



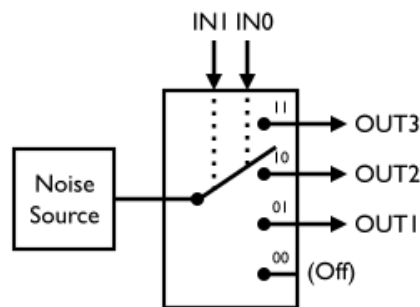
Electric Druid KIJIMI NOISE

Introduction	1
Pinout Diagram	2
Application Notes	2

Introduction

The Electric Druid KIJIMI NOISE chip was originally developed for Black Corporation for their Kijimi Synthesizer.

It provides two digital inputs which can select which one of the three outputs is turned on, or can turn them all off. This allows digital level control or routing with no extra parts.

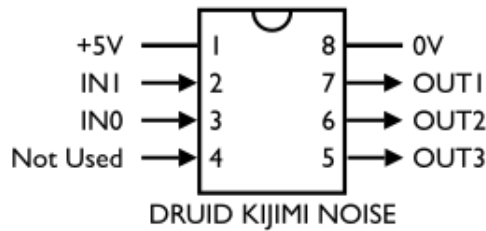


By feeding the three outputs to different input resistors in an inverting mixer circuit, it is possible to use the two inputs to select noise level between three arbitrary levels and off.

Alternatively, the three outputs can be used to route the noise to different places in a voice. For example, to the VCO modulation, to the VCF modulation, or to the audio mixer. Or to none of those. The fact this is controlled by two digital lines and requires no analog switching makes life much simpler in a programmable system and helps reduce circuit size.

The noise generation itself uses a 47-bit LFSR algorithm running at over 100KHz to produce good quality white noise across the whole audio spectrum.

Pinout Diagram



Pin	Function	Details	Notes
1	+5V	Power supply	
2	IN1	0-5V digital input	Digital input, MSBit
3	IN0	0-5V digital input	Digital input, LSBit
4	Unused	0-5V digital input	
5	OUT3	0-5V digital output	Random digital pulses @ ~100KHz, 0-5V
6	OUT2	0-5V digital output	Random digital pulses @ ~100KHz, 0-5V
7	OUT1	0-5V digital output	Random digital pulses @ ~100KHz, 0-5V
8	0V	Power supply	

Application Notes

The chip is very simple to use. The following table shows which output is switched on for each combination of digital inputs. Note the digital inputs have no internal pull-up, so must be connected to a valid logic level and cannot be left open.

In1	In0	Out1	Out2	Out3
0	0	Off	Off	Off
0	1	On	Off	Off
1	0	Off	On	Off
1	1	Off	Off	On

Once powered up, it produces random 5V pulses on the selected output pin. This digital noise output can be used as-is, or can be lowpass filtered to provide an analogue audio noise signal. A simple RC filter is all that is required. Note that the digital noise signal has only two levels; 0V and +5V. Although this sounds the same as analogue white noise to the human ear, sometimes the difference is significant - if the signal is used to feed a Sample-and-Hold, for example.