BUMBLEBEE2020

FX TYPE: Fuzz

Based on the Baldwin Burns® Buzzaround™

Enclosure Size: 1590B, 1590B2, 125B

"Softie" compatibility: Softie1&2

© 2020 madbeanpedals

Overview

The BumbleBee is a re-creation of the Baldwin Burns Buzzaround™; a rare and somewhat legendary fuzz monster. Also, incredibly expensive! The Buzzaround™ stands apart from the Fuzz Face and Tonebender. It's not as nearly as bass heavy as the FF and it is capable of getting even more fuzz saturation than the TB (IMO). At the same time, it can be tamed quite well into some classic (and controlled) fuzz tones. And, the interaction with the guitar volume is absolutely excellent for dialing fuzz up and down on the fly.

The Bumblebee also adds a voltage inverter which allows you to power this positive ground effect with a standard center-tip negative PS.
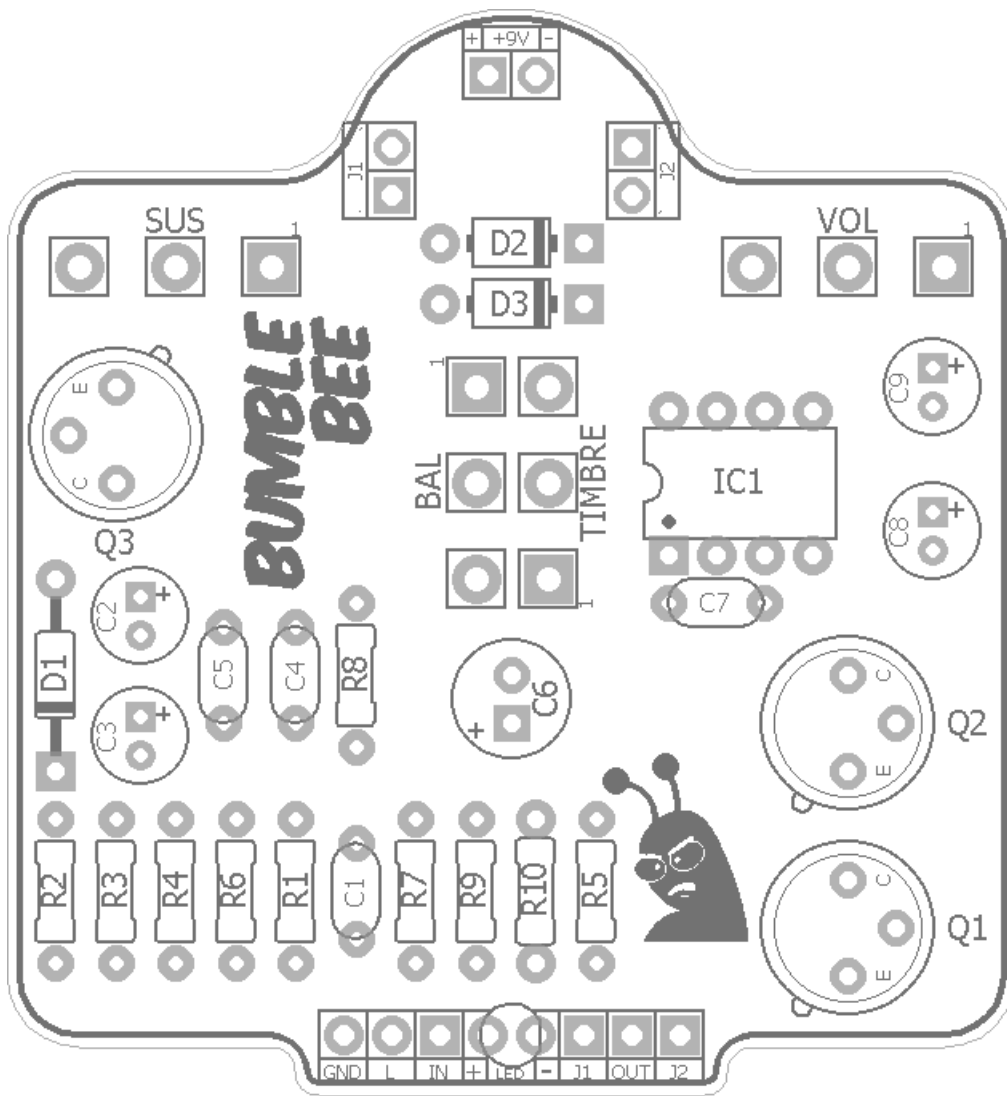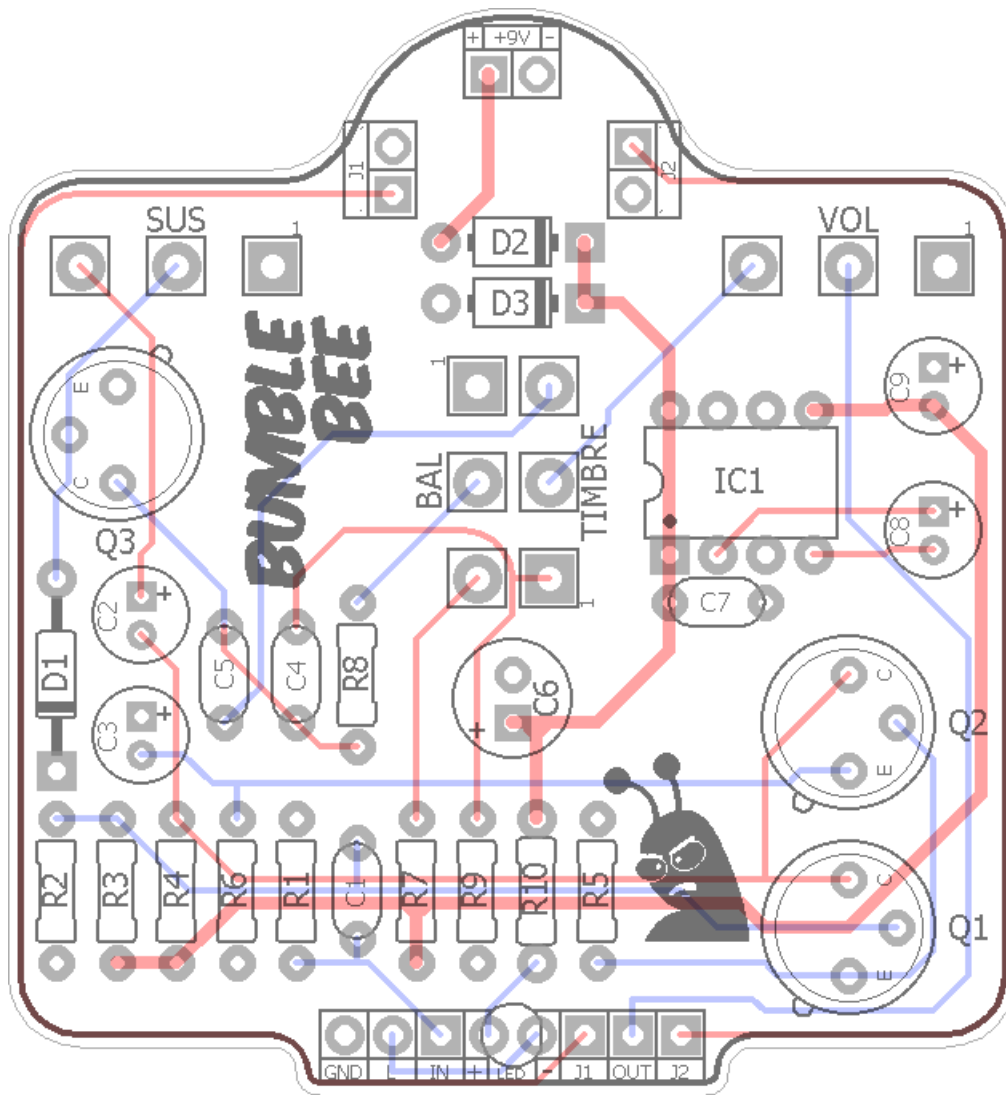
Controls

- **SUS:** Total output.
- **TIMBRE:** Filter (tone) control.
- **BAL:** Bias/Output control.
- **VOL:** Not featured on the stock unit. While the Balance control does double duty with varying the bias on Q3 and changing the total output, the added VOL control lets you achieve more variety in tones. It is somewhat redundant but useful, nonetheless.

Burns Buzzaround listing on Effects Database: http://www.effectsdatabase.com/model/baldwinburns/buzzaround#info

SUS

VOL

+9V

D2

D3

BAL

TIMBRE

IC1

C9

C8

Q3

C2

D1

C3

C5

C4

R8

C6

C7

Q2

BUMBLE BEE

R2

R3

R4

R6

R1

C1

R7

R9

R10

R5

Q1

GND   L   IN   + LED −   J1 OUT J2

Resistors		Caps		Diodes	
R1	1M	C1	100n	D1	1n34a
R2	100k	C2	4u7	D2	1N5817
R3	470k	C3	4u7	D3	12v Zener
R4	10k	C4	1n	**Transistors**	
R5	10k	C5	100n	Q1 - Q3	PNP
R6	3k3	C6	100uF	**IC**	
R7	27k	C7	100n	IC1	TC1044SCPA
R8	15k	C8	10uF	**Pots**	
R9	10k	C9	10uF	BAL	10kB
R10	4k7			SUS	100kB
				TIMBRE	100kB
				VOL	100kB

Value	QTY	Type	Rating
3k3	1	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
10k	3	Metal / Carbon Film	1/4W
15k	1	Metal / Carbon Film	1/4W
27k	1	Metal / Carbon Film	1/4W
100k	1	Metal / Carbon Film	1/4W
470k	1	Metal / Carbon Film	1/4W
1M	1	Metal / Carbon Film	1/4W
1n	1	Film	16v min.
100n	3	Film	16v min.
4u7	2	Electrolytic	16v min.
10uF	2	Electrolytic	16v min.
100uF	1	Electrolytic	16v min.
1n34a	1	or, similar GE diode	
1N5817	1		
12v Zener	1		
PNP	3	Germanium	
TC1044SCPA	1		
10kB	1	PCB Right Angle	16mm
100kB	3	PCB Right Angle	16mm

- The TC1044**SCPA** is the recommended inverter, but you can also use a MAX1044**CPA** or ICL7660**SCPA**. Make sure you get the part that matches the **BOLDED SUFFIX**.

12v Zener:
http://smallbear-electronics.mybigcommerce.com/diode-zener-1n4742a/

TO5 Sockets (optional):
http://smallbear-electronics.mybigcommerce.com/to-5-transistor-mill-max/

PNP Transistors:
http://smallbear-electronics.mybigcommerce.com/transistor-set-buzzaround-pnp-generic/

These also might work well for the Bumblebee:
http://smallbear-electronics.mybigcommerce.com/transistor-set-3-knob-tone-bender-pnp-continental/

TC1044SCPA:
http://smallbear-electronics.mybigcommerce.com/ic-tc1044scpa/

https://www.mouser.com/ProductDetail/579-TC1044SCPA

MAX1044CPA:
http://smallbear-electronics.mybigcommerce.com/ic-max1044cpa/

1n34A:
http://smallbear-electronics.mybigcommerce.com/diode-nos-germanium/

16mm Right Angle Pots (10kB, 100kB):
http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/

Thinline DC Jack:
http://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/

Enclosed Mono:
http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-jack/

http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-switchcraft-111x/

Lumberg Mono:
http://smallbear-electronics.mybigcommerce.com/lumberg-1-4-compact-shrouded-mono-jack/

The BumbleBee is a positive ground effect. However, it is wired as a negative ground circuit due to the voltage inverter circuitry included on the PCB.

NKT213 were used in the original Buzzaround. Unfortunately, these are very and almost impossible to find. However, you can use many matched Tonbender sets of PNP transistors in place of the NKT213. The OC75 is a very good replacement and offers an incredible fuzz tone, if you can find a good set. Smallbear has a generic "Buzzaround" set which I have not tried but I have no doubt will sound great in the Bumblebee.

The controls on this fuzz circuit are highly interactive. They are unusual in that the Sustain and Timbre are voltage dividers (the Vol control is as well but this is normal). This means when you turn them all the way down, it actually kills the signal. So, it takes a bit getting used to because, as guitar players, we are not accustomed to having three knobs that kill our riffs. We like knobs that make our riffs louder and crunchier, not puny and quiet. And, the Bumblebee certainly does that, too. To understand how it works think of it like this:

- The Sustain pot controls how much output signal from Q1/Q2 goes to Q3. Low settings means small signal and vice-versa. The more signal, the more saturation. I tend to keep this under half-way up. After that it gets very unruly!
- The Balance pot varies the bias point on Q3. It is essentially acts as a clamp on the Sustain pot in that allows you to dial down the output volume without reducing the total fuzz you get from the Sustain control. The Balance and Volume pot are interactive in that they both can control the total output. However, the added Volume control allows you to dial in the max output from Q3 at a lower level, which you cannot do with the three knob version.
- The Timbre control is essentially a low cut in reverse. At low settings the low end frequencies flatten out. As it is turned up more bass (and more volume) gets through to the output.
- The most important thing to remember - every control you turn up makes this thing a lot louder and fuzzier. So, the added volume control will help a lot to balance out different settings.
- To use the Bumblebee like the classic three-knob version, simply set the Volume control most of the way up and use the Balance to control output.

As I mentioned in the most recent Pastyface documentation, the Buzzaround™ and Fulltone® SoulBender™ are very similar to one another but not identical. If you built the Pastyface and loved it, you will also love the Bumblebee. If you found the Pastyface not your cup of tea, the Bumblebee might not be your thing. Something to keep in mind!
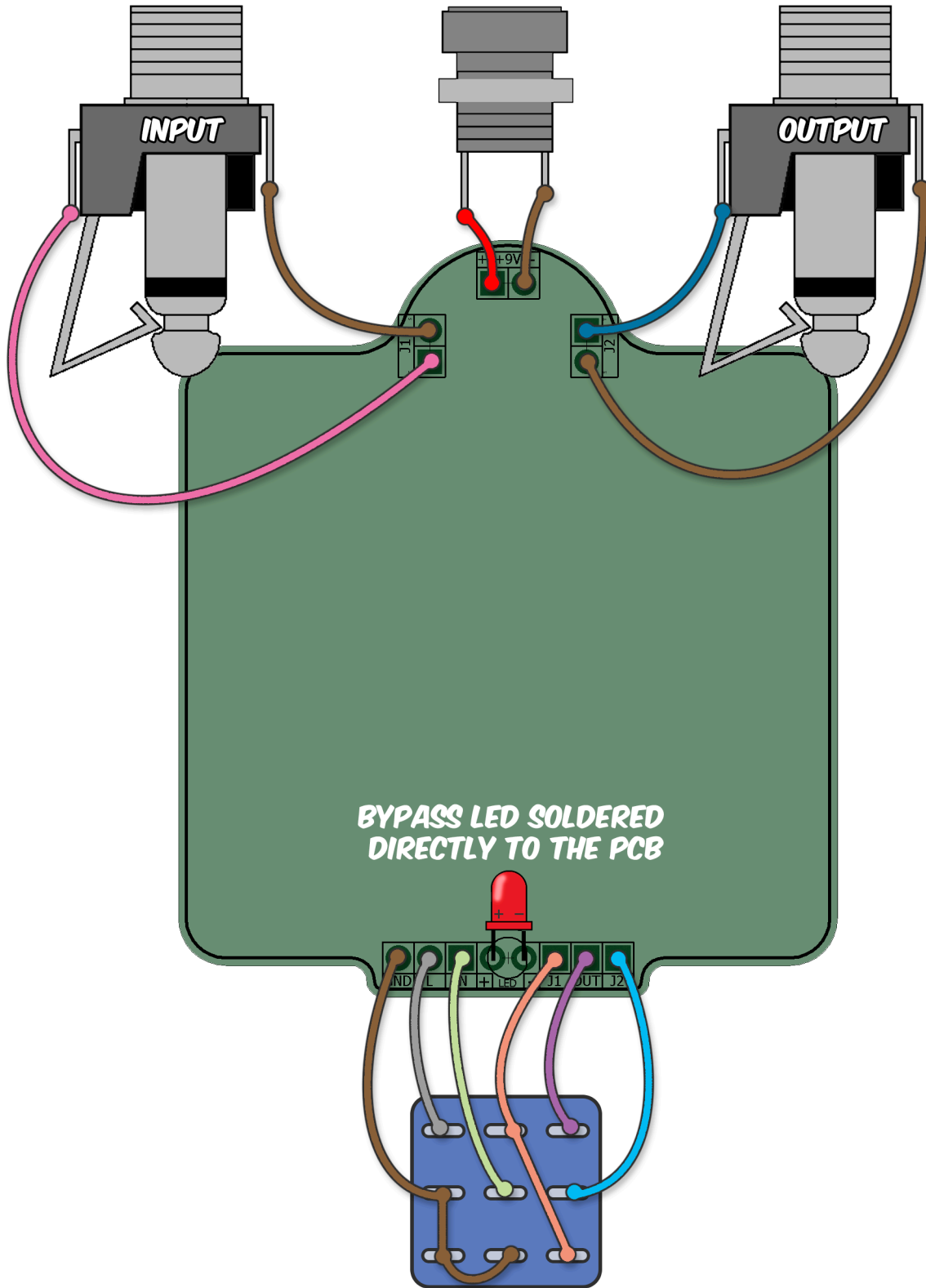
INPUT

OUTPUT

+9V

BYPASS LED SOLDERED
DIRECTLY TO THE PCB
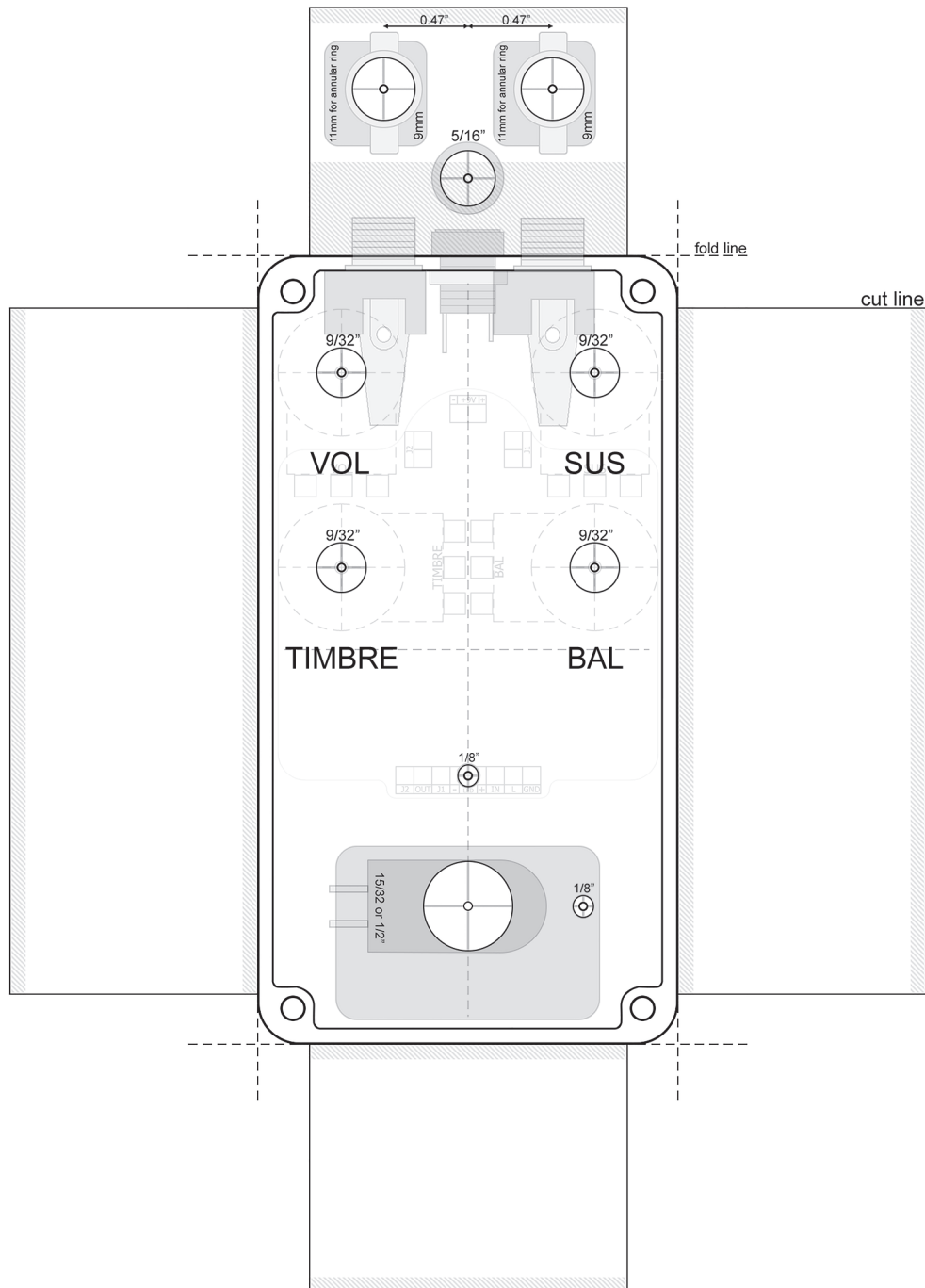
GND   L   IN   +   LED   -   J1 OUT J2

Note: *Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.*
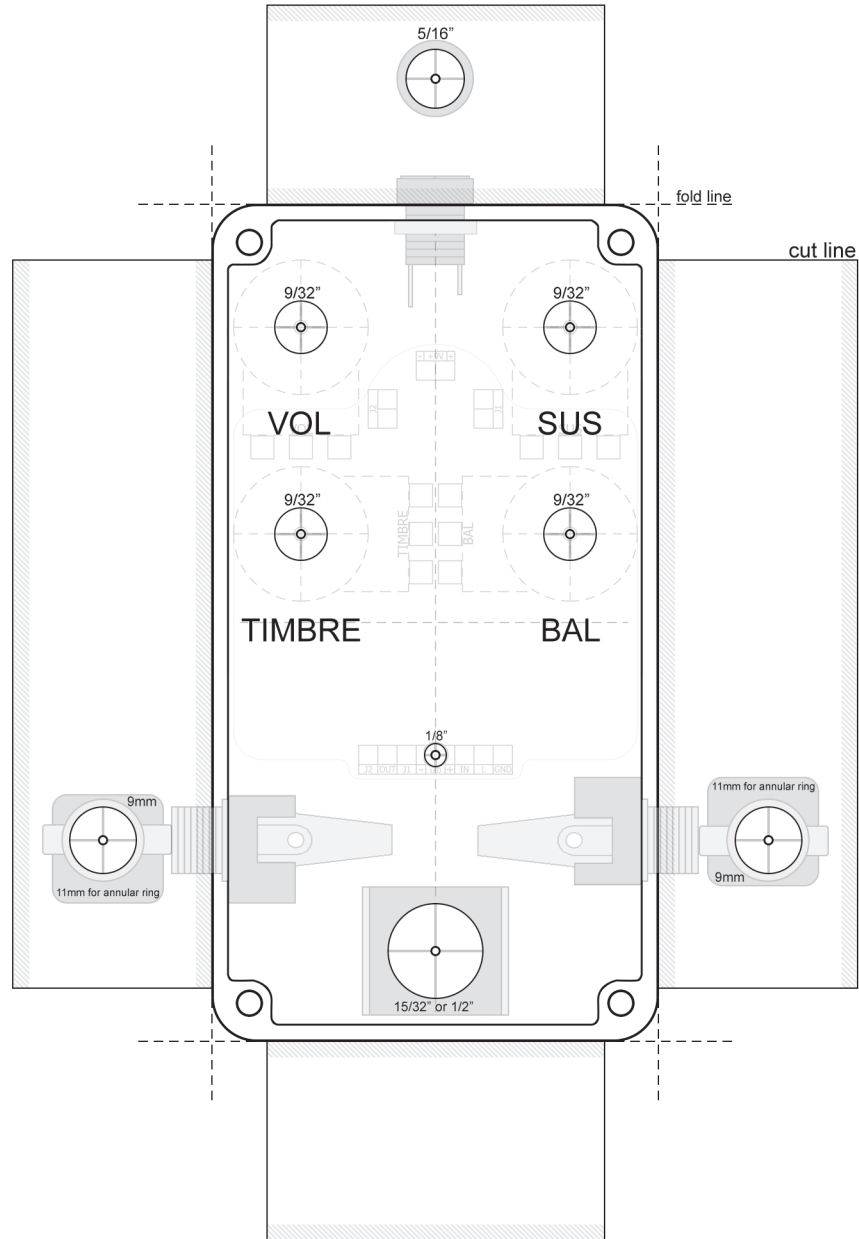

- This is a tight fit, but should work if you use the Lumberg style 1/4" jacks.
- I don't recommend using any of the mbp 3pdt boards for this enclosure.

Note: *Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.*

- Shown with Softie 2 relay bypass. If you are using one of the mbp 3pdt bypass boards, or just a 3pdt switch on its own, move the drill spot for the switch a bit lower so you can fit everything properly. Drill only one LED spot!
- Lumberg style jacks are used here but other styles may fit using the same drill locations.

Note: *Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.*
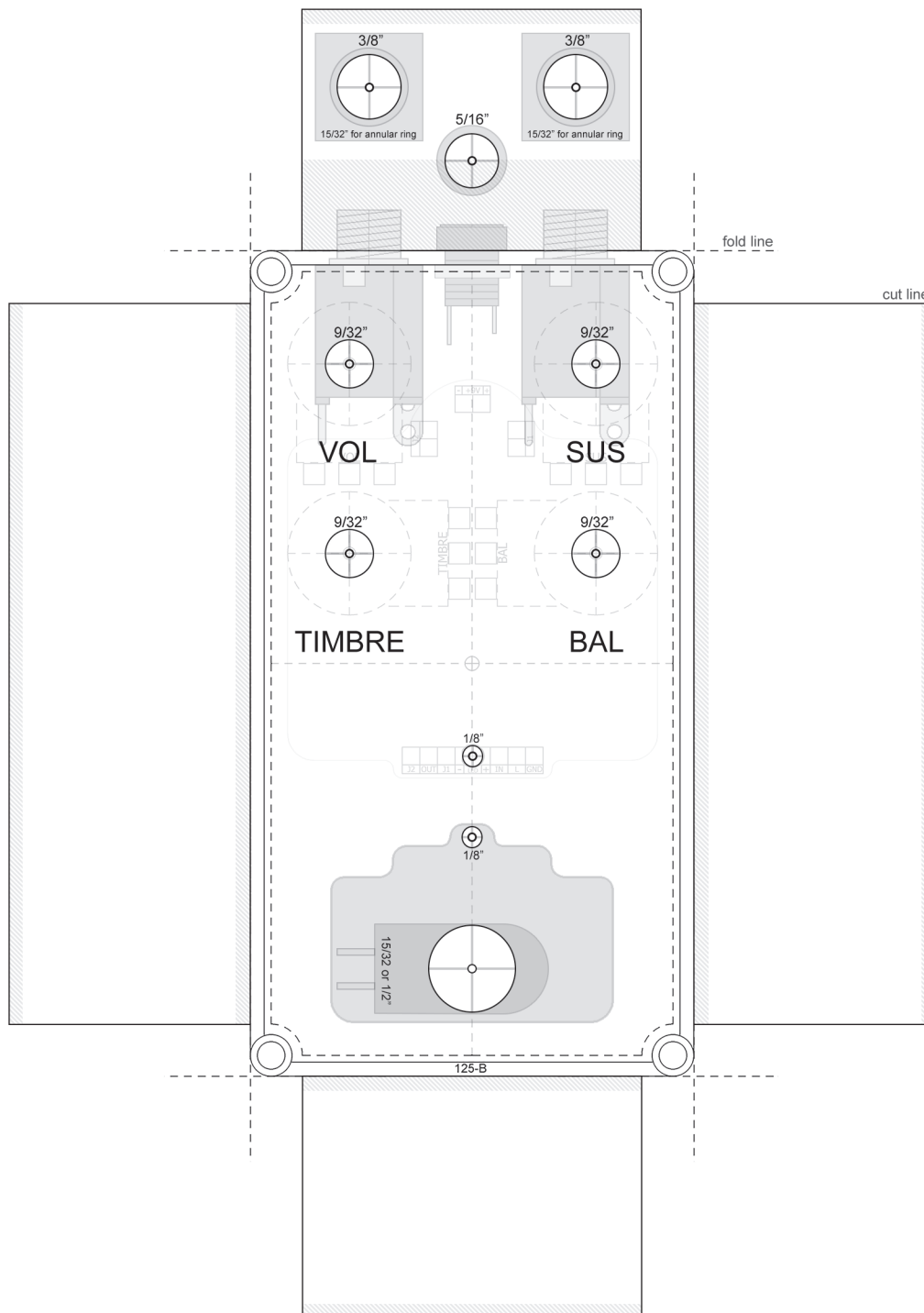
- Shown with Softie 1 relay bypass. Use the same drill spot for 3PDT switch or move to your desired location. Drill only one LED spot!
- Enclosed top jacks are used here, but you should also be able to fit open-frame metal jacks or the Lumberg style.
- You could also use side jacks but you'll need to move the Softie1 drill spot down. If you use side jacks with a regular 3pdt instead of the Softie simply pick your drill spots for the jacks.

IC1	TC1044SCPA		Q1	PNP
1	9.21		C	-2.98
2	5.45		B	-1.67
3	0		E	-1.62
4	-3.73		**Q2**	**PNP**
5	-9.15		C	-2.95
6	4.47		B	-1.62
7	5.72		E	-1.52
8	9.21		**Q3**	**PNP**
			C	-104mV
			B	-45mV
			E	0

- 9.42vDC One Spot
- Current Draw ~ 3mA
- Testing conditions: all knobs at 50%. Q3 collector measurement will change at different Sustain settings.

IC1
TC1044SCPA

C7 100n
C6 100uF
C8 10uF
C9 10uF

D3 12v
D2 5817
+9V

R10 4k7

GND

BYP.1_GND
GND

BYP.1_LED
BYP.1_L

J1
J2
BYP.1_J1
BYP.1_J2
GND
GND

R7 27k

R8 15k
C5 100n

BAL 10kB
GND

TIMBRE 100kB
BYP.1_OUT

VOL 100kB
OUT

R4 10k

C2 4u7

C4 1n

R3 470k

SUS 100kB
GND

R9 10k
GND
GND

BYP.1_IN
C1 100n
IN

PNP Q1
PNP Q2
D1 1n34a
GND
PNP Q3
GND

R1 1M
R2 100k
GND
GND

R5 10k

R6 3k3
C3 4u7

GND
GND

BUMBLEBEE
based on the Baldwin Burns Buzzaround (tm)
v.2020 (c) madbeanpedals