

KRAKEN2020

FX TYPE: Filter

Based on the Musitronics® Mutron Micro V™

Enclosure Size: 1590B, 1590B2, 125B

"Softie" compatibility: Softie1&2

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Overview

The Kraken is a modified Mutron Micro V™ envelope filter. The Mutron Micro V™ is the “little brother” of the more fully featured Mutron III™ having only a Range pot and a Hi/Low switch for the filtering. The Kraken expands the controls to include Attack and Decay for the envelope.

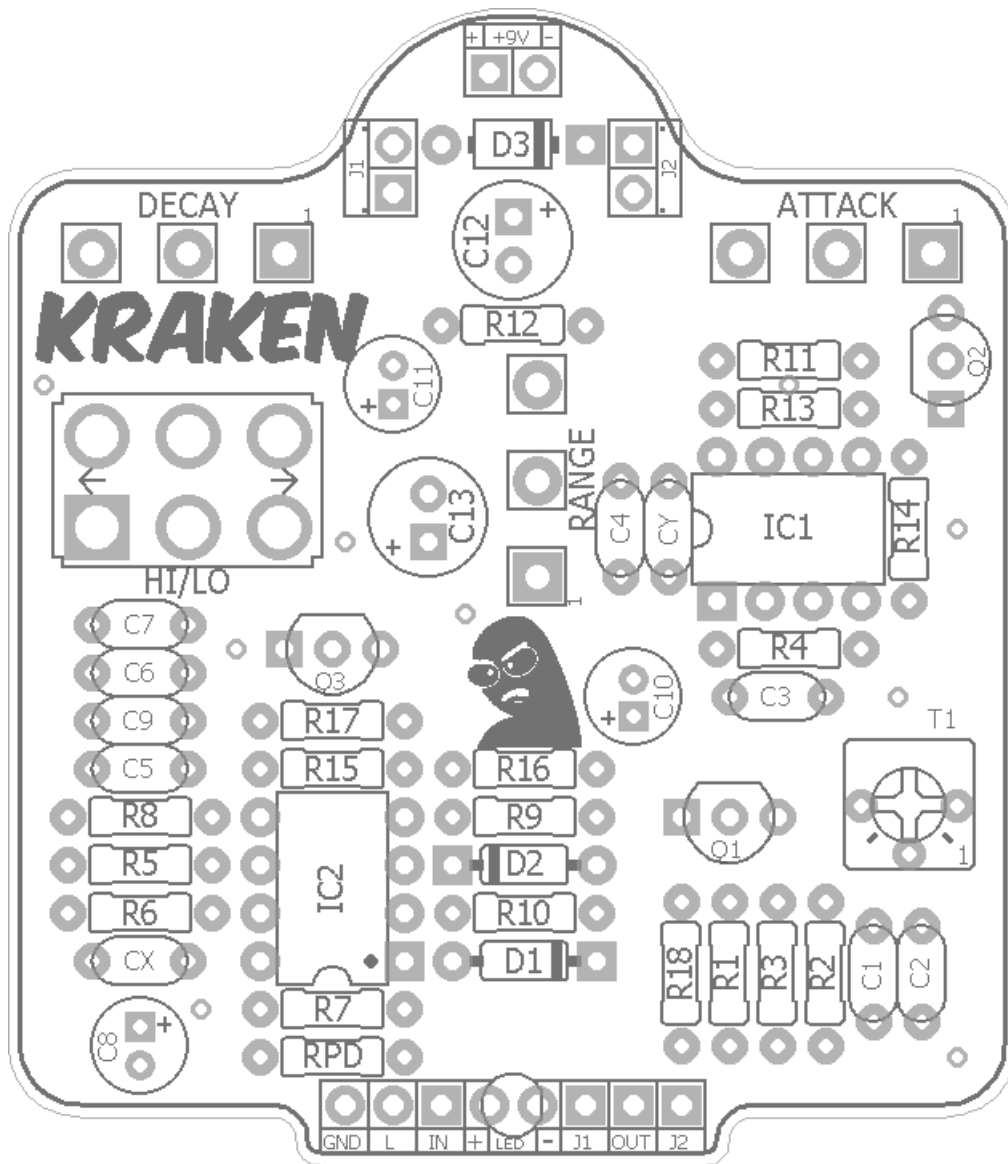
New for 2020: Updated layout to current style which allows for different enclosure builds. Added impedance mod.

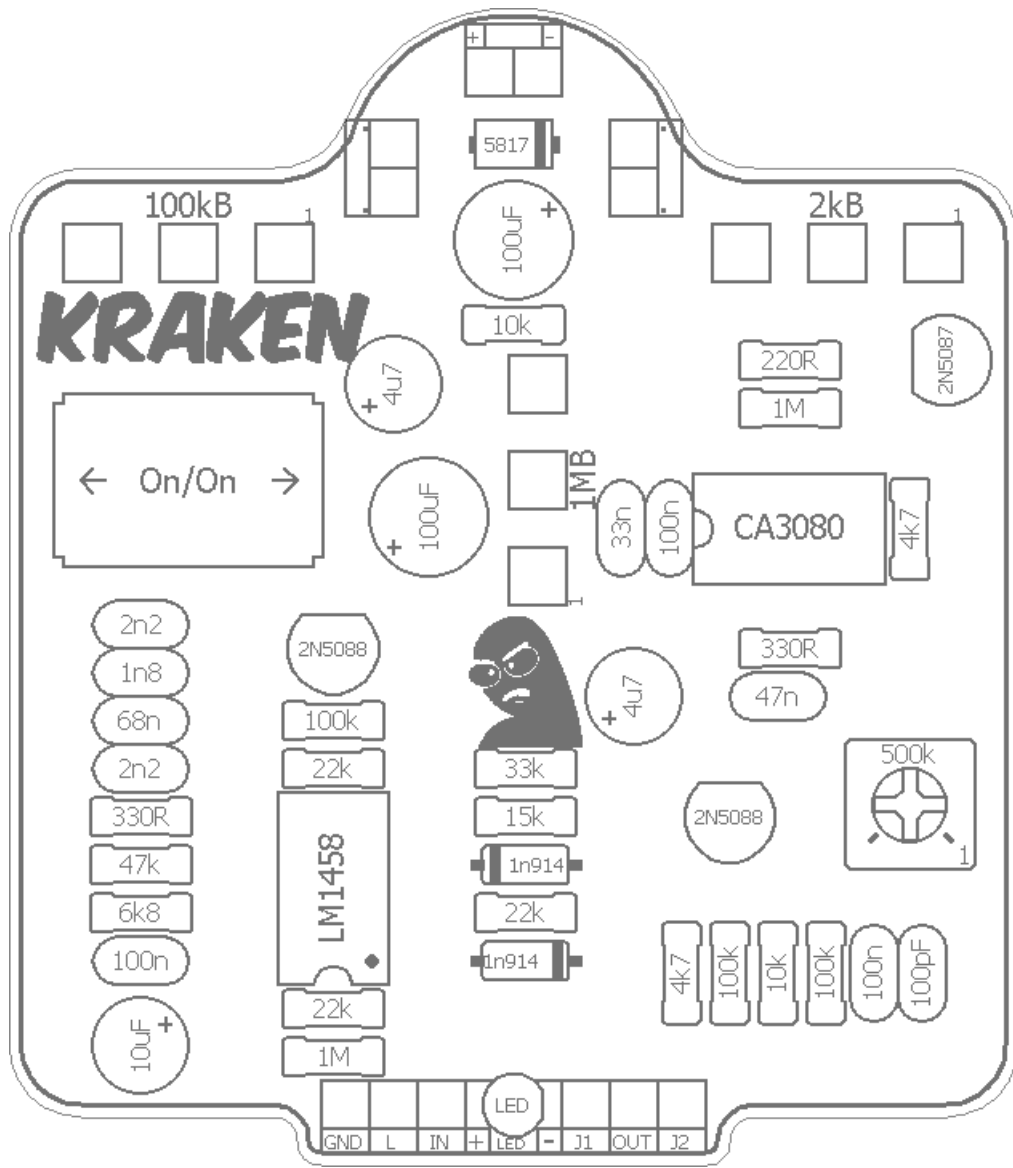
Controls

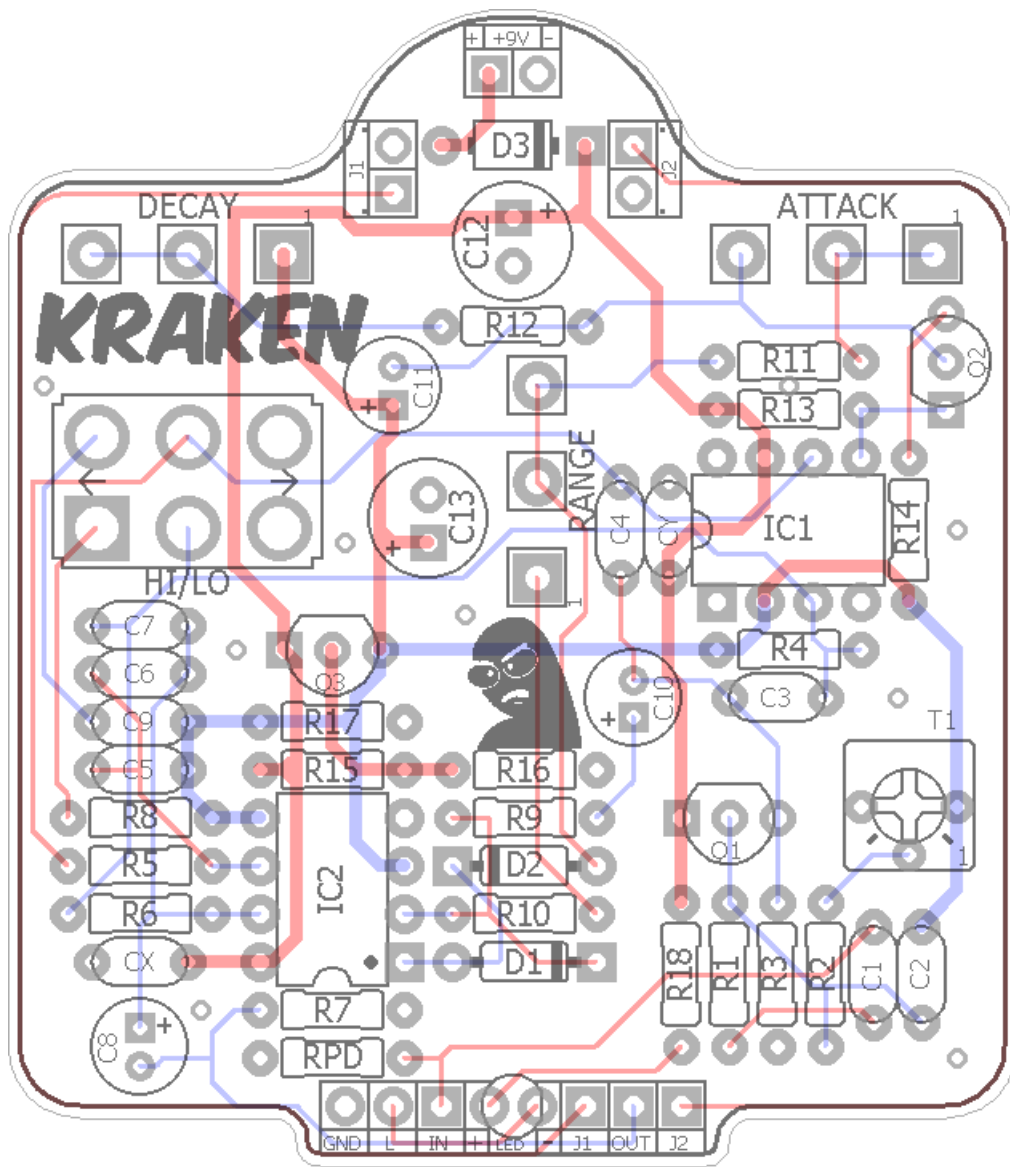
- **Range:** This controls the intensity of the envelope dynamics generated by your pick attack. Higher settings yield greater sensitivity, which in turn drives the intensity of the swept filter.
- **Attack:** This control lets you dial in finer adjustments to the attack of the envelope. It is interactive with the Range pot.
- **Decay:** This control determines how long it takes for the envelope to sweep the filter. Higher settings yield longer decay times.
- **LO/HI:** This switch controls the range of the filter that is swept. Hi is thin and resonant. Lo is full and dark.
- **T1:** This trimmer adjust the input impedance of the effect. CCW is stock. As you turn T1 CW it will increase the input impedance of Q1 which produces a more aggressive pick attack. About halfway up is where I like this trimmer.

Terms of Use: You are free to use purchased **Kraken2020** circuit boards for both DIY and small commercial operations. You may not offer **Kraken2020** PCBs for resale or as part of a “kit” in a commercial fashion. Peer to peer re-sale is fine, though.

Technical assistance for your build(s) is available via the [madbeanpedals forum](#). Please go there rather than emailing me for assistance on [builds](#). This is because (1) I'm not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.







Resistors		Caps		Diodes	
R1	100k	C1	100n	D1	1n914
R2	100k	C2	100pF	D2	1n914
R3	10k	C3	47n	D3	1N5817
R4	330R	C4	33n	Transistors	
R5	47k	C5	2n2	Q1	2N5088
R6	6k8	C6	1n8	Q2	2N5087
R7	22k	C7	2n2	Q3	2N5088
R8	330R	C8	10uF	ICs	
R9	15k	C9	68n	IC1	CA3080
R10	22k	C10	4u7	IC2	LM1458
R11	220R	C11	4u7	Switch	
R12	10k	C12	100uF	HI/LO	DPDT
R13	1M	C13	100uF	Trimmer	
R14	4k7	CX	100n	T1	500k
R15	22k	CY	100n	Pots	
R16	33k			ATTACK	2kB
R17	100k			DECAY	100kB
R18	4k7			RANGE	1MB
RPD	1M				

Values	QTY	Type	Rating
220R	1	Metal / Carbon Film	1/4W
330R	2	Metal / Carbon Film	1/4W
4k7	2	Metal / Carbon Film	1/4W
6k8	1	Metal / Carbon Film	1/4W
10k	2	Metal / Carbon Film	1/4W
15k	1	Metal / Carbon Film	1/4W
22k	3	Metal / Carbon Film	1/4W
33k	1	Metal / Carbon Film	1/4W
47k	1	Metal / Carbon Film	1/4W
100k	3	Metal / Carbon Film	1/4W
1M	2	Metal / Carbon Film	1/4W
100pF	1	Ceramic / MLCC	16v min.
1n8	1	Film	16v min.
2n2	2	Film	16v min.
33n	1	Film	16v min.
47n	1	Film	16v min.
68n	1	Film	16v min.
100n	3	Film	16v min.
4u7	2	Electrolytic	16v min.
10uF	1	Electrolytic	16v min.
100uF	2	Electrolytic	16v min.
1n914	2		
1N5817	1		
2N5088	2		
2N5087	1		
CA3080	1		
LM1458	1		
DPDT	1	On/On, Solder Lug	
500k	1	Bourns 3362p	
2kB	1	PCB Right Angle	16mm
100kB	1	PCB Right Angle	16mm
1MB	1	PCB Right Angle	16mm

CA3080:

<http://smallbear-electronics.mybigcommerce.com/ic-ca3080ae/>

LM1458:

<http://smallbear-electronics.mybigcommerce.com/ic-mc1458p-ti/>

<https://www.mouser.com/ProductDetail/595-MC1458P>

DPDT:

<http://smallbear-electronics.mybigcommerce.com/dpdt-short-lever-on-on/>

Bourns 3362p (500k):

<https://www.mouser.com/ProductDetail/652-3362P-1-254LF>

16mm Right Angle Pots (2kB, 100kB, IMB):

<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/>

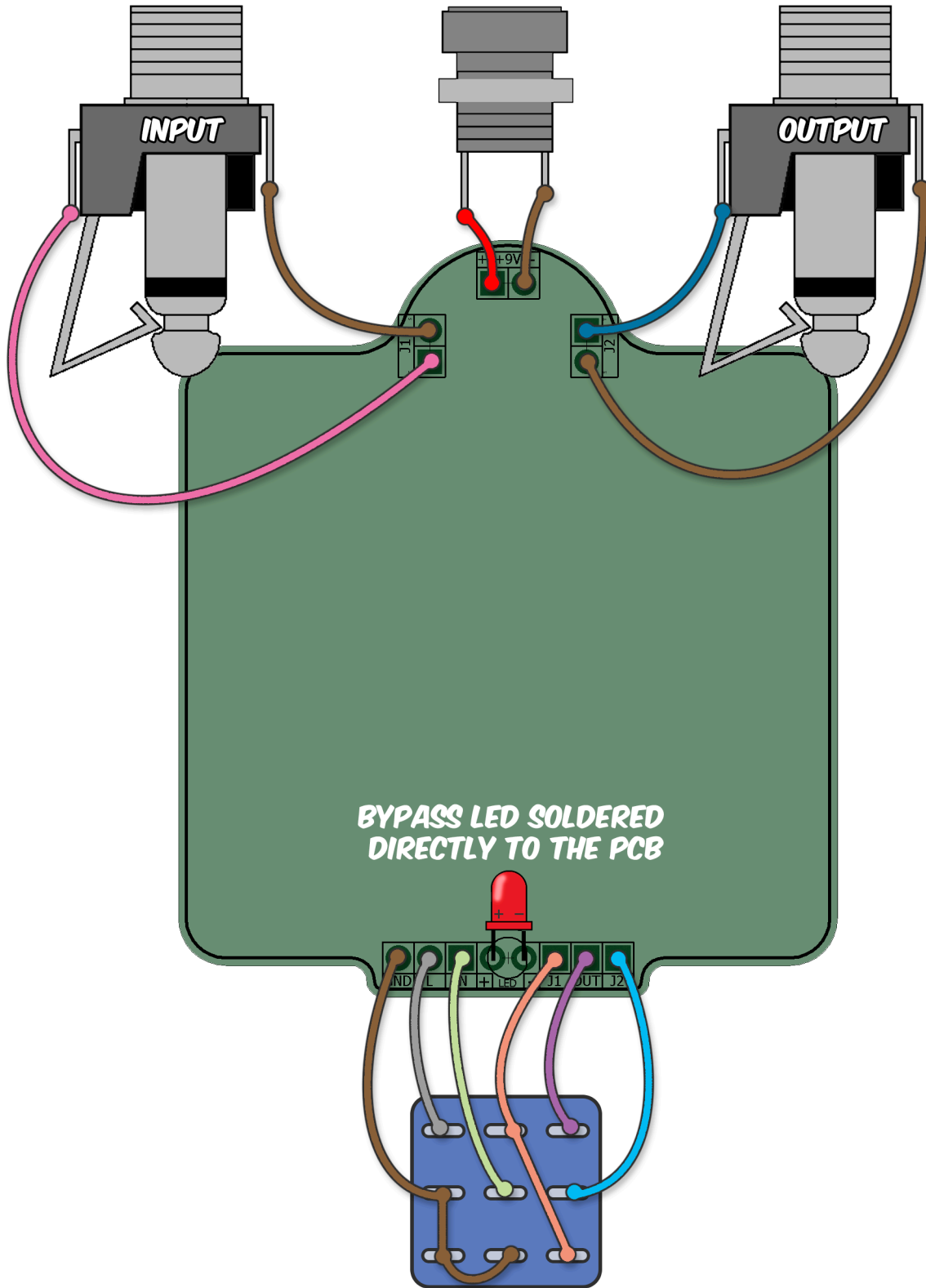
<http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-switchcraft-111x/>

Lumberg Mono:

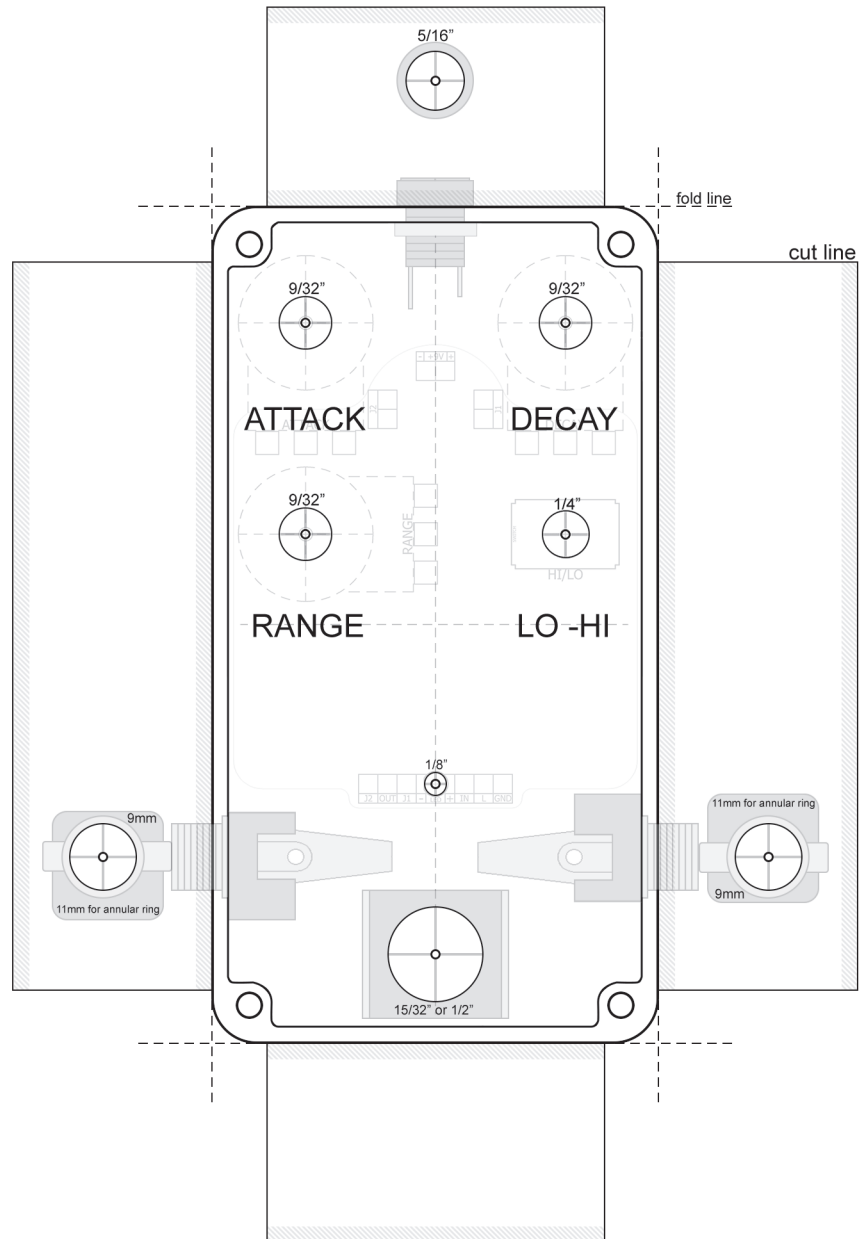
<http://smallbear-electronics.mybigcommerce.com/lumberg-1-4-compact-shrouded-mono-jack/>

Mods

- Try a pair of diodes with lower forward voltage for D1 and D2. This may improve sensitivity to picking dynamics. You can use 1n34a, BAT41 or BAT46.
- Try a higher value pot for the Decay control for even longer decay times. Suggestions are 250kB or 500kB. Caveat: 100kB seems to produce the most useful range IMO.

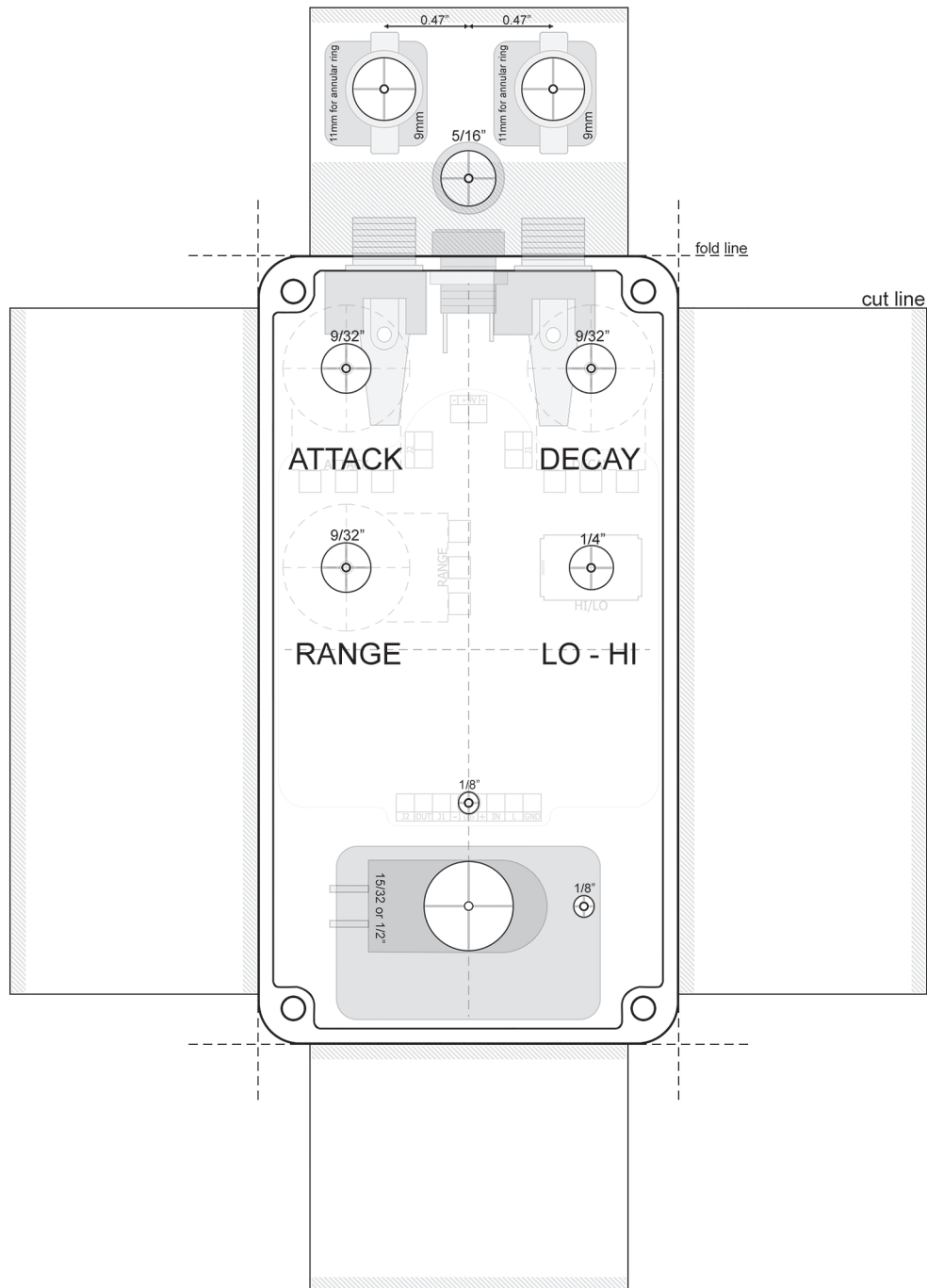


Note: Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.



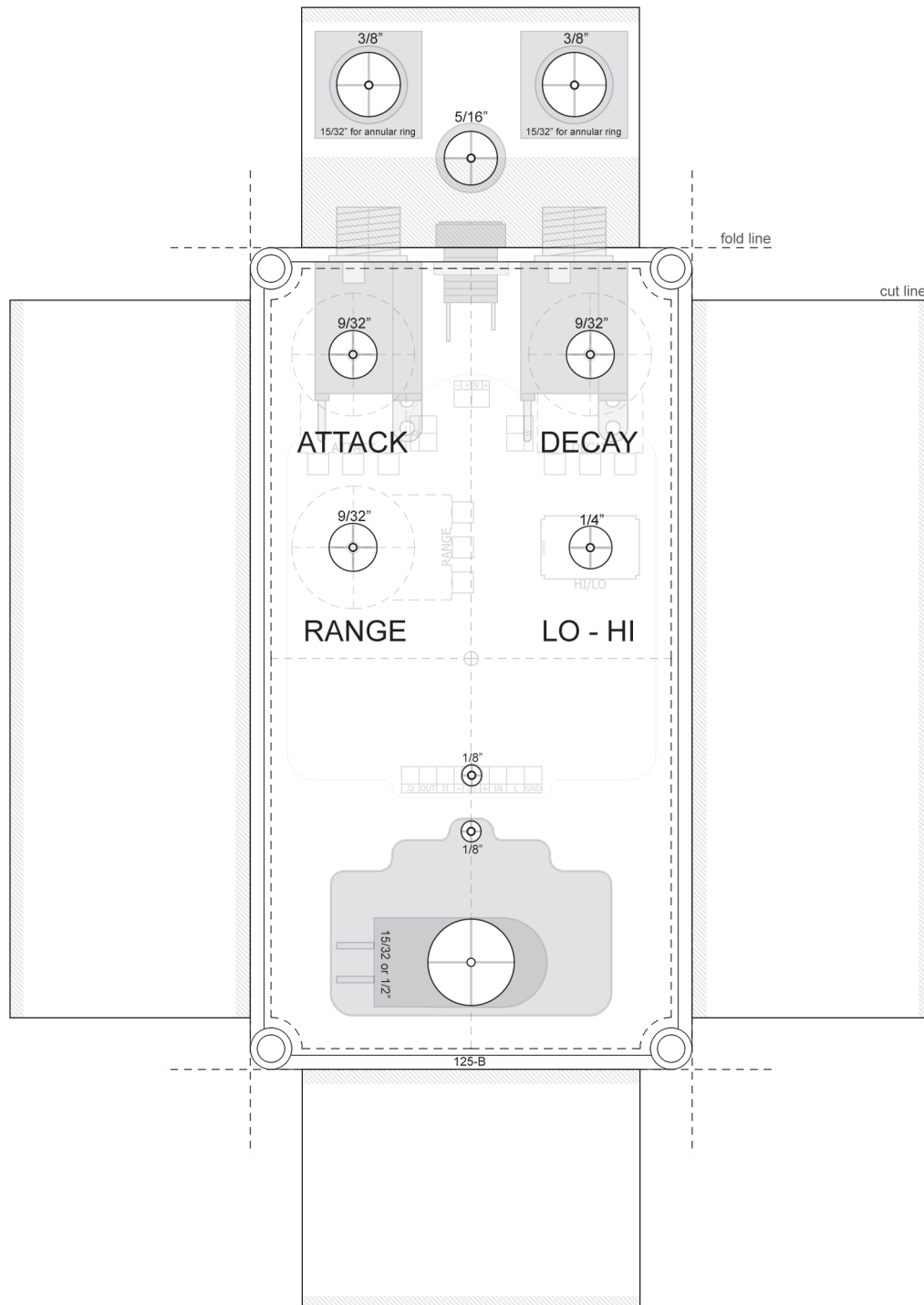
- This is a tight fit, but should work if you use the Lumberg or open frame style 1/4" jacks.
- I don't recommend using any of the mbp 3pdt boards for this enclosure.

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 CA3080		IC2 LM1458		Q1 2N5088	
1	~	1	4.97	C	9.14
2	4.9	2	4.92	B	4.22
3	4.96	3	4.94	E	3.85
4	0	4	0	Q2 2N5087	
5	0.6	5	4.95	C	0.6
6	4.97	6	4.96	B	4.9
7	9.14	7	4.91	E	4.96
8	~	8	9.15	Q3 2N5088	
				C	9.14
				B	5.47
				E	4.96

- 9.42vDC One Spot
- Current Draw ~ 7mA

