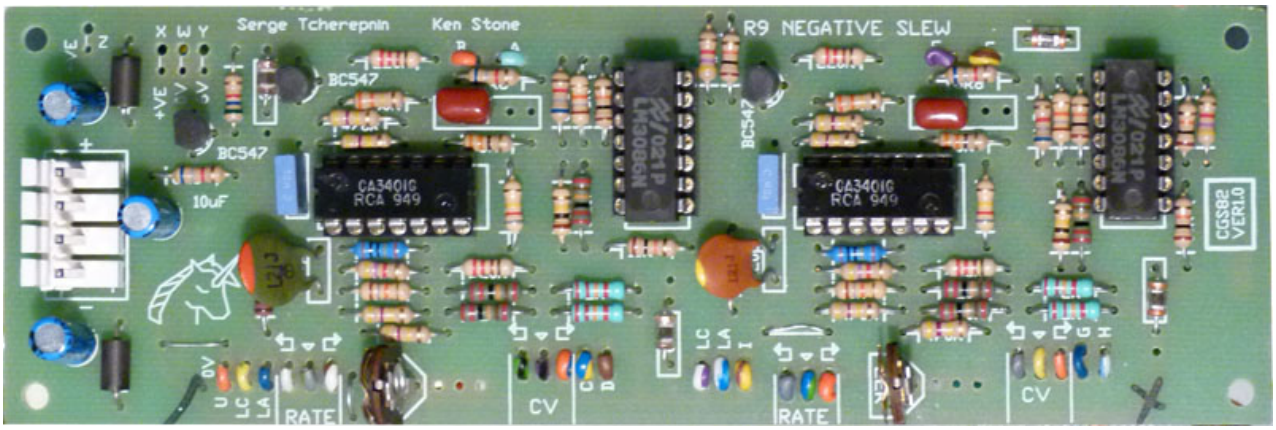


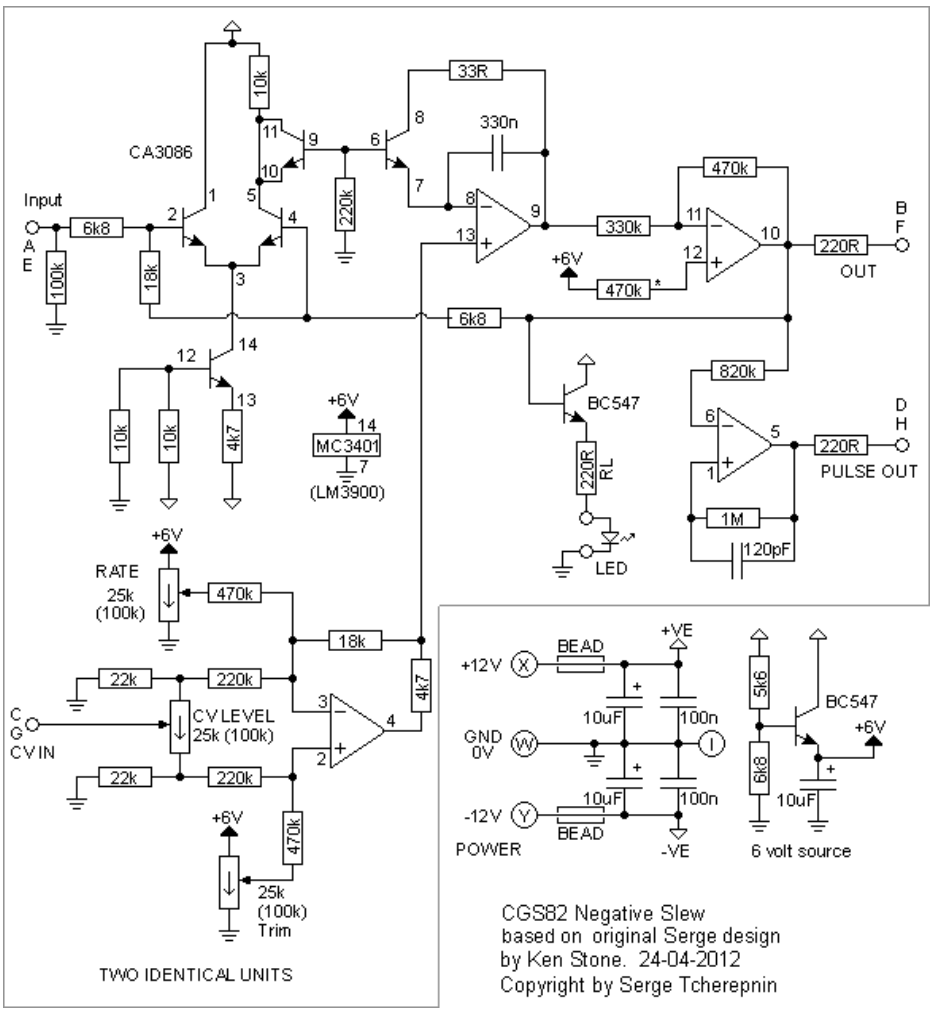
Negative Slew

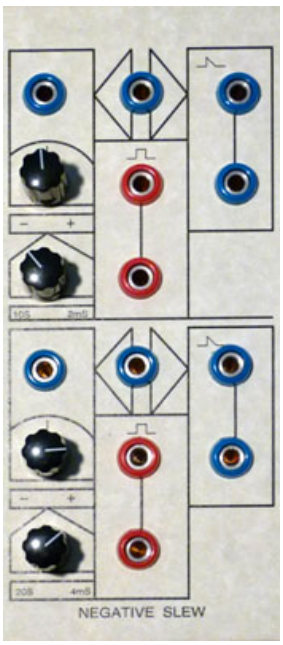
for music synthesizers.

This module is a variation on the 1973 Classic Serge Negative Slew module. It is a forerunner to the popular Dual Universal Slope Generator. It is presented here for those who want to build themselves a classic Serge. There are two Negative Slew modules on the PCB. It can be used as both a falling slew rate controller, or a downwards sloping ramp LFO by hooking the pulse out into the input.

From a 1970s catalog: The DUAL NEGATIVE SLEW (NEG) is one of the unique multi-functional patch-programmable modules in the Serge system. The module features two independent sections with wide range voltage controllable slew rates. The slew is active in the negative direction only and can be patched to perform a number of synthesizer functions. With the Pulse output applied to the input, the module will regenerate for use as a voltage controlled sawtooth oscillator or pulse generator. An audio signal applied to the input will be envelope detected, and the complex envelope will be available at the output. If a pulse is applied to the input, the unit will function as an envelope generator with a fast rise time and a voltage controlled fall time.

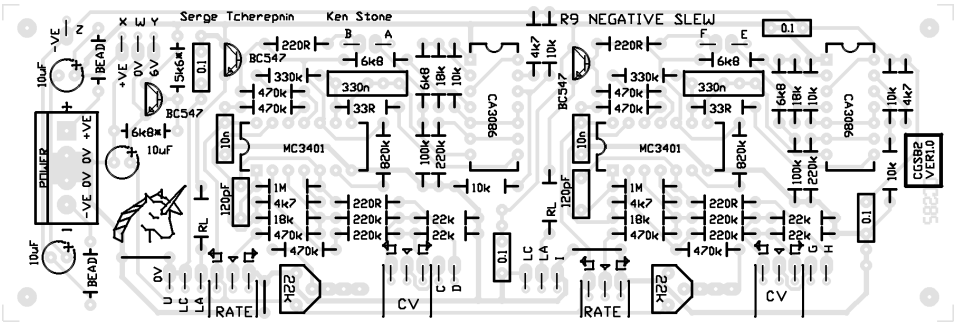
A little on how it works:





The schematic for one half of the dual Negative Slew module. Both sections are identical. The upper letter designators are for one circuit, while the lower ones are for the other.

Construction



The component overlay for the VER1.0 PCB. Click here for an enlarged, printable version. Print at 300dpi.

Before you start assembly, check the board for etching faults. Look for any shorts between tracks, or open circuits due to over etching. Take this opportunity to sand the edges of the board if needed, removing any splinters or rough edges.

When you are happy with the printed circuit board, construction can proceed as normal, starting with low profile components such as resistors and diodes first, followed by successively taller components.

Take particular care with the orientation of the polarized components, such as ICs, electrolytics, diodes, and transistors.

When inserting the ICs in their sockets, if used, take care not to accidentally bend any of the pins under the chip. Also, make sure the notch on the chip is aligned with the notch marked on the PCB overlay.

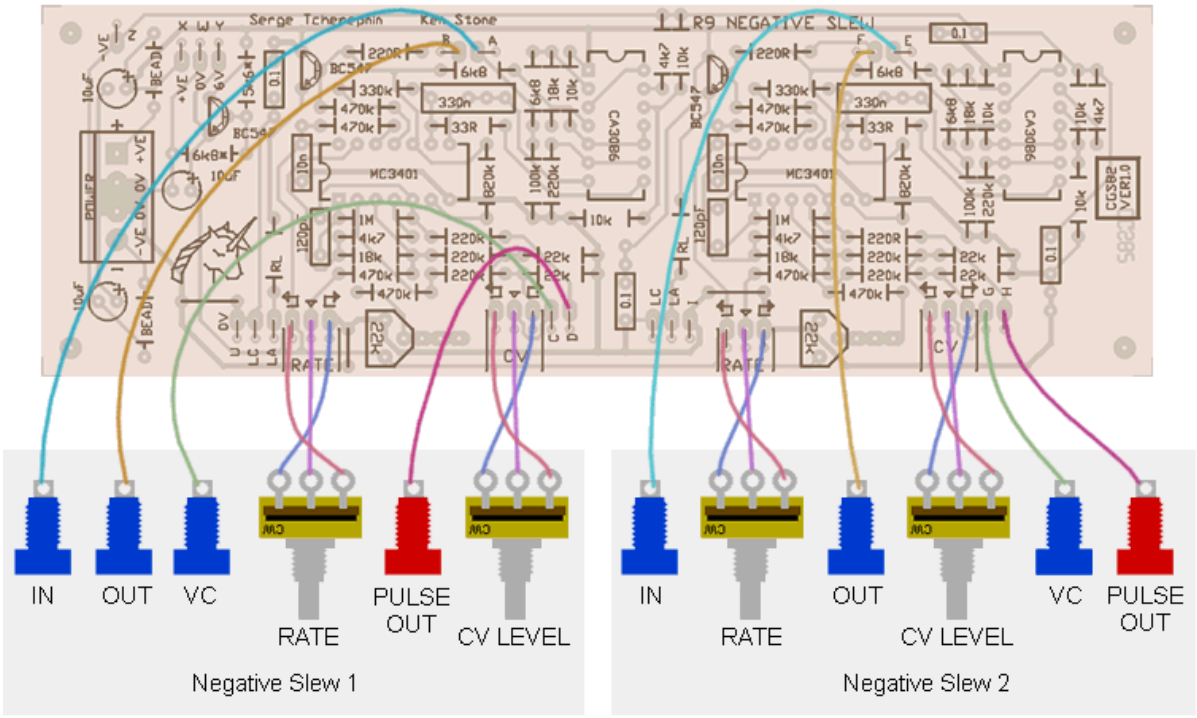
Any general purpose NPN silicon transistors should work in this circuit. Take care with your connections, as some have reversed pin outs to the BC547.

Traditionally, this design uses an additional 6V power rail. While a pad(Y) is provided, there is no need to connect 6 volts to it, as there is a simple transistor regulator on board. If replacing an existing board in a vintage Serge, you may wish to use the existing 6V rail instead of the inboard regulator.

The unit will run on either +/-12 volts or +/-15 volts. The "6 volt" rail will rise to about 7.5 volts when running on +/-15 volts. This is not a problem. Just bear it in mind if you need to do any fault finding.

There are emitter follower based LED drivers provided. Due to voltage drops in the drivers and the LEDs themselves, they will drop out part way through each cycle.

PAD ID	Function
A	Input 1
B	Output 1
C	VC 1
D	Pulse Out 1
E	Input 2
F	Output 2
G	VC 2
H	Pulse Out 2
I	0V connection (not used)
LA	LED anode (x2)
LK	LED cathode (x2)
U	0V connection (not used)
W	0V power connection
X	+12V power connection
Y	Not used. (+6V power connection if internal regulator is not used.)
Z	-12V power connection



CGS82 SERGE Negative Slew wiring

Example wiring for the Negative Slew. On the 1973 panel, there were two OUTPUT jacks and two PULSE OUT jacks per slew. They were wired in parallel with a wire link at the panel itself.

Set Up

Each slew unit has a trimmer that affects the rate. Use it to set the rates to the range you want, or to standardize your center frequency.

Notes:

- 330R refers to 330 ohms. 100n = 0.1 uF.
- The module will work on +/-12 volts or +/-15 volts.
- **PCB info:** 6" x 2" with 3mm mounting holes 0.15" in from the edges.
- Please email me if you find any errors.

Parts list

This is a guide only. Parts needed will vary with individual constructor's needs.

If anyone is interested in buying these boards, please check the PCBs for Sale page to see if I have any in stock.

Can't find the parts? See the parts FAQ to see if I've already answered the question. Also see the CGS Synth discussion group.

Part	Quantity
Capacitors	
120pF	2
10n	2
100n (0.1) decoupling caps	4
330n	2
10uF 25V	3
Resistors	
33R	2
220R	4
4k7	4
5k6	1
6k8	5
10k	6
18k	4
22k	4
100k	2
220k	6
330k	2
470k	8
820k	2
1M	2
100k (or 20-25k) trimmer	2
Semi's	
BC547 or sim	3

CA3086 or CA3046	2
MC3401 or LM3900	2
Misc.	
Jacks	as needed
Ferrite Bead (or 10R resistor)	2
0.156 4 pin connector	1
CGS82 VER1.0 PCB	1

Modular Synth Home

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