nonlinearcircuits

LET'S GET FENESTRATED build & BOM

This module contains three individual window comparator circuits. They all work slightly differently from each other and somewhat differently from regular window comparators.

These are particularly useful circuits to create gate/timed events from chaos signals, or any other CV signal.

The rather grandiose names for each comparator came from a paper - Some Special-Purpose Comparator Circuits by H.K Verma. The actual circuits are different but two are inspired by the ones presented in the paper.

1. Special Comparison Instant - this is probably the most normal window comparator of the three. The pots can be used to set the high and low voltages between which the output gate will be high. You can also patch in CV signals to alter the high and low settings.

2. Comp for Concurrent Magnitudes - this will output a gate when the signal on Input 1 is compared against the setting of the SET/In2 pot. If no signal is on In 2 then the pot sets a fixed voltage, otherwise the signal on In 1 is compared with the amplitude of the signal on In 2, which can be attenuated by the pot as desired.

The extra feature of this circuit is the Level pot can set the gate level (up to 10V!) or you can patch a signal into the LEVEL input and create envelopes or bursts rather than gates.

3. Comp for Restricted Openings - this one has a pot (WIDTH) or CV control to set and change the gate width. In1 and In2 are summed together and compared with the level chosen with the SET pot.

Building is fairly simple, just be mindful to bend the LEDs slightly upwards to shine thru the windows from the bottom. It is good to use super-bright LEDs in this module as they have to shine thru the PCB panel.

BOM – The Tayda & Mouser part numbers are given as examples

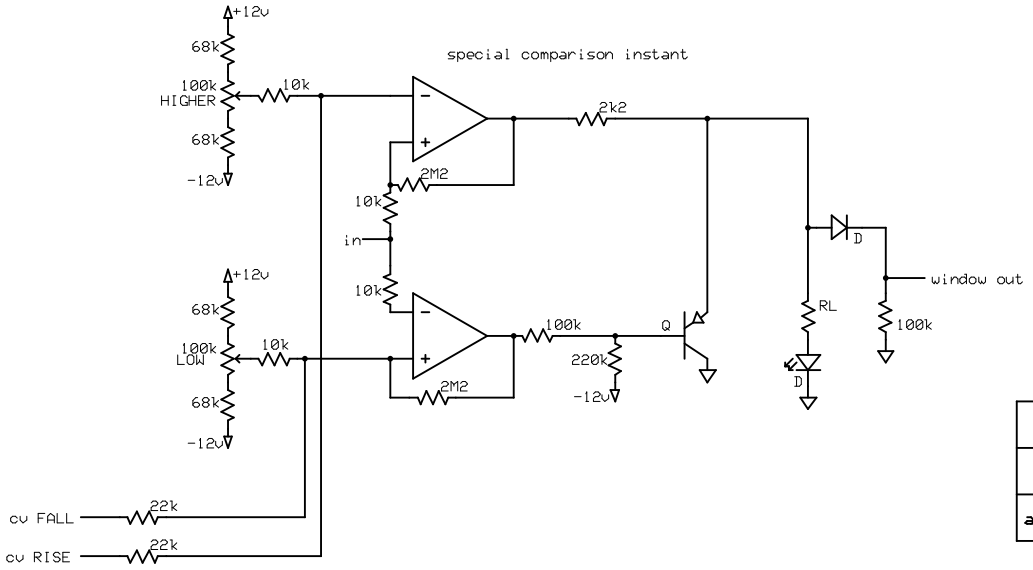
VALUE	QUANTITY	DETAILS
47pF	1	0805
100nF	6	0805
10uF	2	0805 25V or higher voltage rating Mouser:963-TMK212BBJ106MG-T or similar
RL	3	0805 select resistors to suit LED brightness, maybe 4k7 for super-brights
1k	1	0805
2k2	2	0805
3k3	2	0805
10k	17	0805
22k	4	0805
33k	1	0805
68k	4	0805
100k	3	0805
150k	1	0805
220k	1	0805
2M2	4	0805
TL072 or TL082	3	Soic Tayda: A-1139
BC857	2	soic Tayda: A-1345
LL4148	5	Tayda: A-1213
LED	3	3mm or 5mm super- or ultra-bright
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
S1JL, Schottky, power rectifier or 10R	2	SMD SEE NOTES #1. **dot on PCB indicates CATHODE (stripe on component).**
3.5MM SOCKET Kobiconn style	12	Tayda: A-2563 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
100k pot	6	Tayda: A-1848 or similar

Additional notes:

1. , Schottky (best option) **or** standard power rectifier diode 50-600V 1A or more, **or** use a resettable fuse **or** just a 10R. Examples: BAT54GWX, PMEG2005EGWX, AEC-Q101, 20V, SOD-123, PMEG2005EH DIODE, SCHOTTKY, 0.5A, 20V, 1N400x or S1JL or similar.

2. The chips, resistors, caps are cheapest from Tayda. Schottky diodes, CMOS & 1uF, 10uF 25V 0805 caps from Mouser/E14/Farnell/etc.

3. Join the Nonlinearcircuits Builders Guild on FB: https://www.facebook.com/groups/174583056349286/ and ask questions there if you have any. If you prefer not to FB then email is fine.



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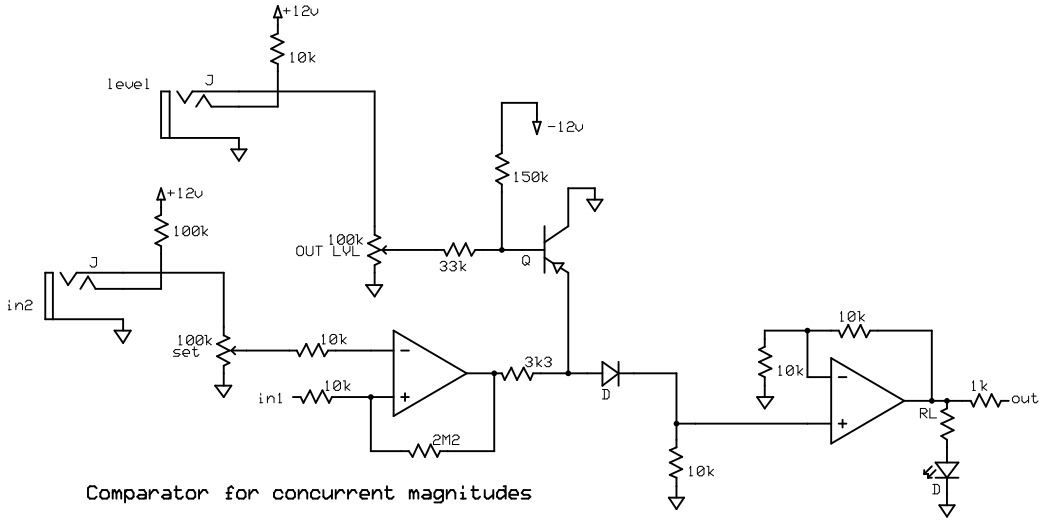
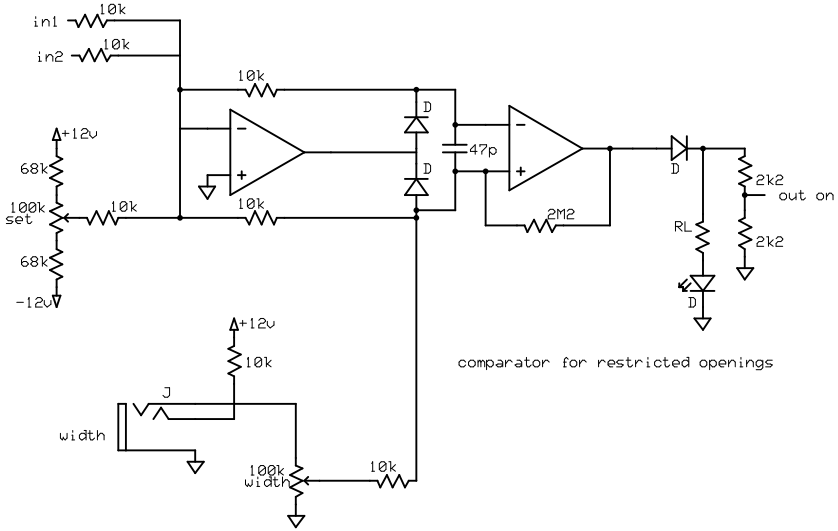
andrewF	Rev 1.0 3/26/2024	Page # or name



Comparator for concurrent magnitudes



comparator for restricted openings


FENESTRATED V2
nonlinearcircuits
RED
2113462A_P439-240613
LET'S GET
FENESTRATED
SPECIAL COMPARISON INSTANT
IN
CV HI
CV LO
OUT
COMP FOR CONCURRENT MAGNITUDES
SET/IN2
LEVEL
IN1
IN2
LEVEL
OUT
COMP FOR RESTRICTED OPENINGS
SET
WIDTH
IN1
IN2
WIDTH
OUT
NLC