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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).

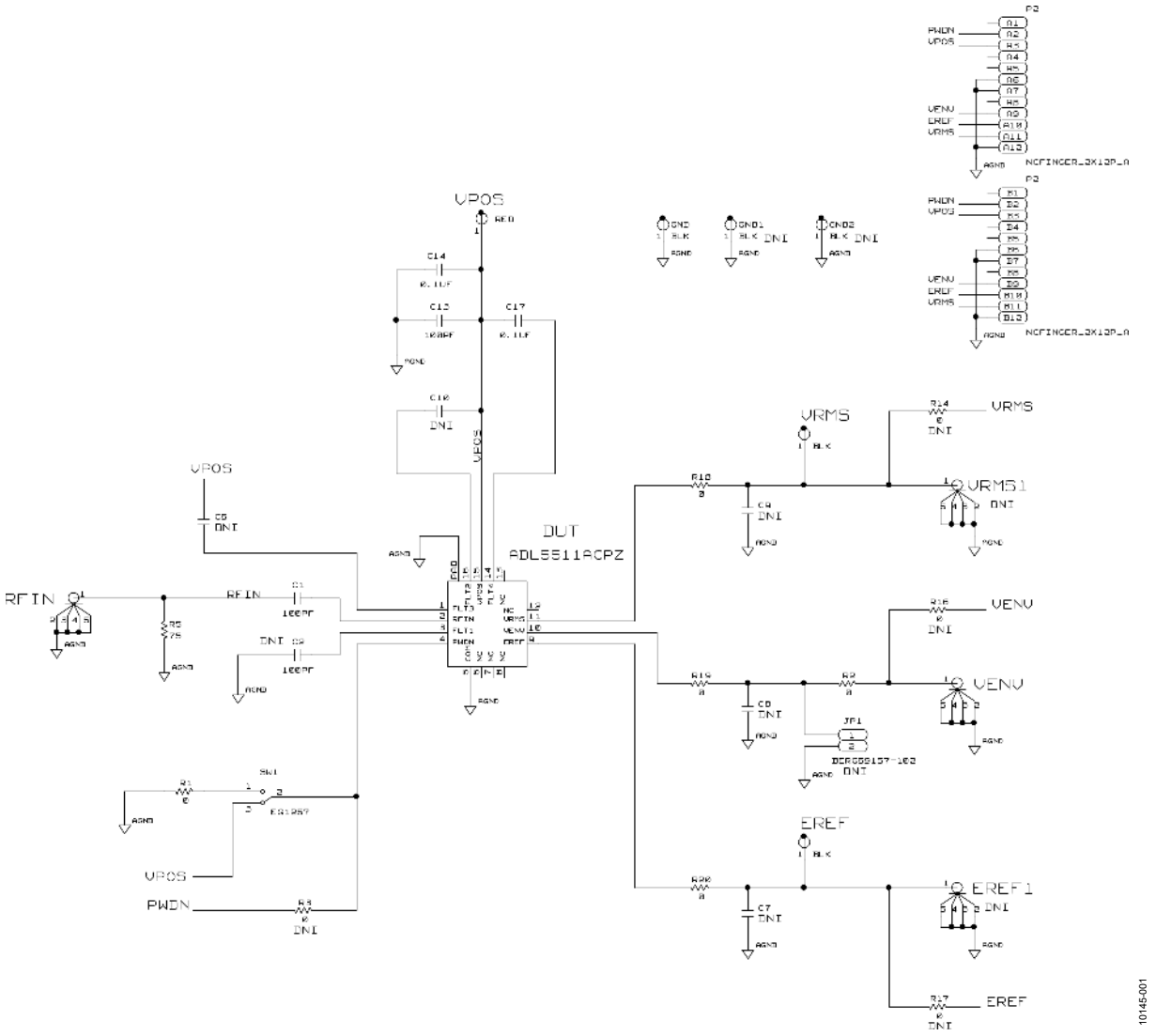

Figure 1. Evaluation Board Schematic

EVALUATION BOARD LAYOUT

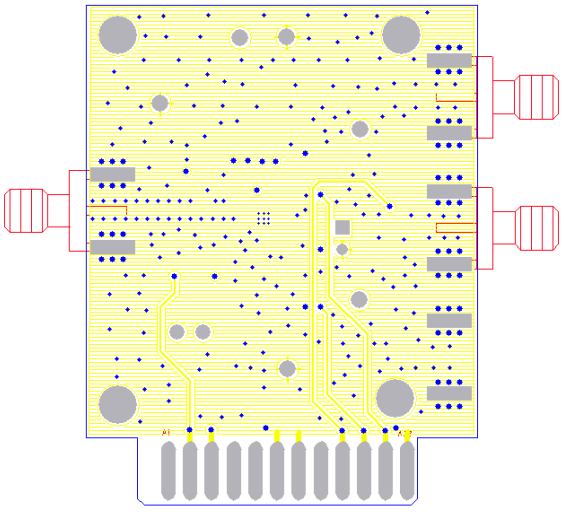

Figure 2. Layout of Evaluation Board, Bottom Side

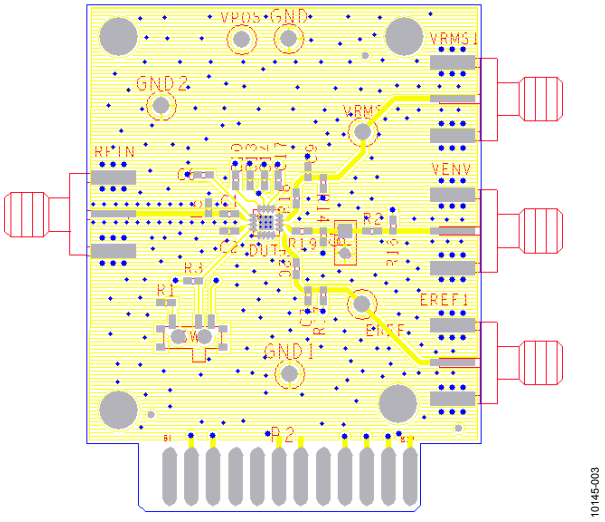

Figure 3. Layout of Evaluation Board, Top Side

EVALUATION BOARD CONFIGURATION OPTIONS

Table 1.

Component	Description	Default Condition
VPOS, GND	Ground and supply vector pins.	Not applicable
C13, C14	Power supply decoupling. Nominal supply decoupling of 0.01 µF and 100 pF.	C13 = 100 pF (Size 0402) C14 = 0.1 µF (Size 0402)
C17	RMS filter capacitor (FLT4). The internal rms averaging capacitor can be augmented by placing additional capacitance in C17.	C17 = 0.1 µF (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.

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