

MACHEEN

FX TYPE: X-OVER DISTORTION

PCB artwork ©2011 madbeanpedals

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The **Macheen** is a cross-over distortion maker circuit for a sweeping effect. It is primarily intended to be used with another effect in series, such as a fuzz or distortion. When used this way, single notes in lead playing will exhibit a certain amount of “bloom”. As notes ring out, a sweeping type effect is heard similar to classic crossover distortion heard on highly overdriven amps. It will make your leads “come alive” with a character of their own.

The controls are as follows

GAIN: Gain is controlled by a mosfet boost at the front-end of the effect.

LIMIT: This provides a range of waveform clipping at the end of the circuit via two back to back germanium diodes to ground.

VOL: The output level.

T1: This can be either an internal trimpot or external potentiometer (recommended). This controls the gain of a second stage between the two frequency tripler stages. Turning this control up will increase the intensity of the effect.

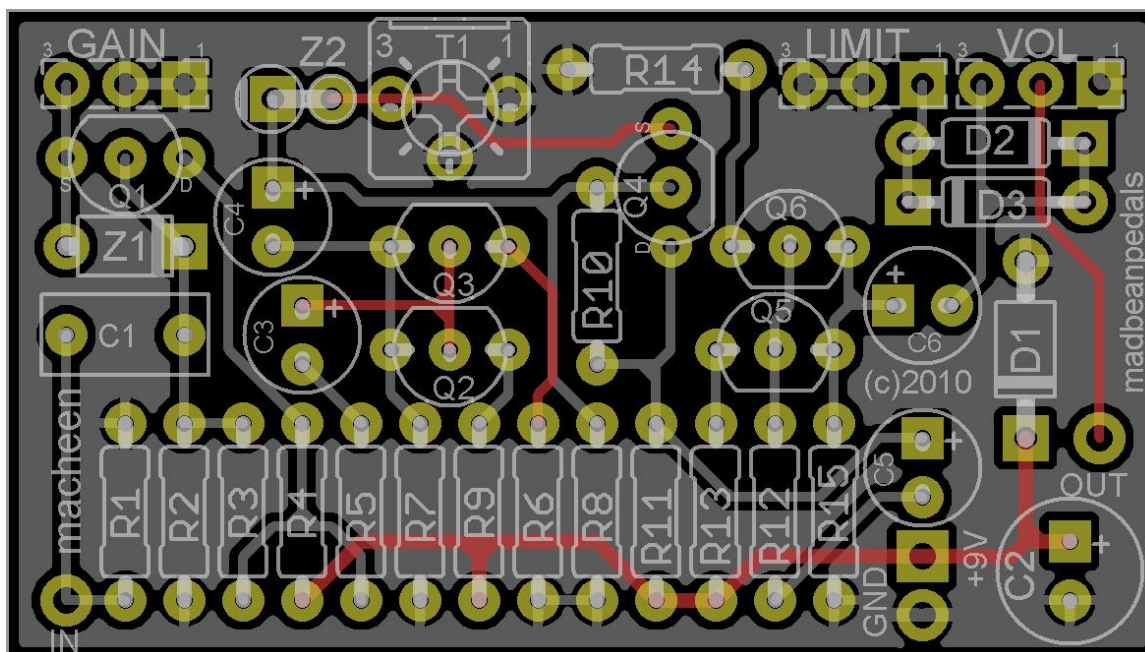
SmallBear Parts Guide – www.smallbearelec.com

- Panasonic ECQ-B / V film caps or Topmay box caps
- Carbon film Resistors 1/4W and/or metal film resistors 1/4W
- 16v electrolytic radial caps
- 16mm Alpha Pots
- 1n270 or 1n34a GE diodes

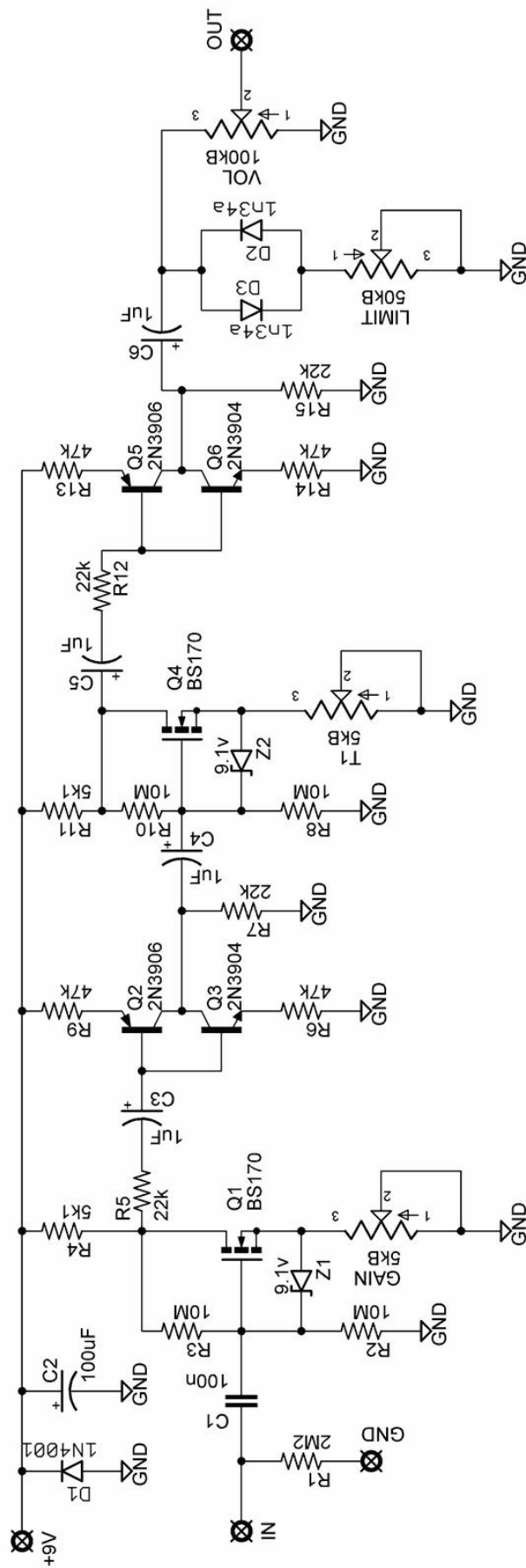
If using a trimpot for **T1**, I highly recommend going with the smaller form factor of 3/8". A 1/4" trimmer will be slightly large for the area available.

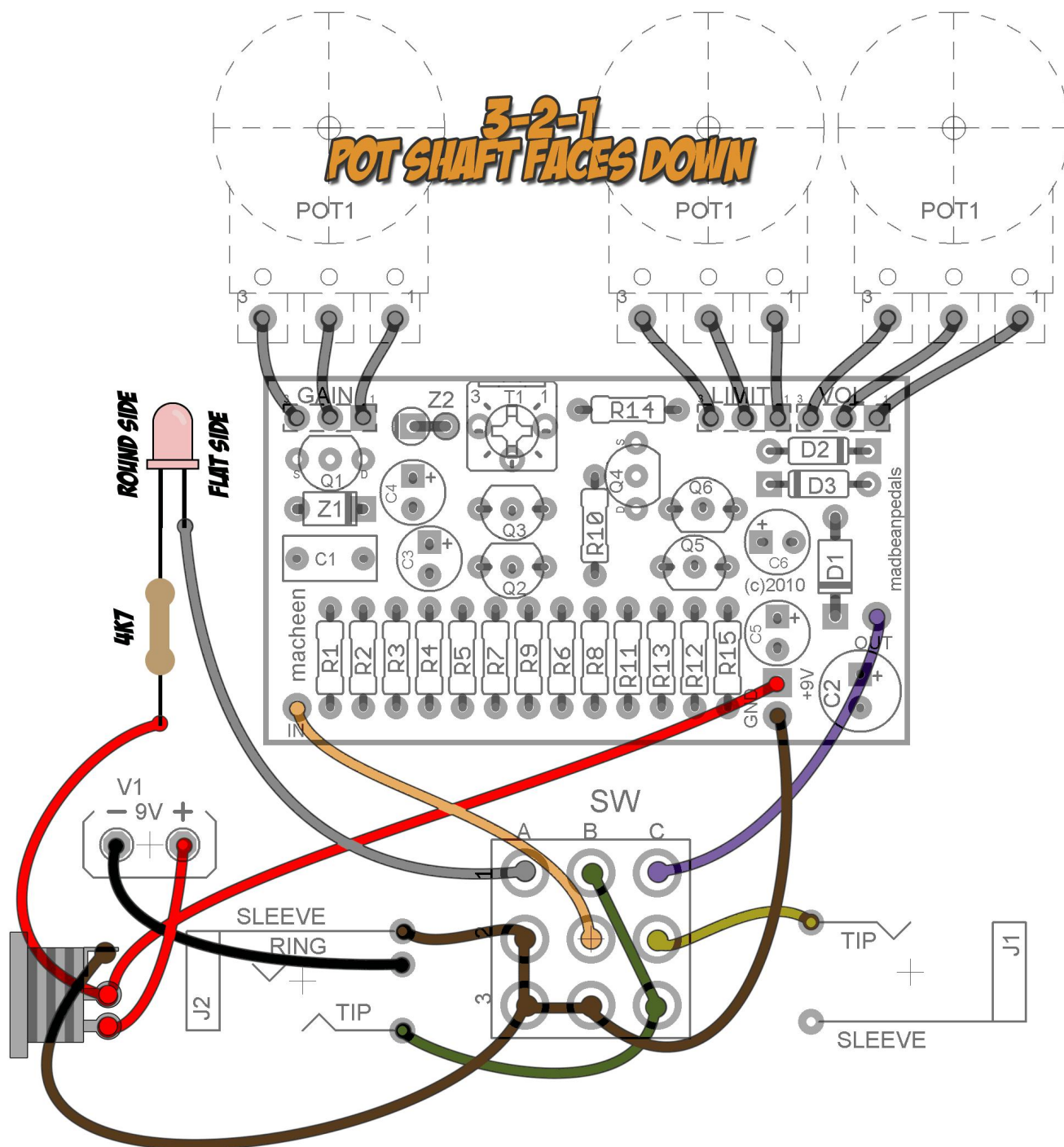
[Bourns 3/8" 5k trimmer](#) (also available from Tayda electronics).

FABBED VERSION



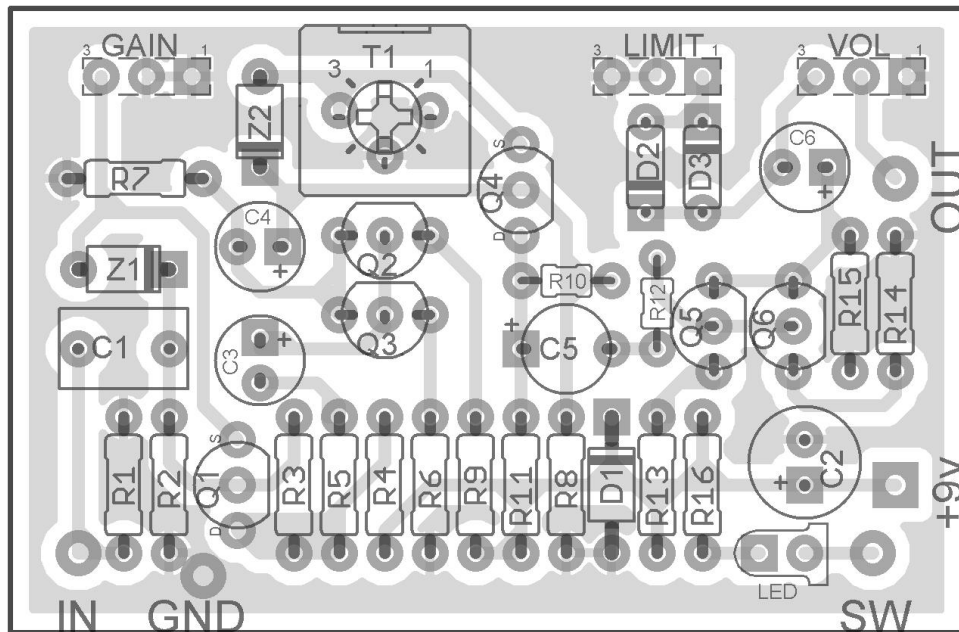
Resistors		Caps		Diodes	
R1	2M2	C1	100n	D1	1N4001
R2	10M	C2	100uF	D2, D3	1n34a
R3	10M	C3	1uF	Z1, Z2	9.1v Zener
R4	5k1	C4	1uF	Trimpot	
R5	22k	C5	1uF	T1	5kB
R6	47k	C6	1uF	Pots	
R7	22k	Transistors		LIMIT	50kB
R8	10M	Q1	BS170	GAIN	5kB
R9	47k	Q2	2N3906	VOL	100kB
R10	10M	Q3	2N3904		
R11	5k1	Q4	BS170		
R12	22k	Q5	2N3906		
R13	47k	Q6	2N3904		
R14	47k				
R15	22k				



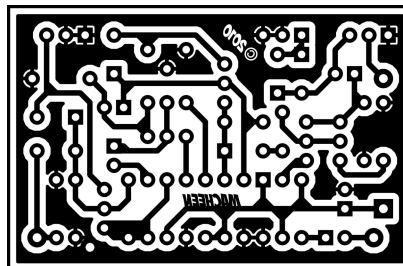
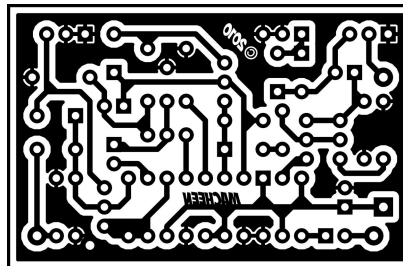


SINGLE SIDED VERSION – FOR ETCHING

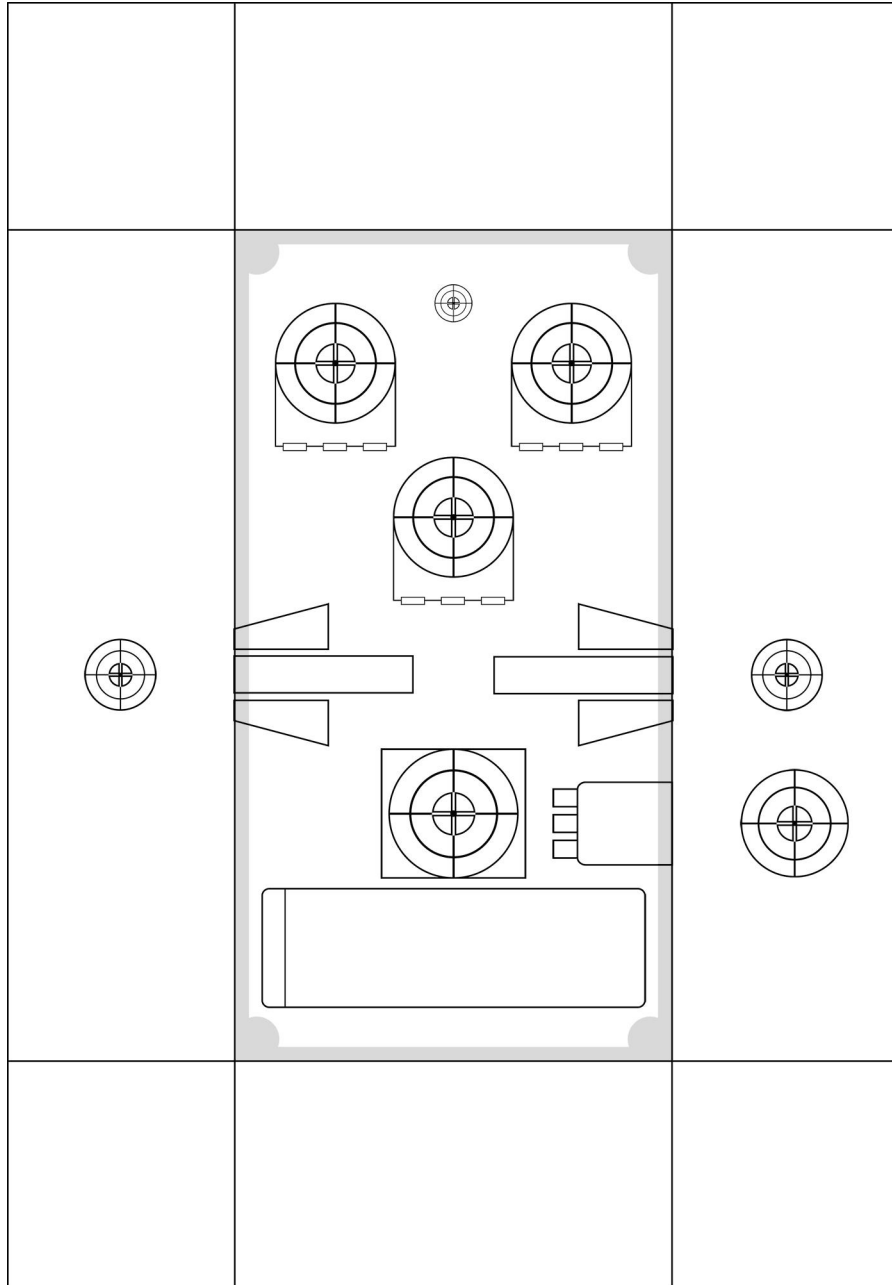
R16 in the single sided version is the CLR for the LED. 4k7 is typical.



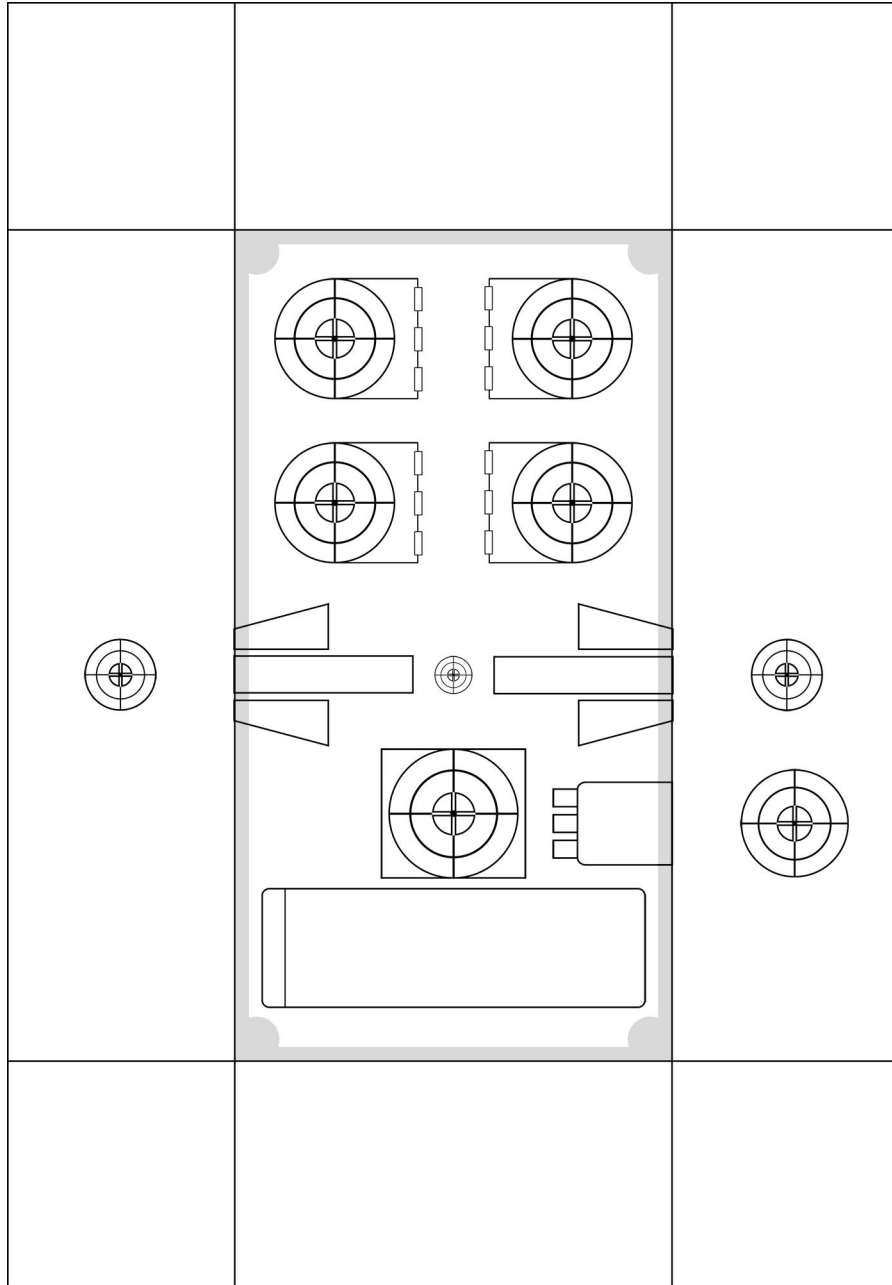
2.1" W x 1.38" H (including borders)



3-Knob Drilling Guide
4.64" W x 6.69" H



*4- Knob Drilling Guide
4.64" W x 6.69" H*



This product is intended for DIY use only. Commercial use, including the sale of PCBs, kits or pedals utilizing this information, is strictly prohibited.