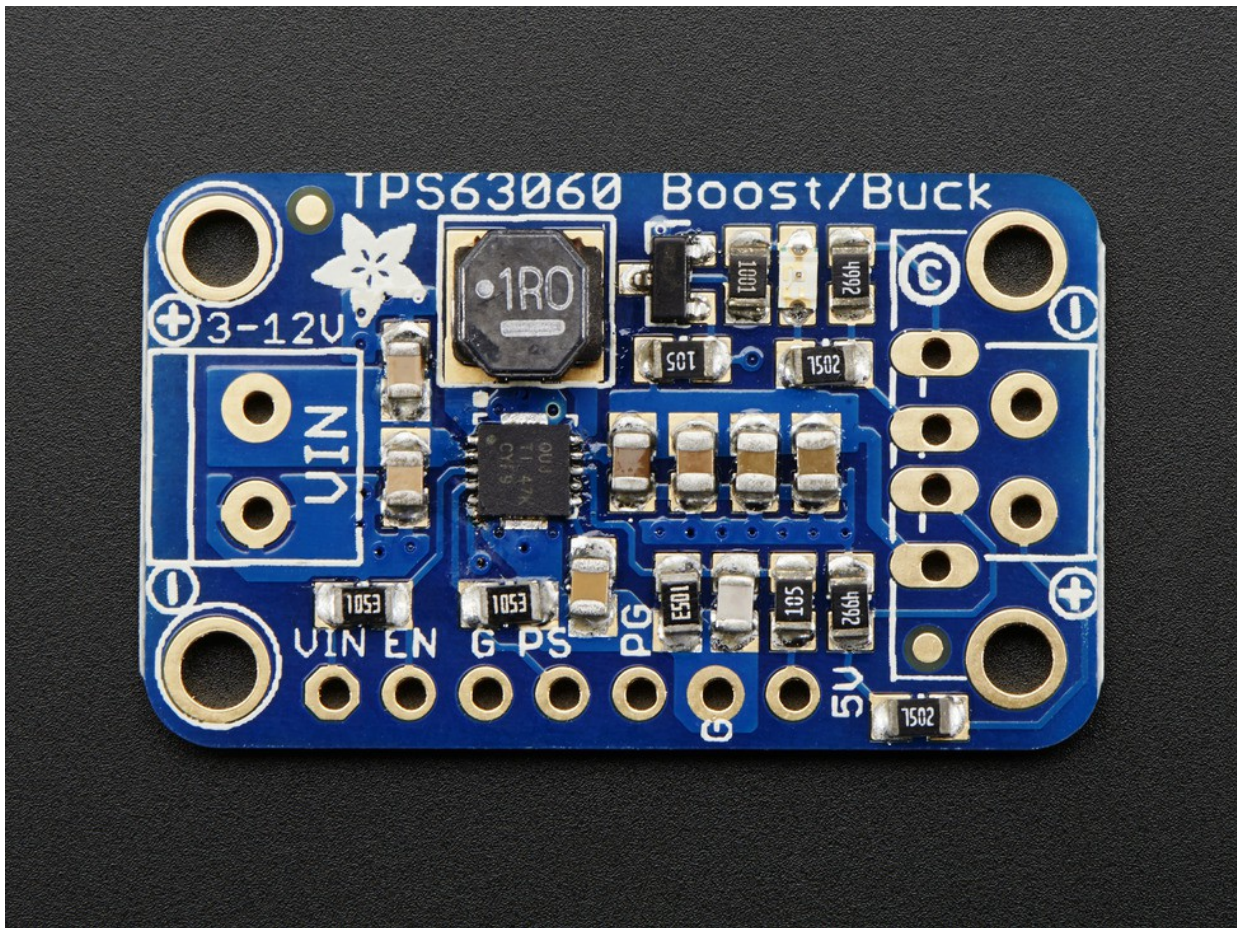


VERTER 5V USB Buck-Boost - 500mA from 3V-5V / 1000ma from 5V-12V



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Convert just about any battery pack to 5V with VERTER - our fresh new Buck-Boost power converter. VERTER can take battery voltages from 3-12VDC and output a nice 5V DC, which makes it a perfect universal power supply for your portable project! Where Verter really shines is when you have a battery or power range that can fluctuate a lot, or you don't know what you'll end up using.

It operates smoothly over the 3-12V range, moving from a boost converter (3-5V in) to a buck converter (5-12V in) on the fly. Please note! This chip can do both, but it really works better as a buck converter than a boost. If you need a full 500mA out, it will struggle as it gets down to 3V and the output will sag to about 4.8V (which is still within standard USB power specs). [If you only need something to boost a voltage up to 5V and you want it to be really good at it, check out our PowerBoost series](#), which excel at that.

Like our popular [5V 1A USB wall adapter](#), we tweaked the output to be 5.2V instead of a straight-up 5.0V so that there's a little bit of 'headroom' long cables, high draw, the addition of a diode on the output if you wish, etc. The 5.2V is safe for all 5V-powered electronics like Arduino, Raspberry Pi, or Beagle Bone while preventing icky brown-outs during high current draw because of USB cable resistance.

The VERTER has at the heart a [TPS63060 boost converter from TI](#). This buck-boost converter chip can handle a wide range of voltages (3-12V) and has some really nice extras such as power good output, 2A internal switch, synchronous conversion, excellent efficiency, and 2.2MHz high-frequency operation. Check out these specs!

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Synchronous operation means you can disconnect the output completely by connecting the ENable pin to ground. This will completely turn off the output
2A internal switch means you can get out 500mA from as low as 3V, and at least 1000mA from inputs as high 12V On-board 500mA charge-rate 'Apple/iOS' data resistors. Solder in the included USB connector and you can plug in any iPhone or iPod for 500mA charge rate. Not suggested for iPad (which really needs 1A charge rate). Full breakout for battery in, control pins and power out 90%+ operating efficiency in most cases (see datasheet for efficiency graphs), and low quiescent current: 5mA when enabled and power LED is on, 20uA when disabled (power and low batt LED are off) Great for powering your robot, Arduino project, single-board-computer such as Raspberry Pi or BeagleBone from a wide variety of inputs. We especially like it for use with 4 x AA batteries, which can range from 7V for fresh alkalines down to 4V for nearly-dead rechargeables. If you're only going to be using voltages higher than 6V, [we recommend our UBEC step-down](#). If you're only going to be using voltages under 5V, [check out the PowerBoost 500 which has much better boosting capability](#) Each order comes with one fully assembled and tested PCB, 2 pin terminal block, and a loose USB A jack. If you are powering your project from USB, solder the USB A jack in (a 3-minute soldering task). [If you would like to use a terminal block, pick up a 3.5mm 2pin block here](#) and solder to the output spot where the USB jack would go. The terminal block goes on the input side, so you can easily connect and disconnect a battery pack. Or don't solder anything in for a more compact power pack.

PCB Dimensions:

- 19mm x 32mm x 5mm
- Weight: 2.5g