ADJUSTABLE OUTPUT

DC/DC Converter

eDC-2420 2.5W Step Up Converter
eDC-2416N 1.6W Negative Output Converter

Technical Manual rev. 1R0

e-Gizmo 2W DC/DC Boost Converters generates a variable supply voltage from a single 5V source. Two variants are currently available. eDC-2420 generates a positive voltage of up to +24VDC from a single +5VDC input. The other, eDC-2416N- a negative output DC/DC converter, generates up to -24VDC from a single +5VDC input. The negative output DC/DC converter has somewhat lower output rating (1.6W) due to its less efficient conversion when operated this way.

Both converters will work with up to +12VDC input. Higher input voltage correspondingly results in increased output wattage reserve. For example, the 2W eDC-2420 can actually churn up to 4W when operated with +12VDC input. Keep in mind though that the positive converter eDC-2420, a boost converter it is, will not be able to output any voltage lower than its input.

The eDC-2420 has a pin configuration similar to that of three terminal fixed positive voltage regulators, while the eDC-2416N adopted the pin out of three terminal negative voltage regulators- albeit, with positive input. In most cases, you can use these DC/DC converters as drop-in replacement of these linear regulators.

eDC-2420 Step Up DC/DC converter can generate up to 24VDC output from a single +5V input. Available output power ranges from 2.5W with 5.0V input, rising in proportion to the input up to 7.5W at +12V input.

eDC-2416N Negative Output DC/DC converter.
From a single +5VDC source, it can generate a negative output voltage of up to -16VDC at 1.6W. It is possible to adjust the output voltage up to about -22VDC, but available output power drops to 0.6W. Increasing the input voltage to +6.0V will make available power climb back to 1.6W. At +12V input, as much as 3.8W is available at -22VDC output.
**eDC-2420**
POSITIVE OUTPUT DC/DC BOOST CONVERTER

**eDC-2416N**
NEGATIVE OUTPUT DC/DC BOOST CONVERTER

**JP1 - Output Voltage Limiter Jumper**

This feature can be used to limit the adjustment range of the output voltage.

With the jumper installed, the open circuit voltage can be adjusted from approximately +6.5V to +26VDC

Without the jumper, the open circuit voltage adjustment range is around: +5.7V to +15VDC

**RV1 - Rotate to adjust output voltage.**

**OUT+ - Output terminal**

**GND - Common Ground**

**+VIN - +5V to +12VDC Input.** Higher output power (current) can be obtained with higher input voltage. The output voltage, however, cannot be adjusted any lower than the input voltage.

**eDC-2416N**

**JP1 - Output Voltage Limiter Jumper**

This feature can be used to limit the adjustment range of the output voltage.

With the jumper installed, the open circuit voltage can be adjusted from approximately -2.5 to -17VDC

Without the jumper, the open circuit voltage adjustment range is around: -8.5V to -22VDC

**RV1 - Rotate to adjust output voltage.**

**OUT- - Output terminal (-)**

**GND - Common Ground**

**+VIN - +5V to +12VDC Input.** Higher output power (current) can be obtained with higher input voltage.

Measured data for both converters can be downloaded from their corresponding product page at www.e-gizmo.com.
APPLICATION EXAMPLES

**Important:** An external input and output capacitor is required for proper operation! Use low ESR type for best results.

Figure 3. *The eDC-2420 has the same pin layout as the positive three terminal voltage regulator, hence can be used as a drop-in replacement for such devices.*

Figure 4. *The eDC-2416N has pin layout similar to a standard negative three terminal regulator. The important difference is the eDC-2416N works with positive input voltage. With that in mind, it may not work as a drop-in replacement for negative three terminal voltage regulators.*

By combining the above circuits, a split +/- output power supply circuit from a single voltage source can be easily constructed.