



## Lab 6: Amplifier Lab

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### Objective:

Design the configuration for an amplifier with at least 10 dB of gain. Instructions and descriptions are attached. Use the data sheets you have from the lectures.

### Equipment:

- Agilent 8510C Microwave Vector Network Analyzer  
(Replacement model: Agilent E8362B PNA Network Analyzer)
- TRL Calibration Kit

### Procedure:

**Changes from the attachments:** Replace the Mallory microporcelain blocking capacitors with ceramic capacitors from Kemet (the same one you used in the diode detector).

**Libra:** No simulation is necessary. There is no standard library part for the amplifier. Use any standard BJT out of the library that has the same dimensions as the amplifier you will be using (which is almost all of them -- place the part on your layout, and then use the measure tool to check the measurement). See libra schematic attached. Remember to change the capacitor sizes as described above! Check that your layout looks like the sample layout attached.

**Milling:** Prepare your circuit to be milled as before. Be sure to include dimensions of your circuit, and locations of the grounding holes in the triangular ground plates. Remember to include enough line on the ends of the amplifier to test it with the circuit board holder (THRU/2)

**Soldering:** When you solder the amplifier on to your circuit board, you can tell which direction to place it by looking at the pin that has a triangular end and a dot on the chip. (See the data sheet) Prepare the (many) ground pins with the regular (hand) soldering iron. Other parts can be paste soldered. The resistor is one of the larger parts. It is black. The inductor is a small green/striped cylinder. The caps are gray with silver ends, the smallest of the parts.

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