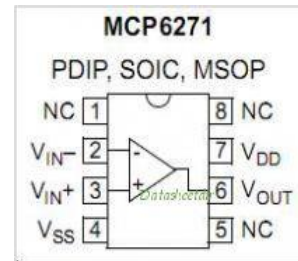# OpAmp Tester – MCP6271

This opamp tester was designed for the Microchip MCP6271 rail-rail single opamp, and should generally work for any rail-rail opamp having the same pinout for pins 2,3,4,6, and 7. Pins 1,5, and 8 are not used (no connection NC).

Operation: Insert your opamp into the vacant socket at the top of the board, just below the two LEDs. Be sure to orient the opamp with the orientation dot at pin 1 at the upper left side of the socket, adjacent to the green LED. Press and hold the pushbutton. The tester will briefly flash both LEDs and will immediately begin the test. The green LED will typically flash three times as the test proceeds. At the end of the test a good opamp will be indicated by a solid green LED. A bad opamp will show a solid red LED. Once either LED comes solidly on, the test is complete. The test takes about 3 seconds to complete.

How it works: A Microchip PIC12F683 microcontroller is programmed to produce a 20kHz PWM signal at three different duty cycles. The PWM is then passed through a low-pass RC filter to give three different DC voltage levels. These voltage signals are amplified by the opamp, which is set up as a non-inverting amplifier with a gain of 3. The microcontroller samples each voltage and checks to see if the opamp has correctly amplified each filtered PWM source signal. As each voltage is successfully detected the green LED briefly lights. If all three signals are correctly amplified and measured, the opamp passes the test and is assumed to be good. The green LED is then solidly turned on, and the test is completed. If any one of the three test voltages do not measure correctly, the opamp fails the test, the test is halted, and the red LED is solidly turned on.