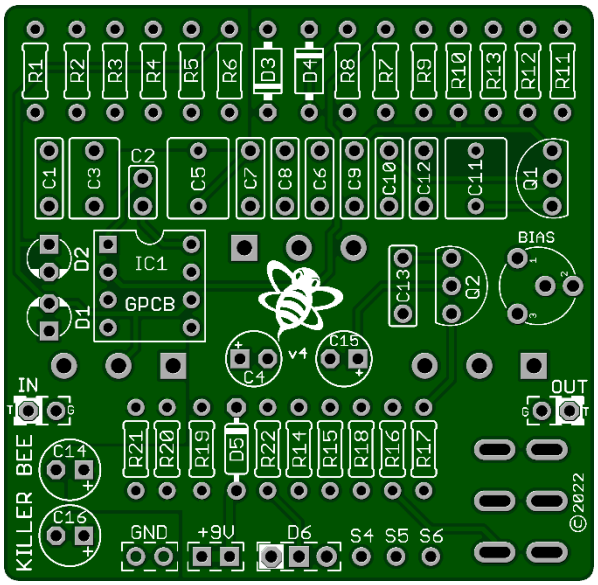
Killer Bee v4 2022

This is based on a famous low to medium gain circuit with some modern features. Use this in front of an overdriven tube amp and push your amp into distortion, or run it in tandem with other dirt pedals. It contains all of the "honey dripping" sound you would expect, but what makes our version "Killer" is the addition of a switchable boost for more sustain and volume. This could not be achieved using a similar circuit.



Dimensions: 1.95" x 1.73"

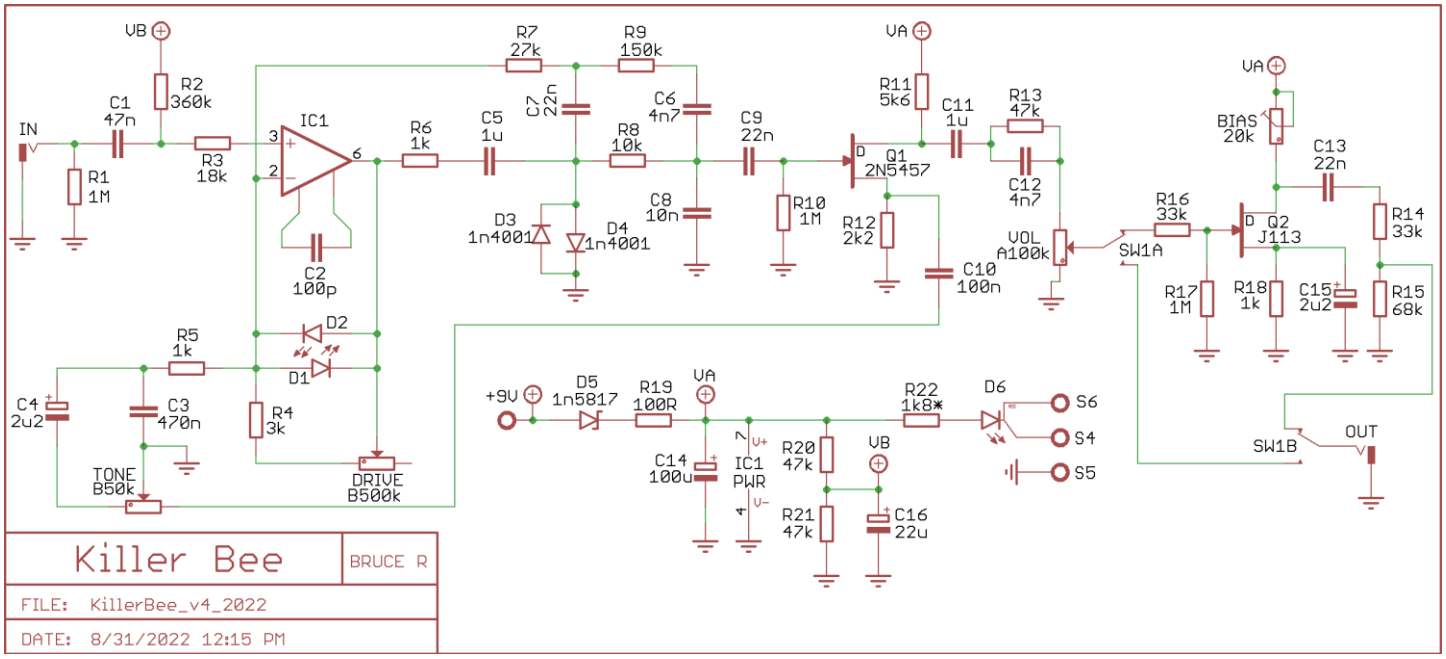
Part	Value	Part	Value	Part	Value	Part	Value
R1	1M	R16	33k	C8	10n	VOL	A100K
R2	360k	R17	1M	C9	22n	DRIVE	B500K
R3	15k	R18	1k	C10	100n	BIAS	20K
R4	3k	R19	100R	C11	1u	TONE	B50K
R5	1k	R20	47k	C12	4n7		
R6	1k	R21	47k	C13	100n	Switch	** DPDT
R7	27k	R22	1k8	C14	100u		
R8	10k			C15	22u	IC1	* TL071
R9	150k	C1	47n	C16	22u	Q1	2N5457
R10	1M	C2	100p			Q2	*** J113
R11	5k6	C3	220n	D1	LED		
R12	2k2	C4	2u2	D2	LED	D6	Status LED
R13	47k	C5	1u	D3	1n4001		
R14	33k	C6	4n7	D4	1n4001		
R15	68k	C7	22n	D5	1N5817		

STATUS LED

***D6** is a Status LED that can be either a Bi-Color Common Anode or a Standard On/Off LED. (See Tip Sheet)

New in this GuitarPCB 2021 version release:

- Added 1N5817 circuit protection diode which is superior.
- Added on-board potentiometers.
- Added on-board Tone Boost Toggle switch



Build Notes:

*** Use TL071, CA3130, NE5534 or other Mono Opamps. If you use CA3130, populate C2. If you use either of the other two choices suggested C2 is not needed and can be simply left off the board.**

**** We recommend the use of a DPDT On/On Toggle switch. This will mount to the board.**

***** While J113 is an excellent choice a N.O.S. MPF102 is equivalent. The orientation for both is identical to the silkscreen on the board. Both should be biased at approximately 6 volts on the drain leg to ground.**

Controls:
Drive: Turn clockwise for more overdrive.
Tone: Turn clockwise for a brighter tone.
Volume: Turn Clockwise for more Volume
Trimmer: Bias the drain (or D) of J113 using a Digital Multimeter from about 4.5v to 6.6v

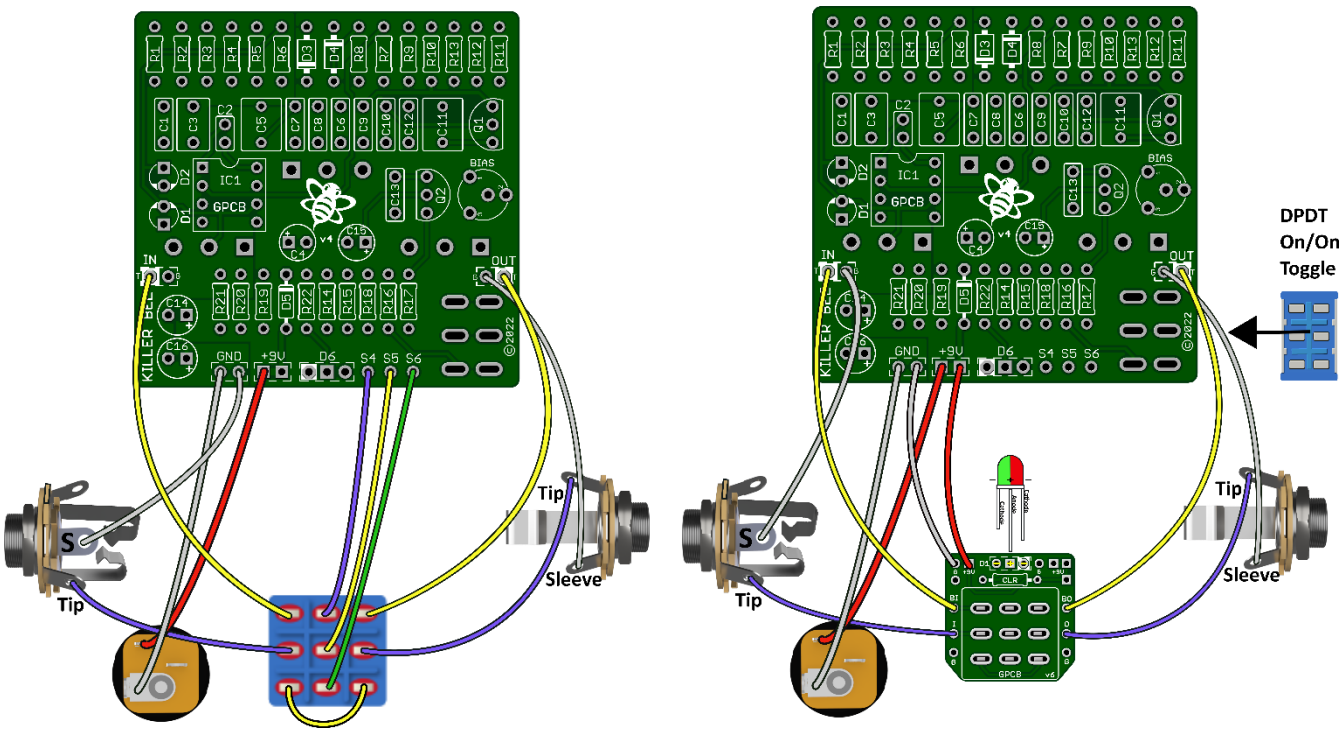
Mod Idea: While the on-board DPDT Boost toggle switch is great for dialing in more gain and more sustain than could ever be achieved with a standard version of this circuit, you could also consider hand wiring a DPDT foot switch to the on-board solder pads for a switchable boost that is controlled with your foot.

Mods are typically not included with KITs.

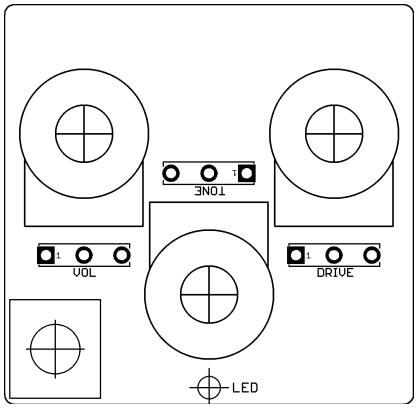
Biasing:
When biasing simply put the red probe on the (D) or drain leg, black probe on any ground, supply the circuit with (9) volts power and use the trimmer to dial in the correct voltage (between 4.5v and 6.5v).

J113

Wiring Diagram

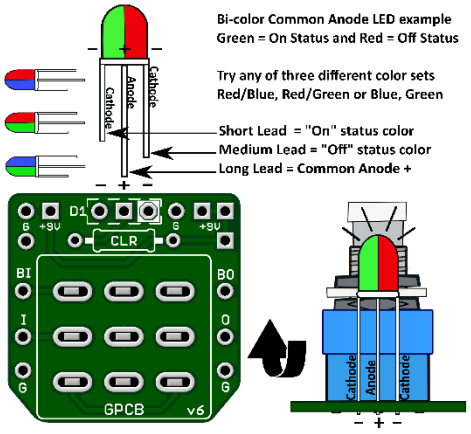


Drill Template



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.

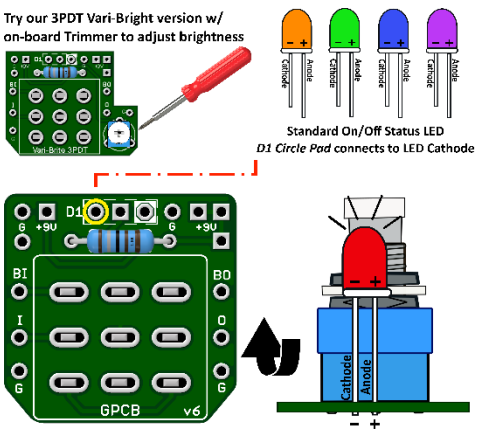
GuitarPCB Tip Sheet



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

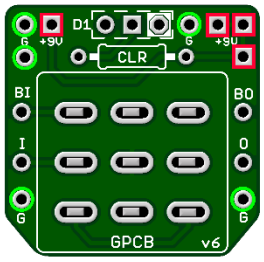
Try any of three different color sets
Red/Blue, Red/Green or Blue, Green

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

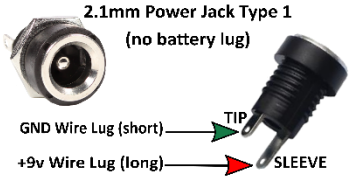


Try our 3PDT Vari-Bright version w/
on-board Trimmer to adjust brightness

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



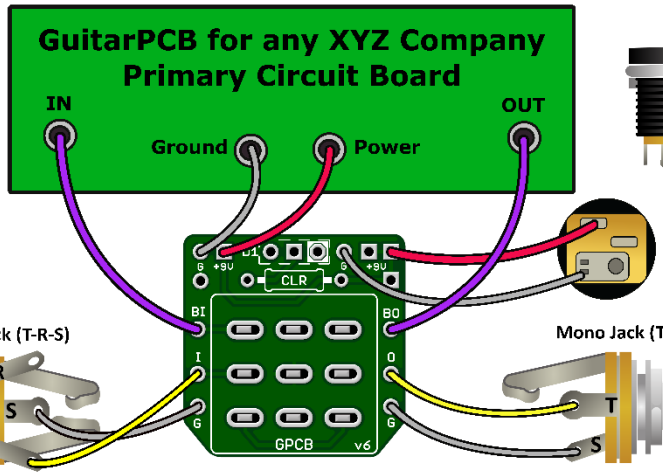
Green = Ground Pads (5)
Red = + 9v Power Pads (4)
D1 = LED Pads
CLR = Current Limiting Resistor
BI = From Main Board IN
BO = From Main Board OUT
I = To Jack Tip IN
O = To Jack Tip OUT

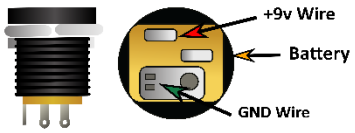


2.1mm Power Jack Type 1
(no battery lug)

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

Do not over-tighten (hand tight)

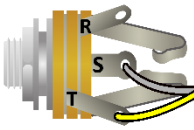




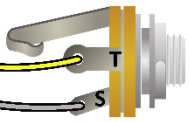
2.1mm Power Jack Type 2

T = Tip
R = Ring
S = Sleeve

Stereo Jack (T-R-S)

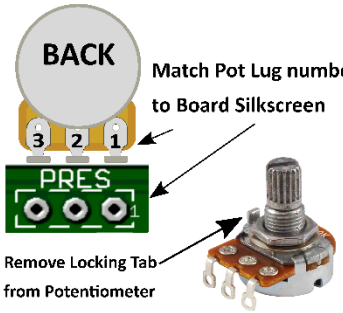


Mono Jack (T-S)



T = Tip
S = Sleeve

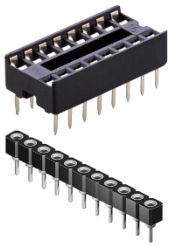
Multiple +9v and Ground Pads are convenient hookup points for additional circuits within the same enclosure. This also allows for diverse wiring schemes to suit indiviual needs.

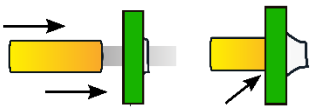


Match Pot Lug number
to Board Silkscreen

Remove Locking Tab
from Potentiometer

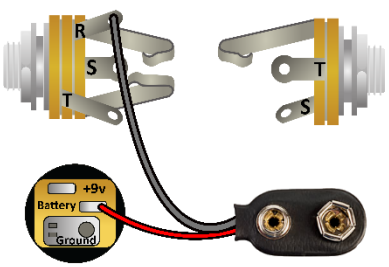
Sockets make troubleshooting easier





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