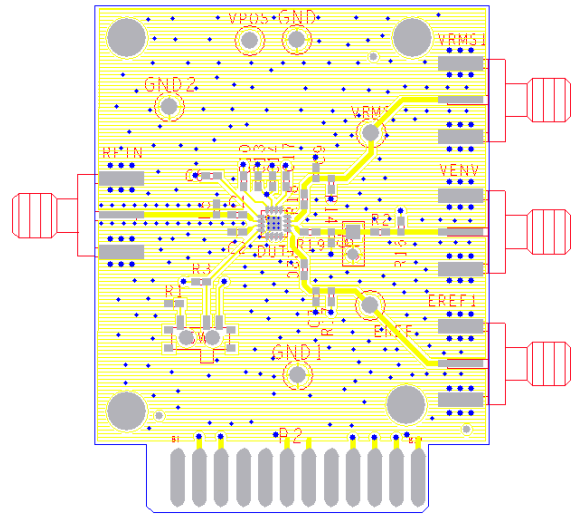


Figure 3. Layout of Evaluation Board, Top Side

10145-003

EVALUATION BOARD CONFIGURATION OPTIONS

Table 1.

Component	Description	Default Condition
VPOS, GND C13, C14	Ground and supply vector pins. Power supply decoupling. Nominal supply decoupling of 0.01 μ F and 100 pF.	Not applicable C13 = 100 pF (Size 0402) C14 = 0.1 μ F (Size 0402)
C17	RMS filter capacitor (FLT4). The internal rms averaging capacitor can be augmented by placing additional capacitance in C17.	C17 = 0.1 μ F (Size 0402)
R5, C1	RF input interface. The 75 Ω resistor at R5 combines with the ADL5511 internal input impedance to give a broadband input impedance of around 50 Ω . C1 is an ac coupling capacitor, which should be chosen according to nominal carrier frequency.	R5 = 75 Ω (Size 0402) C1 = 100 pF (Size 0402)
R18, C9	RMS output and output filtering. The combination of C9 and the internal 100 Ω output resistance can be used to form a low-pass filter to reduce the output noise on the VRMS output beyond the reduction due to C17 (capacitor on FLT4). The rms output is available on the VRMS clip-on test point. To observe VRMS using an SMA cable, an SMA connector can be soldered onto the pad labeled VRMS1.	R18 = 0 Ω (Size 0402) C9 = open (Size 0402) VRMS clip-on test point = installed VRMS1 SMA connector = open
R19, C8, R2, JP1	VENV output and output filtering. The VENV output is available on the VENV SMA connector. If post-envelope filtering is desired, R19 and C8 can be used to form a low-pass filter at the VENV output. R2 can be removed to isolate the JP1 jumper from the VENV SMA connector, and JP1 can be installed and used to interface to a FET probe. This helps to eliminate any excessive trace and connector capacitance.	VENV SMA connector = installed R19, R2 = 0 Ω (Size 0402) C8 = open (Size 0402) JP1 = open
R20, C7	Envelope reference output and output filtering. The EREF output is available on the EREF clip-on test point. The dc reference voltage at Pin EREF can be filtered by the low-pass filter formed by the combination of R20 and C7. To observe the EREF voltage using an SMA cable, an SMA connector can be soldered onto the pad labeled EREF1.	R20 = 0 Ω (Size 0402) C7 = open (Size 0402) EREF clip-on test point = installed EREF1 SMA connector = open
R1, SW1	Device enable. When the switch is set toward the SW1 label, the ENBL pin is connected to VPOS, which enables the ADL5511 . In the opposite switch position, the ENBL pin is grounded, which disables the ADL5511 .	R1 = 0 Ω (Size 0402) SW1 = towards SW1 label
C6, C10	Envelope carrier-removal filters (FLT2, FLT3). The corner frequency of the internal VENV two-pole carrier-removal filter can be reduced by placing additional capacitors in C6 and C10.	C6, C10 = open (Size 0402)
C2	Envelope reference carrier-removal filter (FLT1). The internal filter that removes the carrier from the envelope reference dc voltage can be augmented by placing a capacitor in C2.	C2 = 100 pF (Size 0402)
R3, R14, R15, R16, R17	Alternate interface. The P2 edge connector provides an alternate access point to the various ADL5511 signals.	R3, R14, R15, R16, R17 = open (Size 0402)

NOTES

**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.