MADBEANPEDALS PRESENTS

# SUNKING

*(Based on the Klon Centaur)*
*PCB artwork ©2010 madbeanpedals*
**Ver.3** 10.15.10

GAIN1
GAIN2
TONE
VOL
sunking
ver.3
(c)2010

IC1
IC2
IC3

IN
S4 S2 S1 +9 LED S5 S6
RTB
SW
R30
R28
R29

INPUT JACK
GROUND
9V DC JACK
OUTPUT JACK
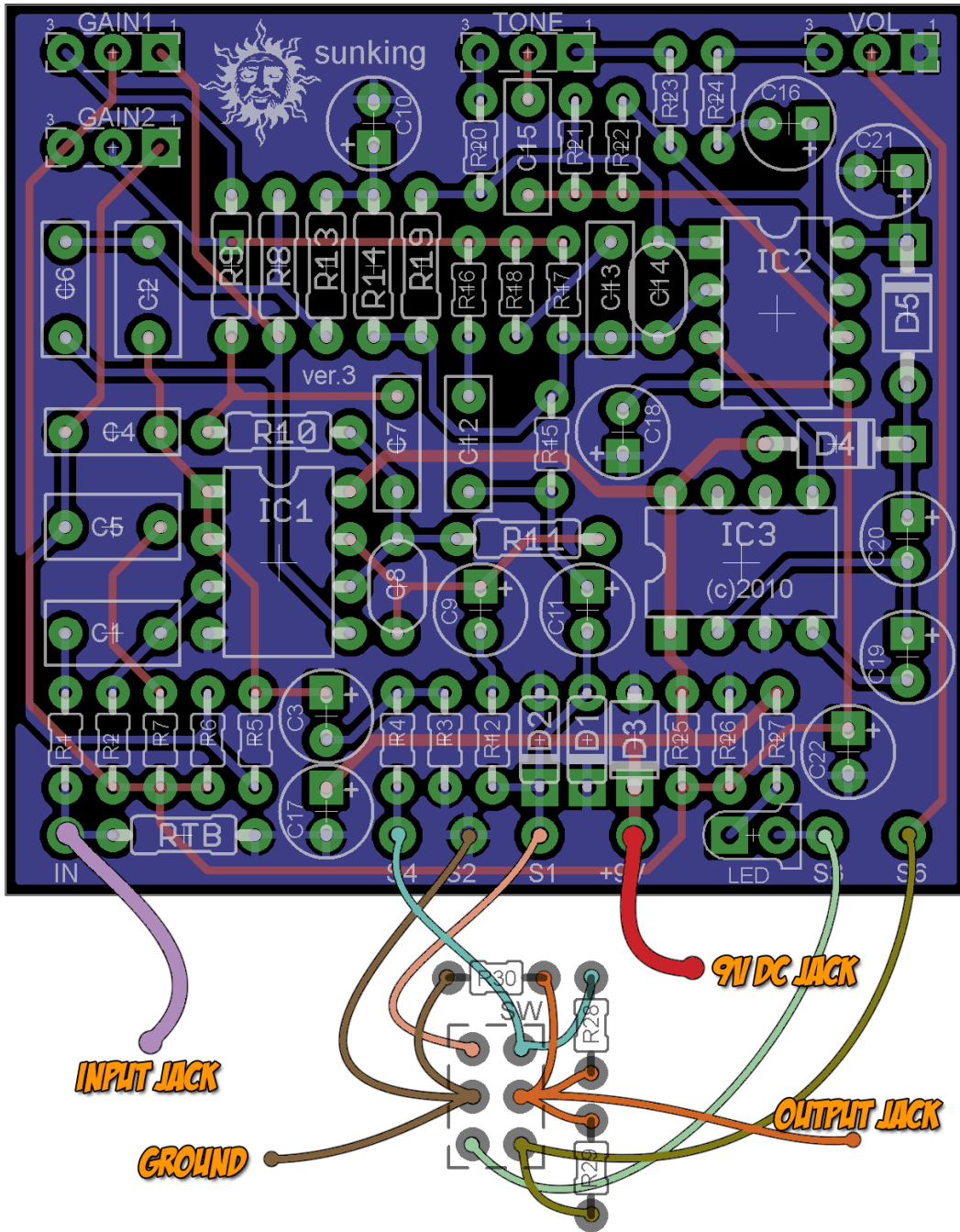
| Resistors | | Caps | | Diodes | |
|---|---|---|---|---|---|
| R1 | 10k | C1 | 100n | D1, D2 | GE |
| R2 | 1M | C2 | 100n | D3 | 1n4742 |
| R3 | 100k | C3 | 4u7 | D4, D5 | 1N4001 |
| R4 | 560R | C4 | 68n | | |
| R5 | 5k1 | C5 | 390n | **IC** | |
| R6 | 1k5 | C6 | 68n | IC1, IC2 | TL072 |
| R7 | 1k | C7 | 82n | IC3 | ICL7660SCPA |
| R8 | 10k | C8 | 390pF | | |
| R9 | 2k | C9 | 1uF | **Pots** | |
| R10 | 15k | C10 | 1uF | GAIN1 | 100kB |
| R11 | 422k | C11 | 1uF | GAIN2 | 100kB |
| R12 | 1k | C12 | 2n2 | TONE | 10kB |
| R13 | 1k5 | C13 | 27n | VOL | 10kB |
| R14 | 15k | C14 | 820pF | | |
| R15 | 47k | C15 | 3n9 | | |
| R16 | 22k | C16 | 4u7 | | |
| R17 | 27k | C17 | 47uF | | |
| R18 | 12k | C18 | 1uF | | |
| R19 | 392k | C19 | 1uF | | |
| R20 | 1k8 | C20 | 1uF | | |
| R21 | 100k | C21 | 1uF | | |
| R22 | 100k | C22 | 47uF | | |
| R23 | 4k7 | | | | |
| R24 | 560R | | | | |
| R25 | 27k | | | | |
| R26 | 27k | | | | |
| R27 | 3k9 | | | | |
| R28 | 68k | | | | |
| R29 | 68k | | | | |
| R30 | 100k | | | | |
| RTB | 1M | | | | |

**Dual-Ganged 100kB Pot**
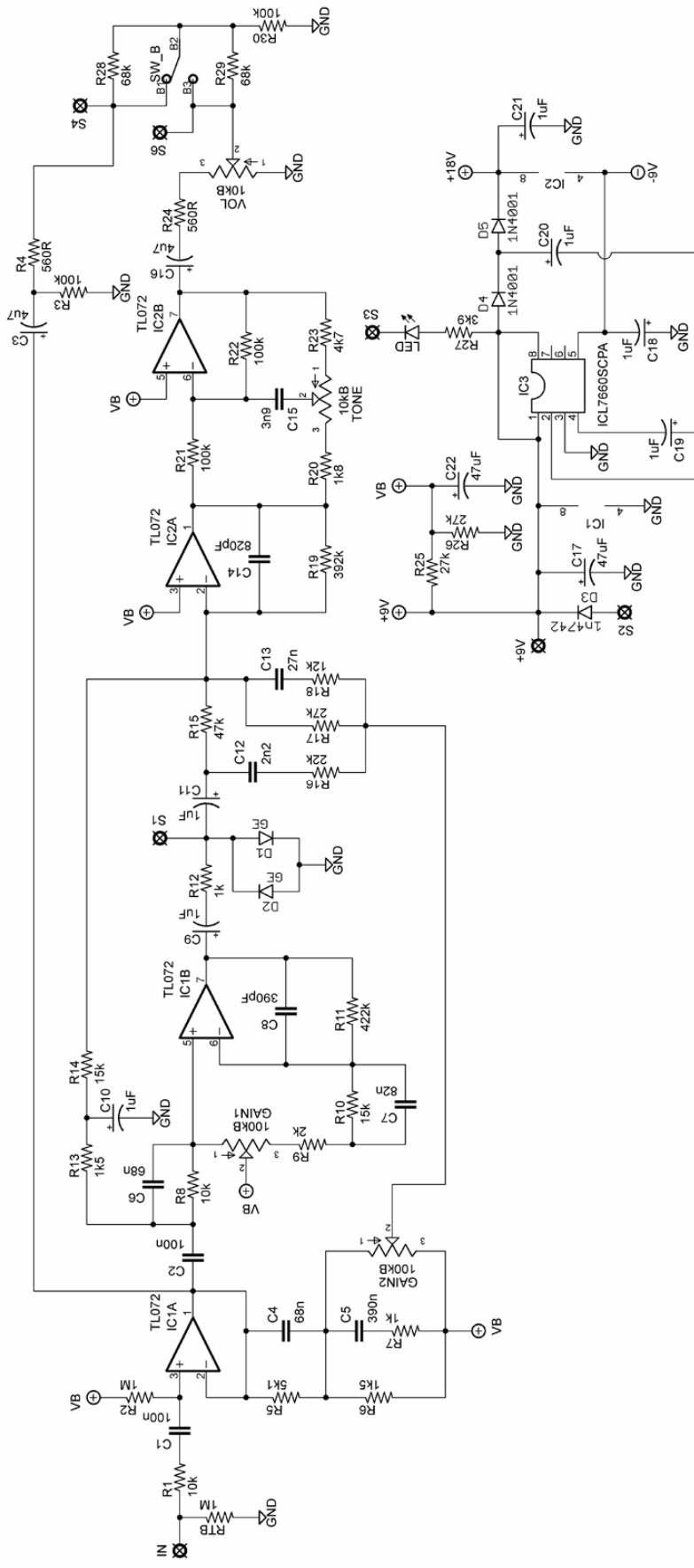
# Notes

The newest version of the **Sunking** offers a slightly reduced PCB footprint for easier fitting in a 1590B enclosure. Corrections were also made to the output section. Ver.2 had three resistors placed on the PCB that should have been wired directly to the bypass switch in a slightly different configuration. This has been fixed for ver.3 (instructions on how to make the correction on ver.2 are contained in the archived documents for the **Sunking** at www.madbeanpedals.com/projects/index.html).

The schematic has also been re-drawn in an attempt to simplify it for analysis. The component values between all versions are identical, but the numbering is not. Ver.3 components are labeled in a slightly different order, so you do not want to use the bill of materials in this document to build any of the previous versions.

Lastly, an extra spot for a pull-down resistor was included should you want to build the **Sunking** as true-bypass.

A MAX1044 or TC1044 may be substituted for IC3.

The exact germanium diodes used for D1 and D2 is unknown. The designer claims that the use of these diodes is critical to fully realizing the tone of the Klon. In practice, there are a number of diodes that can be used that produce excellent results. These are 1n34a, 1n270, 1n60, BAT41 and 1n914. It's a good idea to socket these two and experiment to find your favorites. My personal favorite is BAT41.

If using a 3PDT, wire the two outside columns of lugs, leaving the middle column completely unconnected.

### To make the Sunking true-bypass

- Remove **C3, R3, R4, R28, R29, R30**
- Add **RTB** (1M resistor)

### Wiring True-Bypass

- The **IN** pad is wired to the FX input
- **9v** is wired to your DC jack
- **S2** is wired to ground
- **S3** is wired for toggling the LED indicator
- **S6** is wired to FX output
- **S1** and S4 are left unconnected

## Parts

- Xicon General or Hi-Temp radial electrolytic caps, 25v
- Panasonic ECQ-B or ECQ-V film caps
- Xicon carbon or metal film resistors, ¼ W
- Ceramic, Silver Mica or film for the 390pF and 820pF (stock unit uses film).

# SINGLE SIDED VERSION — FOR ETCHING
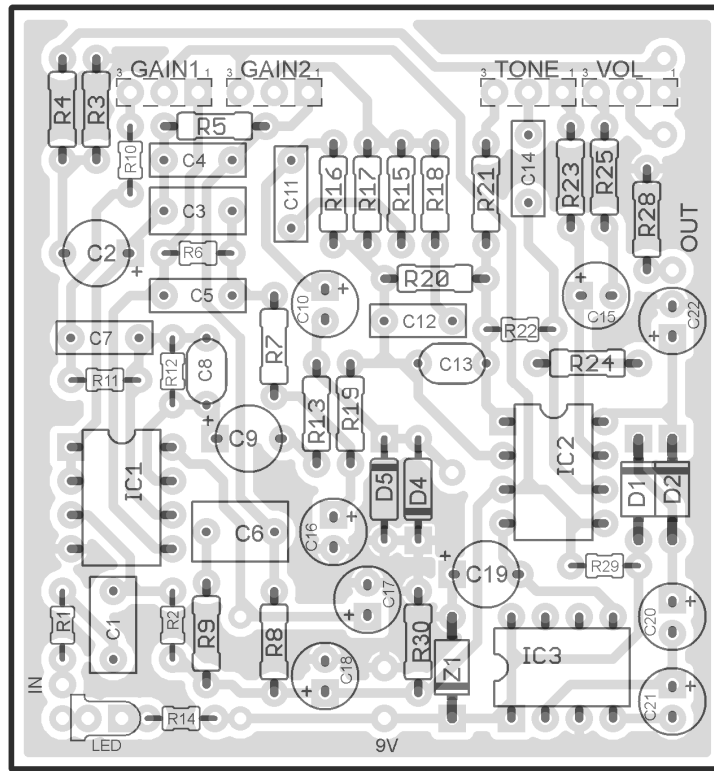


| | | | | | | | |
|---|---|---|---|---|---|---|---|
| R1 | 10k | R16 | 47k | C1 | 100n | C16 | 1uF |
| R2 | 1M | R17 | 27k | C2 | 4u7 | C17 | 47uF |
| R3 | 100k | R18 | 12k | C3 | 100n | C18 | 47uF |
| R4 | 560R | R19 | 15k | C4 | 68n | C19 | 1uF |
| R5 | 5k1 | R20 | 392k | C5 | 68n | C20 | 1uF |
| R6 | 10k | R21 | 1k8 | C6 | 390n | C21 | 1uF |
| R7 | 1k5 | R22 | 100k | C7 | 82n | C22 | 1uF |
| R8 | 1k5 | R23 | 4k7 | C8 | 390pF | | |
| R9 | 1k | R24 | 100k | C9 | 1uF | D1/D2 | 1n4001 |
| R10 | 2k | R25 | 560R | C10 | 1uF | D4/D5 | 1n270 |
| R11 | 15k | R26 | 68k | C11 | 2n2 | Z1 | 1n4742 |
| R12 | 422k | R27 | 68k | C12 | 27n | | |
| R13 | 1k | R28 | 100k | C13 | 820pF | IC1/IC2 | TL072 |
| R14 | 3k9 | R29 | 27k | C14 | 3n9 | IC3 | ICL7660SCPA |
| R15 | 22k | R30 | 27k | C15 | 4u7 | | |
| | | | | | | GAIN1/2 | 100kB Dual |
| | | | | | | TONE | 10kB |
| | | | | | | VOL | 10kB |
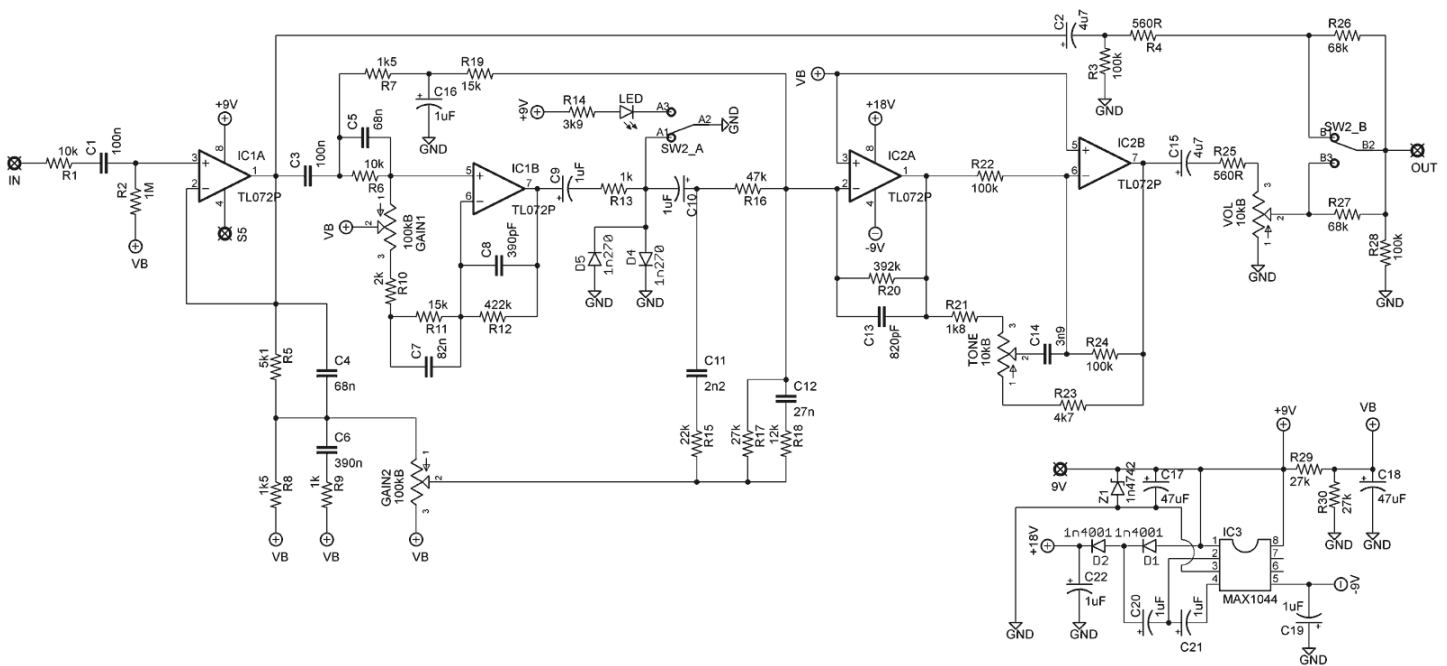
**2.13" x 2.27"** *(w / borders)*
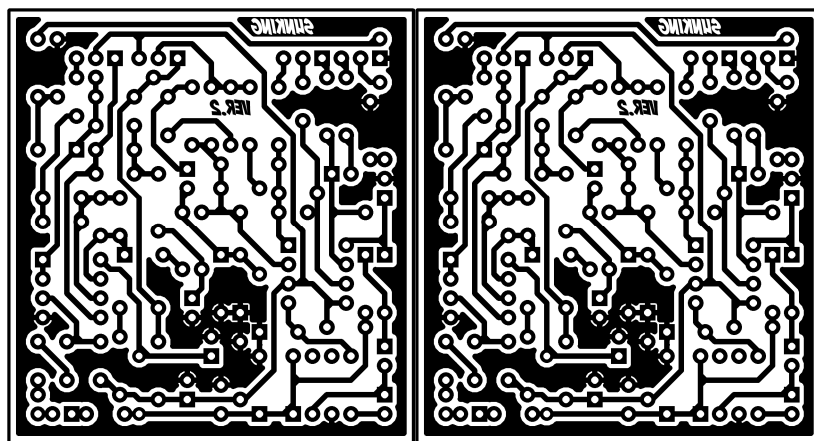


- The PCB here is labeled "ver.2" but it is exactly the same as ver.3 (i.e. the output section is correct).
- If you want to simplify the wiring, connect **R28** on the 3PDT/DPDT switch (between the middle lugs -purple and brown on the wiring diagram). If you do this, you do not need a wire from the "OUT" pad on the board to the tip of the output jack.
- Note the jumper between **R8** and **R9**.

**Voltages (off DC supply @ 8.89v)**

| Pins | IC1  | IC2   | IC3   |
|------|------|-------|-------|
| 1    | 4.45 | 4.52  | 8.88  |
| 2    | 4.47 | 4.47  | 4.55  |
| 3    | 3.43 | 4.46  | 0     |
| 4    | 0    | -8.46 | -4.15 |
| 5    | 4.45 | 4.45  | -8.47 |
| 6    | 4.46 | 4.46  | 3.99  |
| 7    | 4.45 | 4.41  | 5.33  |
| 8    | 8.88 | 16.03 | 8.88  |