National Semiconductor

8-pin Thermally Enhanced SOIC (PSOP) Dual Op Amp Evaluation Board

Part Number CLC730121

June 2001

The CLC730121 evaluation board is designed to aid in the characterization of National's 8-pin Dual Op Amps in PSOP package. This board uses all surface-mount components for maximum speed and performance.
Figure 1 shows the schematic:

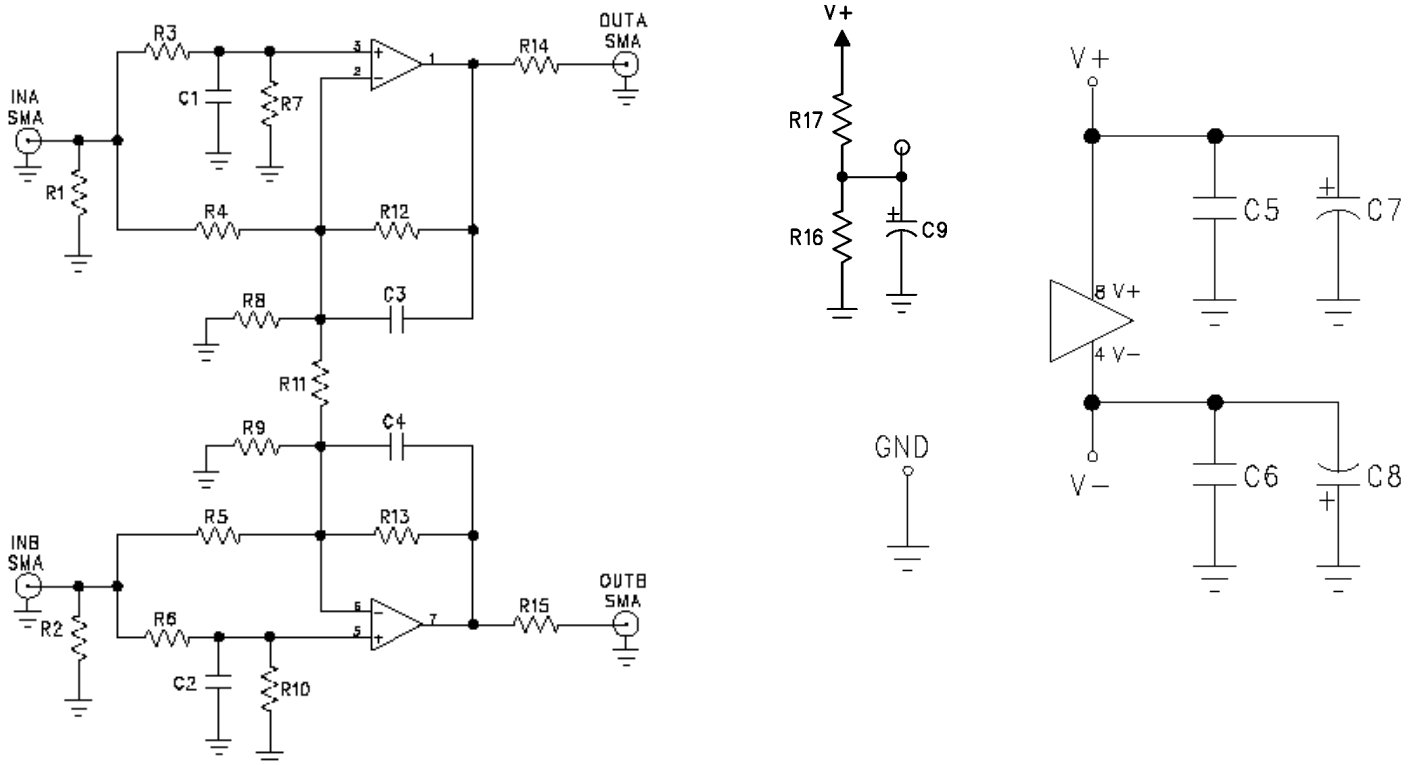


Figure 1: Complete Evaluation Board Schematic

This board is designed with versatility in mind; that is, by selective insertion of components, the device can be put into an Inverting, non-inverting, or differential configuration. In addition, single supply operation can be tested with simple board modifications (please see below).

Please note that R11 is installed on the circuit side of the board in order to minimize its lead lengths. C5-8 (4 places) are de-coupling caps essential to be installed for good high frequency behavior. 0.1µF and 6.8µF are good values in most cases. Note that C7-8 are polar caps. Use Tantalum capacitors for lowest ESR.

The CLC730121 evaluation board uses a thermally dissipating pad soldered to the exposed die attach paddle (DAP) of the device under test (DUT) to enable heat transfer out of the package. Normally this DAP would be soldered during manufacturing with a process like vapor phase. For lab evaluation, use a thermally conductive epoxy or thermal grease between the DAP and the board to help conduct heat out of the package.

SINGLE SUPPLY OPERATION:

In order to allow maximum flexibility, it is possible to test the Op Amp in a single supply arrangement as well. To do so, R16, R17, and C9 can be installed to form a "virtual ground" which would be tied to the non-inverting terminal as biasing. A convenient way to connect C9 (positive side) to the inputs is by performing the following:

1. Cut R7 and R10 connection to ground plane, on circuit side.
2. Install 0Ω resistances for R7 and R10
3. Tie C9 (positive side) to the cut side of R7 and R10.

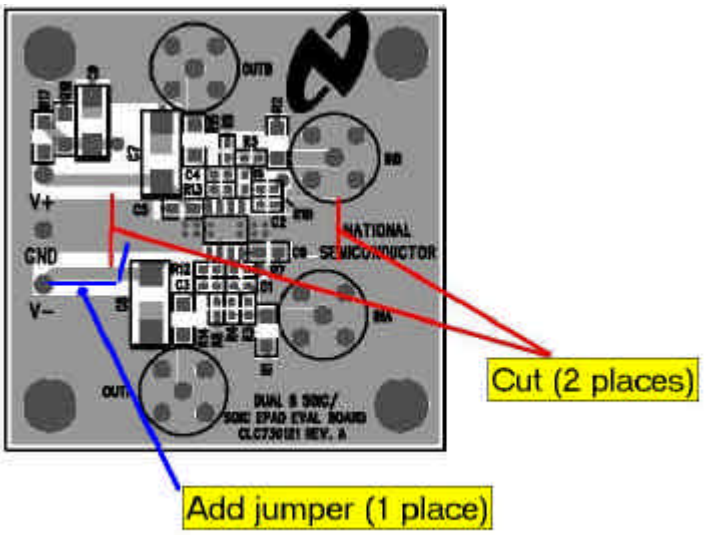
DAP Connection:

CLC730121 evaluation board can be used with two types of Op Amps:

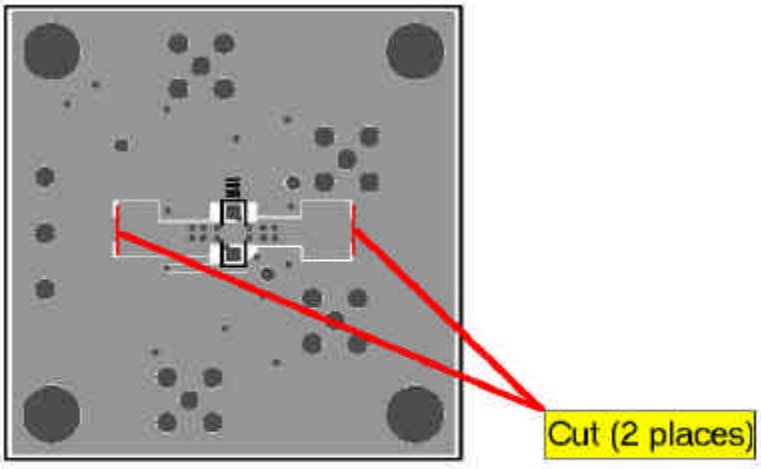
1. Op Amp's with DAP internally floating. (no board change required)
2. Op Amp's with DAP internally tied to V^- (see below for modifications needed to the board)

CLC730121 DAP heatsink connection is tied to ground. With "type 2" devices listed above, it will be necessary to disconnect the DAP connection from ground and tie it to V^- instead (see instructions below). Consult the datasheet for each device for information on DAP connection and whether this modification is required for the particular device.

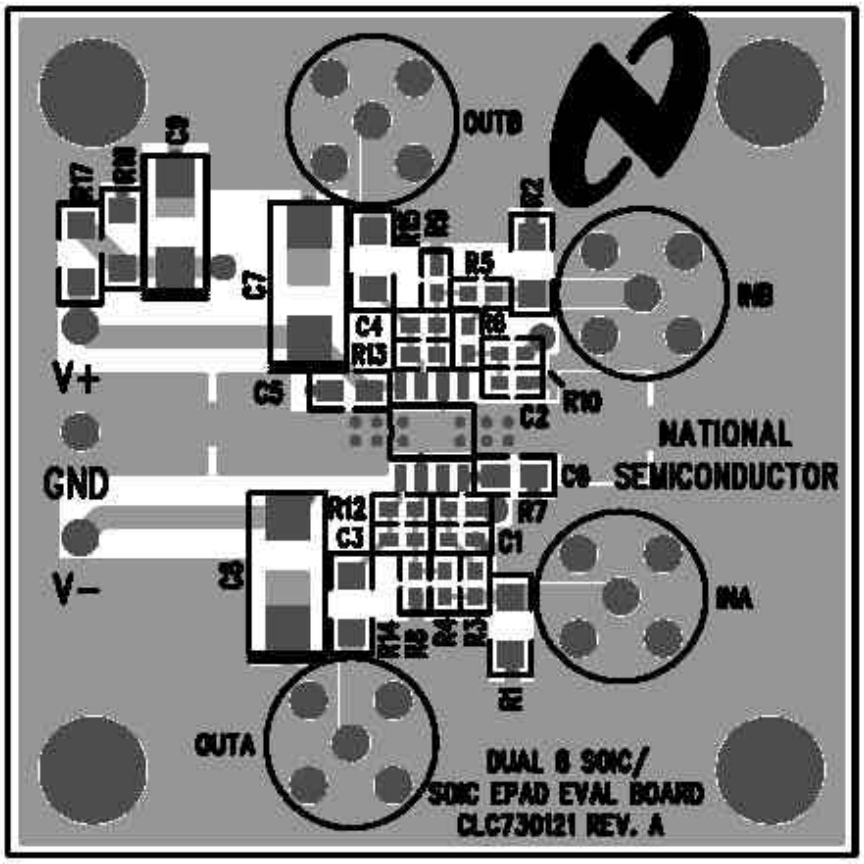
MODIFICATIONS TO ISOLATE HEATSINK FROM GND AND TIE IT TO V^-



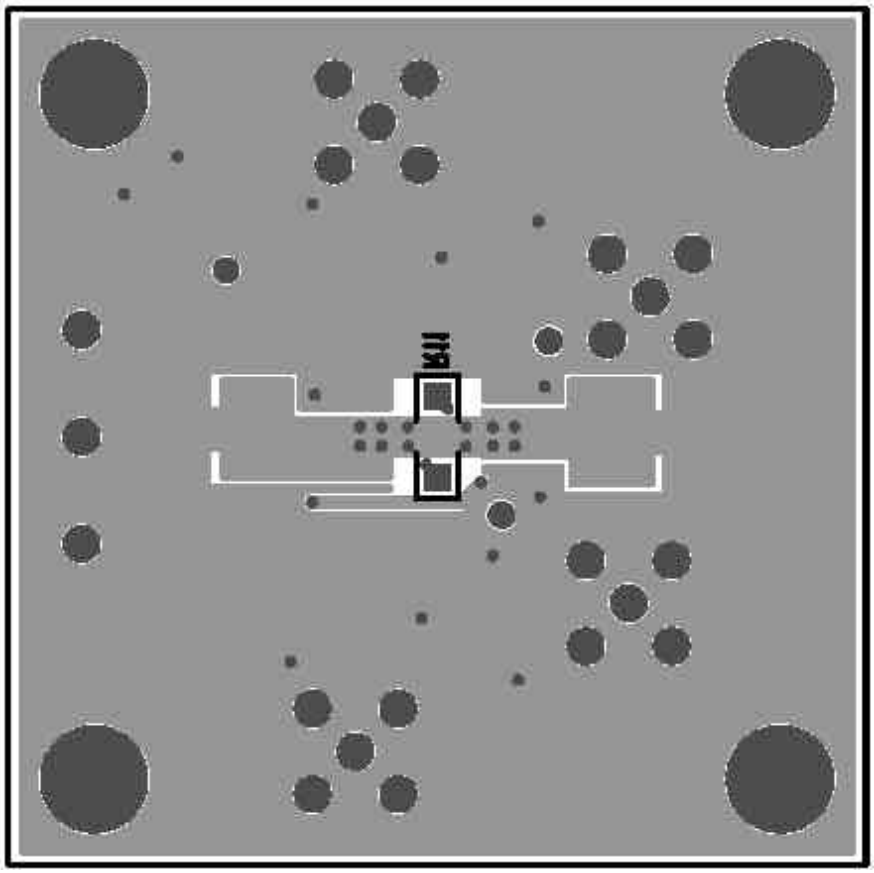
Circuit Side Modification



Circuit Side Modification



Top Side



Bottom Side

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National Semiconductor Corporation
Americas
Tel: 1-800-272-9959
Fax: 1-800-737-7018
Email: support@nsc.com

National Semiconductor Europe
Fax: +49 (0) 180-530-85 86
Email: europe.support@nsc.com
Deutsch Tel: +49 (0) 69 9508 6208
English Tel: +44 (0) 870 24 0 2171
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National Semiconductor Asia Pacific Customer Response Group
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