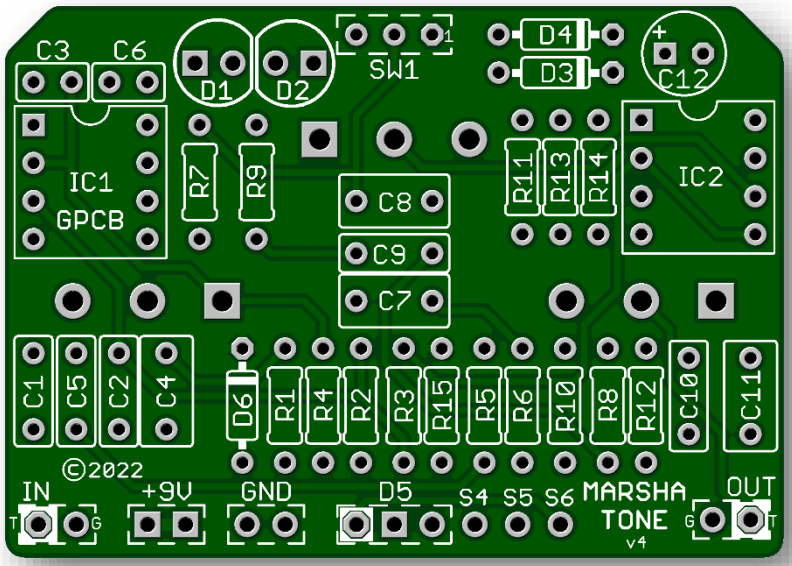
MARSHA TONE v4 2022

For those seeking the aggressive tones of the MARSHA amps used by the likes of Jerry Cantrell, Steve Stevens and many others. This circuit really knocks the L's off of the nameplate. Huge, dark and aggressive Tone is what to expect from MARSHA and a screaming sustain that lasts for days. This circuit contains an Active Tone Control.

Note: 2022 version 4 is almost identical to v3. The layout and parts are the same except we squeezed a circuit protection diode (**D6-1N5817**) in between C4 and R1 on version v3. As a result, we felt it was unnecessary to do a completely new build document. Enjoy.



Board Dimensions (W x H) 1.95” x 1.50”

Part	Value
R1	1M
R2	1k
R3	1M
R4	3k3
R5	10k
R6	470k
R7	470R
R8	10k
R9	2k2
R10	2k2

Part	Value
R11	10k
*R12	jumper
R13	22k
R14	22k
R15	1k8
C1	22n
C2	1n
C3	100p
C4	220n

Part	Value
C5	100n
C6	100p
C7	220n
C8	220n
C9	47n
C10	47n
C11	220n
C12	100u
D1 - D2	LED

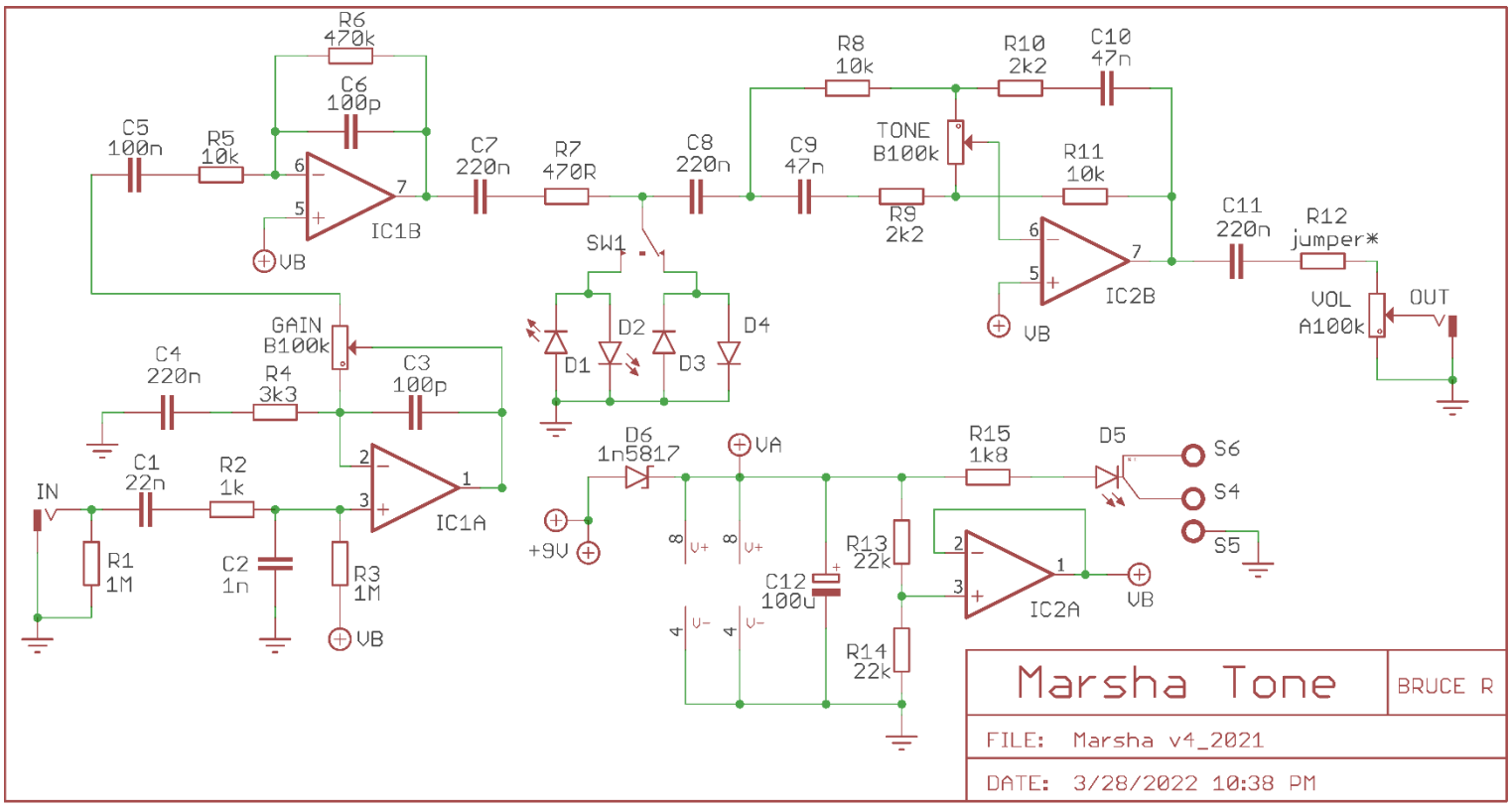
Part	Value
D3 - D4	1n4148
D5	Bicolor CA
D6	1N5817
IC1	TL072
IC2	TL072
GAIN	B100k
TONE	B100k
VOL	A100k
SW1	On-Off-On

Build Notes:

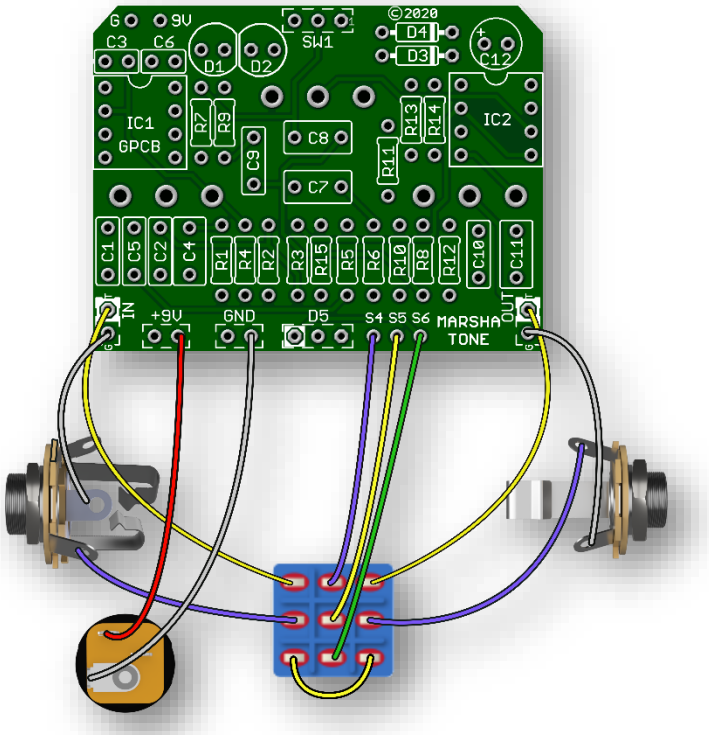
***R12** has been included for those wishing to Mod the circuit with a **Red (Hot)** – **BLUE (Normal)** switch by placing a Jumper (Hot) on one side of a DPDT switch (or use one of our DPDT wiring boards) and a value between **47k – 100k** for your **BLUE** tone on the other side. Then simply connect the switch to **R12**. **Tip:** Use a 3PDT switch to add an LED status to the Mod.

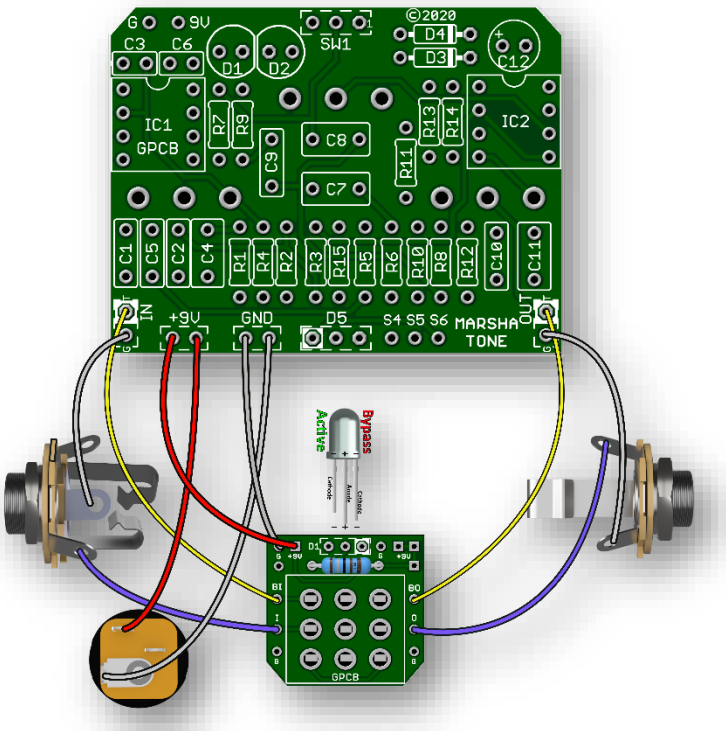
SW1 is an SPDT On-Off-On switch. This will give you a choice of the LEDs and silicon diodes in the up and down positions and no diodes in the middle position. This will yield 3 very usable settings. Middle position will be less distorted and louder than the two positions using clipping diodes. Feel free to try your own diode combination.

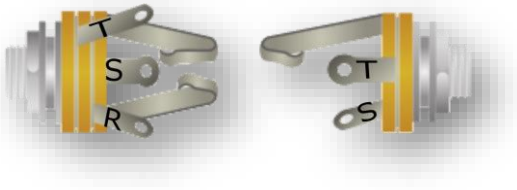
The tone control is an Active Control – it boosts as well as cuts frequencies. With the control in the mid position no frequencies are boosted or cut, turning the control anti-clockwise will boost bass frequencies and cut high frequencies, turning the control clockwise will cut bass frequencies and boost high frequencies.



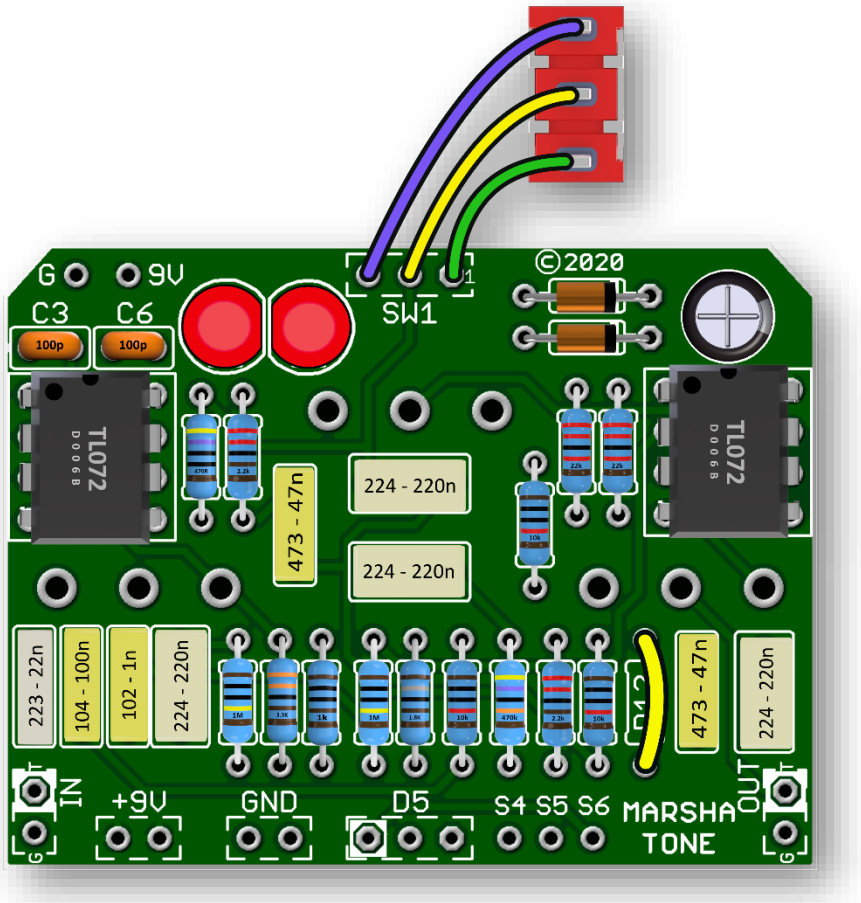
Wiring Diagrams





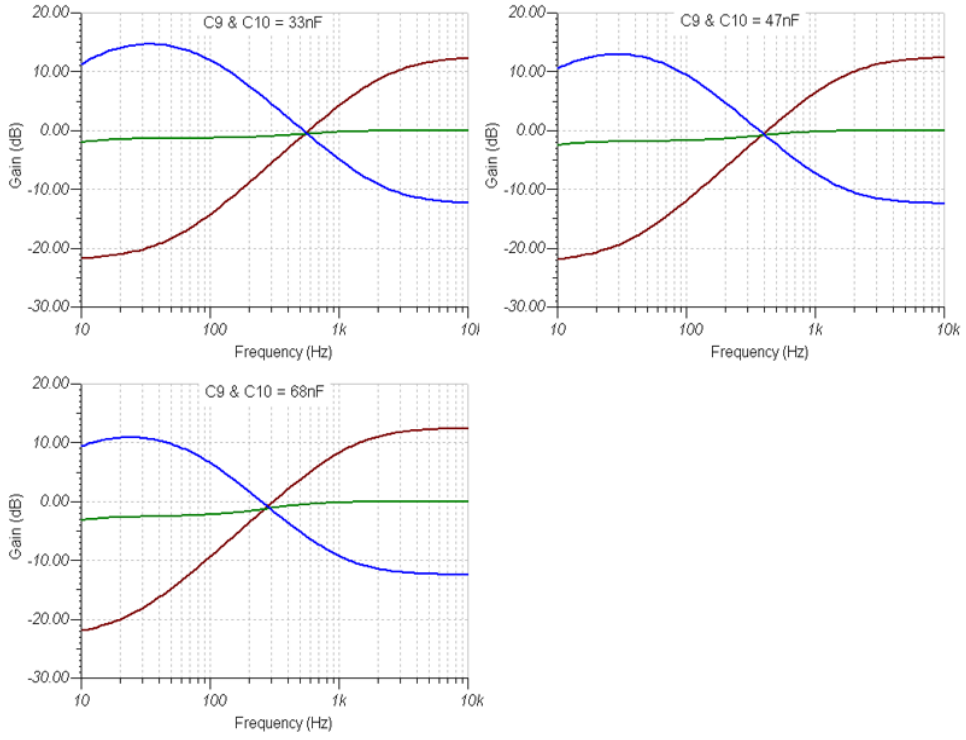


Be sure your In/Out Jack wiring is correct. A Stereo Jack (for battery use only) has a RING lug which is used to connect to the battery ground. If you do not intend to use a battery there is no need for a Stereo Jack. If using Stereo then only use the Tip and Sleeve lugs. S4, S5 & S6 is only needed when the LED is wired to the Main Board.



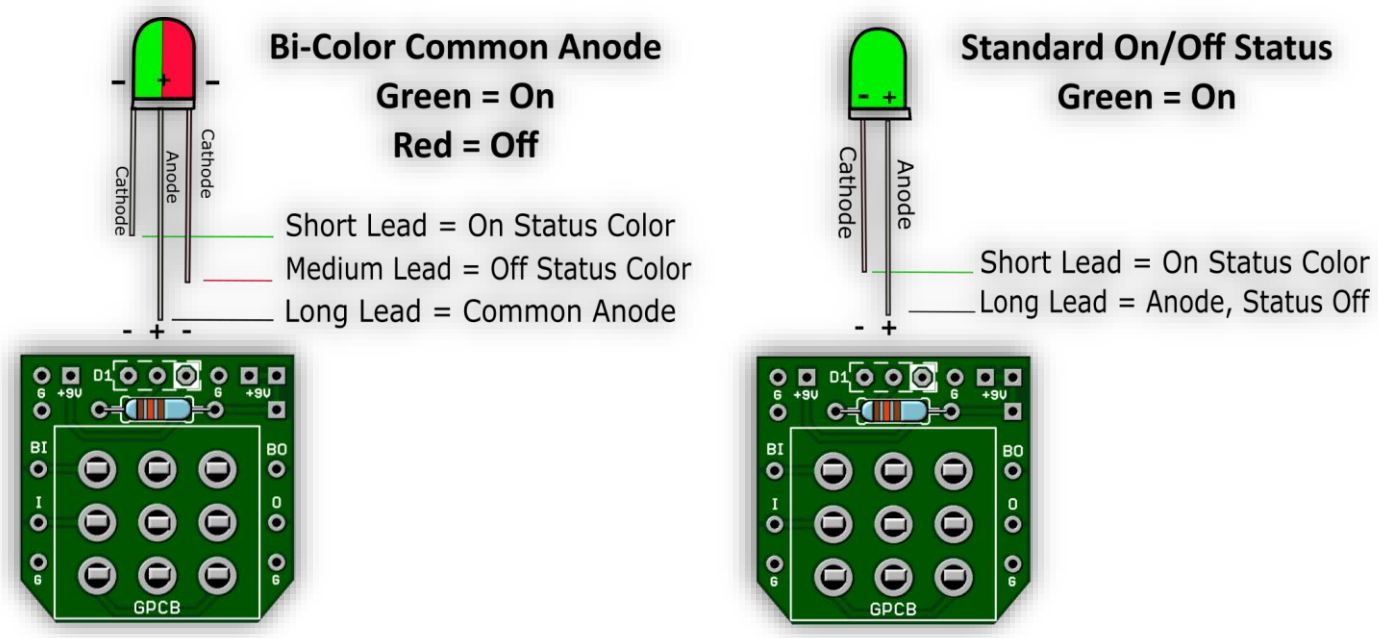
Note: This image is from v3. It is identical to v4 aside from a circuit protection diode D6 placed between C4 and R1.

The following diagram shows the frequency responses with the tone pot fully anti-clockwise (blue), mid position (green) and fully clockwise (brown). The mid-point where frequencies are boosted or cut (the point where the blue and red lines cross) is determined by the values of C9 and C10. Although 47nF for C9 and C10 is suggested, you are encouraged to experiment with different values. C9 and C10 should be changed as a pair.

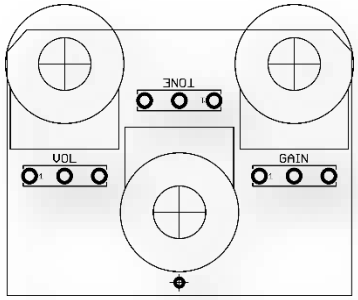


33nF – about 600 Hz
47nF – about 400 Hz
68nF – about 300Hz

STATUS LED



Note: If wiring the LED to our 3PDT board no need to connect S4, S5 & S6 or populate D5 or R15 (CLR) on the main board since you are wiring your LED directly to our board.



Potentiometers. 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.

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