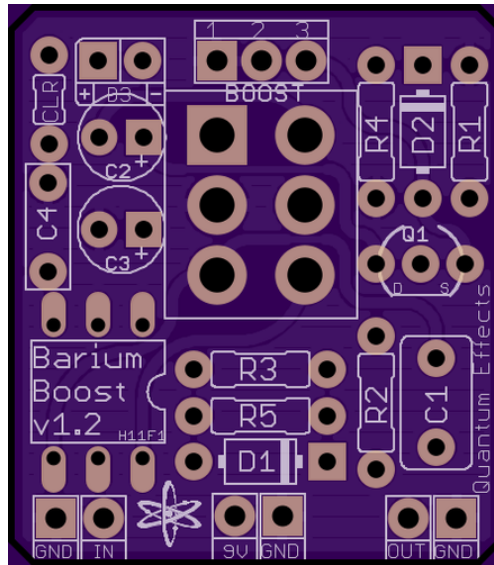


Quantum Effects Barium Boost Based on the ZVex SHO



This circuit is completely based on the well-known ZVex SHO MOSFET boost. As this one can often suffer from plopping when using a regular 3PDT bypass, this version has onboard optical bypass using the H11F1 optocoupler. It is still 100% true bypass! My build was completely plopp-free too!

The board is switch mounted, so the only off board wiring left to do is the pot and the indicator LED. The LED IS NOT OPTIONAL. It's in series with the optocoupler, so the bypass won't work if there's no LED. If you really want no LED, jumper the D3 pads. The in- and output Jacks have to be directly connected to the appropriate IN/OUT pads on the pcb and you're done.

Version 1.0 had C4 (220n) missing. Add it ninja-style on the back side of the pcb between lug 2 of the H11F1 and the negative lug of C3 (GND).

Acknowledgement

Brian @ madbeanpedals for the best DIY community ever and awesome projects.
Jacob @ JMK pedals for his Eagle tutorials which made this board possible
Rej @ grindcustoms and Josh @ 1776 effects from which I took the bypass wiring

BOM

Resistors		Capacitors	
R1	10M	C1	100n
R2	10M	C2	10u
R3	5k1	C3	47u-100u
R4	47k	C4	220n
R5	33R		
LDR	4k7	ICs	
		IC1	H11F1
Pots			
Boost	C5k	Transistors	
		Q1	BS170
Diodes			
D1	1N5817	Switches	
D2	9.1V Zener	SW1	DPDT latching footswitch
D3	LED Indicator		

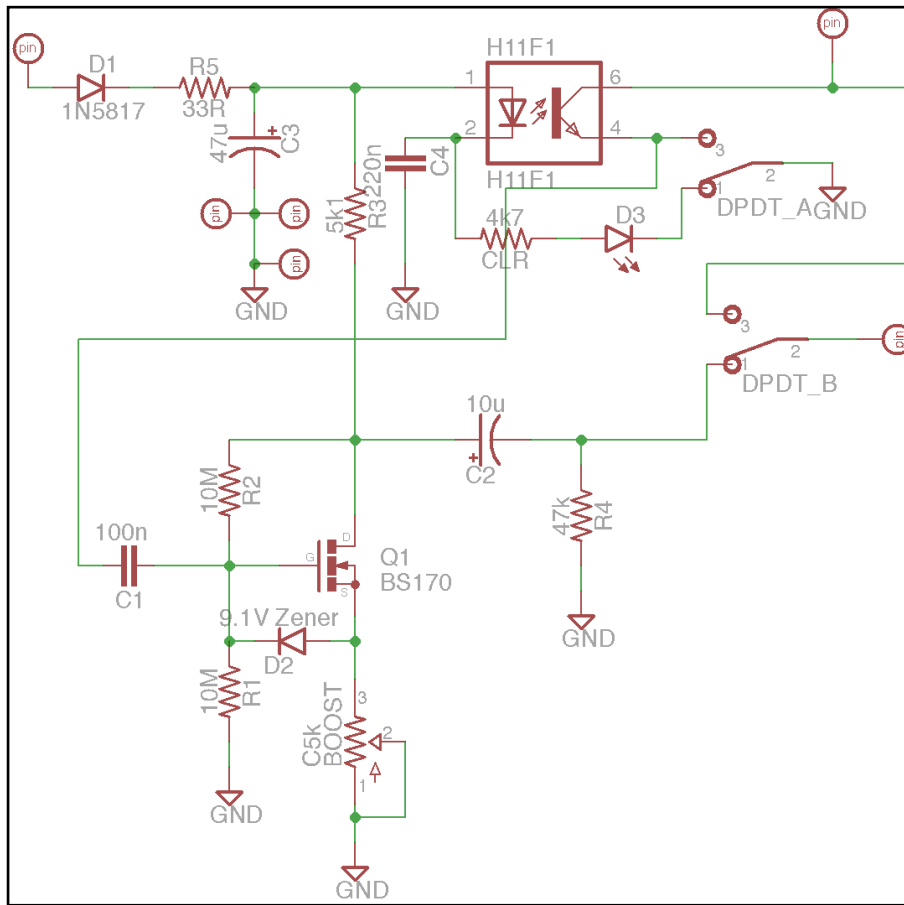
I recommend using Alpha DPDT switches. They will fit the footprint on the pcb. I can not guarantee for models from other manufacturers:

<http://www.musikding.de/2PDT-Fussschalter>

<http://bitcheslovemyswitches.com/#!/Low-Profile-DPDT-Footswitch-Latched-Solder-Lugs/p/51019434/category=5027572>

<http://smallbear-electronics.mybigcommerce.com/alpha-107-sf12020-l-dpdt/>

Schematic



Copyright

This schematic and pcb layout are for DIY use only and for commercial purposes. If you want to make money of this pedal, I'm sure you'll find the schematic yourself and can do your own design. It doesn't get much easier than this.

The pcb can be ordered from OSH park:
<https://oshpark.com/profiles/m-Kresol>