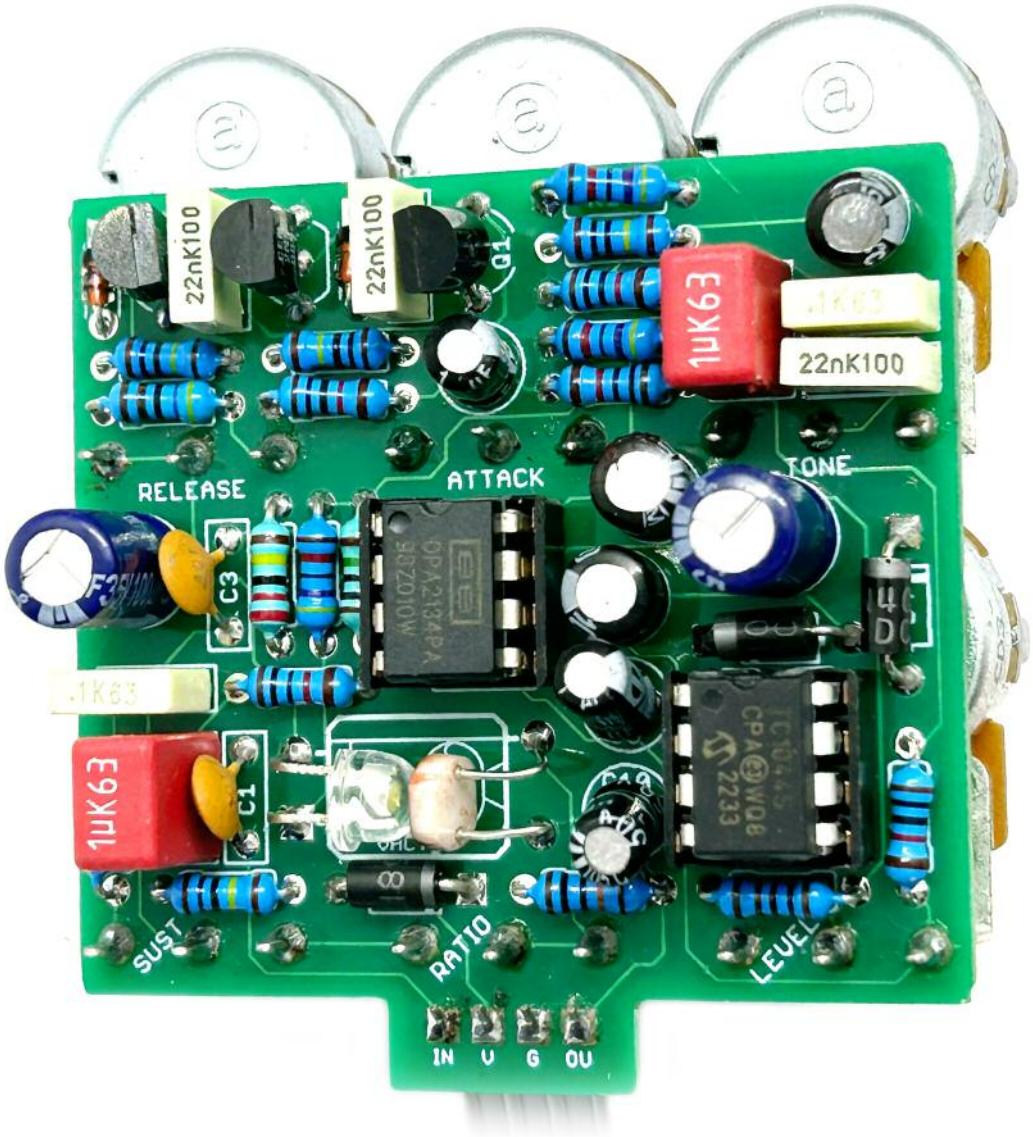
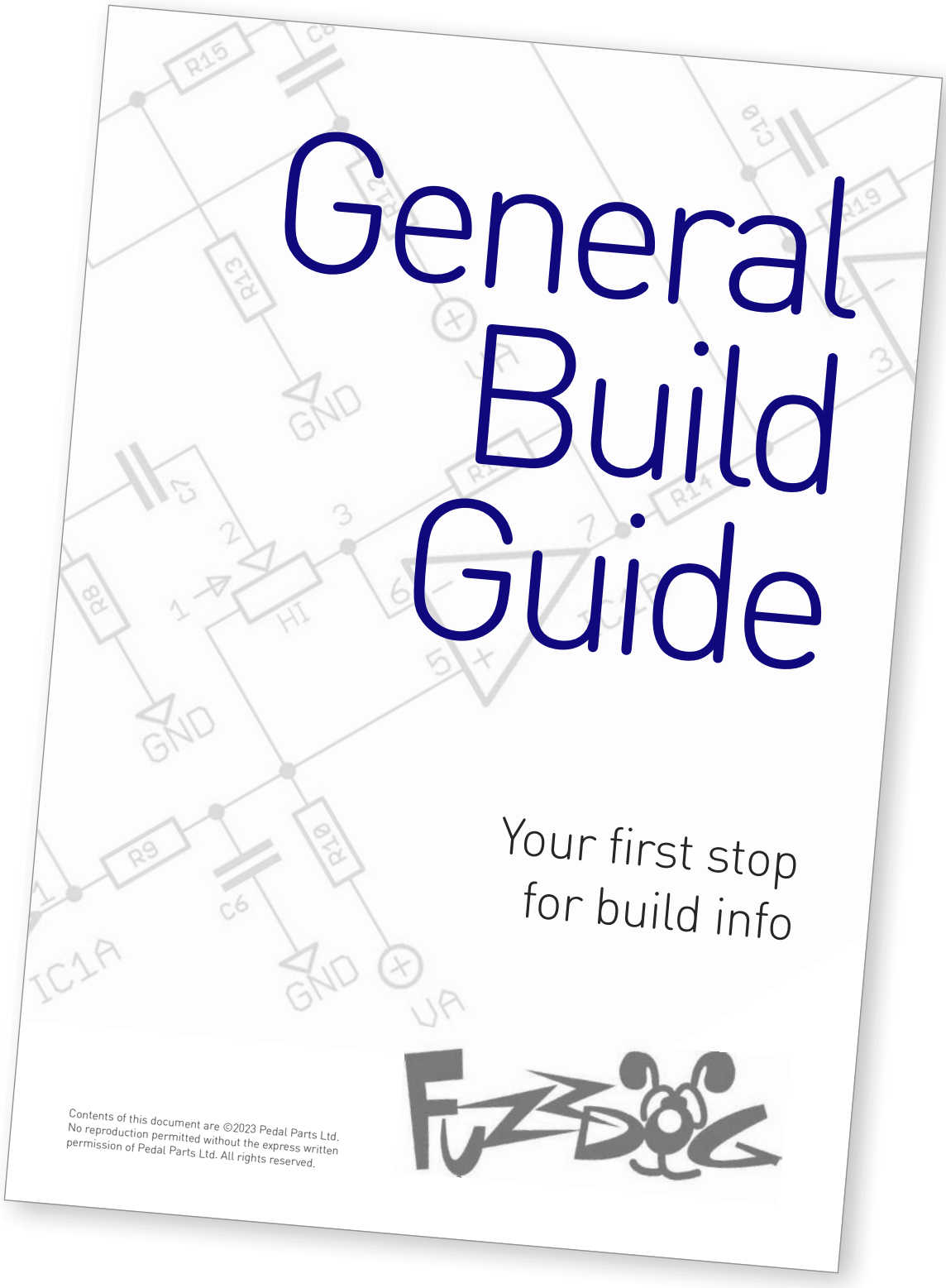



# Watchman

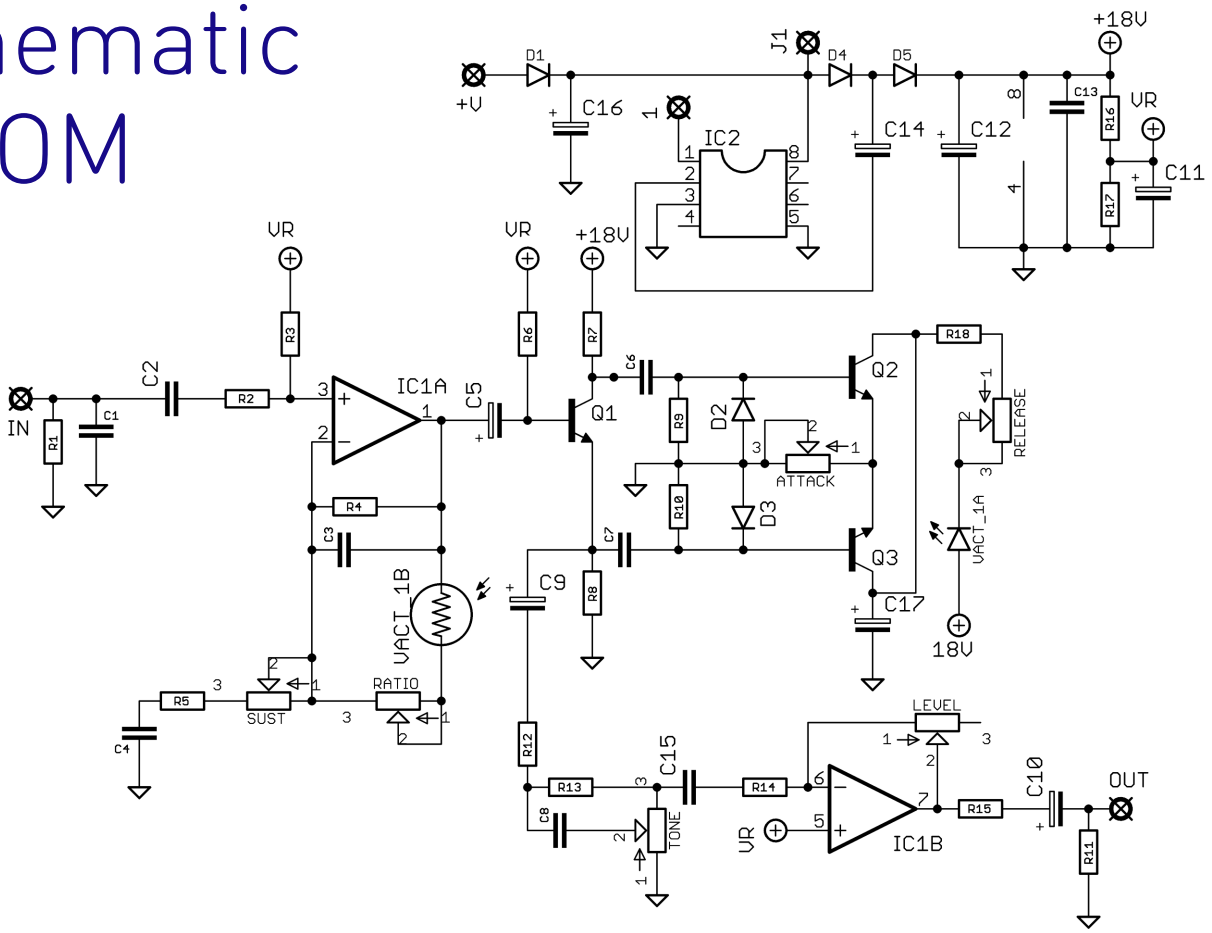
## Highly tweakable optical compressor

Before you dig in, ensure you download and read the **General Build Guide**.

It contains all the information you need for a successful outcome.

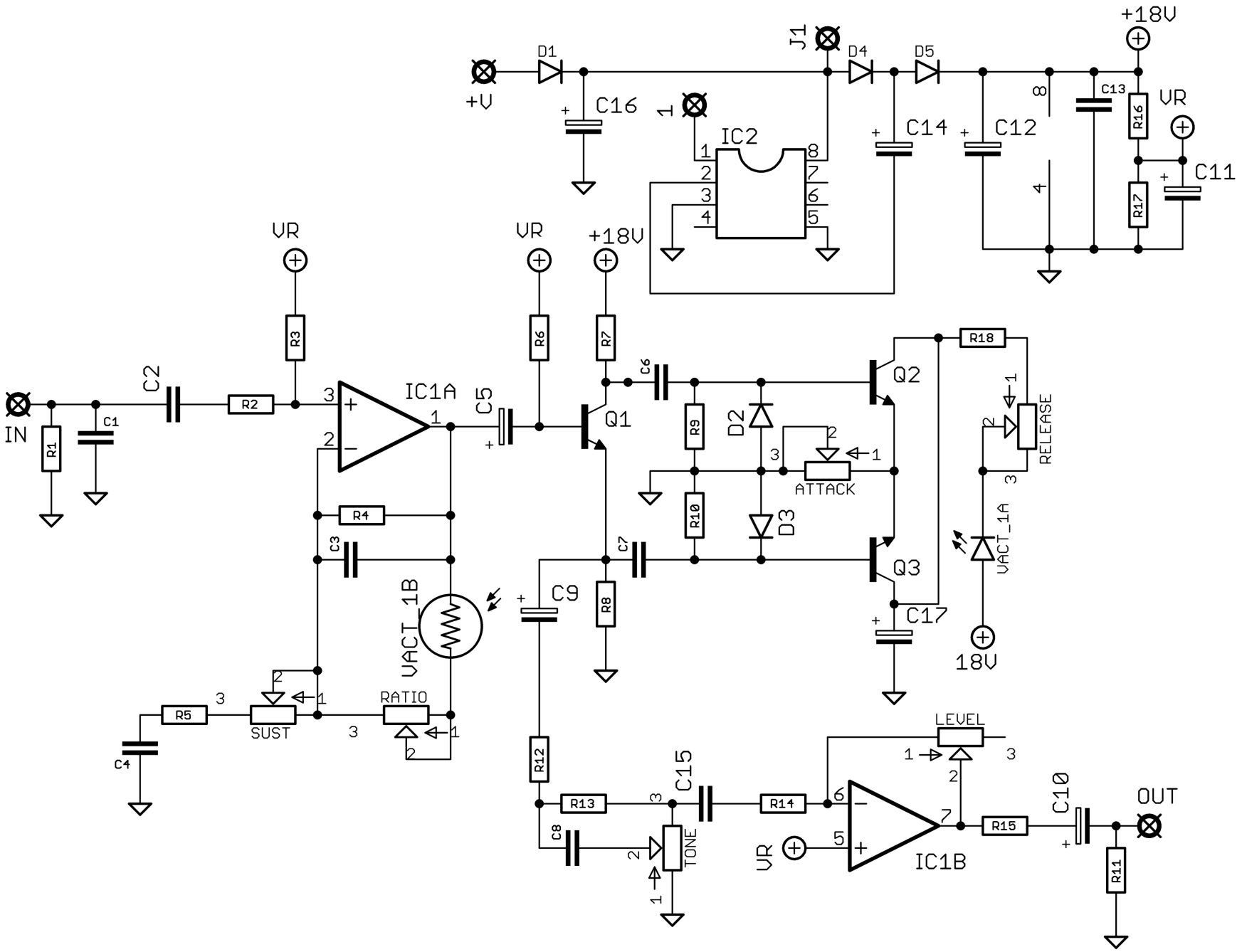


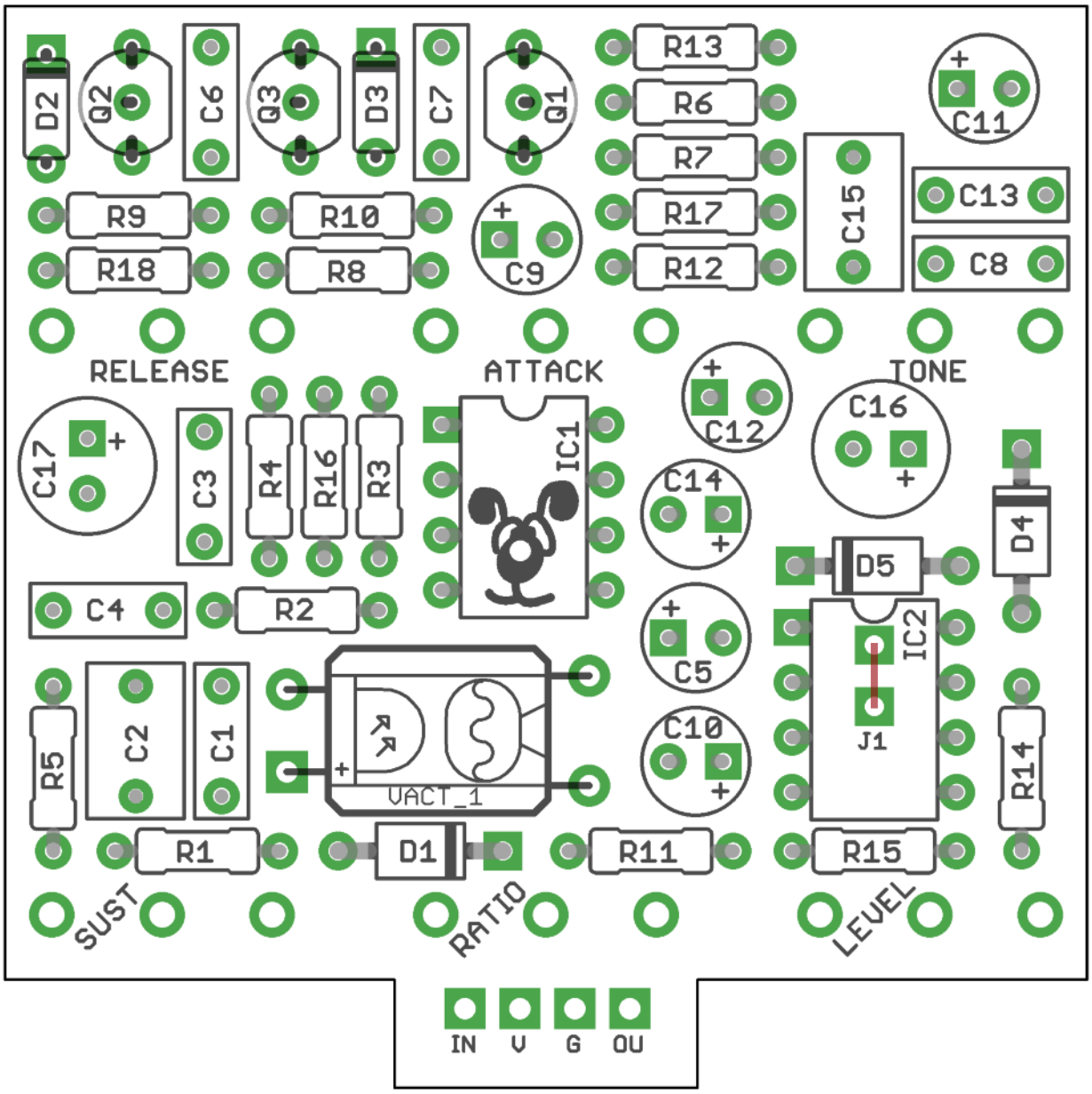
# Schematic + BOM




| | | | | | |
|---|---|---|---|---|---|
| R1 | 1M | C1 | 100p | D1 | 1N5817 |
| R2 | 10K | C2 | 1u | D2-3 | 1N4148 |
| R3 | 10M | C3 | 100p | D4-5 | 1N4001 |
| R4 | 2M2 | C4 | 100n | | |
| R5 | 22K | C5 | 1u | Q1 | MPSA18 |
| R6 | 1M | C6 | 22n | Q2-3 | 2N5089 |
| R7 | 10K | C7 | 22n | IC1 | OPA2134 |
| R8 | 10K | C8 | 22n | IC2 | TC7660SEPA* |
| R9 | 1M | C9 | 1u | | |
| R10 | 1M | C10 | 1u | ATTACK | 10KB |
| R11 | 100K | C11 | 10u elec | LEVEL | 50KB |
| R12 | 10K | C12 | 10u elec | RATIO | 100KB |
| R13 | 47K | C13 | 100n | RELEASE | 50KB |
| R14 | 10K | C14 | 10u elec | SUSTAIN | C1M |
| R15 | 1K | C15 | 1u | TONE | 100KB |
| R16 | 47K | C16 | 100u elec | | |
| R17 | 47K | C17 | 47u elec | VACT | NSL-32** |
| R18 | 4K7 | | | | |

*Others can be used. See page 5. **See notes on page 6.


+18V
J1
D1
D4
D5
+V
C16
C14
C12
C13
R16
VR
C11
R17
IC2
1
2
3
4
8
7
6
5
VR
VR
+18V
R3
R6
R7
C2
R2
IC1A
C5
C6
Q2
R18
IN
R1
C1
Q1
R9
D2
RELEASE
ATTACK
R10
D3
R4
C3
VACT_1A
Q3
C7
C9
R8
C17
18V
VACT_1B
RATIO
R5
SUST
C4
R12
LEVEL
R13
C15
R14
C10
OUT
C8
TONE
VR
IC1B
R15
R11






Snap the small metal tag off the pots so they can be mounted flush in the box.

You should solder all other board-mounted components before you solder the pots.

Once they're in place you'll have no access to much of the board.


## CHARGE PUMP

You can use TC7660SEPA, MAX1044S, or LT1054.

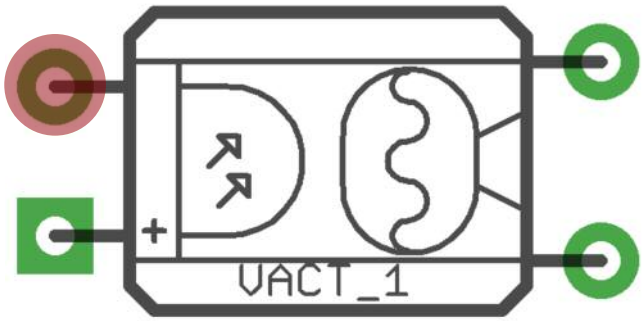
The first two require a jumper across the J1 pads beneath IC2, as shown in red above.

No jumper if using LT1054.

# The magic parts...

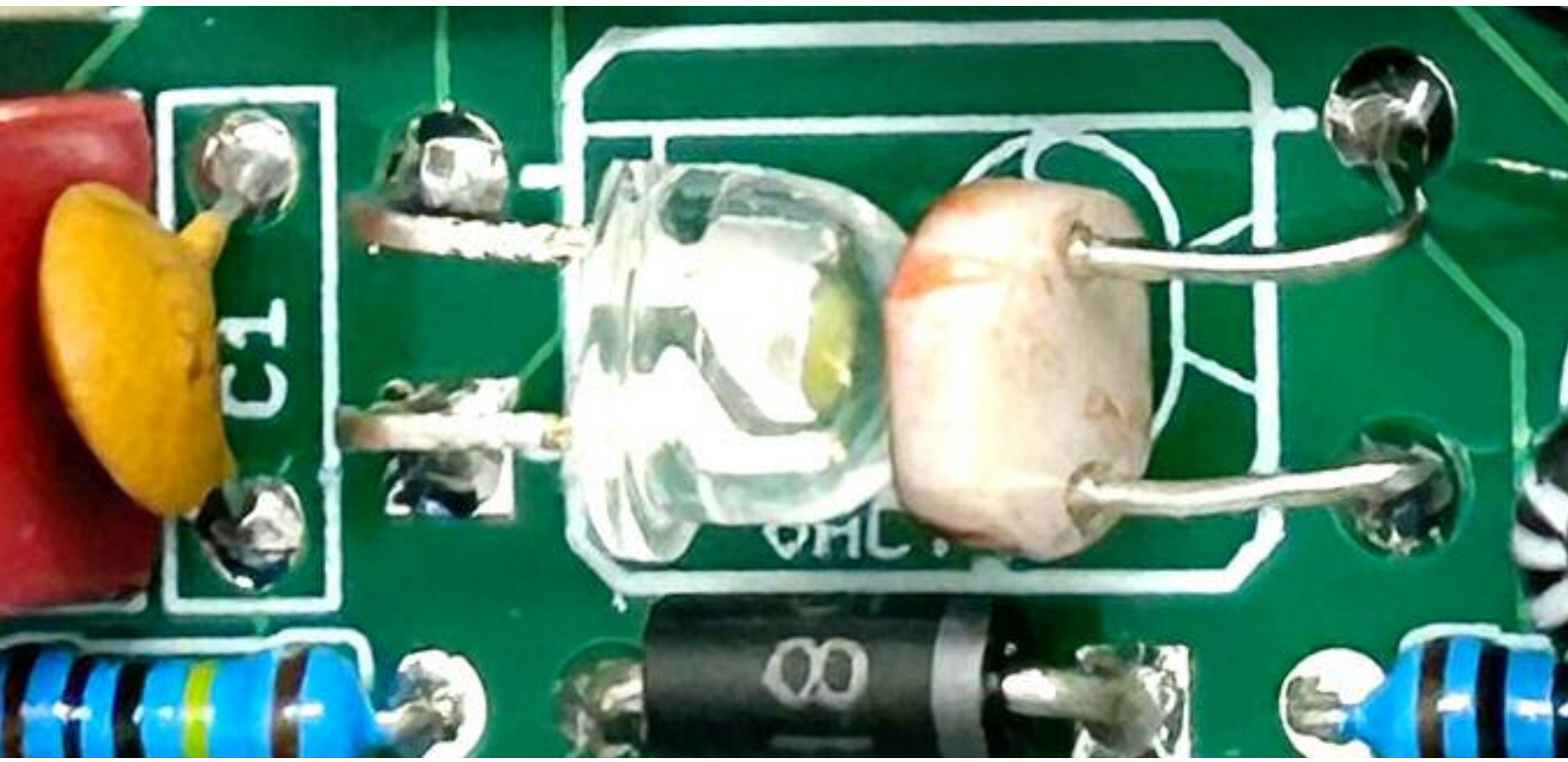
Original units use a GL5516 LDR and white LED. The NSL-32 vactrol has the same 500K dark specification and saves some trouble.

If using a NSL-32, note that the cathode of the LED side is marked with a dot. This goes into the round pad of VACT_1.




If you'd prefer to use the LDR/LED from the original, mount them facing each other as shown. You can wrap them in heat shrink or insulation tape if you like, but once the circuit is boxed up they'll be in the dark anyway.

You'll have to ensure they are covered when testing, otherwise the LDR will pick up light and won't function correctly.



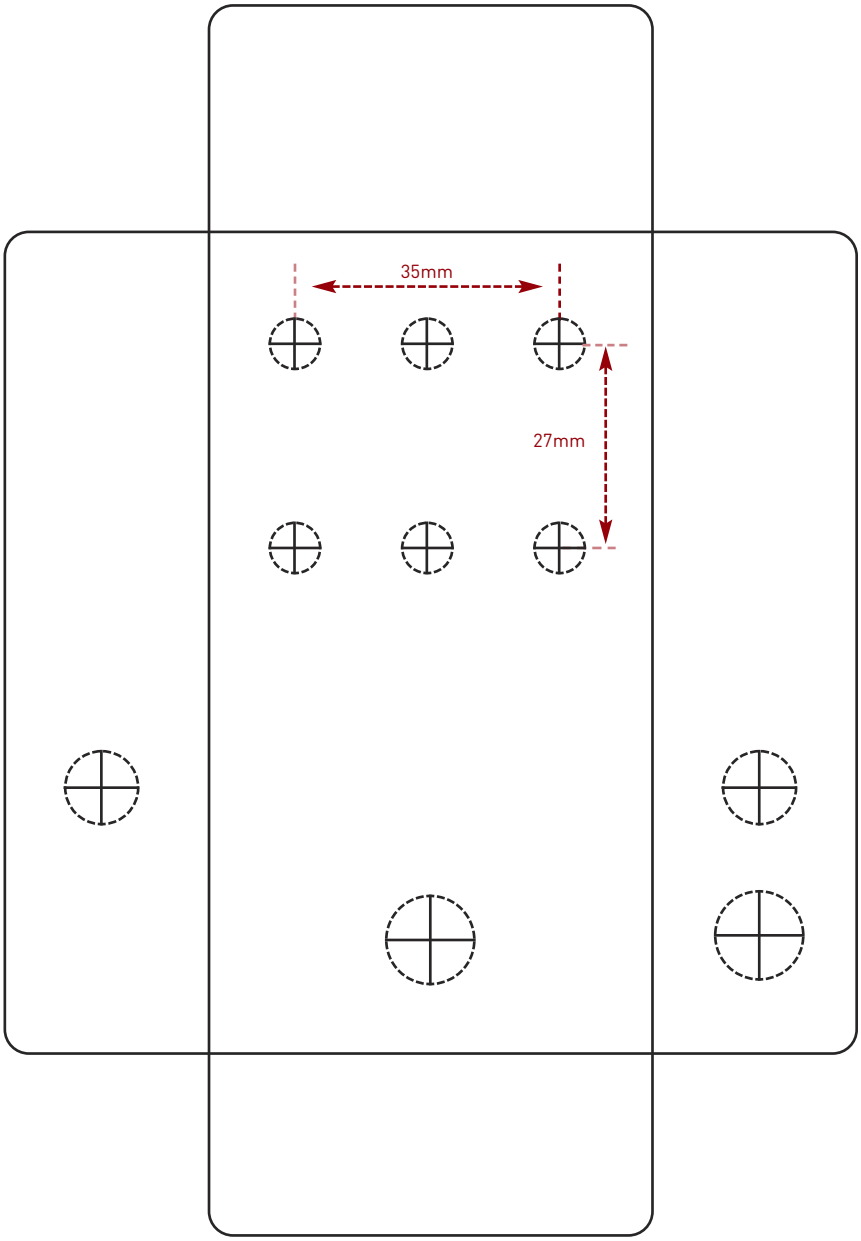
# Drilling template

**Hammond 1590B - 60 x 111 x 31mm**

Drill sizes listed are minimum.
It's a good idea to add 1mm to anything mounted on the PCB that'll poke through the front of the enclosure.

Drill sizes:

| | |
|---|---|
| Pots | 7mm |
| Jacks | 10mm |
| Footswitch | 12mm |
| DC Socket | 12mm |
| Toggle switches | 6mm |
| Rotary switches | 10mm |




This template is a rough guide only. You should ensure correct marking of your enclosure before drilling. You use this template at your own risk.
Pedal Parts Ltd can accept no responsibility for incorrect drilling of enclosures.

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