

## ABSTRACT

To provide the necessary 5 volts of power to the circuit using just one 3.7 V battery, a Li-Ion compatible boost converter is used to step up the voltage provided to the voltage needed to power the system. An evaluation board has an expected battery supply range of voltage applied to it, and its output is analyzed for verification of operation.

## THEORY

The TPS61252 device operates over an input voltage range of 2.3 V to 6.0 V and produces an output voltage of 5.0 V. The output voltage can be adjusted by changing the feedback resistor divider network. However, in this application, the desired output voltage is 5 V.

The desired boost converter configuration is depicted below:

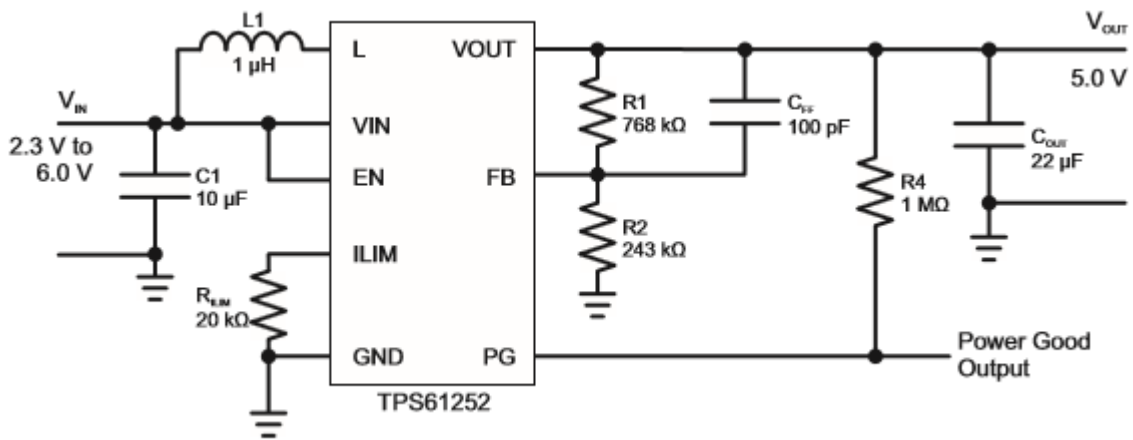
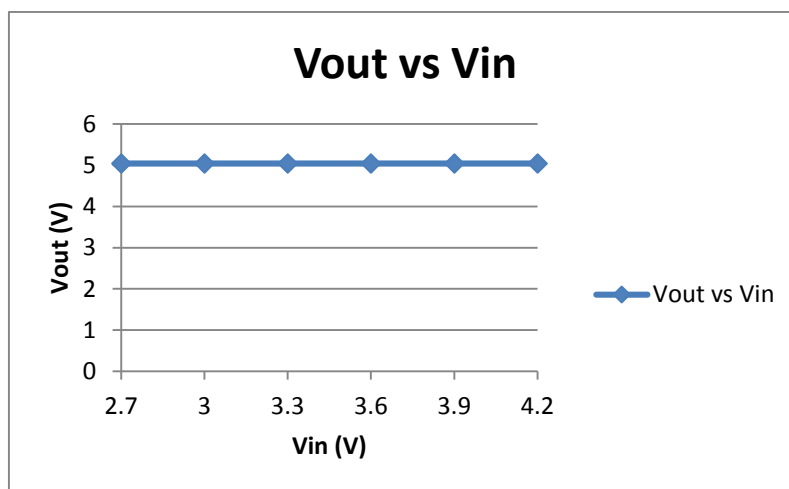


Figure 1. Schematic Diagram of desired TPS61252 circuit configuration

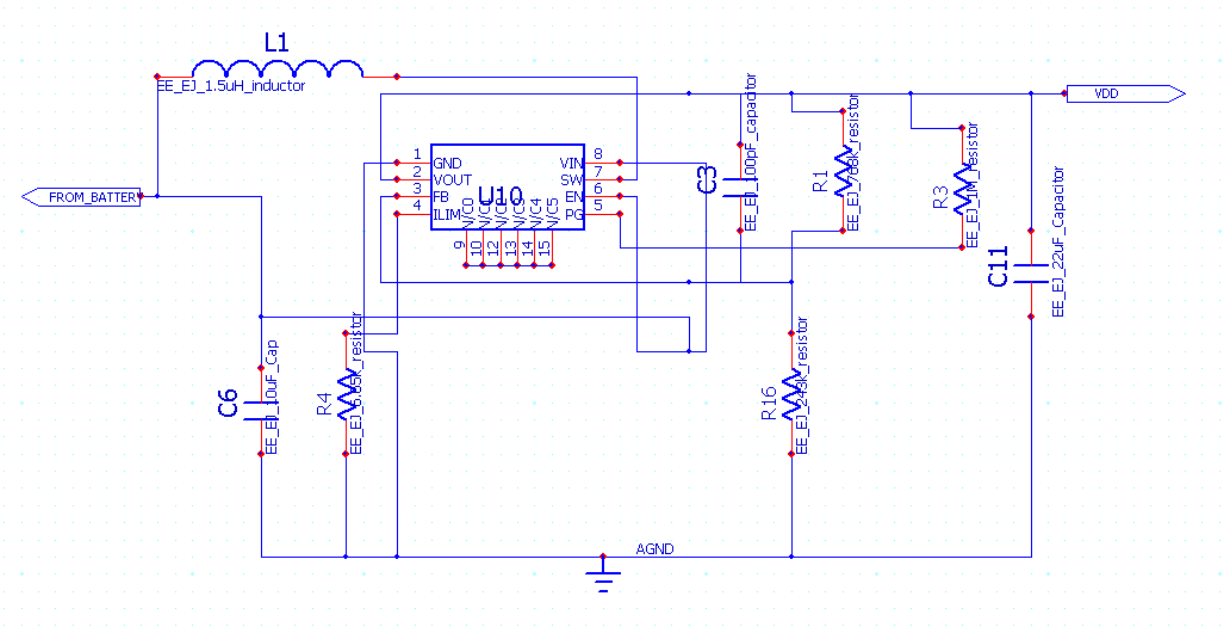
## RESULTS



**Figure 2. Chart of Output Voltages at various Input Voltages**

## CONCLUSION

The Boost Converter does a successful job of outputting a consistent voltage level of 5.0 V throughout the projected voltage input range of 2.7 V to 4.2 V (the battery's output range). The SmartCane application of the TPS61252 is shown in the schematic below:



**Figure 3. Schematic Drawing of TPS61252 circuit used in PCB design**

Key Hardware Used:

Evaluation Module Board for TPS61252: <http://www.ti.com/tool/tps61252evm-667>