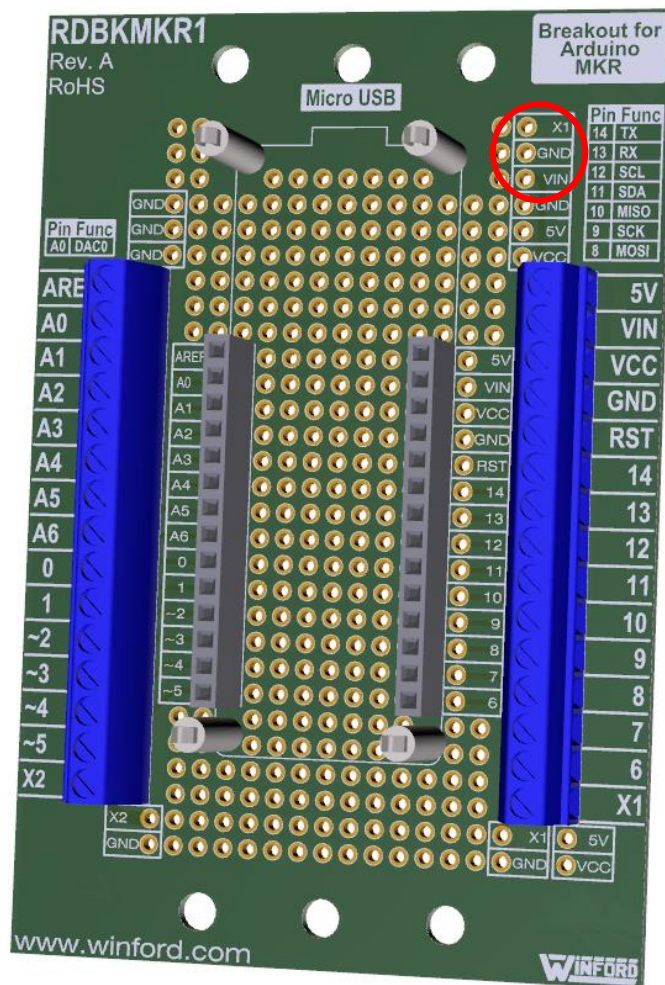


Powering Arduino MKR with a Higher Supply Voltage

OVERVIEW

Let's say that you want to use an Arduino MKR device in an application that only has a supply rail of 24V available. With the MKR only rated for operation at $V_{IN} = 5V$, the MKR is going to need a lower voltage rail to be developed from the 24V rail.

Winford Engineering product RDBKMKR1, a breakout board designed to be used with an Arduino MKR, includes a useful feature that is specifically intended to easily solve this problem. A group of 3 pads (X1, GND, and VIN) are oriented so that a suitable 3-terminal DC/DC converter can be added. Powered from 24V, the DC/DC converter will provide an output voltage that is appropriate for the MKR (5V).

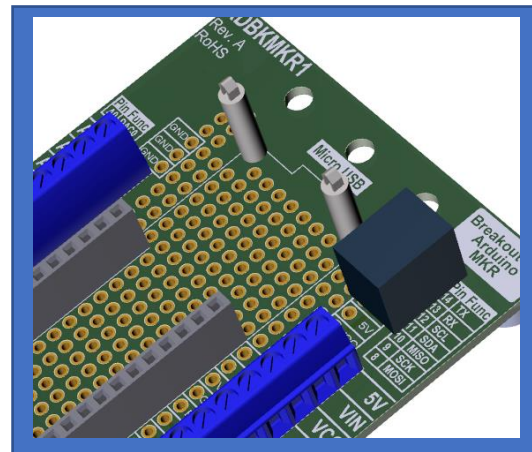


PROCEDURE

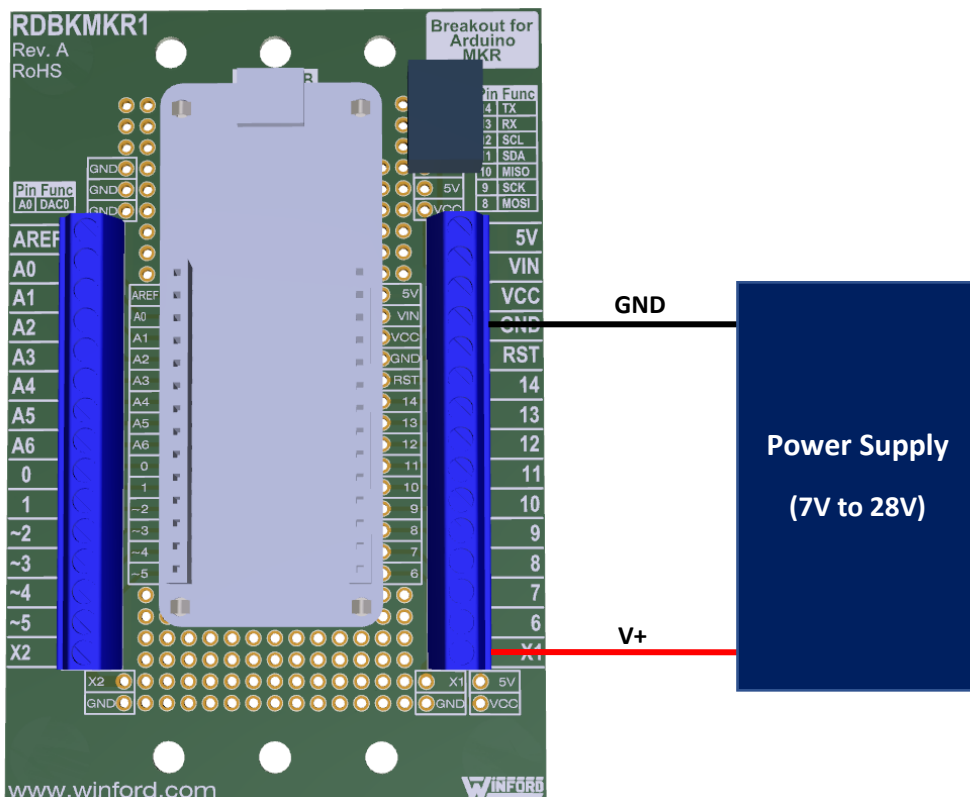
There are a number of 3-terminal DC-DC converters available. For reference, one reasonable option to consider is Recom Power part number R-78E5.0-0.5, which has an output of 5V (500mA rating) while accepting an input voltage range of 7V to 28V.

Simply solder the DC-DC converter onto the breakout board as indicated.

DC-DC Converter Pin	RDBKMKR1 Pad
Input (Pin 1)	X1
Ground (Pin 2)	GND
Output (Pin 3)	VIN



Now, simply plug the Arduino MKR into the RDBKMKR1 breakout board, and provide power (24V) to the X1 terminal block position. This will provide power to the input of the DC-DC converter, and the DC-DC converter output will provide 5V to VIN on the Arduino MKR.



(Note that the power supply must be connected to terminal block position X1, not VIN!)