 [back to summary](#)

Description



Initially I designed this circuit back in june 2010 for the commercial project I was involved in with the Arturia company. Now it is one of most characteristic feature of the Arturia's MiniBrute and MicroBrute monosynths.

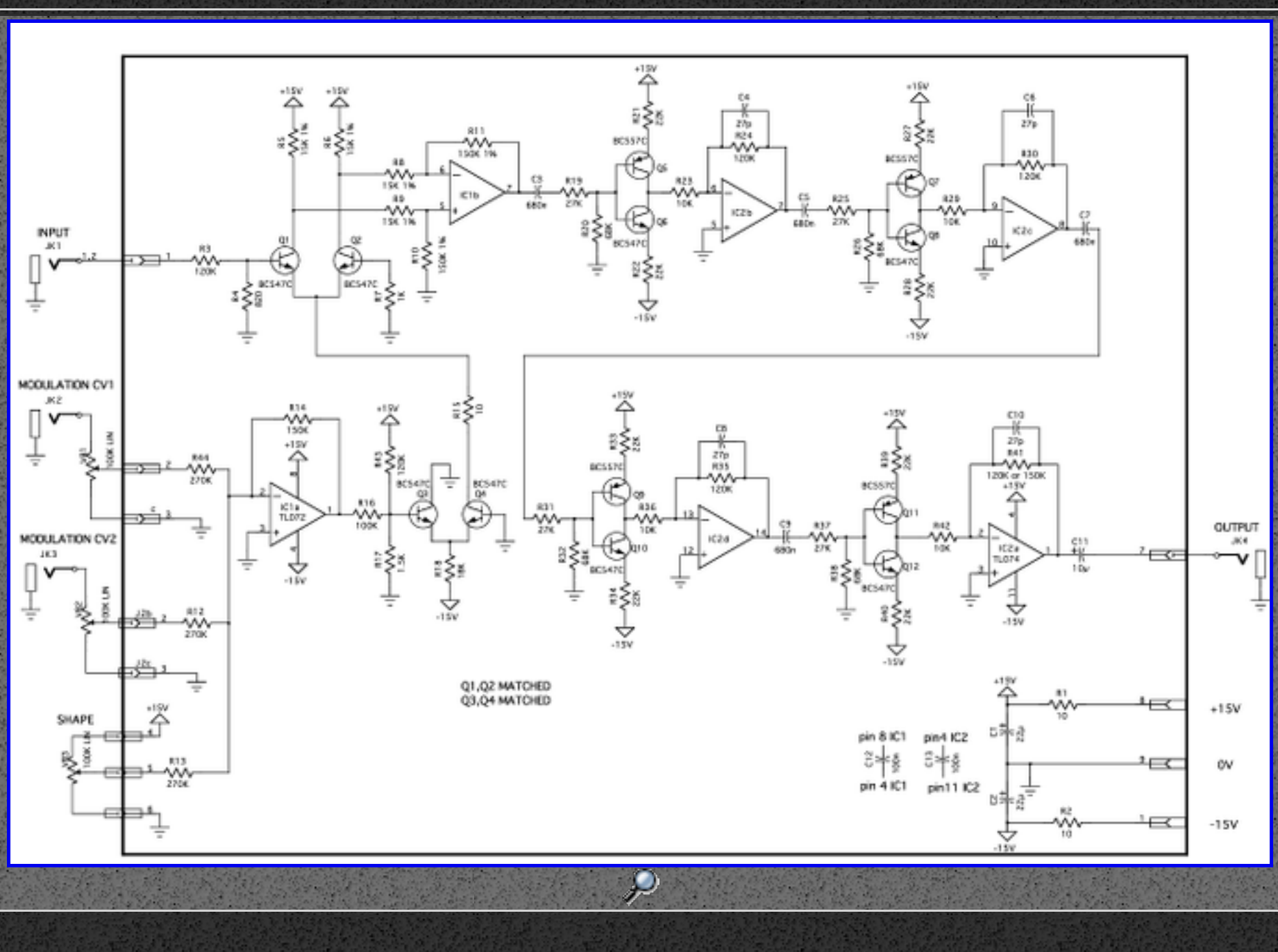
This circuit is basically a wavefolder that makes it possible to generate very complex harsh metallic although still harmonic sounds. The principle is to submit the initial signal through a series of non-linear circuits which break and fold back the signal into a very complex waveshape. Yet the signal keeps it's fundamental and remains stationary.

To give life to this the circuit incorporates an exponential VCA to control the signal input level. This control gives rise to a continuous palette of sounds. The basic non linear folding cells are inspired by Ken Stone's Simple Wave folder circuit .

Basically, the most interesting results are obtained by feeding the module with a triangular wave or a sinewave.


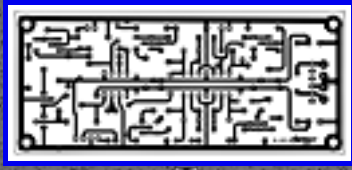
Here are some sonic snippets :

Schematics

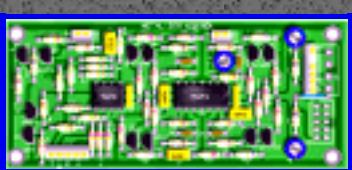
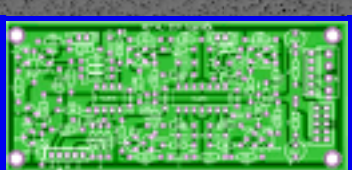



Printed circuit boards and component layout


PCB design




Component layout



Download the schematic as a PDF file 

Download the PCB as a PDF file 

WARNING ! The document is formatted to be printed directly on a mylar for photo-etching or a "press & peel" paper. Make sure that when the printed face of mylar is in contact with the copper side of the PCB, the lettering can be read normally.

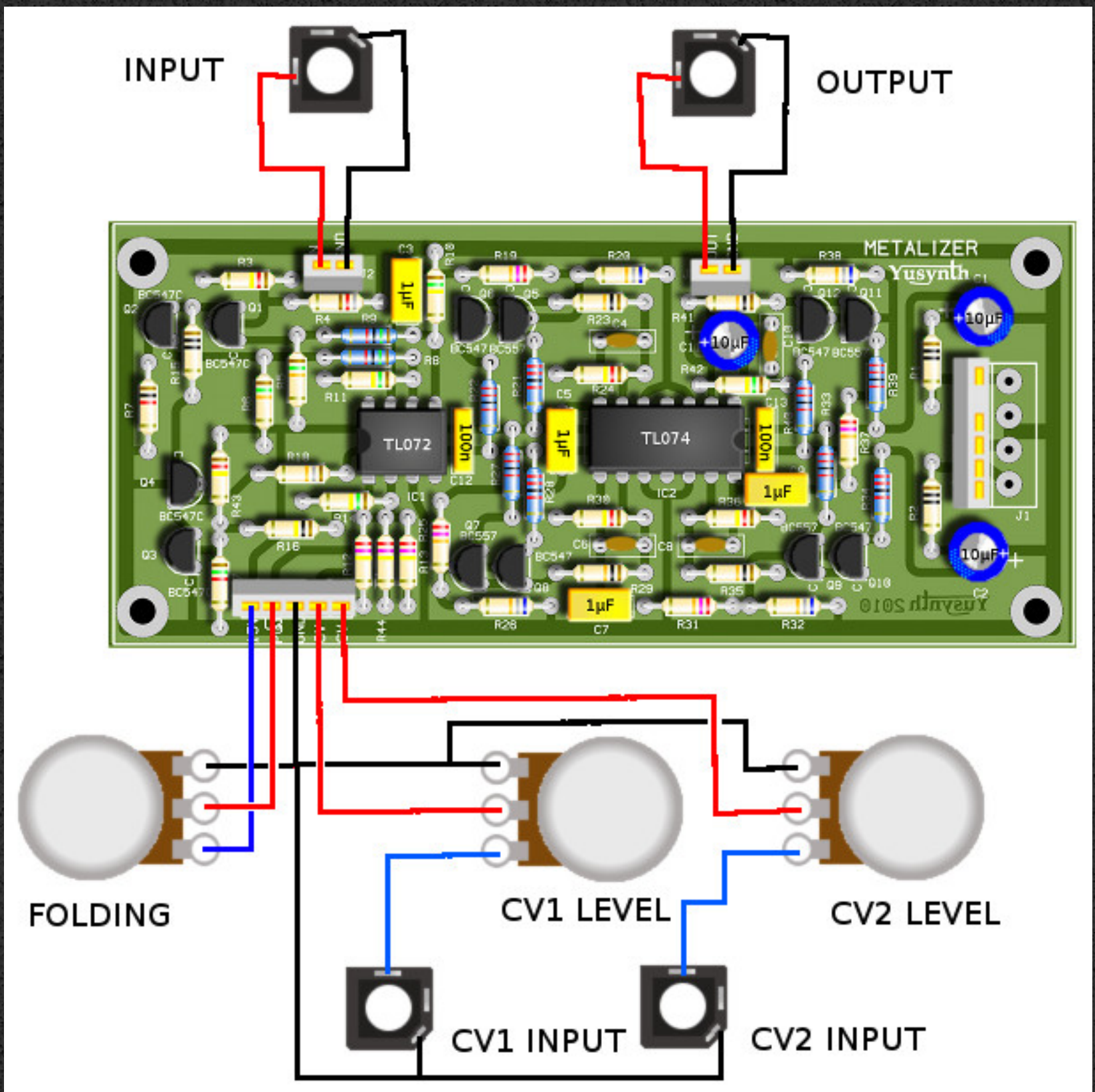
Get the silkscreen as a PDF file 

Components and building details

reference	value	number
IC1	TL072	1
IC2	TL074	1
Q1,Q2,Q3,Q4,Q6,Q8,I0,Q12	BC547C	8
Q5,Q7,Q9,Q11	BC557C	4
R1,R2,R15	10	3
R4	820	1
R7	1k	1
R17	1.5k	1
R23,R29,R36,R42	10k	4
R5*,R6*,R8*,R9*	15k *1%	4
R18	18k	&
R21,R22,R27,R28,R33,R34,R39,R40	22k	8
R19,R25,R31,R37	27k	4
R20,R26,R32,R38	68k	4
R16	100k	1
R3,R24,R30,R35,R41,R43	120k	6
R10*,R11*,R14	150k *1%	3
R12,R13,R44	270k	3
C4,C6,C8,C10	27p	4
C12,C13	100n	2
C3,C5,C7,C9	680n or 1µF NP	4
C11	10µF/25	1
C1,C2	10µF/25 or 22µF/25V	2
VR1,VR2,VR3	POT 100K LIN	3

Note that there is no C1 !...

Wiring



Front panel

Download the silkscreen mask as a PDF file 

Download the silkscreen mask as a JPEG file 

References

There are many different variant of wavefolder, here are some valuable links:
Ken Stone's Simple Wave Folder : http://www.cgs.synth.net/modules/cgs52_folder.html

The DIY builders' gallery

Here are the photographs of the yusynth Wavefolder modules built by other synth geeks around the world.
Thank you guys for sending me these nice photos.

<div>Name :</div> <div>Modular project :</div> <div>Location :</div> <div>Website :</div>	<div>Name :</div> <div>Modular project :</div> <div>Location :</div> <div>Website :</div>	<div>Name :</div> <div>Modular project :</div> <div>Location :</div> <div>Website :</div>
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 [back to summary](#)