

# 8Ball

FX Type: **OVERDRIVE**

Build Level: Beginner

Based On: Marshall® Blues Breaker™

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## Overview

From the [Marshall® website](#):

*“The sound of the 1962 ‘Bluesbreaker’ amplifier became a legend, with the smooth tone, rich warmth and full character that gave guitarists more expression than ever before. The original Bluesbreaker pedal took this and put it in a stompbox. Today, this reissue accurately delivers timeless tones and style once again. It captures the magic of those classic vintage amps with added sweetness, crispness and extra edge to carry solos and squeeze out those vital harmonics.”*

The Standard Series version of the mbp **8-Ball** project goes in a new direction with 4 clipping modes and an optional output gain stage for added volume. You can build an OG BluesBreaker™, a Prince of Tone™ or cook up your own variation with selected values and clipping diode types.

## Controls

- **VOL, GAIN, TONE:** self-explanatory
- **CLIP:** This 2p4t rotary switch offers two modes each of both soft and hard clipping diodes.
- **BOOST:** An internal slide switch that adds a low-gain boost stage to the output. Using the boost feature also makes the effect input and output in phase with one another.

Further study:

<https://pedaltown.nl/en/the-story-of-the-marshall-blues-breaker-pedal>

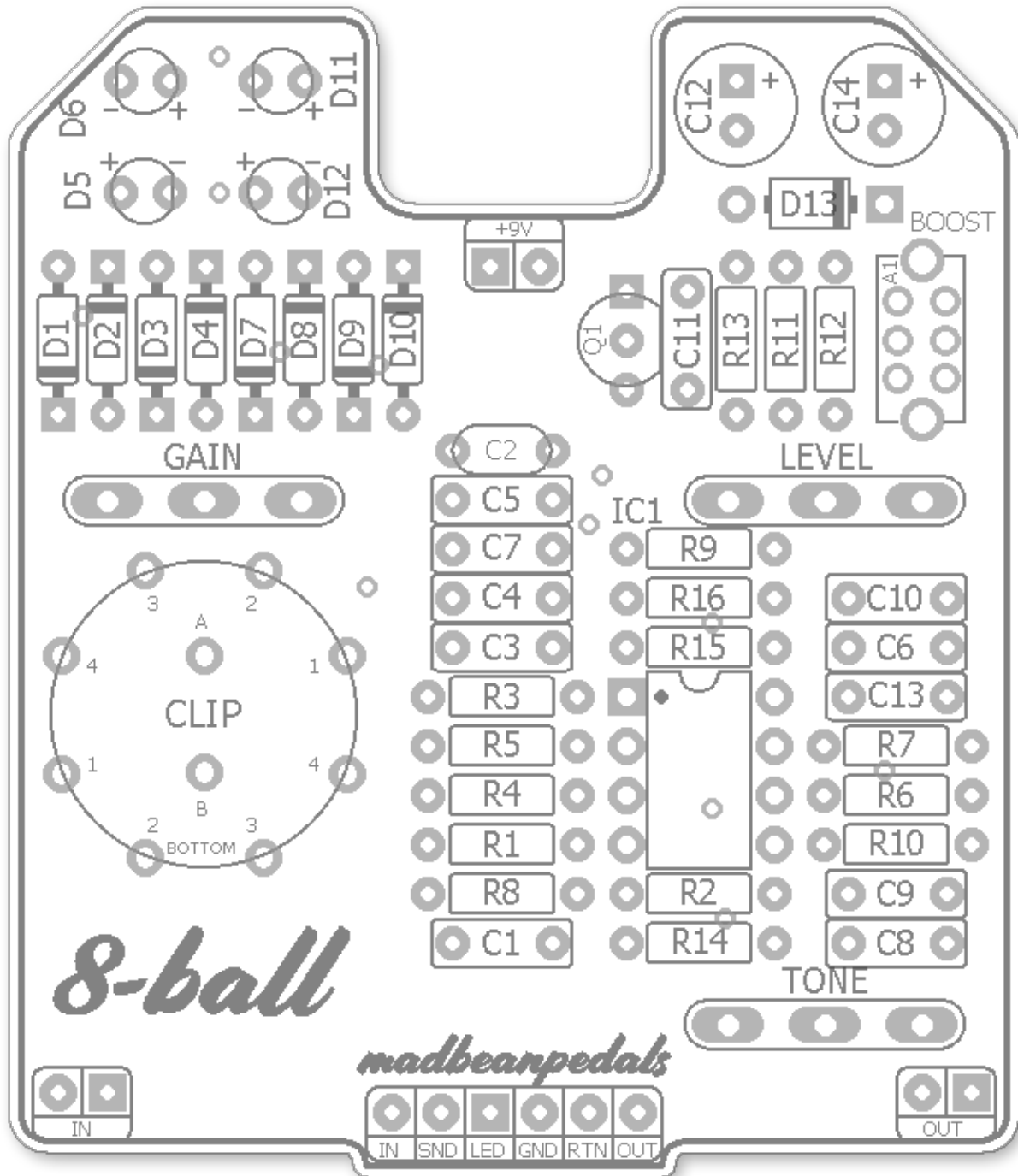
<https://thejhsshow.com/articles/what-is-a-bluesbreaker>

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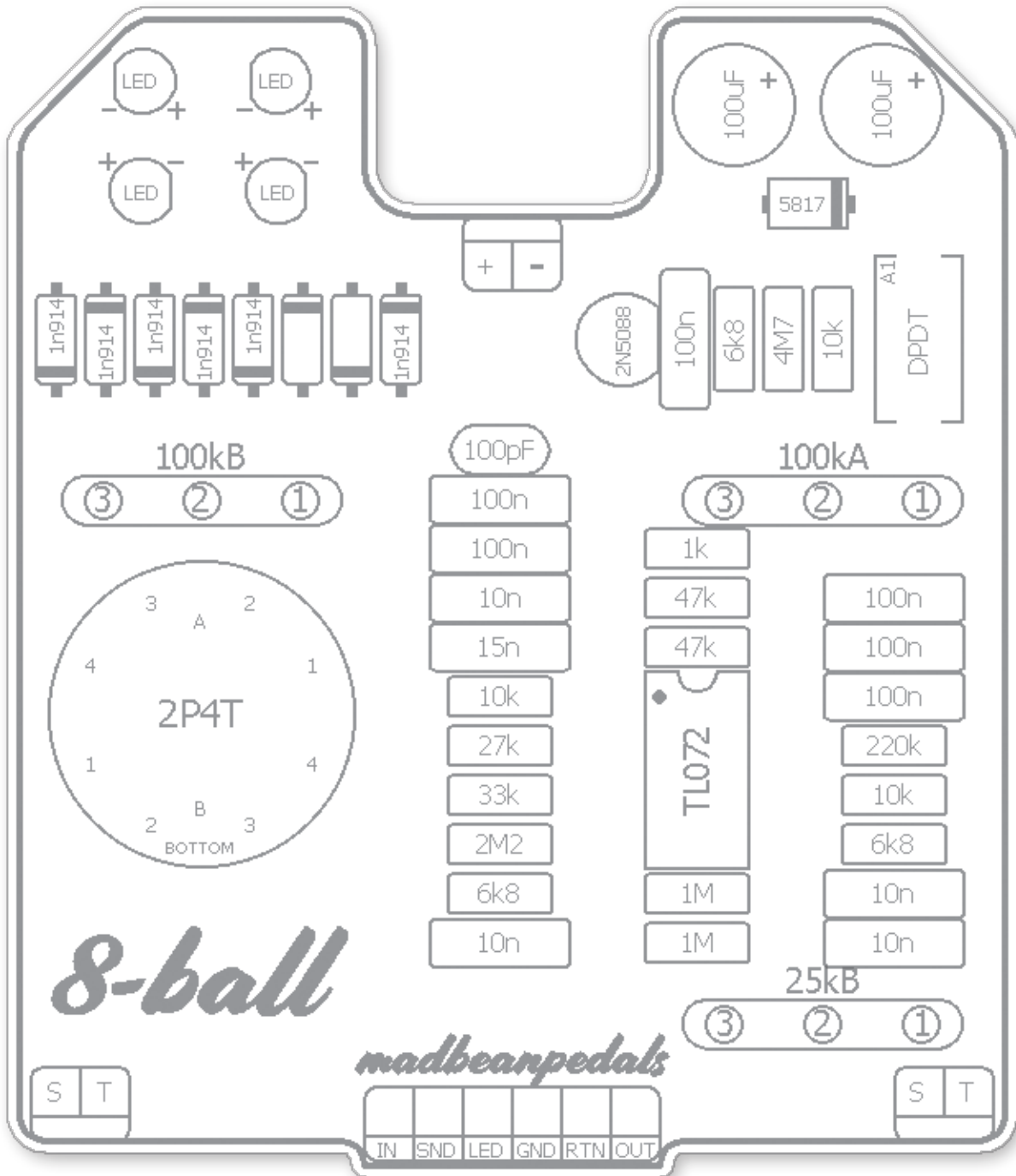
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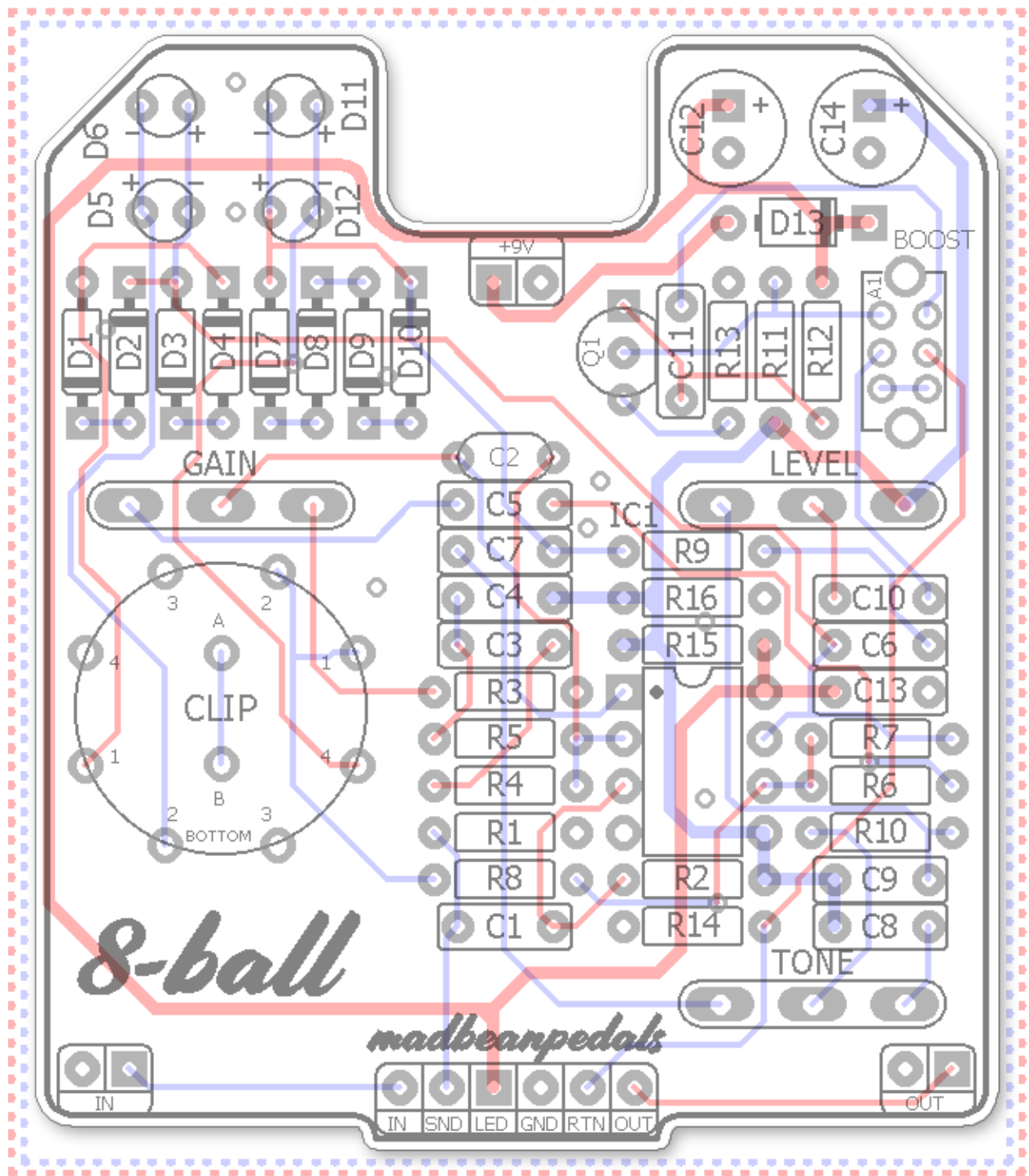
## Parts Layout



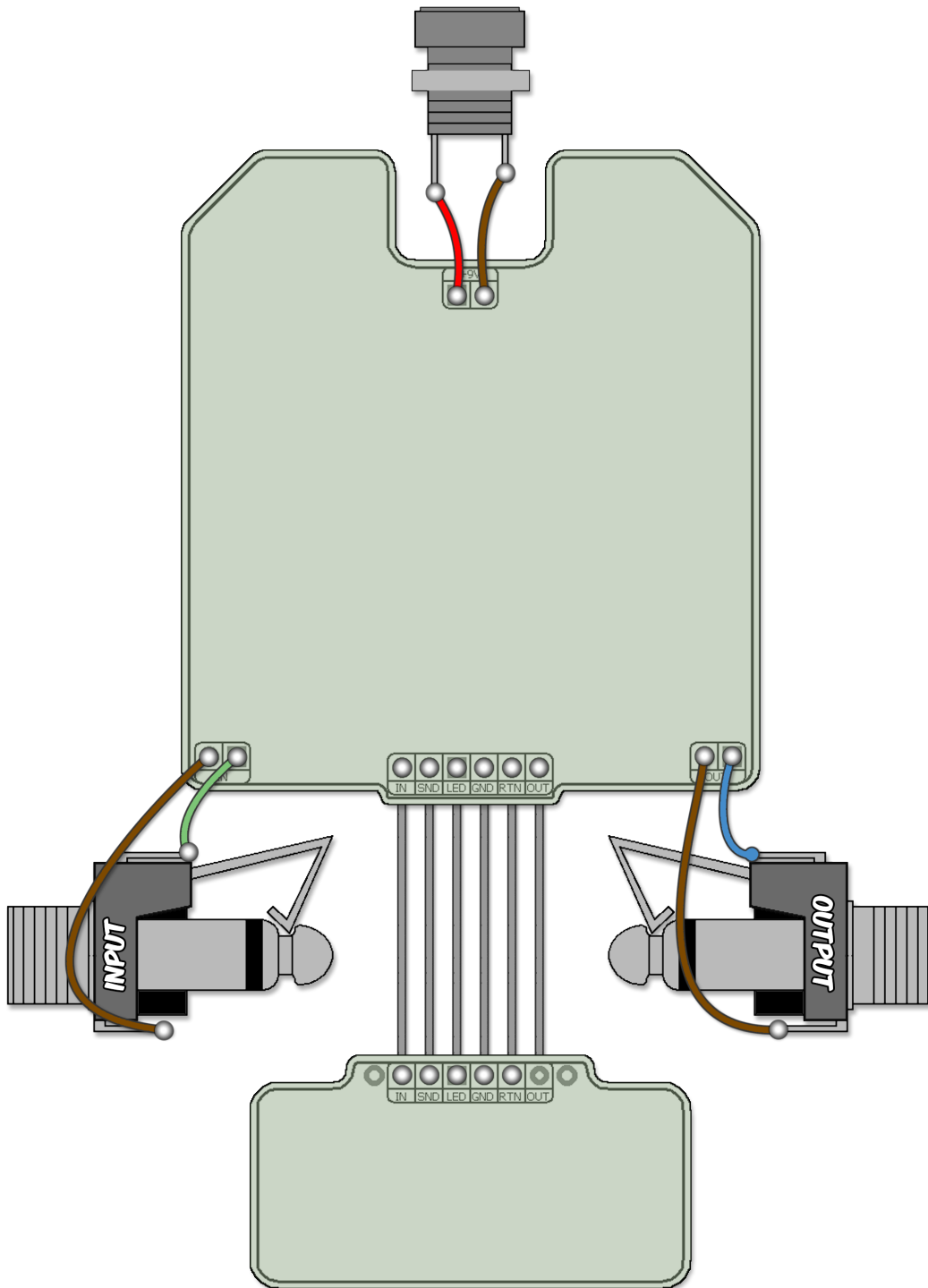
## Component Values



# Trace Layout



## Wiring



Unless otherwise noted, all Standard Series projects have the same wiring regardless of which 3PDT bypass board is used. A 6-pin, 2" ribbon cable is recommended for soldering the connections between the two PCBs.

## B.O.M.

Resistors		Caps		Diodes		Transistors	
R1	2M2	C1	10n	D1	1n914	Q1	2N5088
R2	1M	C2	100pF	D2	1n914	IC	
R3	10k	C3	15n	D3	1n914	IC1	TL072
R4	33k	C4	10n	D4	1n914	Switches	
R5	27k	C5	100n	D5	LED	BOOST	DPDT - Slide
R6	10k	C6	100n	D6	LED	CLIP	2P4T
R7	220k	C7	100n	D7	1n914	Pots	
R8	6k8	C8	10n	D8	*see notes	TONE	25kB
R9	1k	C9	10n	D9	*see notes	LEVEL	100kA
R10	6k8	C10	100n	D10	1n914	GAIN	100kB
R11	4M7	C11	100n	D11	LED		
R12	10k	C12	100uF	D12	LED		
R13	6k8	C13	100n	D13	1n5817		
R14	1M	C14	100uF				
R15	47k						
R16	47k						

## Shopping List

Value	QTY	Type	Rating
1k	1	Carbon / Metal Film	1/4W
6k8	3	Carbon / Metal Film	1/4W
10k	3	Carbon / Metal Film	1/4W
27k	1	Carbon / Metal Film	1/4W
33k	1	Carbon / Metal Film	1/4W
47k	2	Carbon / Metal Film	1/4W
220k	1	Carbon / Metal Film	1/4W
1M	2	Carbon / Metal Film	1/4W
2M2	1	Carbon / Metal Film	1/4W
4M7	1	Carbon / Metal Film	1/4W
100pF	1	Ceramic/MLCC	16v min.
10n	4	Film	16v min.
15n	1	Film	16v min.
100n	6	Film	16v min.
100uF	2	Electrolytic	16v min.
1n5817	1		
LED	2	Red or Yellow	5mm
LED	2	Red	5mm
1n914	6	*see notes	
2N5088	1		
TL072	1		
DPDT	1	On/On, Slide	
2P4T	1	Mini Rotary	
25kB	1	PCB Right Angle	16mm
100kA	1	PCB Right Angle	
100kB	1	PCB Right Angle	

### Additional Hardware

- (1) 1590B enclosure
- (2) Lumberg 1/4" Compact mono jacks
- (1) Slim 2.1mm DC jack
- (1) Standard 3PDT footswitch
- (1) 5mm LED

## Build Notes

### Clip Switch

The CLIP switch selects between four modes of diode clipping. Going clockwise you have:

- (4) soft clipping Si - 1n914
- (2) soft clipping LEDs - red or yellow
- (2) hard clipping Si - 1n914
- (2) hard clipping LEDs - red

For the third option, there are two additional diode spots, D8 and D9. These are available if you want to try something different than 1n914 for D7-D10 such as germanium or Schottky diodes. I advise against using four 1n914 in this position.

**NOTE: When using 1n914 for D7 and D10, solder a jumper in for D8 and D9!**

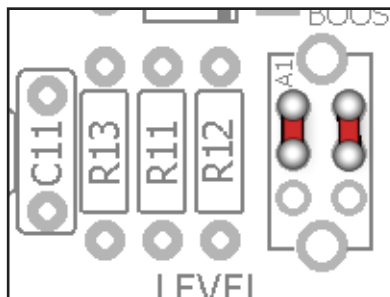
Of the four modes, I prefer the first and last the most. The two middle positions are more similar whereas the soft Si clipping and hard LED are quite different sounding. You can always experiment with the two middle clipping choices if you want to do something drastically different.

### Boost Switch

The BOOST switch was added to address the lower output associated with the stock clipping (first position of the CLIP switch). This adds a little extra output. The other clipping stages are louder than stock so this gain stage is kept relatively low.

The slide switch I used is available at Mouser: <https://www.mouser.com/ProductDetail/611-OS202011MS2QN1>

If you don't want to bother with the switch, solder the middle and top pads together with a jumper. Do this for both columns.



If you want to try something a little different, I like the 4580DD for IC1. This is the same one used in the KOT™ and sounds very good in the BB circuit.



## Circuit Voltages

IC1	4580DD
1	4.68
2	4.69
3	4.31
4	0.00
5	4.60
6	4.61
7	4.59
8	9.25
Q1	2n5088
C	6.74
B	1.7
E	1.38

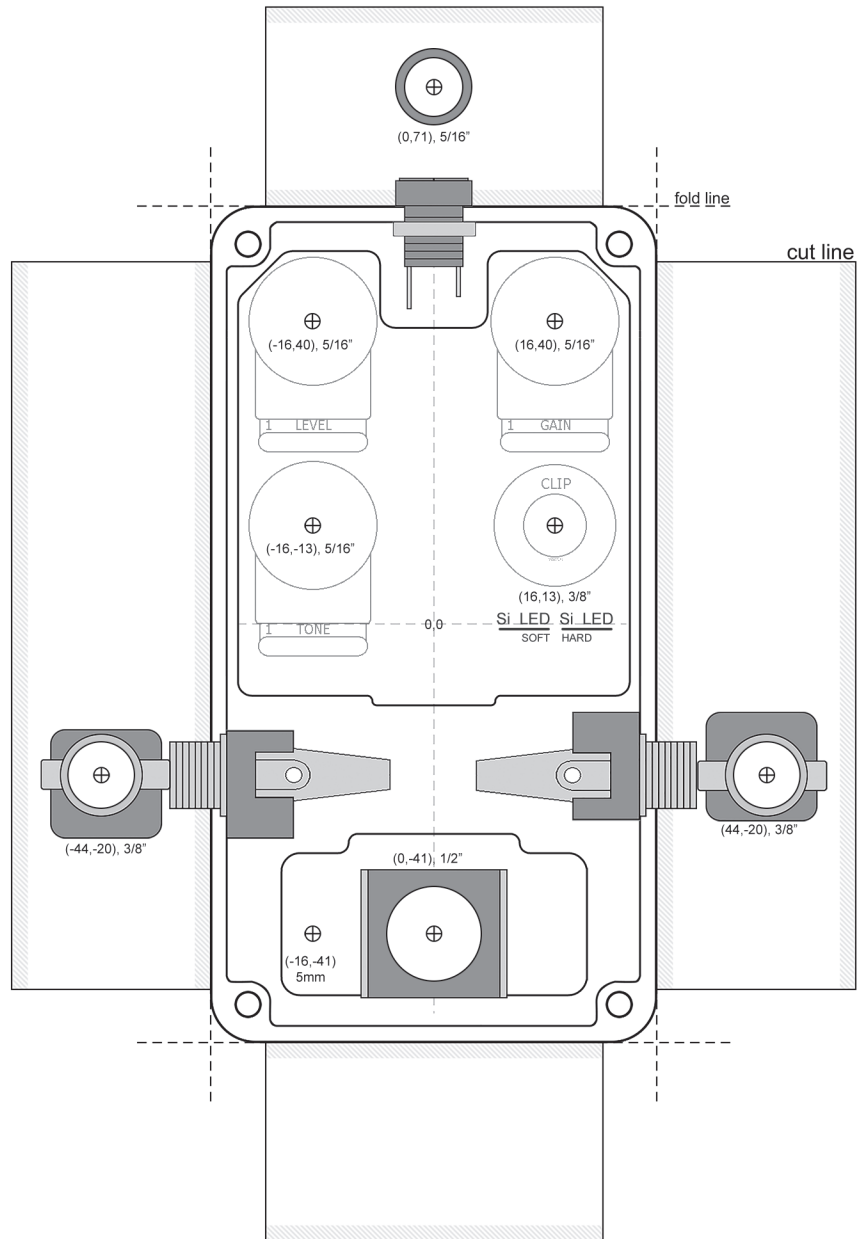
9.44vDC One Spot supply  
Current Draw: ~6mA  
Knobs @ 50%, BOOST off

## 1590B Drill Template

Coordinates are denoted in (X,Y), drill size format starting from the center (0,0) location of the enclosure.

[Link to Tayda Standard Series master drill template](#)

**NOTE:** The rotary switch will require a 9.5mm drill hole (change from 7.5mm)

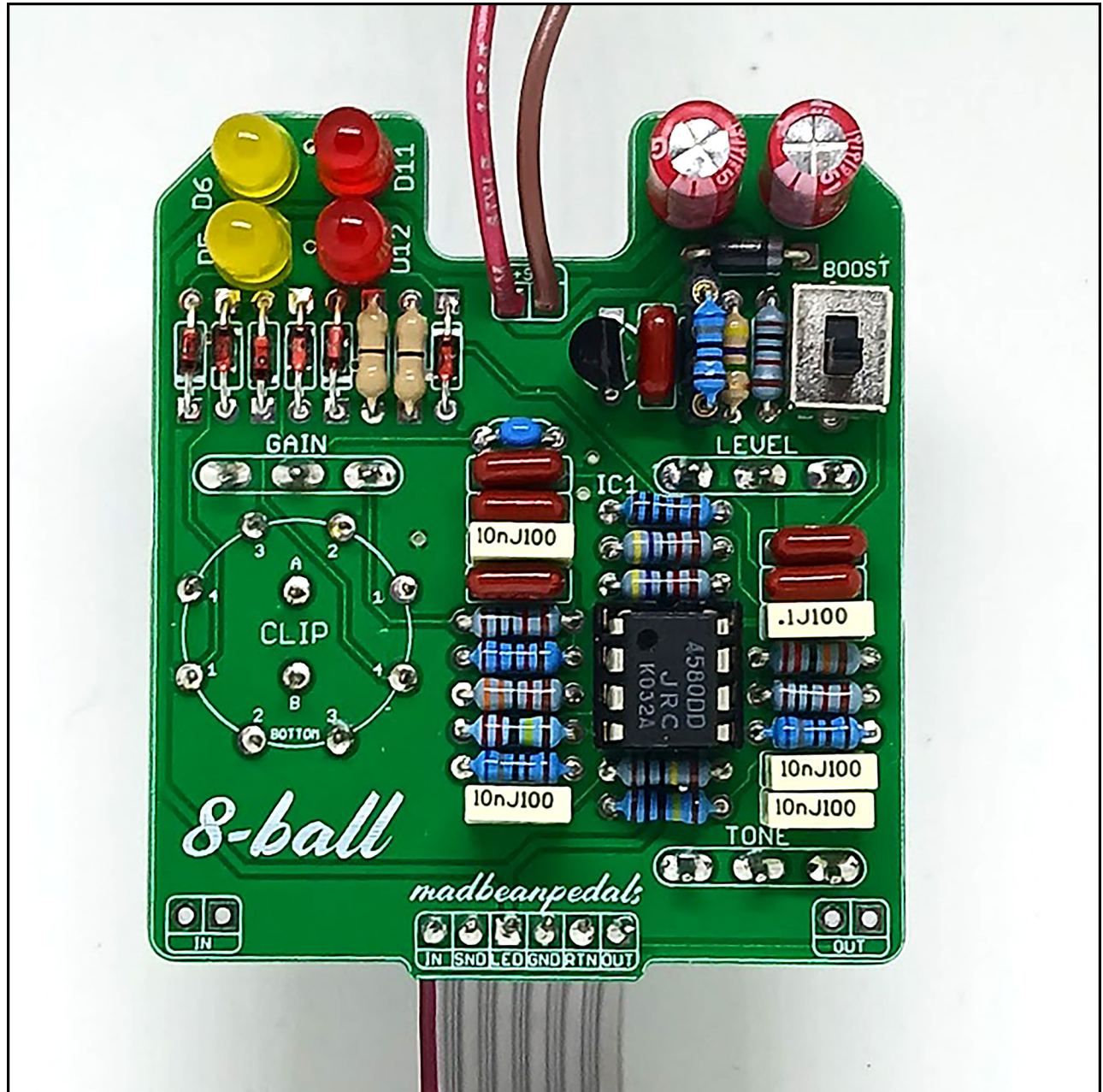


### Hardware

1590B enclosure  
16mm pots  
Lumberg 1/4" Compact mono jacks  
Slim 2.1mm DC jack  
Standard 3PDT footswitch  
5mm LED

**NOTE:** Different 1/4" and DC jack styles may require different sized drill holes.

# Build Pic



# Schematic

