



BUMBLEBEE

FX TYPE: FUZZ

The Bumblebee is based on the Baldwin-Burns® Buzzaround™ with an added voltage inverter and volume knob. The Bumblebee stands apart from the Fuzz Face and Tonebender. It's not as nearly as bassy 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.

Controls

Sustain – The overall fuzz amount from least to greatest.

Balance – A variable bias control for Q3.

Timbre – A simple tone control/capacitor blend.

Vol - Output volume.

Notes

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

The NKT213 is listed for the stock version of the BumbleBee. These are the transistors used in the original Buzzaround. Unfortunately, they are very rare these days and almost impossible to find. However, you can use any matched Tonbender set of PNP transistors in place of the NKT213s. The OC75 is a very good replacement and offers an incredible fuzz tone. These are available as a matched set from smallbear.

You can use the fancy round transistor sockets or inline sockets for Q1-Q3. The two pads in the middle are connected. Note that the little tab is for the emitter.



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. At low settings little or no voltage gets through to the Q3 collector so the overall output is low (or off). When it's turned up, the output swings upward (IOW louder) as Q3 is brought into bias. 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 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.

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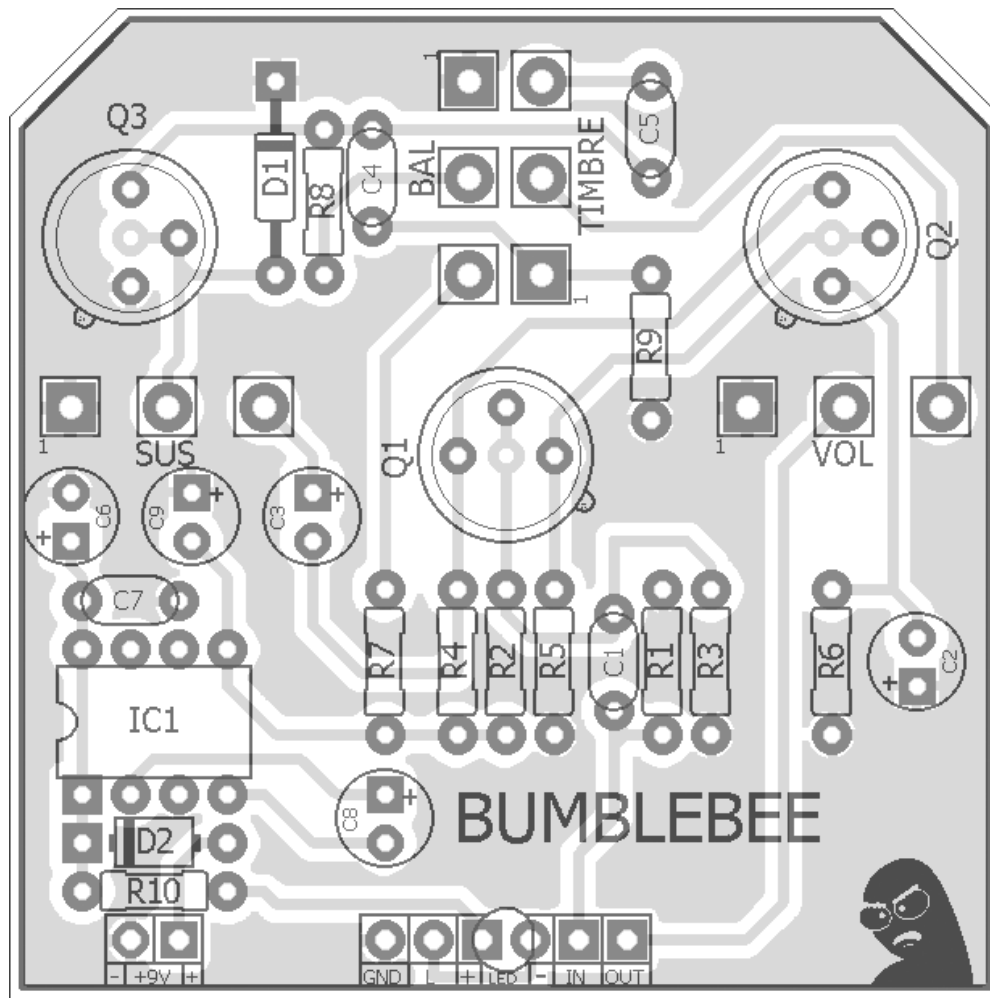
B.O.M.

Resistors		Caps		Diodes	
R1	1M	C1	100n	D1	1n34a
R2	470k	C2	4u7	D2	1N5817
R3	100k	C3	4u7	Transistors	
R4	10k	C4	1n	Q1 - Q3	PNP GE
R5	10k	C5	100n	IC	
R6	3k3	C6	47uF	IC1	TC1044SCPA
R7	27k	C7	100n	Pots	
R8	15k	C8	10uF	BAL	5kB
R9	10k	C9	10uF	SUS	100kB
R10	4k7			TIMBRE	100kB
				VOL	100kB

Shopping List

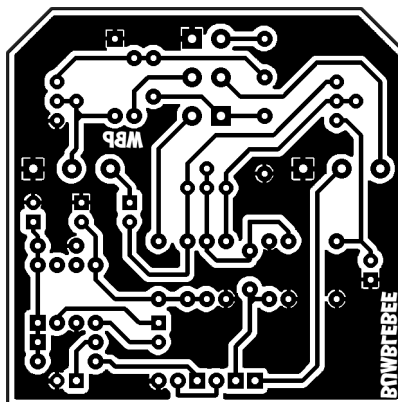
Value	QTY	Type	Rating
3k3	1	Carbon / Metal Film	1/4W
4k7	1	Carbon / Metal Film	1/4W
10k	3	Carbon / Metal Film	1/4W
15k	1	Carbon / Metal Film	1/4W
27k	1	Carbon / Metal Film	1/4W
100k	1	Carbon / Metal Film	1/4W
470k	1	Carbon / Metal Film	1/4W
1M	1	Carbon / Metal Film	1/4W
1n	1	Film	16v min.
100n	3	Film	16v min.
10uF	2	Film	16v min.
4u7	2	Electrolytic	16v min.
47uF	1	Electrolytic	16v min.
1n34a	1	or, similar GE diode	
1N5817	1		
PNP GE	3	*your choice	
TC1044 SCPA	1	or, MAX1044 CPA	
5kB	1	PCB Right Angle	16mm
100kB	3	PCB Right Angle	16mm

Layout

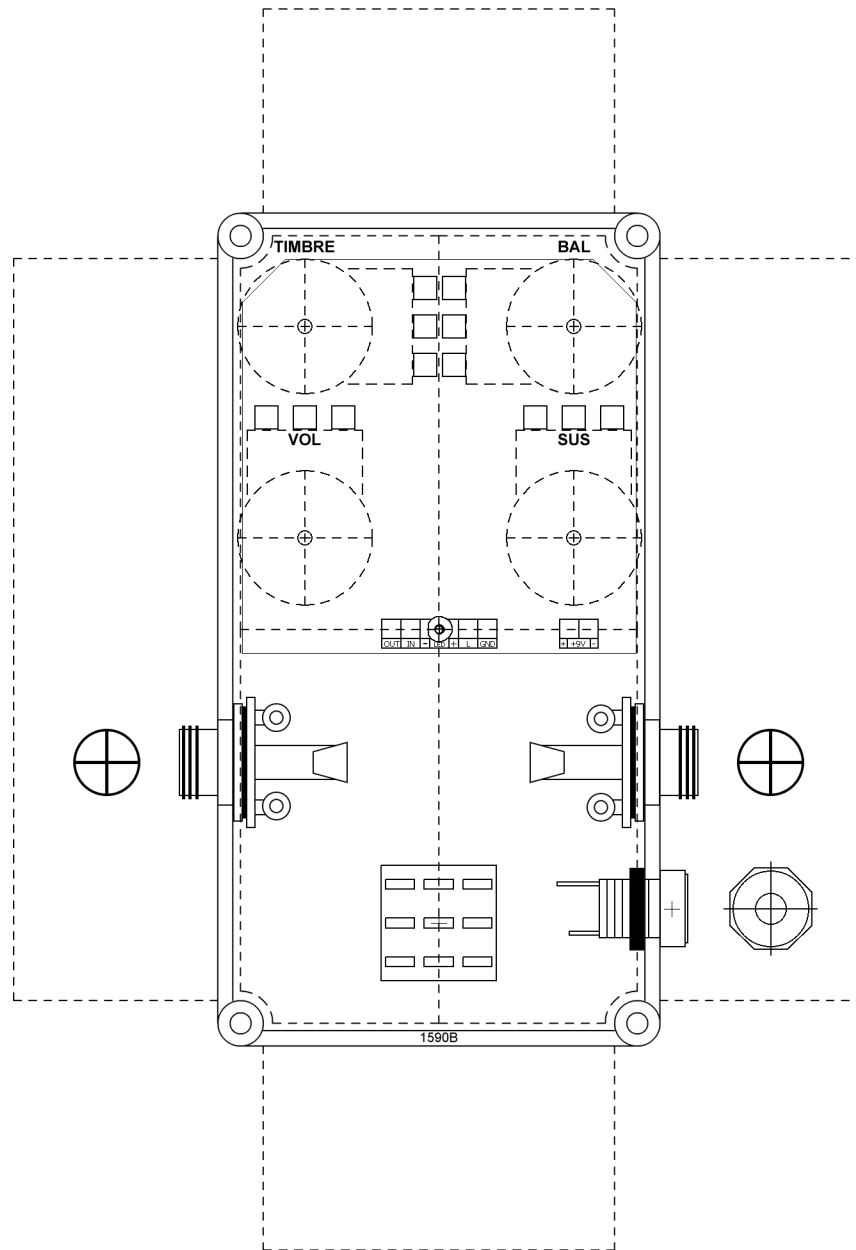


Traces

2.08" W x 2.08" H



1590B Drill Guide



Schematic

