CUPCAKE2020

FX TYPE: Compressor

Based on the Dan Armstrong Orange Squeezer

Enclosure Size: 1590A

"Softie" compatibility: none

© 2020 madbeanpedals

Overview

The Cupcake is a clone of the Dan Armstrong "Orange Squeezer". It is a classic and easy-to-build compressor project suitable for all levels of DIYers. The Cupcake offers a ton of compression, an easily identifiable character, and is very inexpensive to build.

Controls

- **VOL -** Total Output.
- **SUS** - This trimmer sets the bias of the JFET-based compressor circuit.
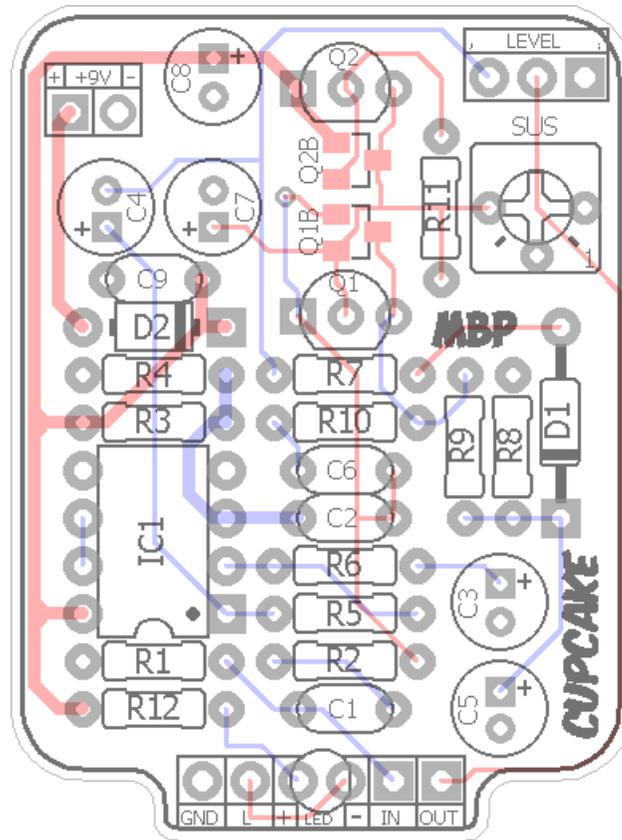

Technical assistance for your build(s) is available via the madbeanpedals forum. Please go there rather than emailing me for assistance on builds. This is because (1) I'm not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.
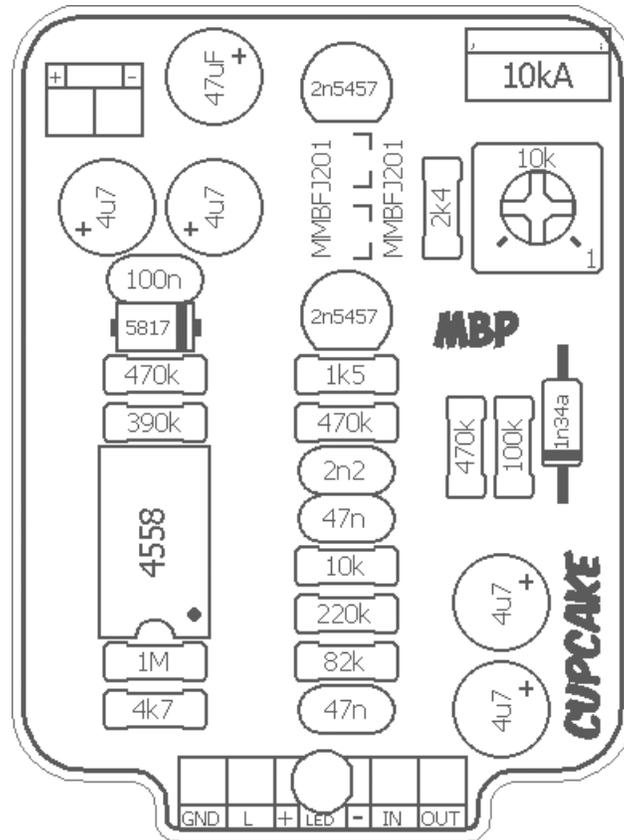
Resistors		Caps		Diodes	
R1	1M	C1	47n	D1	1n34a
R2	82k	C2	47n	D2	IN5817
R3	390k	C3	4u7	**Transistors**	
R4	470k	C4	4u7	Q1, Q2	2n5457
R5	220k	C5	4u7	**IC**	
R6	10k	C6	2n2	IC1	4558
R7	1k5	C7	4u7	**Trimmer**	
R8	100k	C8	47uF	SUS	10k
R9	470k	C9	100n	**Pot**	
R10	470k			LEVEL	10kA
R11	2k4				
R12	4k7				

Value	QTY	Type	Rating
1k5	1	Metal / Carbon Film	1/4W
2k4	1	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
10k	1	Metal / Carbon Film	1/4W
82k	1	Metal / Carbon Film	1/4W
100k	1	Metal / Carbon Film	1/4W
220k	1	Metal / Carbon Film	1/4W
390k	1	Metal / Carbon Film	1/4W
470k	3	Metal / Carbon Film	1/4W
1M	1	Metal / Carbon Film	1/4W
2n2	1	Film	16v min.
47n	2	Film	16v min.
100n	1	Film	16v min.
4u7	4	Low Profile Electrolytic	16v min.
47uF	1	Low Profile Electrolytic	16v min.
1n34a	1	or, BAT46	
IN5817	1		
2n5457	2	or, MMBFJ201 (SMD)	
4558	1		
10k	1	Bourns 3362p	
10kA	1	Solder Terminal	9, 12, 16mm

2n5457:
http://smallbear-electronics.mybigcommerce.com/transistor-fet-2n5457/

or, MMBFJ201:
http://smallbear-electronics.mybigcommerce.com/fairchild-on-semi-jfet-mmbfj201/
https://www.mouser.com/ProductDetail/512-MMBFJ201

1n34a:
http://www.smallbear-electronics.mybigcommerce.com/diode-nos-germanium/

You can also use BAT46 in place of 1n34a:
http://smallbear-electronics.mybigcommerce.com/diode-schottky-bat46/

Bourns 3362p (10k):
https://www.mouser.com/ProductDetail/652-3362P-1-103LF

Low profile Electrolytic caps:
http://smallbear-electronics.mybigcommerce.com/electrolytic-radial-low-profile-16v-1-f-100-f/

9mm PC Mount pots:
http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-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 Cupcake2020 has been updated to conform to the newer style of 1590A layouts I've done in the past year. There are no circuit changes except for the inclusion of SMD alternatives to the JFET devices.

Q1B is the surface mount alternative for Q1, and similarly Q2B is the sub for Q2. You should only populate one of each - either the through-hole OR the surface mount. The 2N5457 and J201 seem to produce the same results so it's really a matter of what parts you have available (since through-hole JFETs are getting expensive).

<h3 style="color:red; text-align:center">How to bias the effect</h3>

Using your multimeter, set the SUS trim pot so that the gate of Q1 (or Q1B) reads approximately 1.5v. This is shown by the green highlighted area.
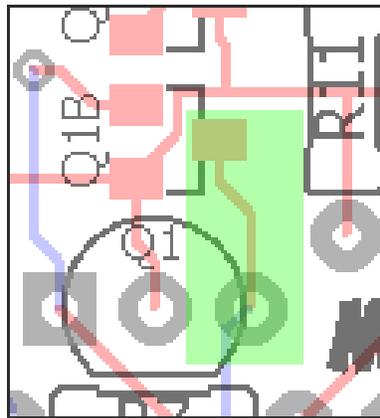
Optional: I was able to goose the total compression a little further by setting it closer to 1.2. YMMV.
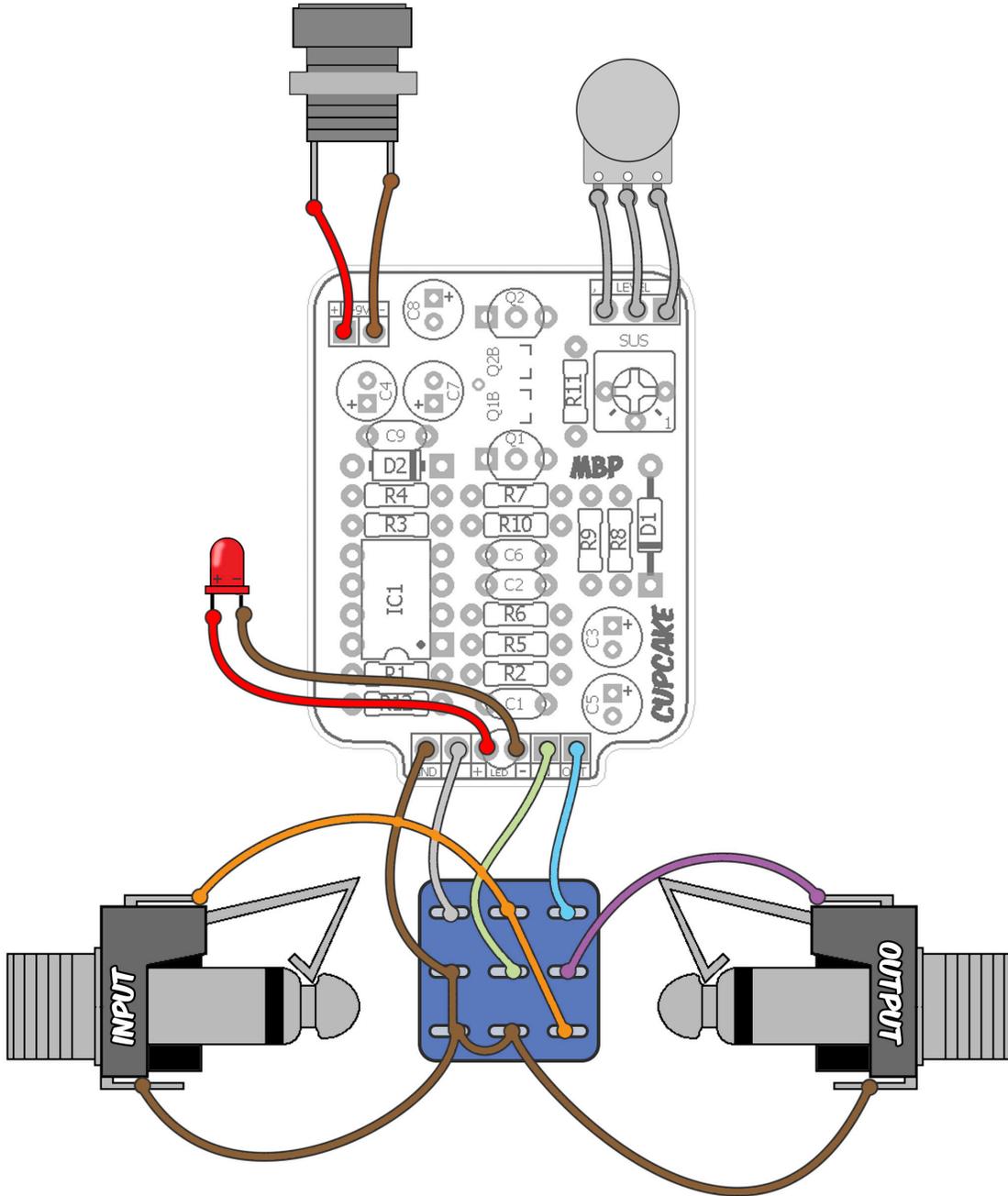
Note: *Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.*
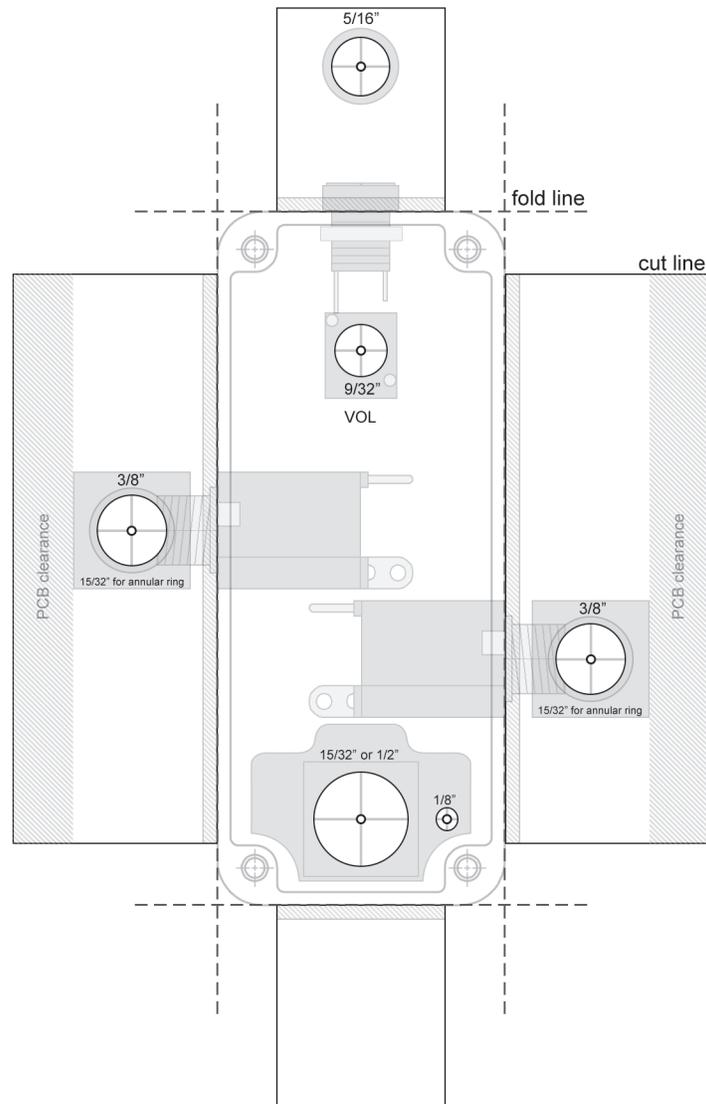
- This template will work for either mono enclosed jacks or the "Lumberg" style.
- It uses the "Thinline" style DC Jack.
- It also shows the 3PDT02 bypass PCB but this is not required. If you are wiring straight to a 3PDT you can use the same LED location on the right side or choose a different spot.

IC1	4558
1	5.04
2	5.04
3	4.92
4	0
5	0
6	9.16
7	9.16
8	9.18

Q1	2n5457
D	2.12
S	2.14
G	1.32

Q2	2n5457
D	9.2
S	2.92
G	2.14

- 9.42vDC One Spot
- Current Draw: ~ 1mA

CUCPAKE

Based on the Orange Squeezer
(c) 2020 madbeanpedals

+9V
CENTER TIP NEGATIVE
D2 1N5817
GND

R12 4k7
BYP.1_LED
BYP.1_L

C8 47uF
C9 100n
IC1_PWR
GND
BYP.1_GND

VC

4558 IC1_B

GND

BYP.1_IN
IN
C1 47n
R2 82k
C2 47n
R1 1M
GND

R3 390k
VC

4558 IC1_A
R4 470k
GND
R5 220k
R6 10k
C3 4u7
GND

C4 4u7
10KA LEVEL
BYP.1_OUT
OUT
GND

C6 2n2
R10 470k

Q1 2n5457
R9 470k

R7 1K5
D1 1n34a
C5 4u7
R8 100k
GND
GND

VC
Q2 2n5457
R11 2k4
C7 4u7
GND

SUS 10k
GND

MADBEANPEDALS