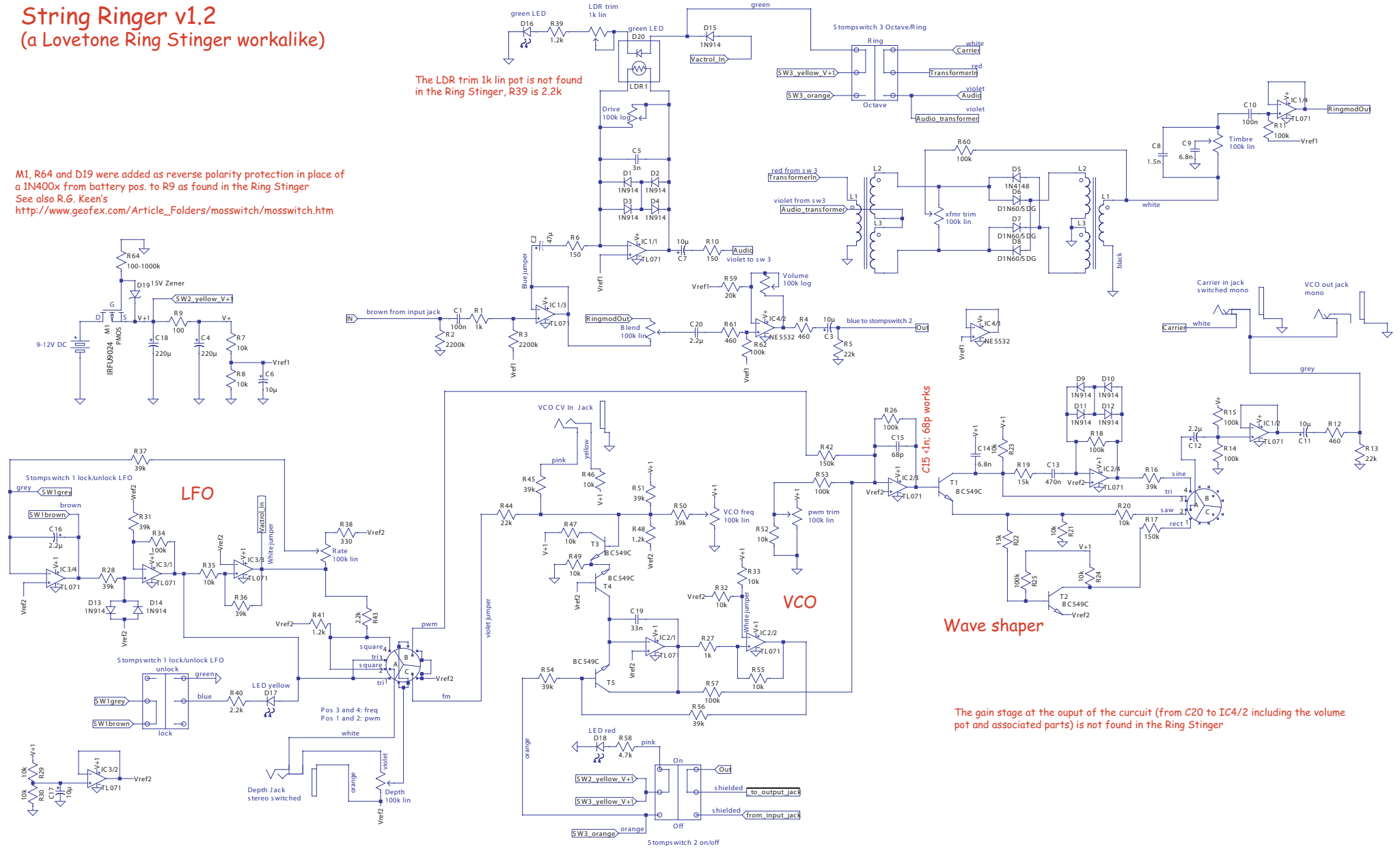


String Ringer v1.2

(a Lovetone Ring Stinger workalike)

M1, R64 and D19 were added as reverse polarity protection in place of a 1N400x from battery pos. to R9 as found in the Ring Stinger
 See also R.G. Keen's
http://www.geofex.com/Article_Folders/mosswitch/mosswitch.htm



The LDR trim 1k lin pot is not found in the Ring Stinger, R39 is 2.2k

C15 47n: 68p works

Wave shaper

The gain stage at the output of the circuit (from C20 to IC4/2 including the volume pot and associated parts) is not found in the Ring Stinger

Thanks to soundcollage and toneman for their continuous support!

drawn by Markus W. 12-05

FOR PERSONAL USE ONLY!

The "Ring Stinger" is a ring modulator pedal by Lovetone. The "String Ringer" is based on this circuit and believed to operate similarly. However, any and all rights by Lovetone or others in the mark "Ring Stinger" remain the property of that owner.

Parts

| Part | Value | | | | |
|------|------------|-----|----------------|-------------|----------------------|
| C1 | 100nF | R18 | 100k | T1 | BC549C |
| C10 | 100nF | R19 | 15k | T2 | BC549C |
| C11 | 10µF | R2 | 2200k | T3 | BC549C |
| C12 | 2.2µF | R20 | 10k | T4 | BC549C |
| C13 | 470nF | R21 | 10k | T5 | BC549C |
| C14 | 6.8nF | R22 | 15k | Transformer | LT44 |
| C15 | 68pF | R23 | 10k | Transformer | LT44 |
| C16 | 2.2µF | R24 | 10k | XFMR TRIM | 100k lin, Vishay 43P |
| C17 | 10µF | R25 | 100k | PWM TRIM | 100k lin, Piher PT10 |
| C18 | 220µF | R26 | 100k | LDR TRIM | 1k lin, Vishay 75T |
| C19 | 33nF | R27 | 1k | DEPTH | 100k lin, Bourns 91 |
| C2 | 47µF | R28 | 39k | DRIVE | 100k log, Bourns 91 |
| C20 | 2.2µF | R29 | 10k | FREQ | 100k lin, Bourns 91 |
| C3 | 10µF | R3 | 2200k | RATE | 100k lin, Bourns 91 |
| C4 | 220µF | R30 | 10k | TIMBRE | 100k lin, Bourns 91 |
| C5 | 3nF | R31 | 39k | VOLUME | 100k log, Bourns 91 |
| C6 | 10µF | R32 | 10k | | |
| C7 | 10µF | R33 | 10k | | |
| C8 | 1.5nF | R34 | 100k | | |
| C9 | 6.8nF | R35 | 10k | | |
| D1 | 1N4148 | R36 | 39k | | |
| D10 | 1N4148 | R37 | 39k | | |
| D11 | 1N4148 | R38 | 330 | | |
| D12 | 1N4148 | R39 | 1.2k | | |
| D13 | 1N4148 | R4 | 460 | | |
| D14 | 1N4148 | R40 | 2.2k | | |
| D15 | 1N4148 | R41 | 1.2k | | |
| D16 | Green LED | R42 | 150k | | |
| D17 | Yellow LED | R43 | 2.2k | | |
| D18 | Red LED | R44 | 22k | | |
| D19 | BZX79C15 | R45 | 39k | | |
| D2 | 1N4148 | R46 | 10k | | |
| D20 | Green LED | R47 | 10k | | |
| D3 | 1N4148 | R48 | 1.2k | | |
| D4 | 1N4148 | R49 | 10k | | |
| D5 | 1N34 | R5 | 22k | | |
| D6 | 1N34 | R50 | 39k | | |
| D7 | 1N34 | R51 | 39k | | |
| D8 | 1N34 | R52 | 10k | | |
| D9 | 1N4148 | R53 | 100k | | |
| IC1 | TL074 | R54 | 39k | | |
| IC2 | TL074 | R55 | 10k | | |
| IC3 | TL074 | R56 | 39k | | |
| IC4 | NE5532 | R57 | 100k | | |
| LDR1 | LDR | R58 | 4.7k | | |
| M1 | IRFU9024 | R59 | 20k | | |
| R1 | 1k | R6 | 150 | | |
| R10 | 150 | R60 | 100k | | |
| R11 | 100k | R61 | 460 | | |
| R12 | 460 | R62 | 100k | | |
| R13 | 22k | R64 | 100k-1M | | |
| R14 | 100k | R7 | 10k | | |
| R15 | 100k | R8 | 10k | | |
| R16 | 39k | R9 | 100 | | |
| R17 | 150k | S1 | 3P4T Lorlin CK | | |
| | | S2 | 3P4T Lorlin CK | | |

Some more notes:

* For the LDR/LED combo a Silonex NSL 19-M51 LDR and a 250 mcd green LED was found to work. Lower LDR on resistance allows for modulation at lower gain settings in octave mode.

*Manufacturer's names are given for some parts solely to indicate compatibility with the layout

Trimming hints:

PWM trimming:
VCO wave shape depends on PS voltage.

* From the Ring Stinger manual: Plug in amp into VCO jack. Warning: The VCO output is much higher than instrument level, so turn down your amp volume first. Set VCO freq. to ~ 12 o'clock, Depth to zero and the VCO selector switch to sine. Slowly turn the PWM trim pot to find the "null point" (the setting which gives the mellowest sound). Provided you use the same (regulated) PS with this pedal no further adjustment should be necessary.

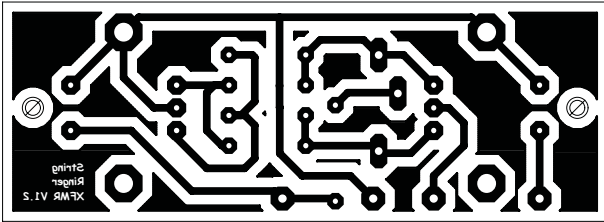
*Alternatively: Connect VCO output to a scope, set the VCO selector switch to square wave, lock LFO and adjust the PWM trim pot until you get a nice square wave. Turn on LFO in PWM square mode, set the rate to "slow" (1-2Hz) and check if you get a pulse that flips with the LFO.

XFMR trimming:

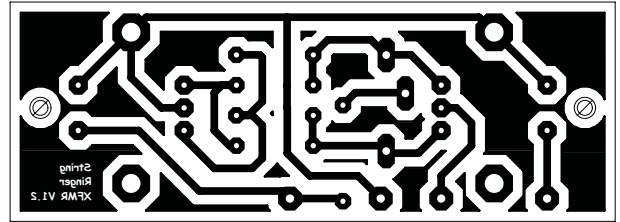
* Connect your amp to the output. Turn up the volume until you hear the VCO. Adjust the XFMR trim pot until the VCO bleed-through is minimised (should be near 50% travel). Alternatively, this obviously can also be done with a scope.

LDR trimming:

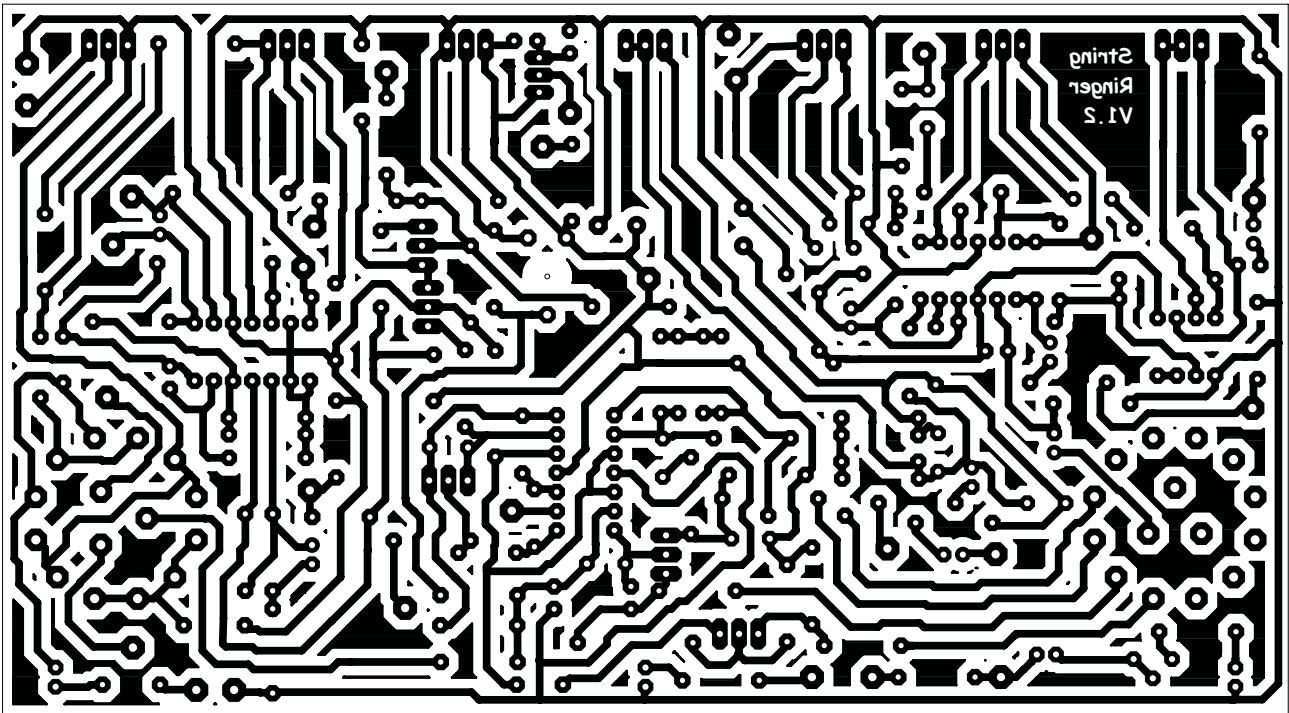
* Lower resistance of the LDR trim pot allows for modulation at lower gain settings when in octave mode.



29 mm

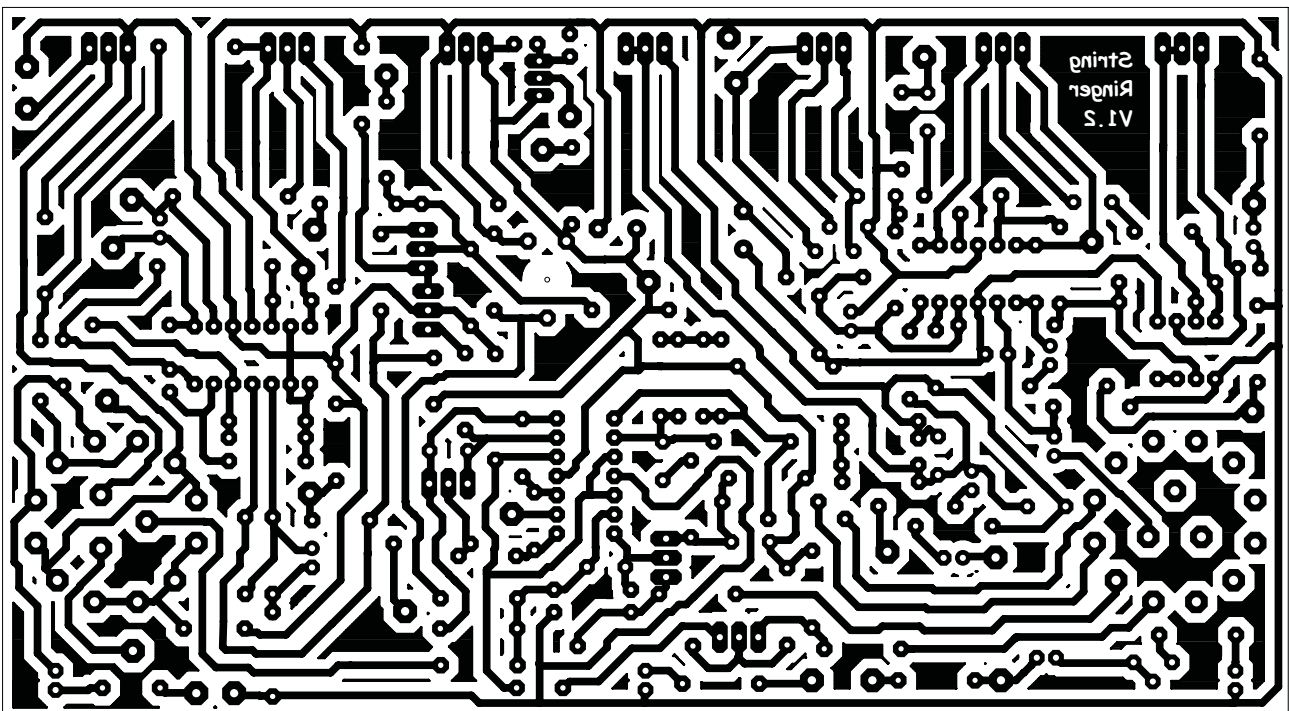


80mm

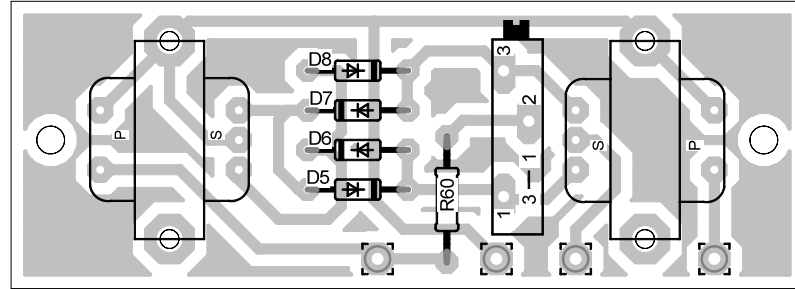


94 mm

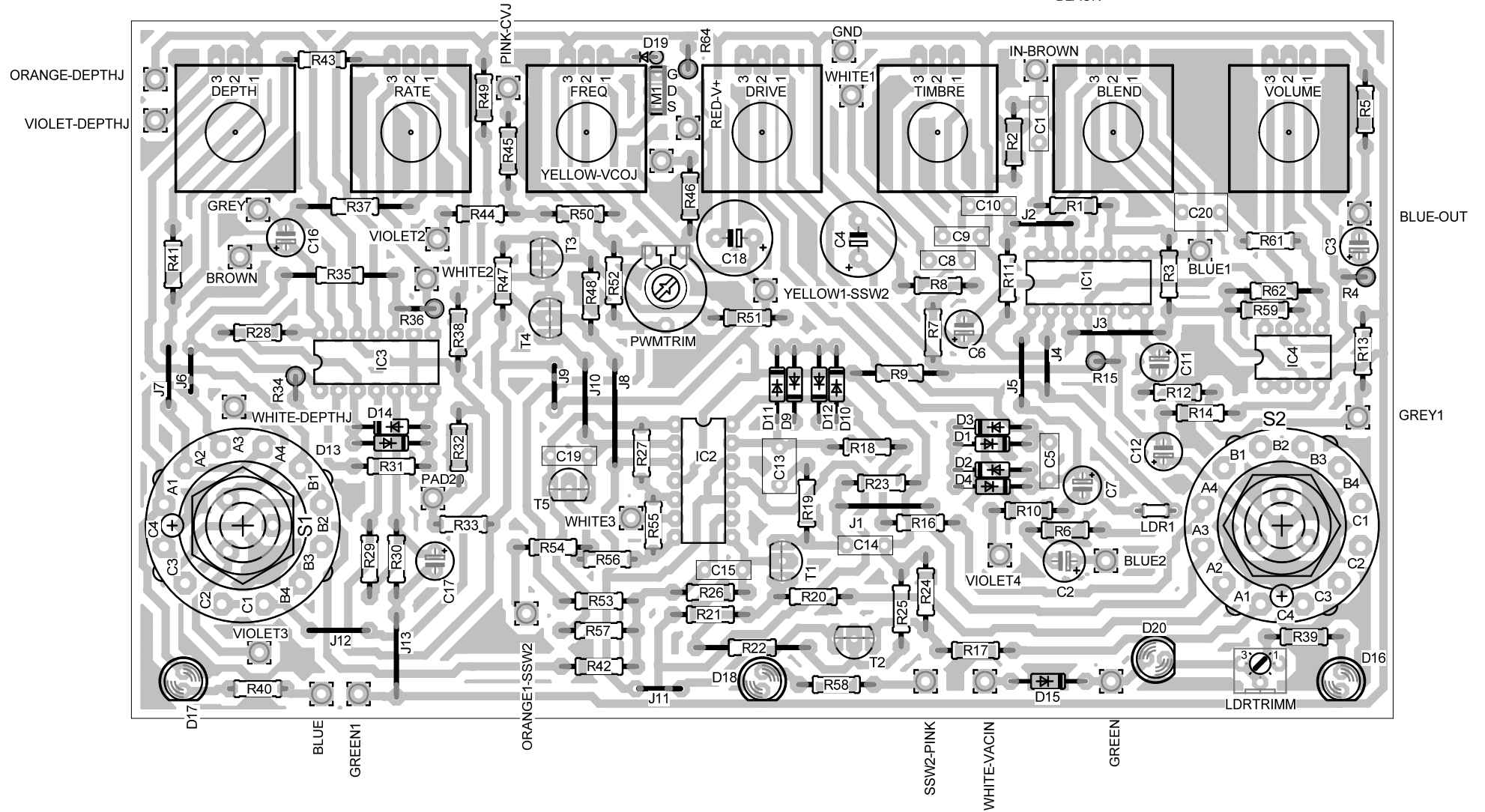
170 mm

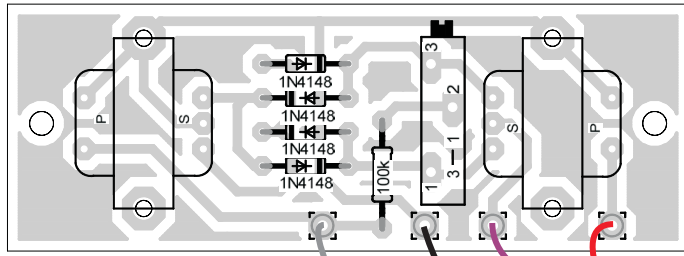


XFMRTRIM



WHITE BLACK VIOLET RED





9-12VDC

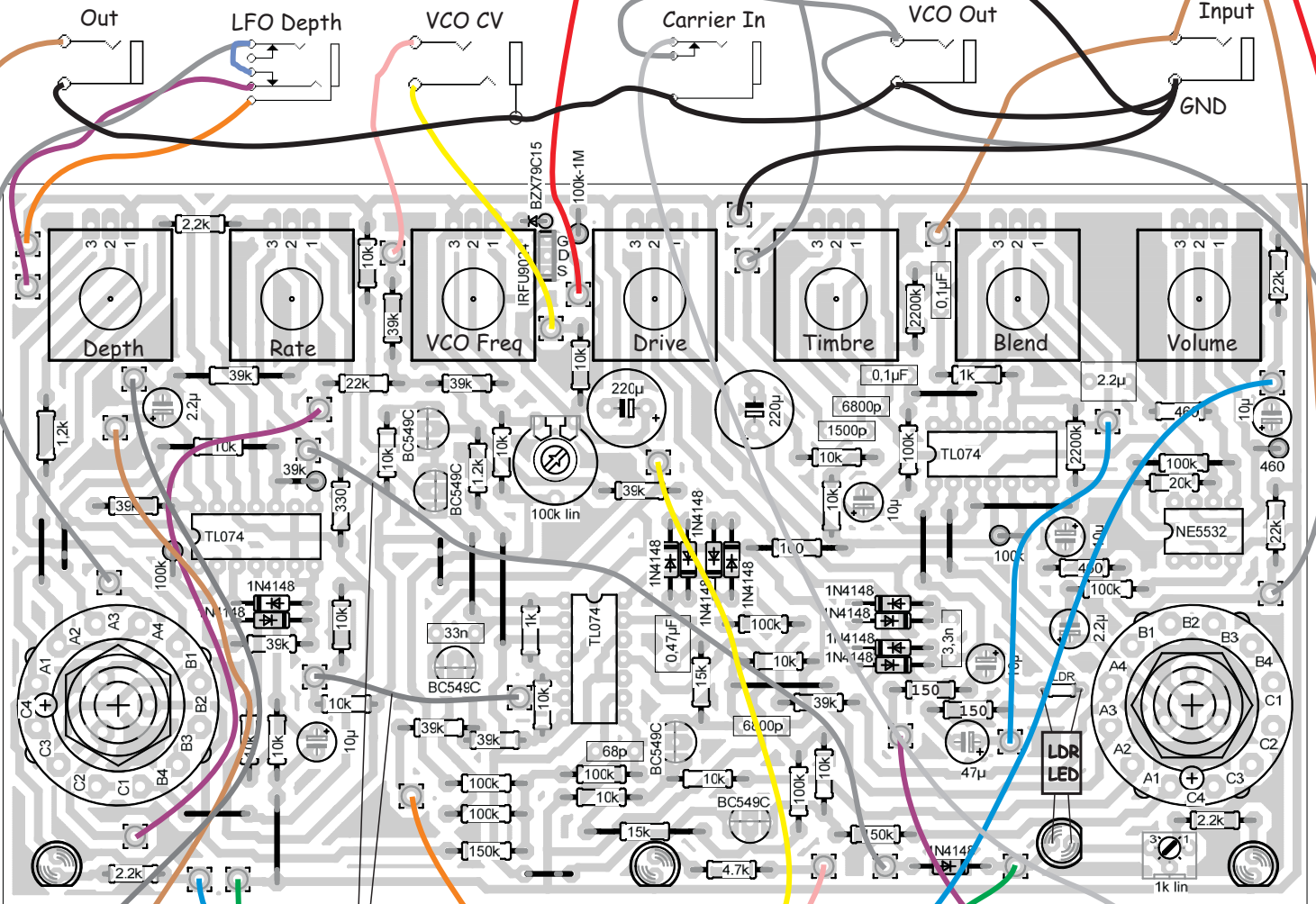
white

Carrier In

VCO Out

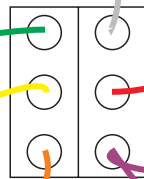
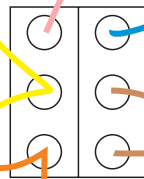
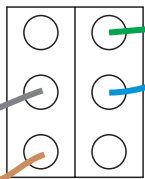
Input

GND



white

white



shielded

shielded