

AN-2095 LMH730316 SOT23-5/SOT23-6 High Performance Amplifier Evaluation Board

1 General Description

The LMH730316 evaluation board is designed to aid in the characterization of Texas Instruments high speed and low distortion operational amplifiers, and is sold without any components installed for easy application adoption. This four layer board is designed to improve speed and reduce harmonic distortion by careful placement and routing of components and traces.

Use the evaluation board as a guide for high frequency layout and as a tool to aid in device testing and characterization.

2 Basic Operation

This evaluation board supports both inverting and non-inverting configurations. For component locations, see the schematic in [Figure 1](#) . Note that the pin numbers correspond to the SOT23-6 package. For the SOT23-5 package, schematic pin 6 (VCC) is normally called pin 5 and schematic pin 5 does not exist (open).

The board uses end mounted SMA connectors. On the +IN input, resistor RINa provides input termination. The resistors RTP and RINb are normally open and short, respectively, and are included for added flexibility (for example, filtering, divider/attenuation, and so forth) in configuring the amplifier. When using the evaluation board for non-inverting applications, load resistor RGa only (Rb and RTn left open). The resistors Rb and RTn are for use in the inverting configuration. When using this board for inverting applications, do not load RGa; instead load Rb and an appropriate value of RTn. Ro and RTo resistors comprise the output connection network that is usually configured for 50 Ω operation (Ro= 50 Ω, RTo = open).

Several components are mounted on the board bottom, while the DUT is installed on the top layer, for best performance. Here is a list of these components:

Rf, RGa, C4, and RGND.

For SOT23-6 devices with schematic pin 5 used for the disable function, resistor RTdis can be used (normally 50 Ω) while an input at J4 can act as a disable signal. For a SOT23-5 device, schematic pin 5 is non-existent and the said components are thus “don’t care”.

All board components are the SMT 0603 type, except the following listed in [Table 1](#)

Table 1. Board Components Which are not "0603" Type

Reference Designator	Description
D1	Schottky diode, 1N5859, 40 V (or equivalent)
RGND	Shorting jumper (single supply operation only)

Diode D1 (optional) is meant as protection to clamp the supplies in case VCC and VEE are accidentally reversed. For single-supply operation (VCC), short RGND to connect VEE to GND and do not power VEE pins on J5. When using a single supply, it is important to pay attention to DC bias voltages. This board consists of four layers. All four layers are detailed in Figure 2 through Figure 5.

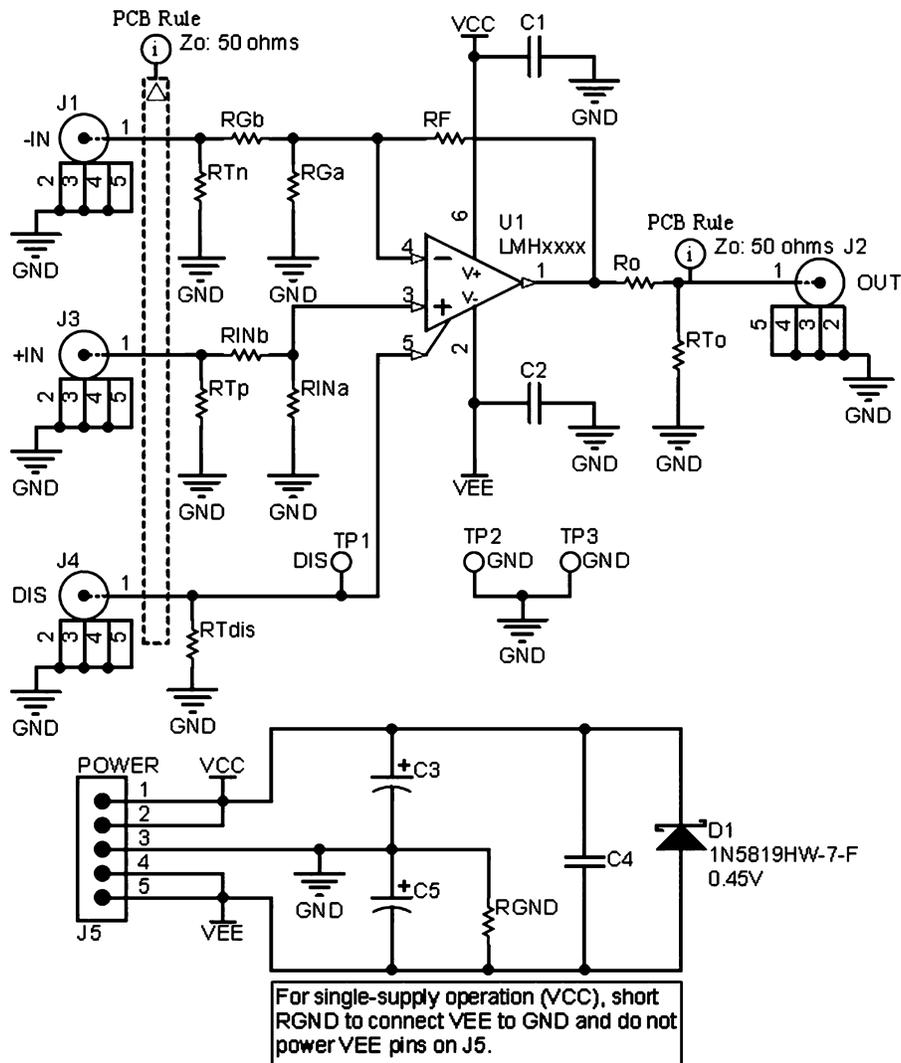


Figure 1. Evaluation Board Schematic

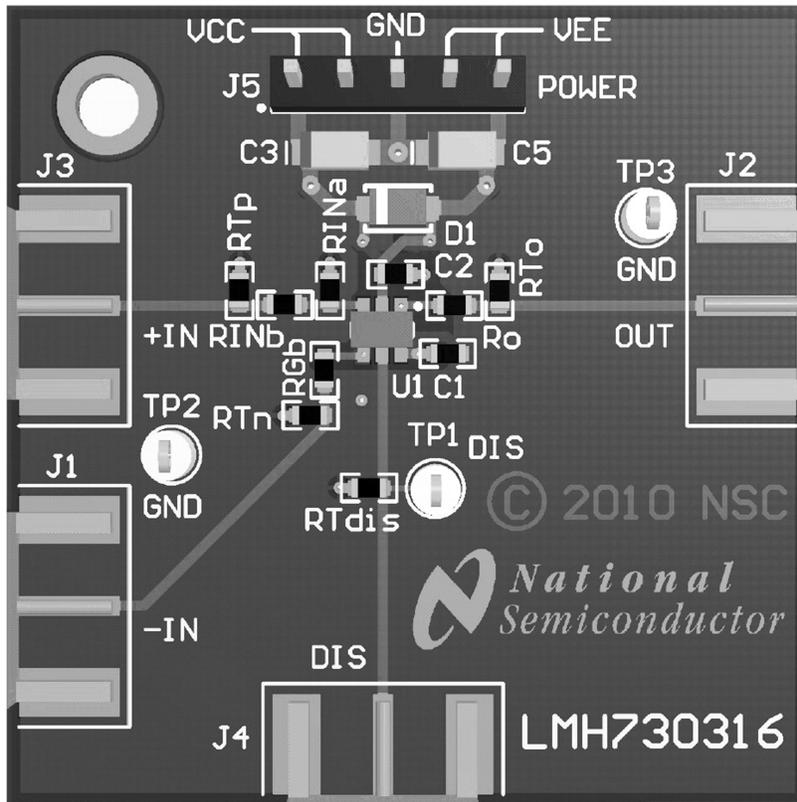


Figure 2. Evaluation Board Top Layer

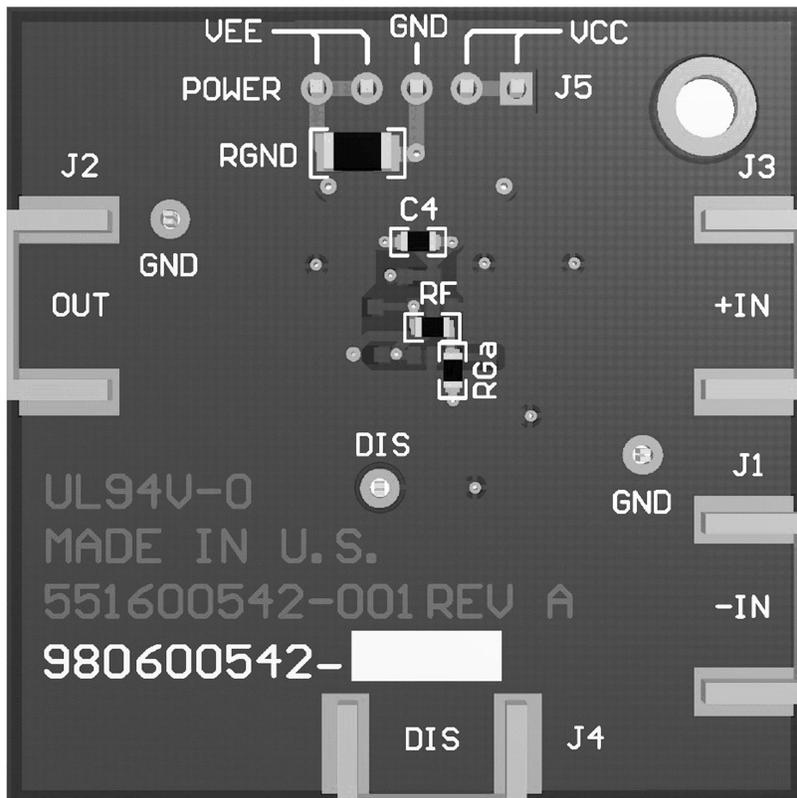


Figure 3. Evaluation Board Bottom Layer (bottom view)

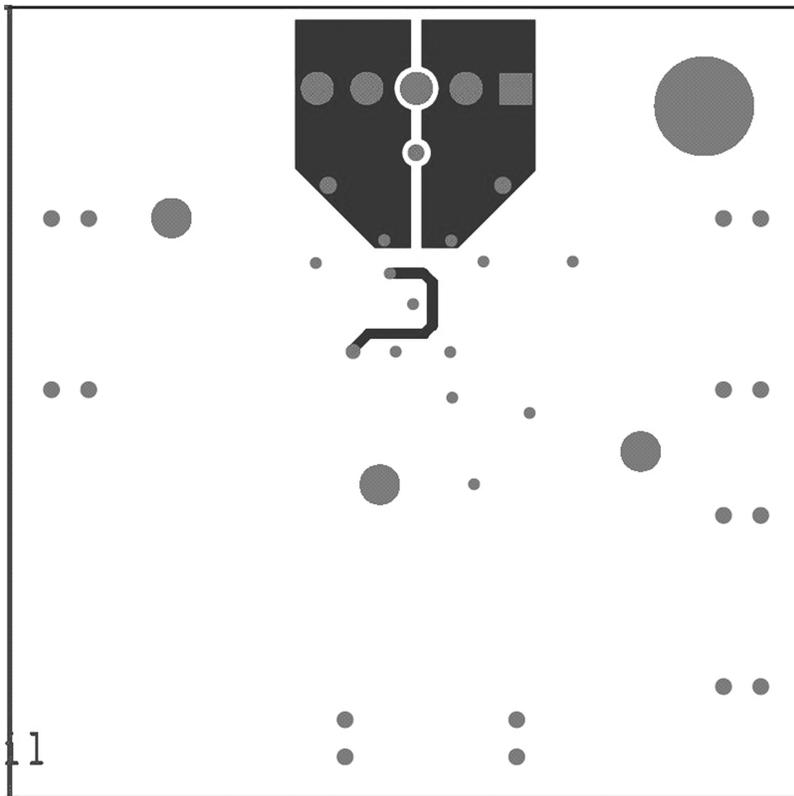


Figure 4. Evaluation Board Layer 2 (bottom view)

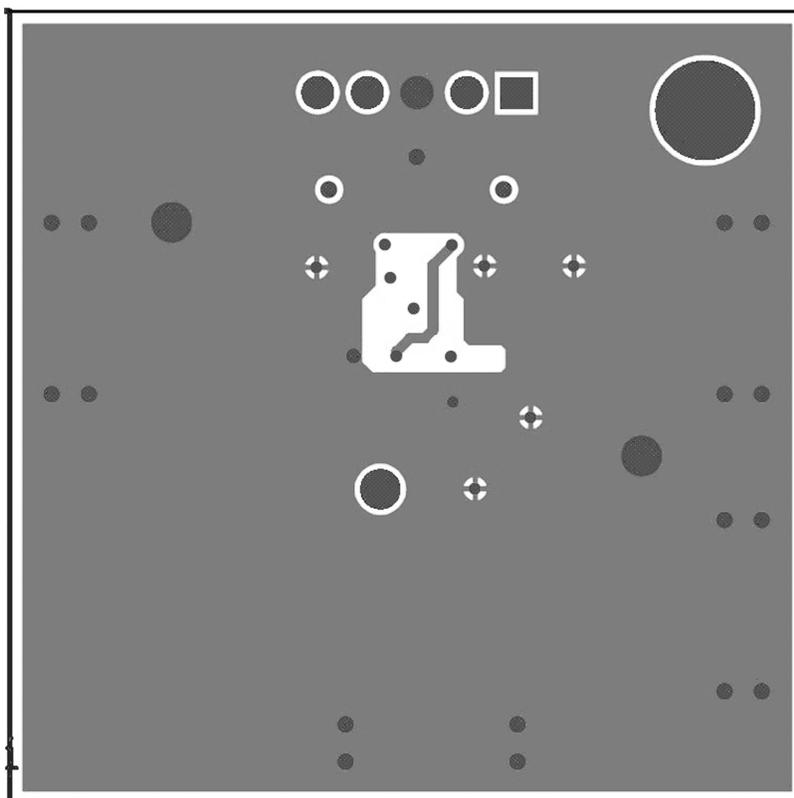


Figure 5. Evaluation Board Layer 3 (bottom view)

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