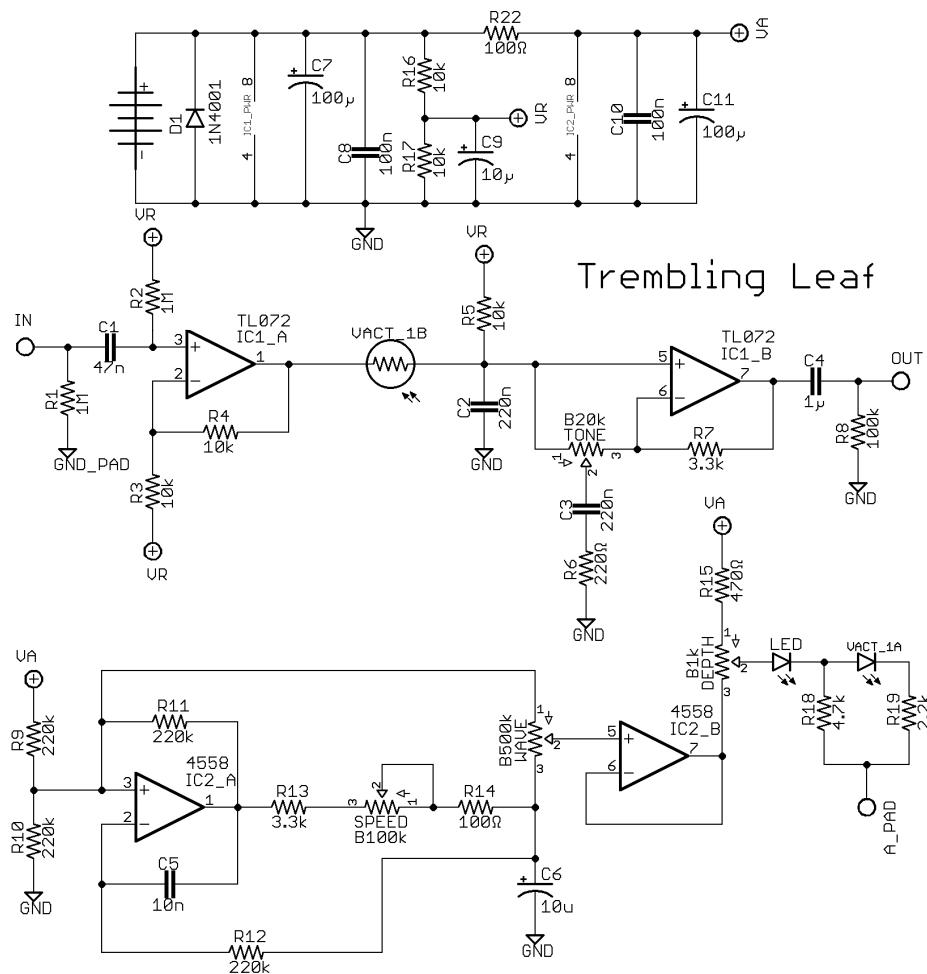




DESCRIPTION

The TREMBLING LEAF is an optical tremolo that started out based on the Demeter Tremulator, but morphed into something completely different. The audio path is fairly straight forward with an opamp amplifying the signal and feeding it through an LDR. Signal then goes through a tone control borrowed from the Tube Screamer and amplified again to recover any level lost from the LDR and tone stack. The LFO is based on previous DIY designs (Tremulus Lune, Shoot the Moon, Cardinal 1) and pulses an LED that's detected by the LDR in the audio path. A vactrol like the VTL5C1 can be used or an LED/LDR in some shrink tubing works well too. The board mounted LED is for external rate and on/off indication.

SCHEMATIC



BILL OF MATERIALS

Resistors

R1	1M
R2	1M
R3	10k
R4	10k
R5	10k
R6	220Ω
R7	3.3k
R8	100k
R9	220k
R10	220k
R11	220k
R12	220k
R13	3.3k
R14	100Ω
R15	470Ω
R16	10k
R17	10k
R18	4.7k
R19	2.2k
R22	100Ω

Capacitors

C1	47n
C2	220n
C3	220n
C4	1μ
C5	10n
C6	10μ

C7	100μ
C8	100n
C9	10μ
C10	100n
C11	100μ

Semiconductors

D1	1N4001
IC1	TL072
IC2	JRC4558
LED	3/5mm red LED
VACT1	VTL5C1

Electromechanical

Depth	B1k
Speed	B100k
Tone	B20k
Wave	B500k

Notes

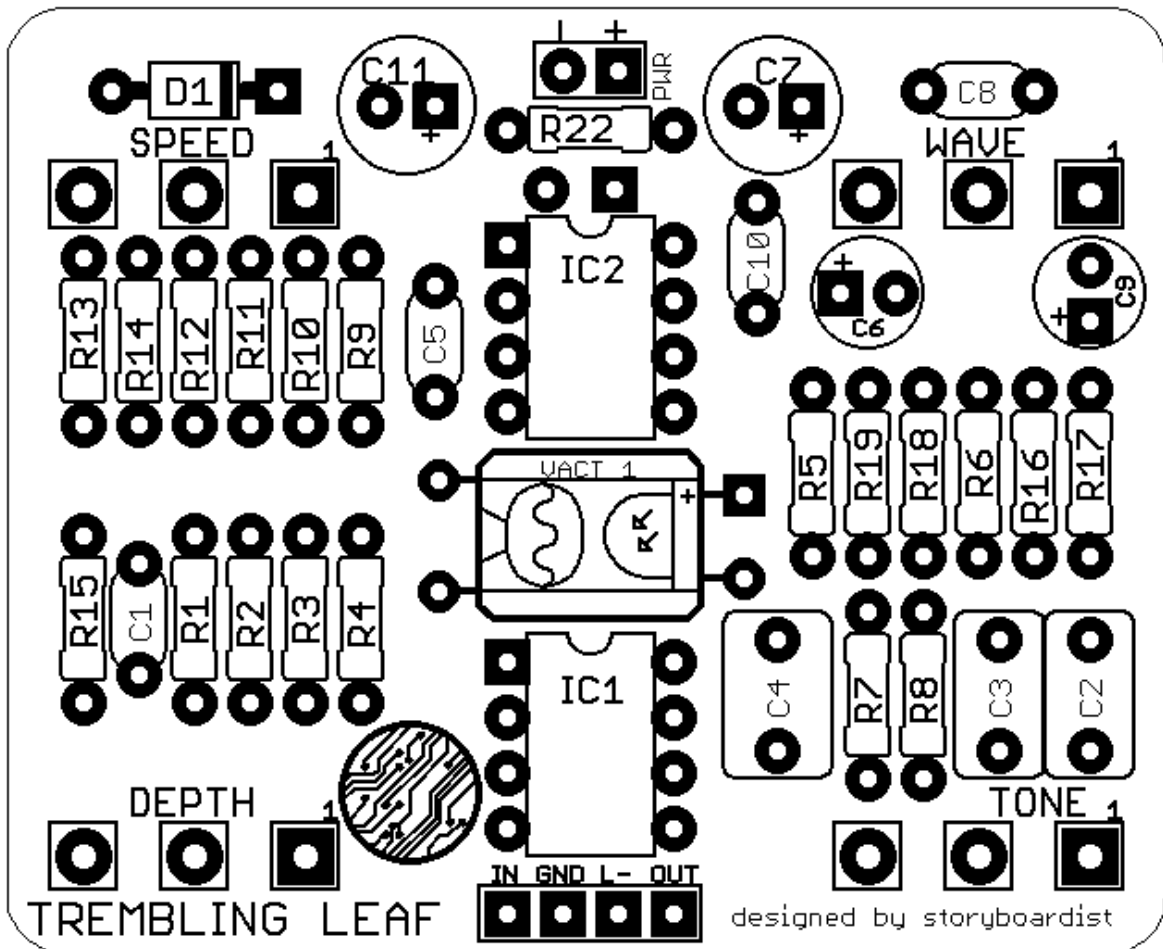
A "hand rolled" LED/LDR combo can also be used in place of the VTL5C1. I recommend a 5mm red LED with a GL5549 LDR. Other ICs can also be used. Just about any other low noise dual opamp will work for IC1 (NE5532, OPA2134, etc), and a TL062 is a good alternative for IC2. Speed control may work better with a C100k (rev log) potentiometer.

SHOPPING LIST

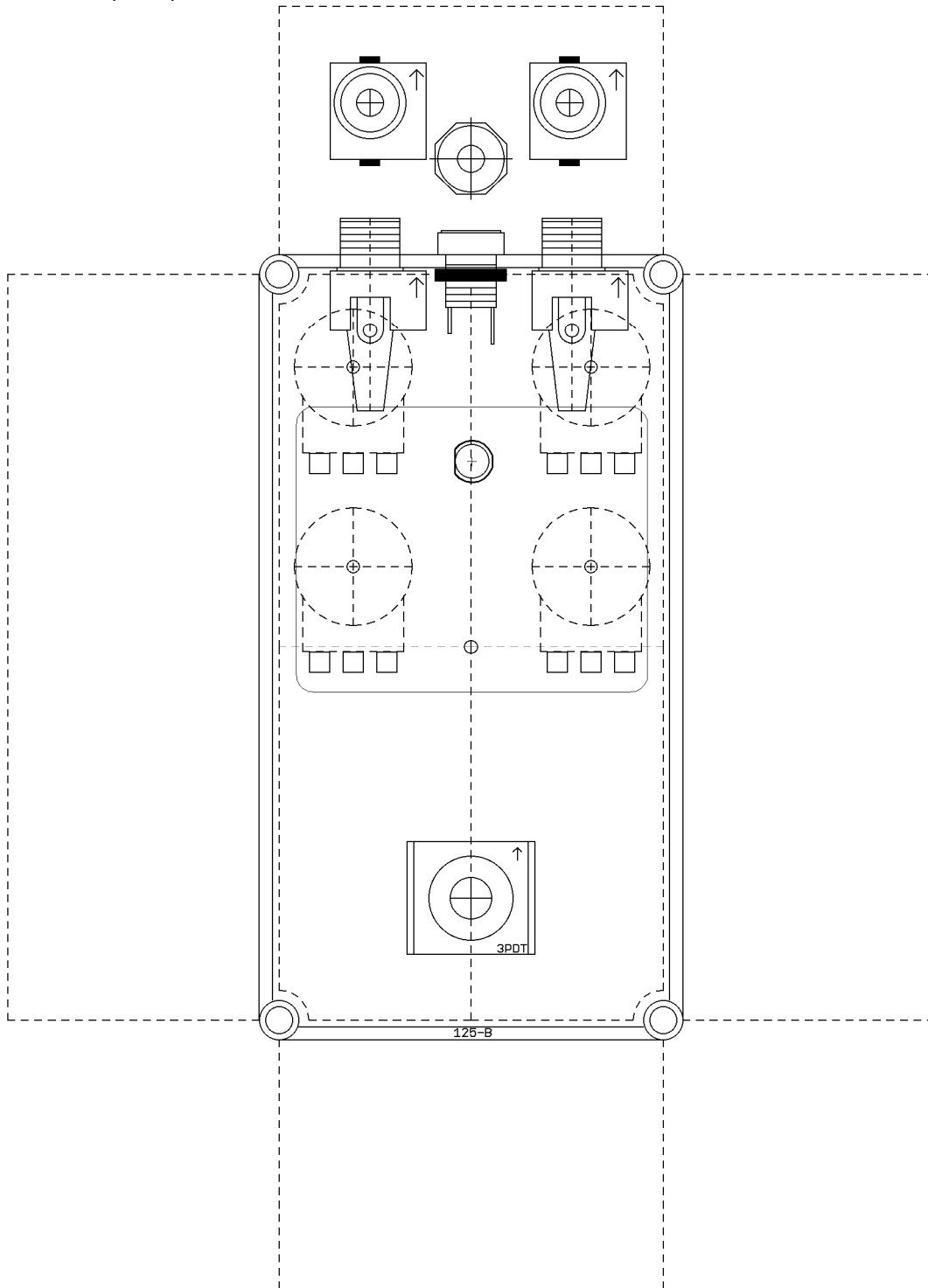
Value	Type (Suggested)	Quantity
100Ω	¼ watt metal or carbon film	2
220Ω	¼ watt metal or carbon film	1
470Ω	¼ watt metal or carbon film	1
2.2k	¼ watt metal or carbon film	1
3.3k	¼ watt metal or carbon film	2
4.7k	¼ watt metal or carbon film	1
10k	¼ watt metal or carbon film	5
100k	¼ watt metal or carbon film	1
220k	¼ watt metal or carbon film	4
1M	¼ watt metal or carbon film	2
10n	Film (63v or higher)	1

47n	Film (63v or higher)	1
100n	Film (63v or higher)	2
220n	Film (63v or higher)	2
1μ	Film (63v or higher)	1
10μ	Electrolytic (35v or higher)	2
100μ	Electrolytic (35v or higher)	2
1N4001	Rectifier diode	1
TL072	Dual opamp	1
JRC4558	Dual opamp	1
VTL5C1*	Vactrol	1
LED	3/5mm Red	1
B1k (linear)	16mm right angle PC mount	1
B20k (linear)	16mm right angle PC mount	1
B100k (linear)	16mm right angle PC mount	1
B500k (linear)	16mm right angle PC mount	1

LAYOUT



DRILL TEMPLATE (125B)



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For DIY and small commercial applications.
Not for non-peer to peer resale.