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# CLC109/110/111 Evaluation Boards

## Part Numbers CLC730012, CLC730045

August 1996

The CLC730012 is an evaluation board intended for the evaluation of single buffers in the DIP package. The CLC730045 is a similar board, but laid out for an SOIC package.

To obtain optimum performance from a high speed device, a good Printed Circuit Board (PCB) layout is essential. The importance of the layout becomes greater as the frequency of operation increases. Some of Comlinear's buffers have bandwidths in excess of 800 MHz, therefore it is vital that sound PCB layout techniques be used when designing with these devices. The CLC730012 and CLC730045 are examples of good PCB layouts which designers are encouraged to copy.

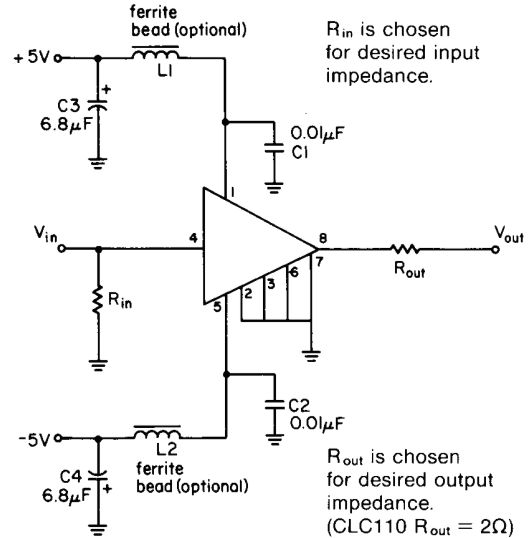
To minimize capacitive feedthrough and noise, the pins not connected internally, should be connected to the ground plane. Input and output traces should be laid out as transmission lines with the appropriate termination resistors very near the device. On a 0.0065" (FR4 or equivalent) a 0.1" wide trace over ground plane on the opposite side of the board will exhibit a characteristic impedance of 50 .

Figure 1 shows recommended power supply bypassing. The ferrite beads are optional and are recommended only where additional isolation is needed from high-frequency (>400MHz) resonances of the power supply.

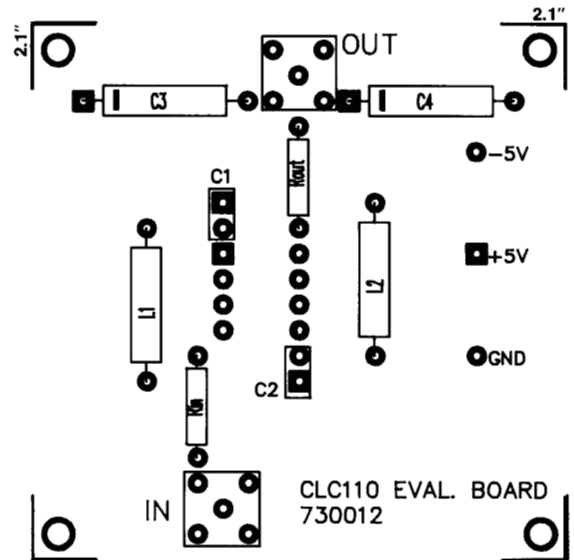
Parasitic or load capacitance directly on the output of a buffer will introduce additional phase shift in the device. If excessive, this phase shift can lead to peaking in the frequency response or, in extreme cases, oscillation. A small series resistor in series with a capacitive load effectively decouples it from the buffer output and removes the undesirable effects of excess phase shift. Further detail on the selection of these resistors can be found in the individual buffer data sheets.

### Parts List

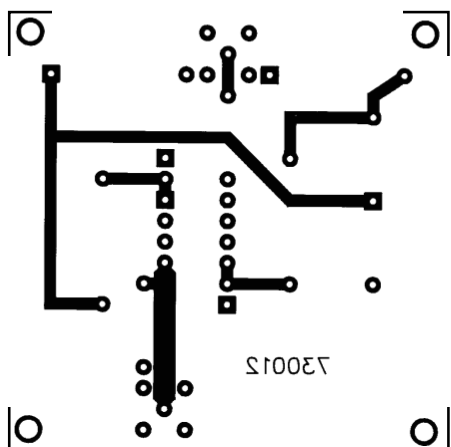
- $R_{IN}$  select for desired input resistance
- $R_{OUT}$  select for desired output resistance
- $C_1, C_2$  0.1 $\mu$ F capacitor
- $C_3, C_4$  6.8 $\mu$ F capacitor
- $L_1, L_2$  Optional ferrite bead inductors



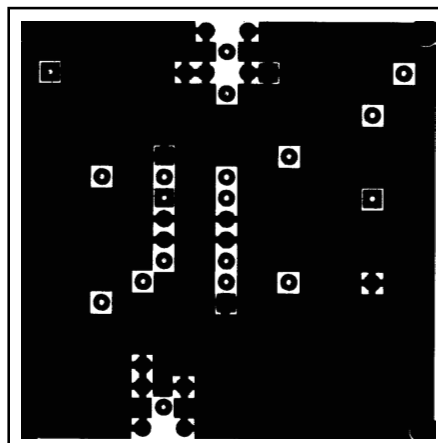
**Figure 1: Recommended Circuit and Evaluation Board Schematic**



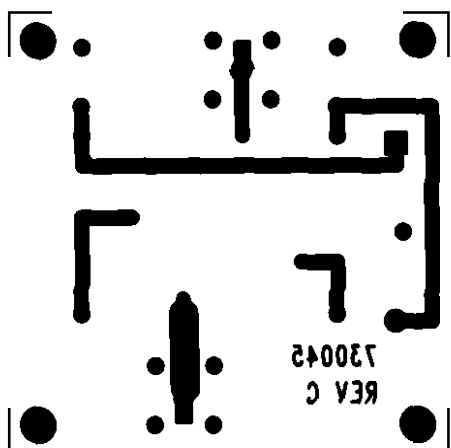
**Figure 2: Component Placement Guide**



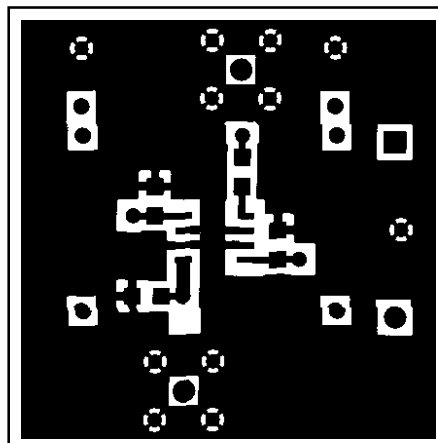
**Figure 3: 730012 Solder Side (bottom) viewed from Component Side (top)**



**Figure 4: 730012 Component Side (top) Showing Ground Plane**



**Figure 5: 730045 Solder Side (bottom) viewed from Component Side (top)**



**Figure 6: 730045 Component Side (top) Showing Ground Plane**

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