POLOLU 3.3V STEP-UP VOLTAGE REGULATOR NCP1402 /POLOLU 5V STEP-UP VOLTAGE REGULATOR NCP1402

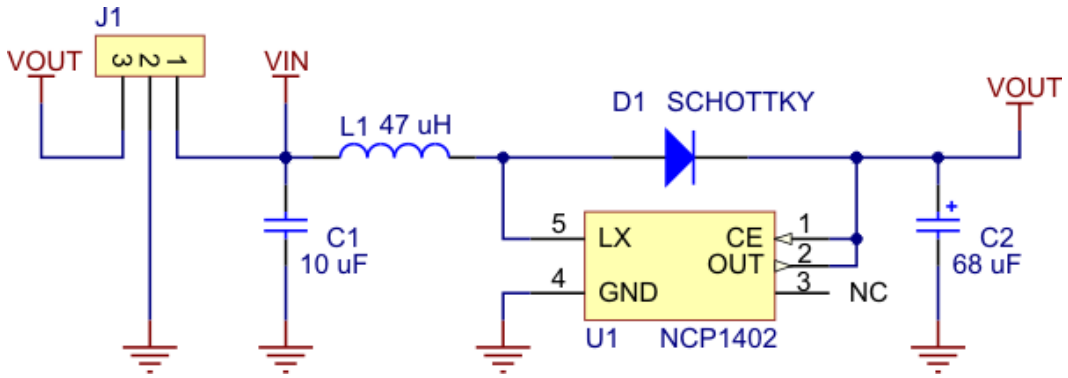
USER'S GUIDE

USING THE BOOST REGULATOR

The boost regulator has just three connections: the input voltage, ground, and the output voltage. These three connections are labeled on the back side of the PCB and they are arranged with a 0.1″ spacing along the edge of the board for compatibility with standard solderless breadboards and perfboards and connectors that use a 0.1″ grid. You can solder wires directly to the board or solder in either the 3×1 straight male header strip or the 3×1 right-angle male header strip that are included.

FEATURE SUMMARY

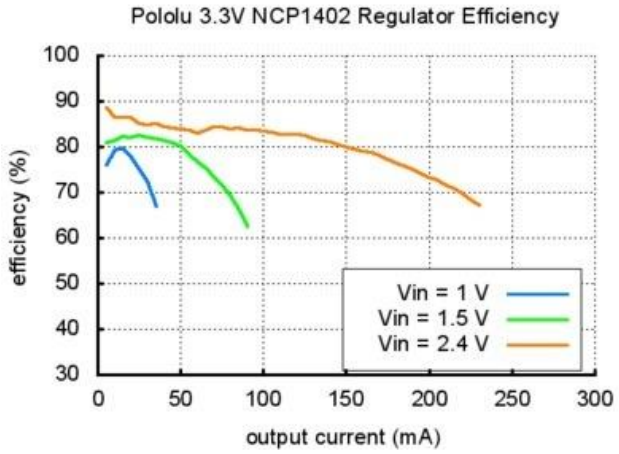
- Operating voltage: 0.8 V – VOUT
- 3.3 V or 5.0 V output with 2.5% accuracy
- <3 mA typical no-load quiescent current
- Small size: 8.4 mm × 12.7 mm × 3.8 mm (0.33″ × 0.50″ × 0.15″)
- Weight without header pins: 0.6 g (0.02 oz)

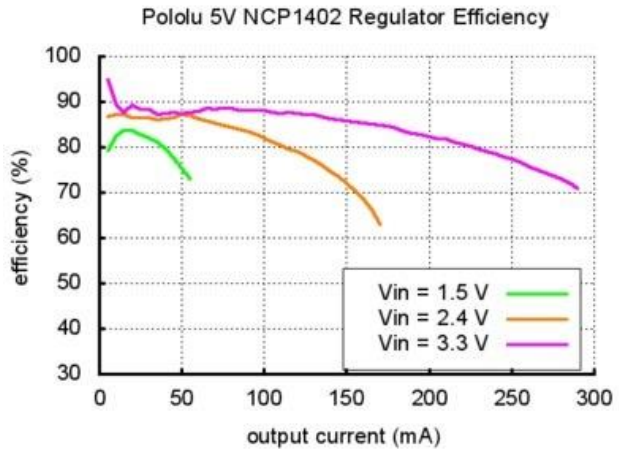


Pololu step-up voltage regulator NCP1402 schematic diagram.

TYPICAL EFFICIENCY AND OUTPUT CURRENT

The efficiency of a voltage regulator, defined as (Power out)/(Power in), is an important measure of its performance, especially when battery life or heat are concerns. As shown in the graphs below, this switching regulator typically has an efficiency of 75% to 90%.





The maximum achievable output current is approximately proportional to the ratio of the input voltage to the output voltage. With a 0.8 V input, approximately 5 mA are available before the output voltage begins dropping. The full 200 mA output can be realized from input voltages over approximately 2.4 V (3.3 V version) or 2.7 V (5 V version). Additionally, the maximum output current can depend on other factors, including the ambient temperature, air flow, and heat sinking.

LC VOLTAGE SPIKES

When connecting voltage to electronic circuits, the initial rush of current can cause damaging voltage spikes that are much higher than the input voltage. In our tests with typical power leads (~30″ test clips), input voltages above 4 V caused voltage spikes in excess of 6 V, the absolute maximum voltage of the NCP1402. You can suppress such spikes by soldering a 33 µF or larger electrolytic capacitor close to the regulator between VIN and GND.