

## PowerBRICK Reference Manual

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### Overview

PowerBRICKs are split-rail power supply modules that are intended to be used with a breadboard. These generate both a negative and positive voltage out of a single 5V USB voltage. There are four output voltage options:

1. PowerBRICK 3.3: Outputs +/-3.3V
2. PowerBRICK 5: Outputs +/-5V
3. PowerBRICK 9: Outputs +/-9V
4. PowerBRICK 12: Outputs +/-12V

### Input Voltage

Input voltage can be provided either through the USB connector or the +Vin pin header. The USB connector is used only as a voltage input source, while the pin header is used either as an input or output.

When a USB power source is attached, the pin header becomes an output and gives access to the USB voltage. This way the user can chain more PowerBRICKs by connecting together the +Vin pins. Note that the first PowerBRICK in the chain limits the input current. The entire chain can deliver a total output power of 2.2W, with each individual PowerBrick limited to the values specified in the tables below.

For maximum output capabilities (current and capacitive load) each PowerBrick should be powered individually either through the USB connector or +Vin pin. The following tables specify output capabilities when supplied individually.

	Min.	Typ.	Max.
Vin (USB or pin +Vin)	4.5V	5V	5.5V
Output voltage on pin +Vin	4V	5V	5.5V

## Output Capabilities

### PowerBRICK 3.3

<b>-Vout</b>	-3.43V	-3.3V	-3.16V
<b>Max Output Current for -Vout</b>	-320mA		
<b>Max Capacitive Load for -Vout</b>	47uF		
<b>Vout</b>	3.16V	3.3V	3.43V
<b>Max Output Current for Vout</b>	350mA		
<b>Max Capacitive Load for Vout</b>	22uF		

### PowerBRICK 5

<b>-Vout</b>	-5.2V	-5V	-4.8V
<b>Max Output Current for -Vout</b>	-200mA		
<b>Max Capacitive Load for -Vout</b>	47uF		
<b>Vout</b>	4.8V	5V	5.2V
<b>Max Output Current for Vout</b>	250mA		
<b>Max Capacitive Load for Vout</b>	22uF		

### PowerBRICK 9

<b>-Vout</b>	-9.36V	-9V	-8.64V
<b>Max Output Current for -Vout</b>	130mA		
<b>Max Capacitive Load for -Vout</b>	47uF		
<b>Vout</b>	8.64V	9V	9.36V
<b>Max Output Current for Vout</b>	130mA		
<b>Max Capacitive Load for Vout</b>	22uF		

## PowerBRICK 12

<b>-Vout</b>	-12.48V	-12V	-11.52V
<b>Max Output Current for -Vout</b>	100mA		
<b>Max Capacitive Load for -Vout</b>	47uF		
<b>Vout</b>	11.52V	12V	12.48V
<b>Max Output Current for Vout</b>	100mA		
<b>Max Capacitive Load for Vout</b>	22uF		