nonlinearcircuits

1/n build & BOM

This module is straight out of the Lunetta playbook. It is simply a CMOS 4018 with buffers on all of its inputs and outputs, along with a 4081 to enable further divisions.

The divide by is patch-programmable, simply patch whichever number you wish to divide by back into the input and feed it a clock. The other outputs will follow the 1/n at various phase differences depending upon what is going on.

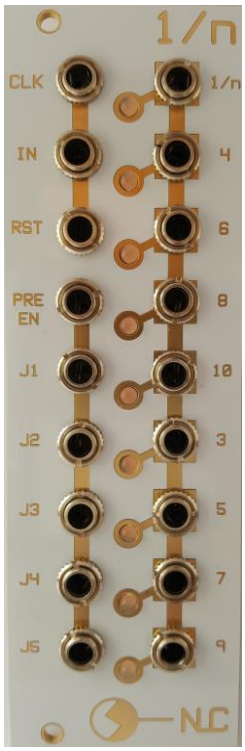
You can get quite silly by feeding signals into the J1-J5 inputs (jam) and sending a high signal (anything over 1V) to the preset enable.

USE

The module can be patched to supply a division of the clock signal. To use patch a gate into CLK and select a desired division from the right side column, patch this into IN. The /4 is pre-patched to the IN jack via internal switching.

You can experiment further by patching various signals to J1-J5 (jam), then a signal to send PRE EN (preset enable) high. This will rest the count to whatever jam inputs are high at the time. This is a good way to develop complex gate patterns but is also very interesting at audio rates too.

When used at audio rates, the 8 output signals from the right column will all be related to each other but different. It is possible to get many interesting effects using this module as an audio processor.

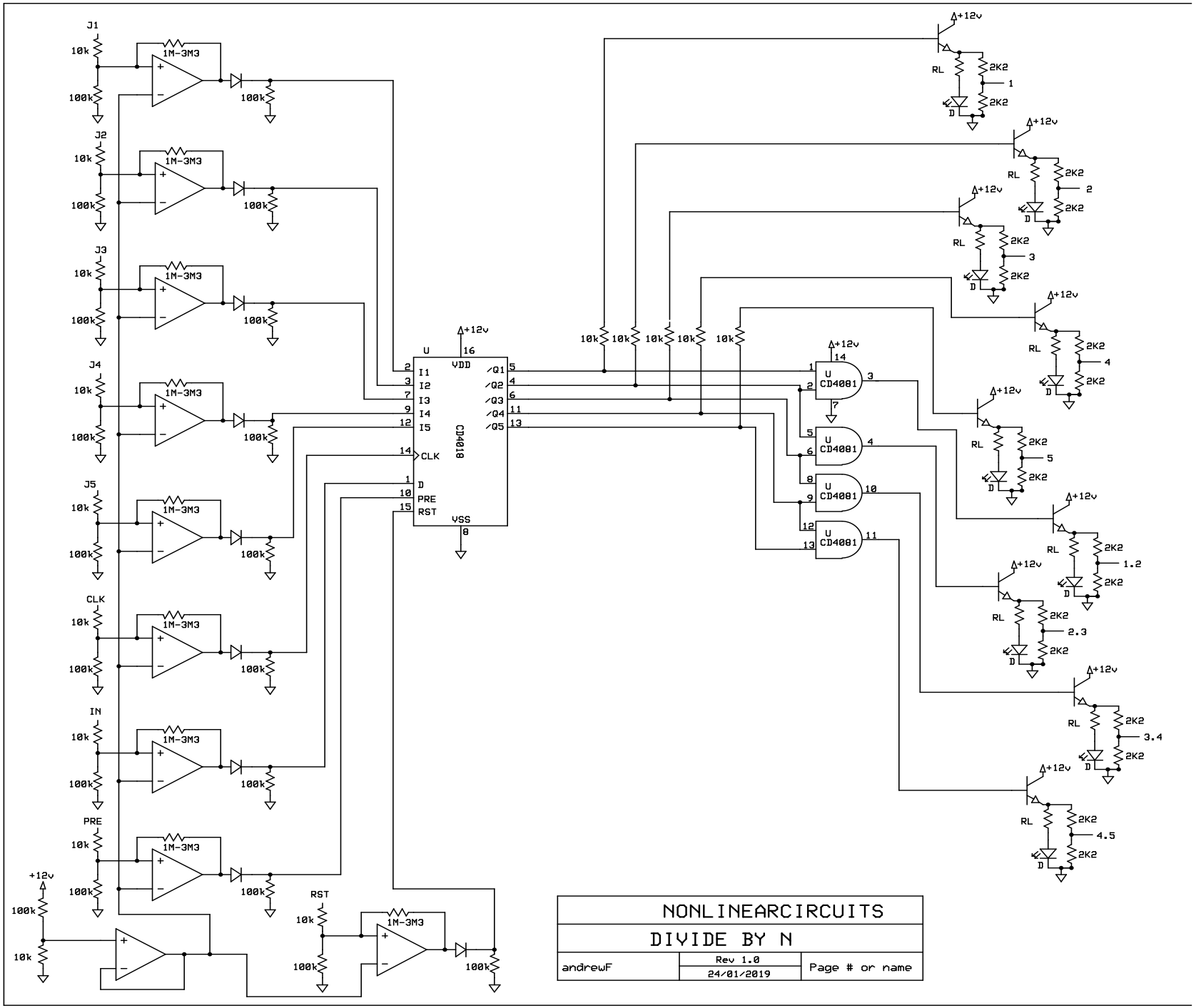


BOM – The Tayda part numbers are given as examples, feel free to buy from your favorite retailer if you prefer.

VALUE	QUANTITY	DETAILS
100nF (104)	3	0805
10µF	2	0805 OR 1206 25V rating or higher
2k2	18	0805
10k	15	0805
100k	20	0805
1M	9	0805
RL	9	0805 Select to suit LED brightness
TL074 or TL084	2	soic Tayda: A-1137
LL4148 diodes	9	SOD-80 Tayda: A-1213
4018	1	Soic Mouser: 595-CD4018BM96
4081	1	Soic Mouser: CD4081BM96
TL072 or TL082	1	Soic Tayda: A-1139
BC847	9	SOT-23 Tayda: A-1339
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
Schottky, power rectifier or 10R, optional - for reverse voltage protection...or not	2	SMD, Schottky (best option) or standard power rectifier diode 50-600V 1A or more, dot on PCB indicates CATHODE (stripe on component) Or use a resettable fuse or just a 10R. SEE NOTES #1
3.5MM SOCKET Kobiconn style	18	Tayda: A-865 or preferably get Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
3mm LED	9	Must be 3mm! Tayda or ebay
10 Pin 2.54mm Single Row Pin Header Strip	4	Tayda: A-197 (cut to size)
10 Pin 2.54mm Single Row Female Pin Header	4	Tayda: A-1306

Additional notes:

1. Some power diodes: PMEG2005EGWX SCHOTTKY RECT, AEC-Q101, 20V, SOD-123, PMEG2005EH DIODE, SCHOTTKY, 0.5A, 20V, 1N400x or S1JL or similar
2. The resistors, caps, diodes and transistors are cheapest from Tayda.
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.
4. Make sure the TOP and Bottom PCBs are correctly attached, you should be able to read "**Just one wafer thin mint**" below the power connector when the boards are connected correctly.


J1
J2
J3
J4
J5
CLK
IN
PRE
RST
10k
100k
1M-3M3
+12v
U
CD4018
VDD
VSS
I1
I2
I3
I4
I5
CLK
D
PRE
RST
/Q1
/Q2
/Q3
/Q4
/Q5
CD4081
RL
2K2
D
1
2
3
4
5
1.2
2.3
3.4
4.5
NONLINEARCIRCUITS
DIVIDE BY N
andrewF
Rev 1.0
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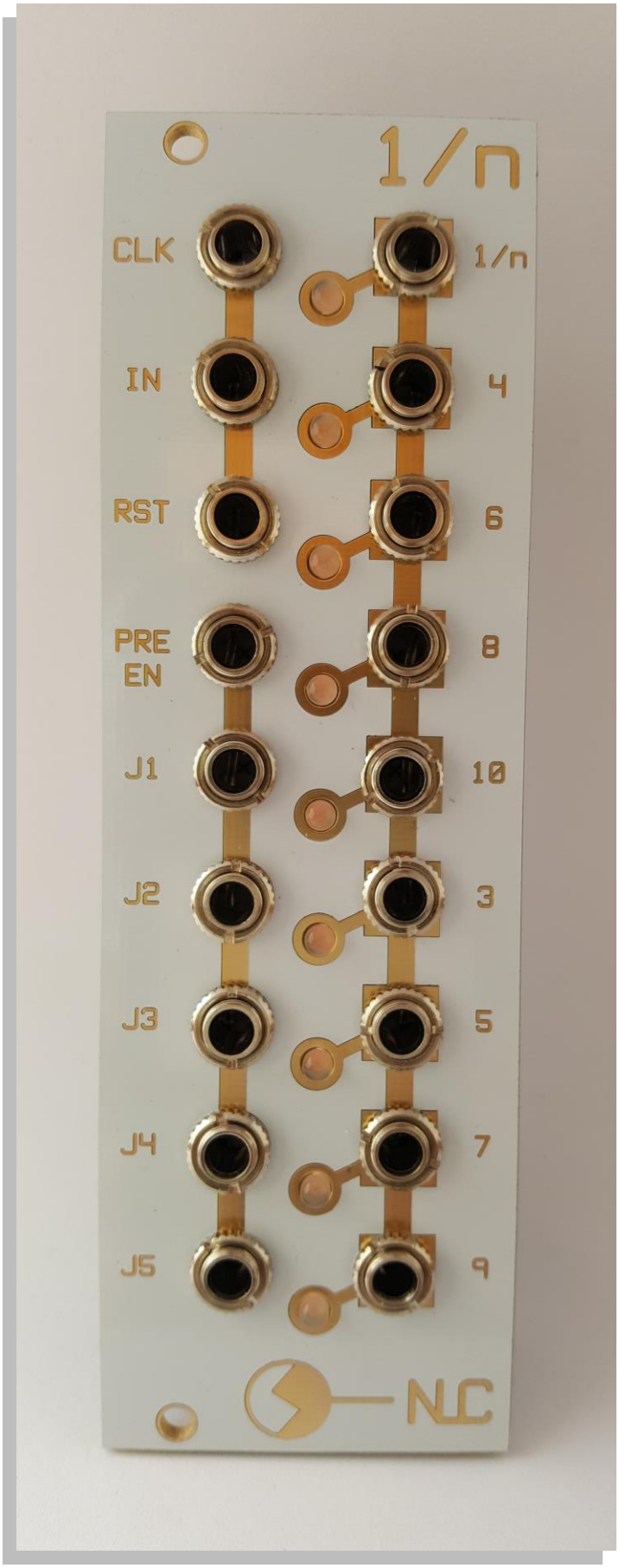
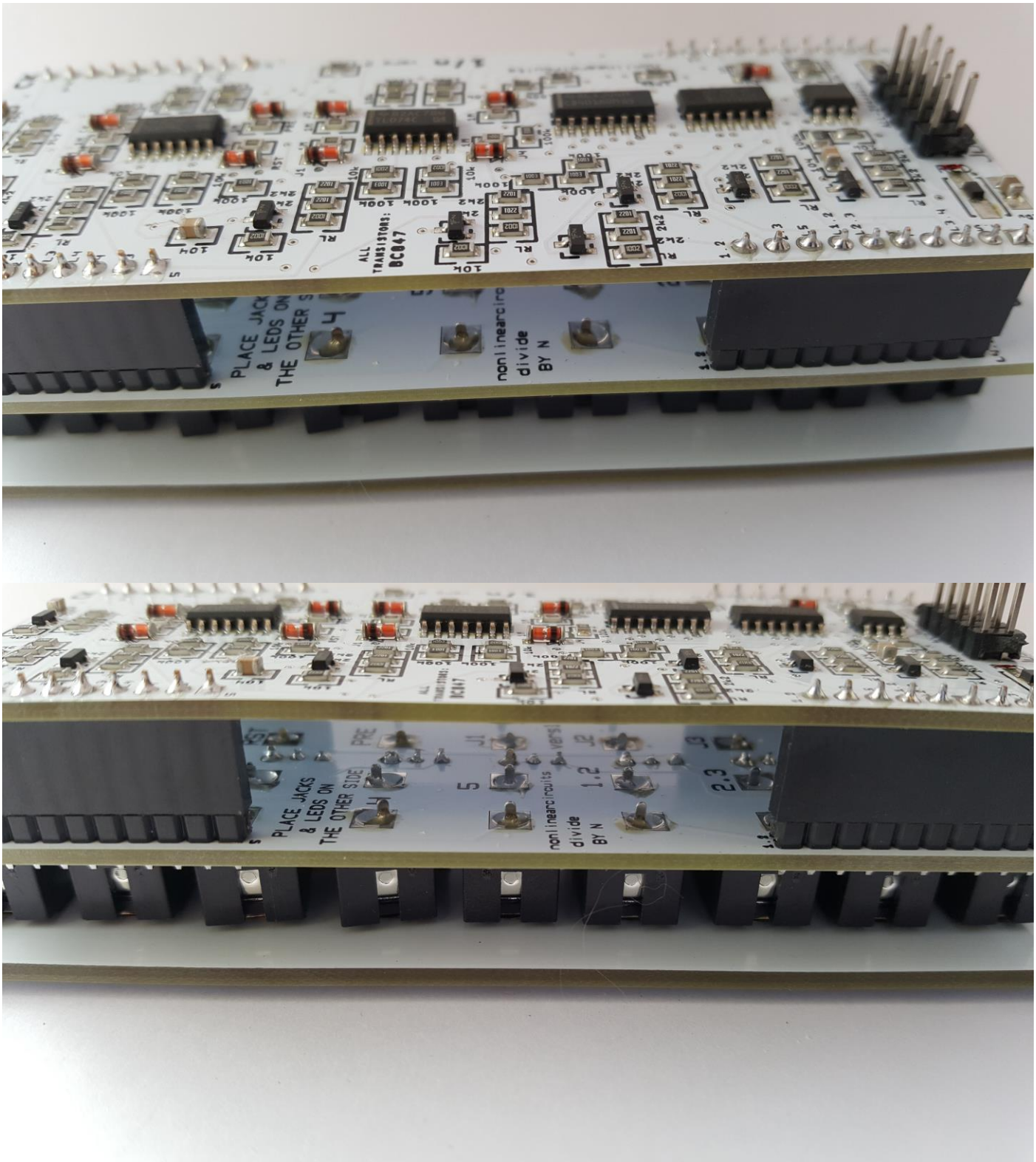

1/n
CLK
IN
RST
PRE
EN
J1
J2
J3
J4
J5
1/n
4
6
8
10
3
5
7
9
NLC


PLACE JACKS
& LEDS ON
THE OTHER SIDE
4
nonlinearcircuits
divide
BY N

PLACE JACKS
& LEDS ON
THE OTHER SIDE
5
nonlinearcircuits
divide
BY N

1
CK
IN
PRE
RST
J1
J2
J3
J4
J5
ALL
TRANSISTORS:
BC847
1/n vers 2
nonlinearcircuits
ALL-2Y446650
Just One

nonlinearcircuits
Just one
wafer thin mint