

DESCRIPTION

Demonstration Circuit 2551A is a Configurable Precision Amplifier featuring the LT[®]1997.

The DC2551A-A supports the LT1997-3 version.

This demo board provides a rapid evaluation tool with jumpers providing the typical interconnection options that facilitate setting the pin-strapped internal gain configuration. The LT1997 is unusual in that it may be powered from a low voltage (down to 3.3V) while it accepts signals well outside the supply range. This device also supports

particularly high supply voltages, up to 50V. Connection points are provided to wire the amplifier in other configurations besides those possible with the jumpers alone.

The key performance characteristics of the LT1997 and DC2551A are shown in the Performance Summary below.

Design files for this circuit board are available at <http://www.linear.com/demo/DC2551A>

LT, LT, LTC, LTM, Linear Technology and the Linear logo are registered trademarks of Linear Technology Corporation. All other trademarks are the property of their respective owners.

PERFORMANCE SUMMARY Specifications are at T_A = 25°C

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|---------------------------------------|--|---------------------------------|----------------------|--------|---------------------|-------|
| V _{+INA} , V _{-INA} | Input Range | Thermally Limited to Short-Term | -160 | | 160 | V |
| Other Inputs | | | -0.3 | | 80 | V |
| V ⁺ , V ⁻ | Amplifier Supply Range (Total If Split Supplies) | | 3.3 | 5...30 | 50 | V |
| V _{OUT} | Output Signal | | V ⁻ +0.35 | | V ⁺ -0.7 | V |
| I _{OUT} | Output Current Range | | ±10 | ±25 | | mA |
| I _S | Supply Current | I _{OUT} = 0 | | 330 | 525 | µA |
| BW | Small Signal -3dB Bandwidth | | 300 | | 1100 | kHz |

OPERATING PRINCIPLES

The LT1997 is an op amp that includes integrated precision resistors for providing many useful high accuracy functions with minimal external components. The default configuration of the demo circuit is a difference amplifier structure with gain set to minimum and the output referenced to mid-supply. Refer to the LT1997 data sheet for tabulations of various practical circuit configurations that

can be implemented, many of which are easily created by jumper relocation on the demo board. Large vias and some spare pads are also provided so that other more specialized configurations can be evaluated, such as AC-coupled gain blocks or summing amplifiers. The demo circuit also provides connector footprints for user-furnished BNC connectors if cable connectivity is desired.

QUICK START PROCEDURE

Demonstration circuit 2551A is easy to set up to evaluate the performance of the LT1997. Refer to Figure 1 for a suitable equipment setup and follow the procedure below:

1. Place jumpers in the following positions:

JP1, JP2 to the **ENable** position

JP6 to the **-IN** position

JP7 to the **+IN** position

JP11-JP13 to the **SPLIT** position as shown (**JP11** and **JP12** should generally be positioned as a set).

JP3-JP5, JP8-JP10 should be removed or connected to just one of their posts.

2. With power off, connect the power supply positive to **+V**, the supply negative to **-V**, and the common to **GND**. The supplies should be preset in the range of $\pm 1.7V$ to $\pm 25V$.

3. Connect a voltmeter or oscilloscope probe to the **OUT** terminal, with the common connection or ground clip tied to **GND**.

4. Connect a signal source to the **+IN** and **-IN**.

NOTE: Generators will typically be referenced to earth ground. An AC 'cheater' plug may be needed if a deliberate offset is to be introduced with another power supply.

5. Turn on the power supplies.

6. Check for an output voltage that is a replica of the input signal processed with the appropriate gain.

QUICK START PROCEDURE

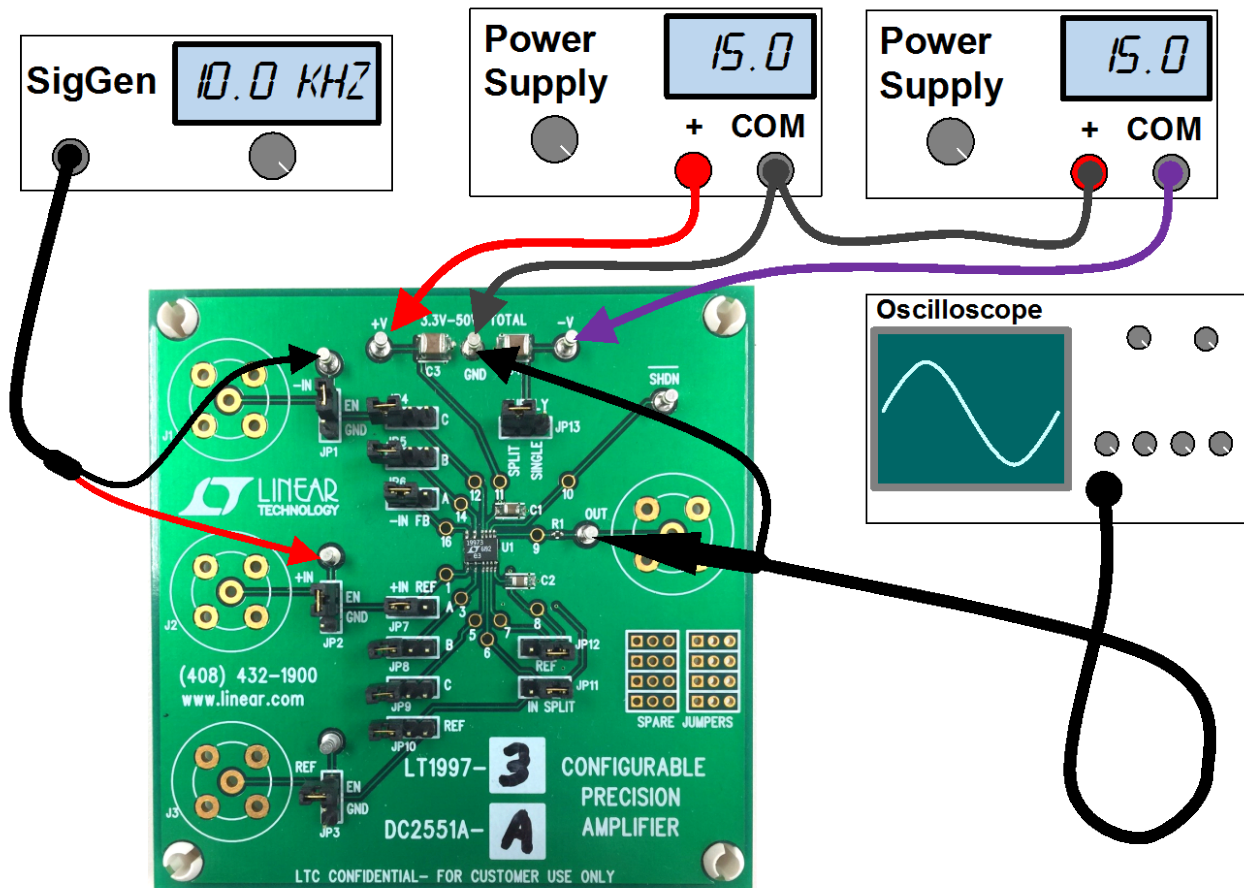


Figure 1. Proper Evaluation Equipment Setup

DEMO MANUAL DC2551A

DEMONSTRATION BOARD IMPORTANT NOTICE

Linear Technology Corporation (LTC) provides the enclosed product(s) under the following **AS IS** conditions:

This demonstration board (DEMO BOARD) kit being sold or provided by Linear Technology is intended for use for **ENGINEERING DEVELOPMENT OR EVALUATION PURPOSES ONLY** and is not provided by LTC for commercial use. As such, the DEMO BOARD herein may not be complete in terms of required design-, marketing-, and/or manufacturing-related protective considerations, including but not limited to product safety measures typically found in finished commercial goods. As a prototype, this product does not fall within the scope of the European Union directive on electromagnetic compatibility and therefore may or may not meet the technical requirements of the directive, or other regulations.

If this evaluation kit does not meet the specifications recited in the DEMO BOARD manual the kit may be returned within 30 days from the date of delivery for a full refund. **THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY MADE BY THE SELLER TO BUYER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. EXCEPT TO THE EXTENT OF THIS INDEMNITY, NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.**

The user assumes all responsibility and liability for proper and safe handling of the goods. Further, the user releases LTC from all claims arising from the handling or use of the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge. Also be aware that the products herein may not be regulatory compliant or agency certified (FCC, UL, CE, etc.).

No License is granted under any patent right or other intellectual property whatsoever. **LTC assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or any other intellectual property rights of any kind.**

LTC currently services a variety of customers for products around the world, and therefore this transaction **is not exclusive**.

Please read the DEMO BOARD manual prior to handling the product. Persons handling this product must have electronics training and observe good laboratory practice standards. **Common sense is encouraged.**

This notice contains important safety information about temperatures and voltages. For further safety concerns, please contact a LTC application engineer.

Mailing Address:

Linear Technology
1630 McCarthy Blvd.
Milpitas, CA 95035

Copyright © 2004, Linear Technology Corporation

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Amplifier IC Development Tools](#) category:

Click to view products by [Analog Devices](#) manufacturer:

Other Similar products are found below :

[EVAL-ADCMP566BCPZ](#) [EVAL-ADCMP606BKSZ](#) [AD8013AR-14-EBZ](#) [AD8033AKS-EBZ](#) [AD8044AR-EBZ](#) [AD8225-EVALZ](#)
[ADA4859-3ACP-EBZ](#) [ADA4862-3YR-EBZ](#) [DEM-OPA-SO-2B](#) [AD744JR-EBZ](#) [AD8023AR-EBZ](#) [AD8030ARJ-EBZ](#) [AD8040ARU-EBZ](#)
[AD8073JR-EBZ](#) [AD813AR-14-EBZ](#) [AD848JR-EBZ](#) [ADA4858-3ACP-EBZ](#) [ADA4922-1ACP-EBZ](#) [551600075-001/NOPB](#) [DEM-OPA-SO-](#)
[2E](#) [THS7374EVM](#) [EVAL-ADCMP553BRMZ](#) [EVAL-ADCMP608BKSZ](#) [MIOP 42109](#) [EVAL-ADCMP609BRMZ](#) [MAX9928EVKIT+](#)
[MAX9636EVKIT+](#) [MAX9611EVKIT](#) [MAX9937EVKIT+](#) [MAX9934TEVKIT+](#) [MAX44290EVKIT#](#) [MAX2644EVKIT](#) [MAX4073EVKIT+](#)
[DEM-OPA-SO-2C](#) [MAX2643EVKIT](#) [ISL28158EVAL1Z](#) [MAX40003EVKIT#](#) [MAX2473EVKIT](#) [MAX2472EVKIT](#) [MAX4223EVKIT](#)
[MAX9700BEVKIT](#) [MADL-011014-001SMB](#) [DC1685A](#) [DEM-OPA-SO-2D](#) [MAX2670EVKIT#](#) [DEM-OPA-SO-1E](#) [AD8137YCP-EBZ](#)
[EVAL-ADA4523-1ARMZ](#) [MAX44242EVKIT#](#) [EVAL-LT5401_32FDAZ](#)