

DW PowerBuck LED Buck Converter

Features:

- High efficiency of up to 98%
- Adjustable drive current up to 9A
- Small size
- Wide input voltage range
- Plug & Play

Applications:

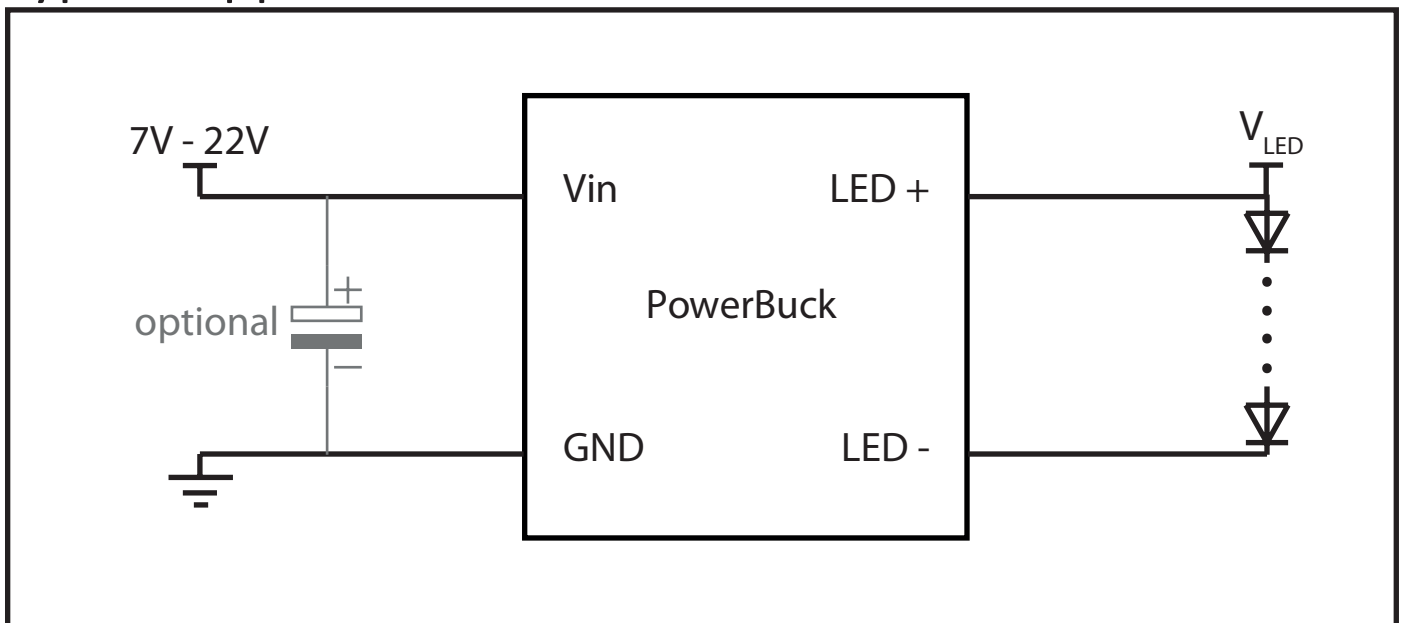
- Fixed lighting
- Mobile lighting
- Projectors
- Automotive headlights

General Description:

The PowerBuck is a high current LED buck converter which can provide up to 9A to the LED.

With its high efficiency heat generation can be held low for better run-times in battery driven applications or energy critical environments. The small size and a minimum of output and input connections makes the PowerBuck easy to use.

Typical Application Circuit:



PowerBuck

Characteristics:

Parameter	Min.	Typ.	Max.	Units
Input voltage range ^[1]	6		22	V
Maximum output current	8.5	9	9.2	A
Minimum output current ^[2]	0.4	0.5	1	A
Efficiency	94	96	98	%
Vin - Vout	2	-	-	V
Number of LEDs in series	1	-	4	LED
Diameter	-	26	-	mm
Height	13	13	15	mm

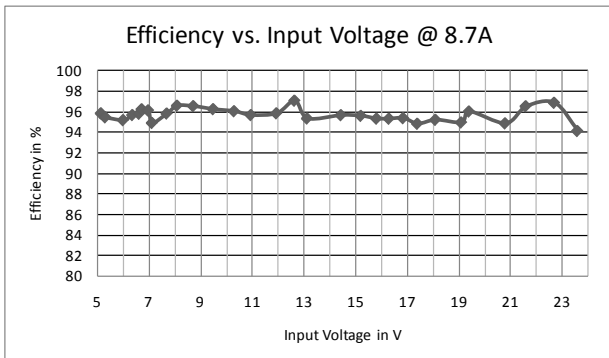
[1]: Input voltage must be **at least** 2V above output voltage

[2]: Only apply to adjustable driver version

Connections:

Connection Name	Description
Vin (red)	Connect to positive terminal of the power supply
GND (black)	Connect to negative terminal of the power supply
L+ (orange)	Connect to the anode of the LED
L- (grey)	Connect to the kathode of the LED
P1 ^[1]	Connect to right pin of the potentiometer
P2 ^[1]	Connect to the center pin of the potentiometer
P3 ^[1]	Connect to the left pin of the potentiometer

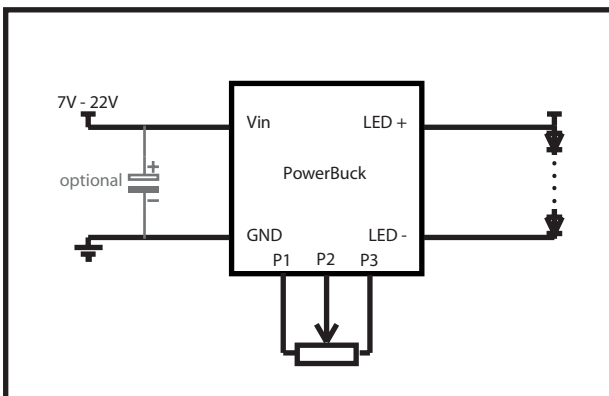
[1]: Potentiometer input - Only available on the adjustable driver version with potentiometer



Efficiency test condition:

Input Voltage	5.14V - 23.6V
Output Voltage	5V
Output Current	8.75A
Output Power	43.75W

Using the adjustable driver version:



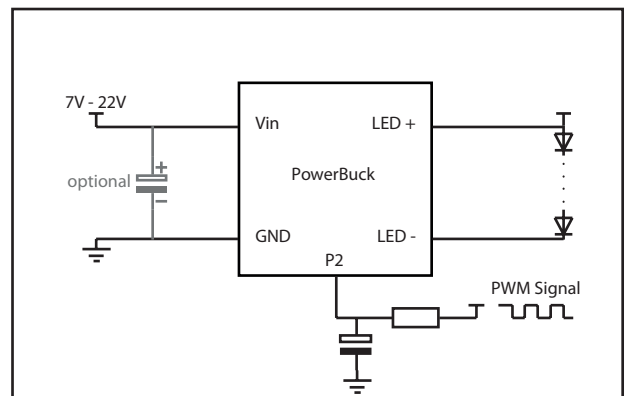
The adjustable driver version offers a potentiometer input for limiting the output current to a specific level. The potentiometer needs to be a 10k Ohm version in order to achieve the typical current range.

Other potentiometers with values may change the range.

Instead of a potentiometer, an analog

signal can be used as well on the P2 pin to control the brightness.

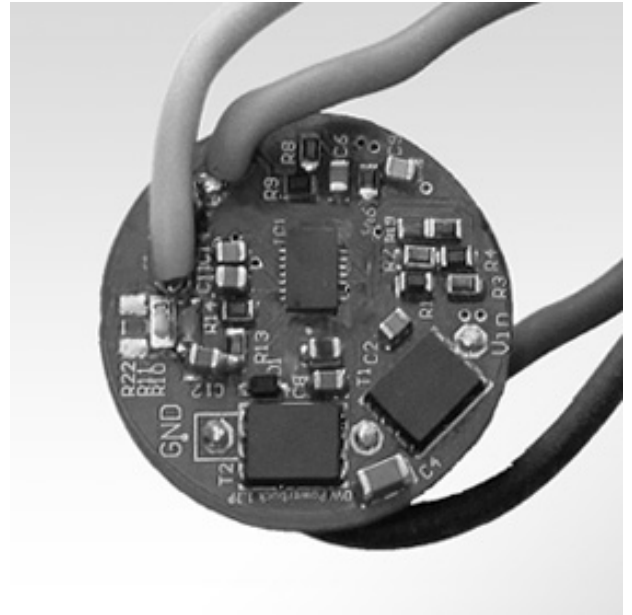
Another simple way to control the driver is to combine the PWM output of a microcontroller with a RC-low pass filter in order to generate the analog signal for the P2 pin.



Instructions for using the driver:

- ensure that input voltage is over the output voltage
- use thick wires and connect the driver as close to the power source as possible
- avoid unnecessary resistances
- ensure that the power source can deliver the needed voltage and current
- pot the driver to a heatsink if it gets too warm
- use large low-esr filter capacitors if the input voltage has large ripples - e.g. automotive applications

PowerBuck



For more information contact:

Yitao Ding
Nernststrasse 33
28357 Bremen
Germany
Email: yitaoding@gmx.de