

Name: _____

It is usually a good idea to test a circuit on a breadboard before taking the time to make a more permanent soldered version. We will do that here and make a few quantitative measurements.

I. Gain

First, verify that the amplifier chip provides accurate gain values. Construct the circuit of Fig. 1 (over) on your Elvis breadboard. The voltage divider on the input is used to reduce the VPS voltage and keep the amplifier output from railing. You can borrow these resistors from the supply cabinet. Set the amplifier gain using the precision resistors that you purchased. To accurately measure the gain, measure both the input and output voltages to the chip using your DMM. Perform measurements for the following settings:

R_g	VPS	V_{in}	V_{out}	Gain
40.2 k Ω	10 V	_____	_____	_____
2.1 k Ω	10 V	_____	_____	_____
2.1 k Ω	1 V	_____	_____	_____
200 Ω	1 V	_____	_____	_____

In each case, the gain should be within 1% of the expected value (10 \times , 100 \times , or 1000 \times).

II. CMRR

The CMRR for the AD627 chip is supposed to be around 100 dB at a gain of 10 \times . Check this using the circuit in Fig. 2. Use your DMM (on the mV setting) to record the output voltage at input levels of 10 V and 0 V; note that you should obtain 0 V from the circuit board ground rather than from the VPS supply, since the VPS doesn't drop all the way to 0 V. The measurement at 0 V gives the amplifier's input offset voltage. By subtracting this offset from the 10 V measurement, you can obtain the common mode gain. From that, calculate the CMRR.

V_{in}	V_{out}
0 V	_____
10 V	_____

CMRR: _____

Turn in this testing sheet when you are done.

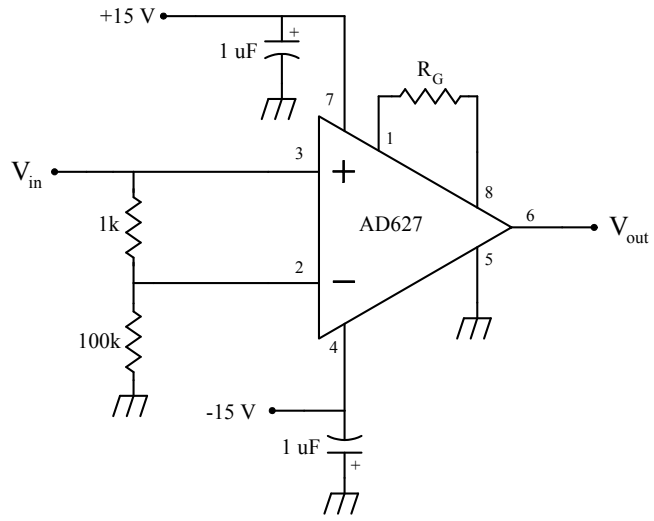


Fig 1: Gain testing

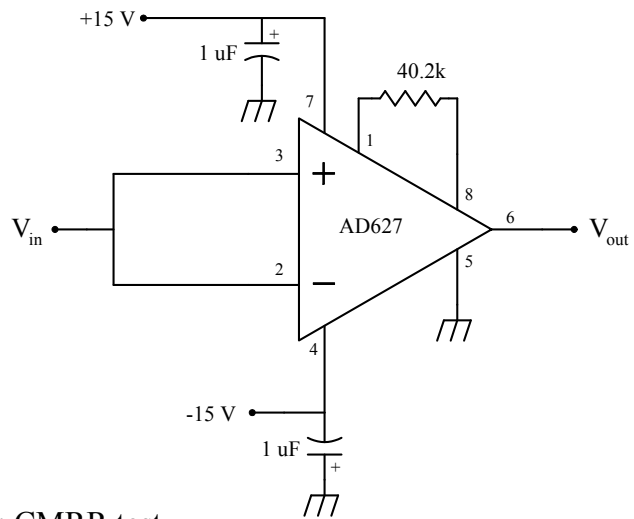


Fig 2: CMRR test