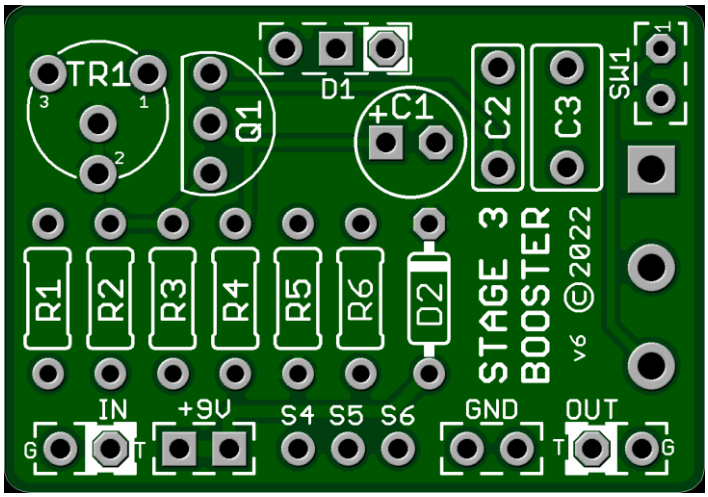
Stage 3 Booster v6 2022

Those new to our extraordinary Boost/Buffer circuit design understand it provides a transparent 25-30 DB Boost but really excels at making other circuits sound their best when used in tandem. It won't color your tone but will allow you to get the most out of your pedal board and amplifier.

Note: 2022 v6 is almost identical to v5 2022. The parts are the same except we changed D2 to use a 1N5817 circuit protection diode, and as a result, we felt it was unnecessary to do a completely new build document.



V6 Board Dimensions (W x H) 1.40" x .98"

Bill of Materials

Part	Value
R1	1k
R2	33k
R3	1M
R4	1k
R5	1k8
R6	33k
SW1	SPST
TR1	10K

Part	Value
C1	22u
C2	*10n
C3	*220n
D1	Status LED
D2	1N5817
Q1	J113
VOL	A100K

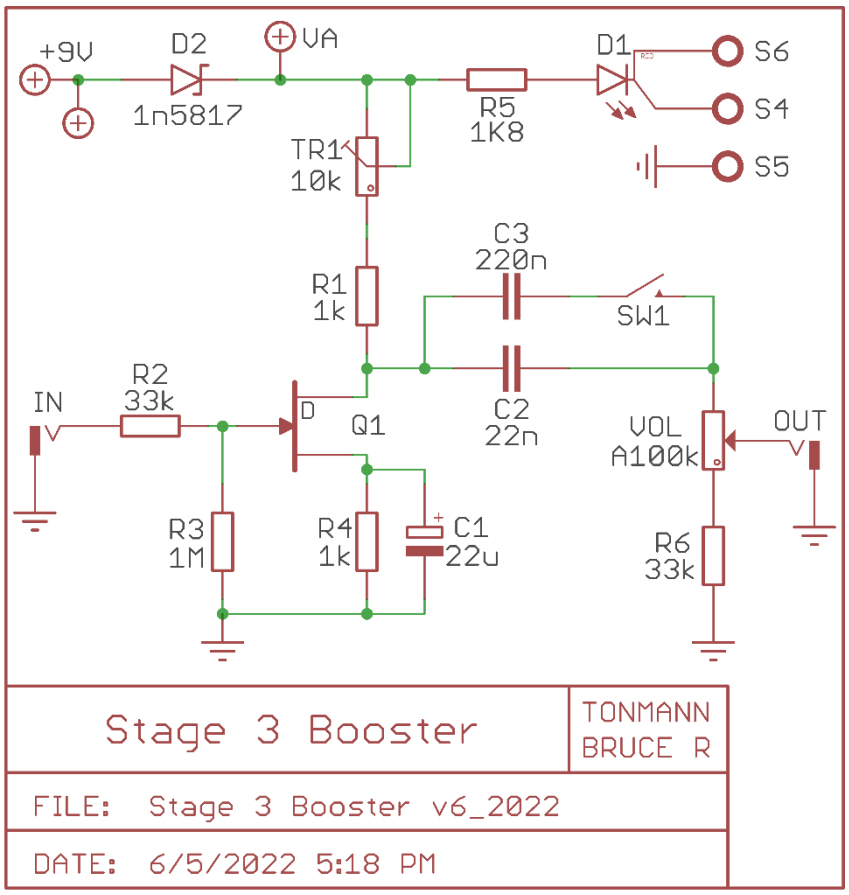
Notes:

New 2022 v6 changes D2 to use a (1N5817) Circuit Protection Diode.

***Tight control & Coupling capacitors**

C2 and C3 (switchable w/ SW1) are designed to allow more or less Bass signal through. You also have the option to not use the switching feature at all by simply populating C2 with your favorite value and do not populate SW1.
C3 is populated with 220n which allows all Bass frequency through including Baritone guitar and Bass guitar.
C2 is populated with 10n which cuts off low end rumble effectively "tightening the tone".

SW1 Switch - SW1 is used to switch between coupling capacitors as described above. You may use an SPST switch On/On or and SPDT switch by simply leaving the 3rd lug open. You also have the option to ignore the switching.



Build Notes:

Trimpot and Biasing

A 10k trimpot (TR1) and a 1k resistor (R1) are used for biasing the Stage 3.

Use a DMM Bias the Drain of Q1 to 4.5v to 6v. Place the ground probe on any ground in the circuit and place the red probe on the Drain lead of J113 (Google Datasheet). Turn your DMM to V and adjust the trimpot till biased.

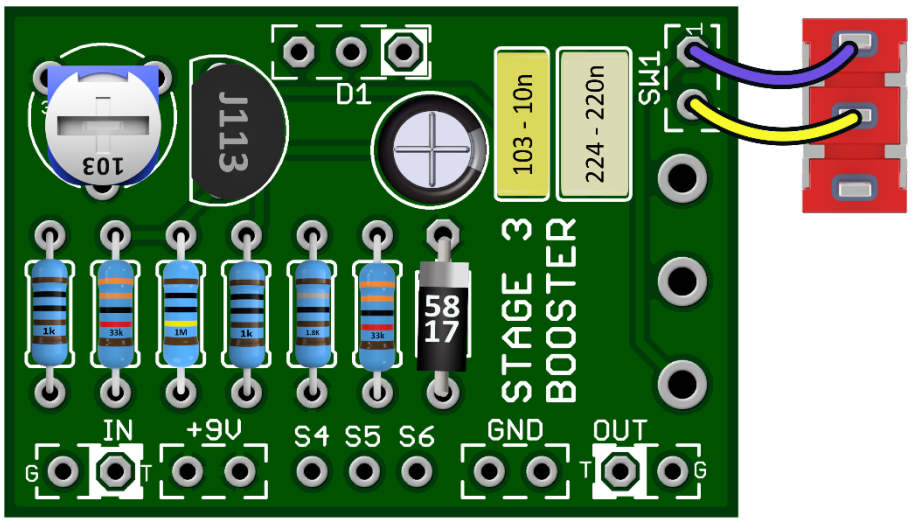
No attenuation

We have added R6 since the 2020 version which prevents attenuation. Now the Boost will begin at the very beginning of the rotation of the Volume potentiometer. If you would like a little attenuation, you can decrease the value of R6 - 33k to a lower value. Socket and see.

Transistor options

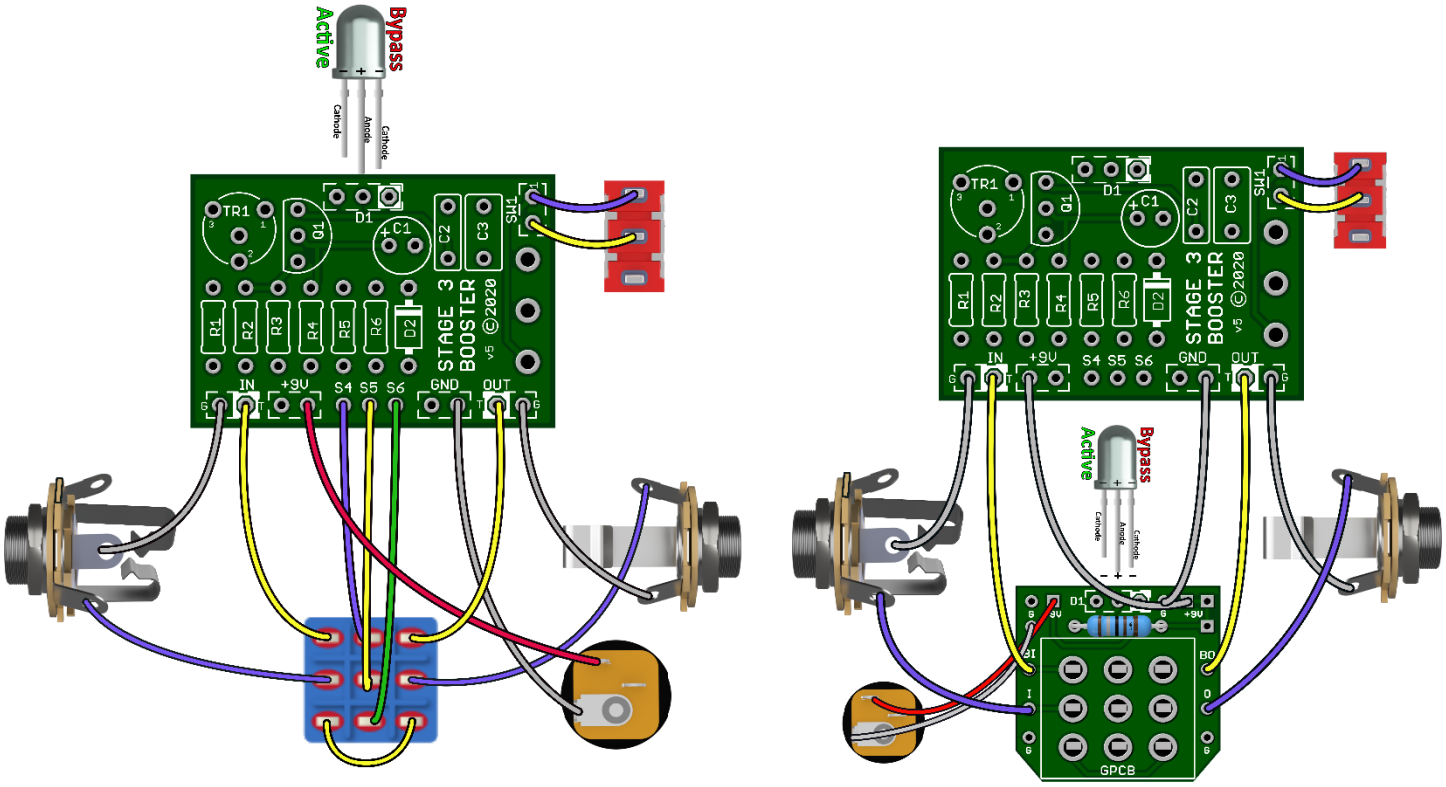
J113 provides the best transparent boost among all of our testing however you may try other JFETs. Always socket your transistors and swap out the J113 for a 2N5457 and re-bias for a slightly edgier tone. For an even more aggressive tone you may try a J201 as well. You may need to remove R1 and use a Jumper to bias.

GuitarPCB typically carries J113, J201 and 2N5457 transistors in our shop along with other accessories.



1.40" x 0.98"

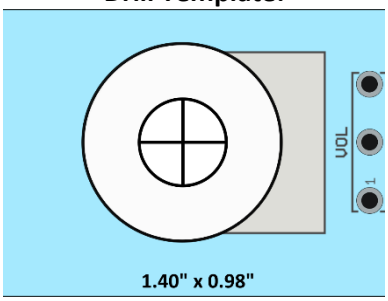
If using our convenient 3PDT Wiring Boards (below) here is an LED wiring guide. You may use Common Anode Bi-Color or Standard On/Off. The wiring boards use the same symmetrical layout as if wiring straight to the switch.



Note: If wiring the LED to our 3PDT board there is no need to connect S4, S5 & S6 or populate D1 or R5 (CLR) on the main board since you chose to wire the LED directly to our 3PDT wiring board.

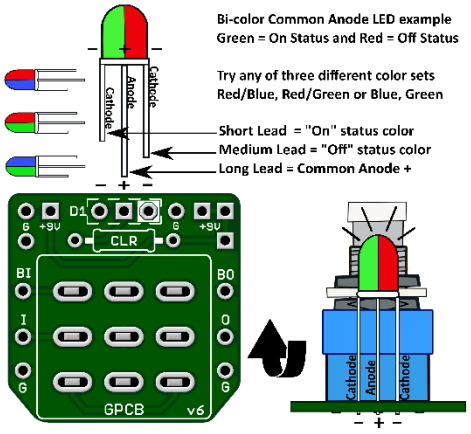
Be sure your In/Out Jack wiring is correct. A Stereo Jack (for battery use only) has a RING lug which is used to connect to the battery ground. If you do not intend to use a battery there is no need for a Stereo Jack. If using Stereo then only use the Tip and Sleeve lugs.

Drill Template:



Drill Tips: Measure your components before selecting a drill bit. We recommend drilling the pot holes, mounting the pots in the enclosure, and then soldering the pots to the board. This approach should resolve the issue of the pots not fitting through the holes after soldering. We also recommend you make the holes for the pots a little larger than the threads in case you decide to remove the board and put it back in during the build, to avoid problems. Use this guide at your own risk. Make sure page scaling is turned off when you print this PDF, or the image above may be smaller than expected. Verify everything before drilling.

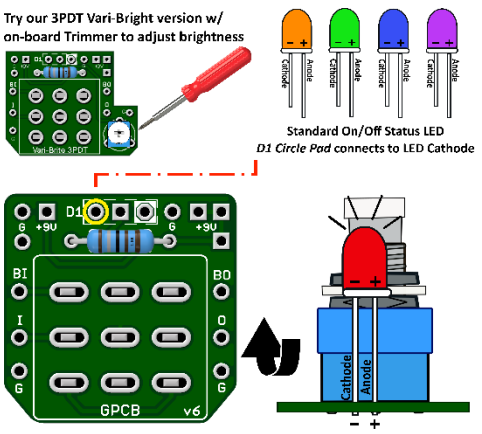
GuitarPCB Tip Sheet



Bi-color Common Anode LED example
Green = On Status and Red = Off Status

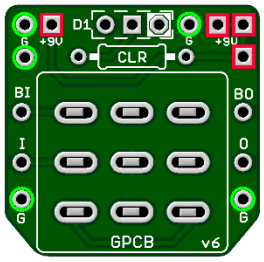
Try any of three different color sets
Red/Blue, Red/Green or Blue, Green

Short Lead = "On" status color
Medium Lead = "Off" status color
Long Lead = Common Anode +

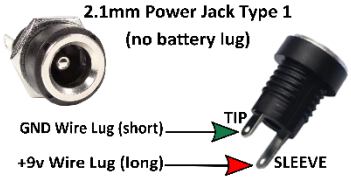


Try our 3PDT Vari-Bright version w/
on-board Trimmer to adjust brightness

Standard On/Off Status LED
D1 Circle Pad connects to LED Cathode



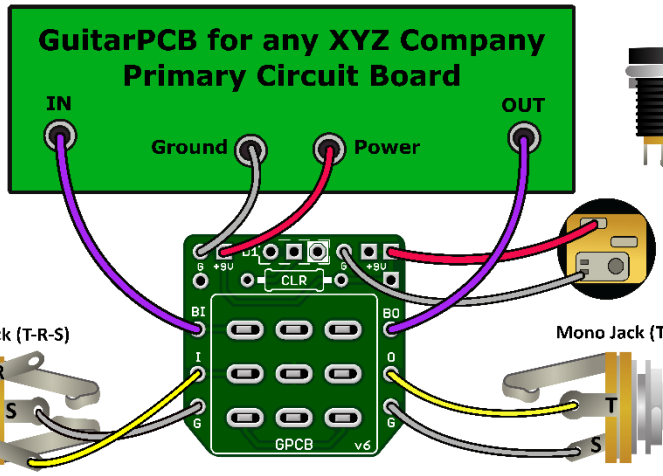
Green = Ground Pads (5)
Red = + 9v Power Pads (4)
D1 = LED Pads
CLR = Current Limiting Resistor
BI = From Main Board IN
BO = From Main Board OUT
I = To Jack Tip IN
O = To Jack Tip OUT

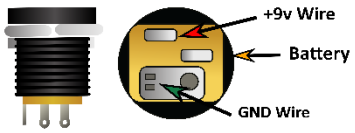


2.1mm Power Jack Type 1
(no battery lug)

GND Wire Lug (short) — TIP
+9v Wire Lug (long) — SLEEVE

Do not over-tighten (hand tight)





2.1mm Power Jack Type 2

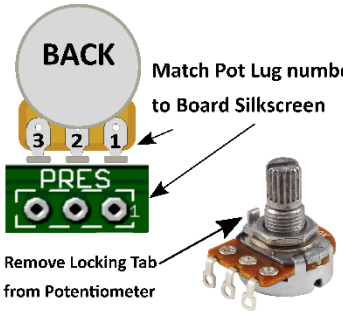
T = Tip
R = Ring
S = Sleeve

Stereo Jack (T-R-S)

Mono Jack (T-S)

T = Tip
S = Sleeve

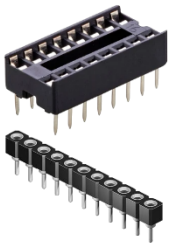
Multiple +9v and Ground Pads are convenient hookup points for additional circuits within the same enclosure. This also allows for diverse wiring schemes to suit indiviual needs.

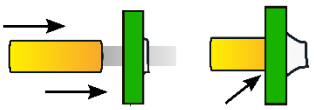


Match Pot Lug number
to Board Silkscreen

Remove Locking Tab
from Potentiometer

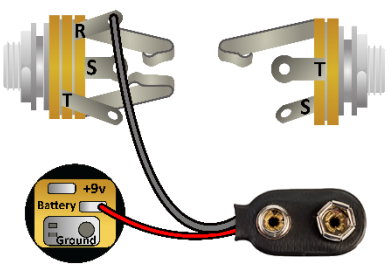
Sockets make troubleshooting easier





When soldering wire to a PCB
push the protective PVC jacket
flush with the board and pad.

Main Board IN/OUT Pads



Input/Output Jack Wiring

T = Tip | R = Ring | S = Sleeve

A Stereo Jack is only needed if using a Battery. Otherwise use a Mono Jack
Battery Strap RED wire is connected to Power Jack
Battery Strap Black wire is connected to RING (stereo jack)
If wiring an LED to our 3PDT Wiring Board then S4, S5 & S6 are not needed