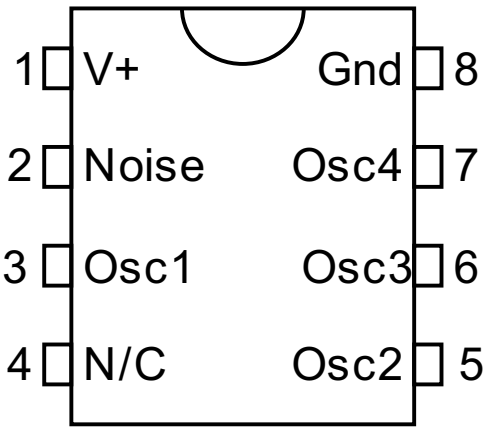
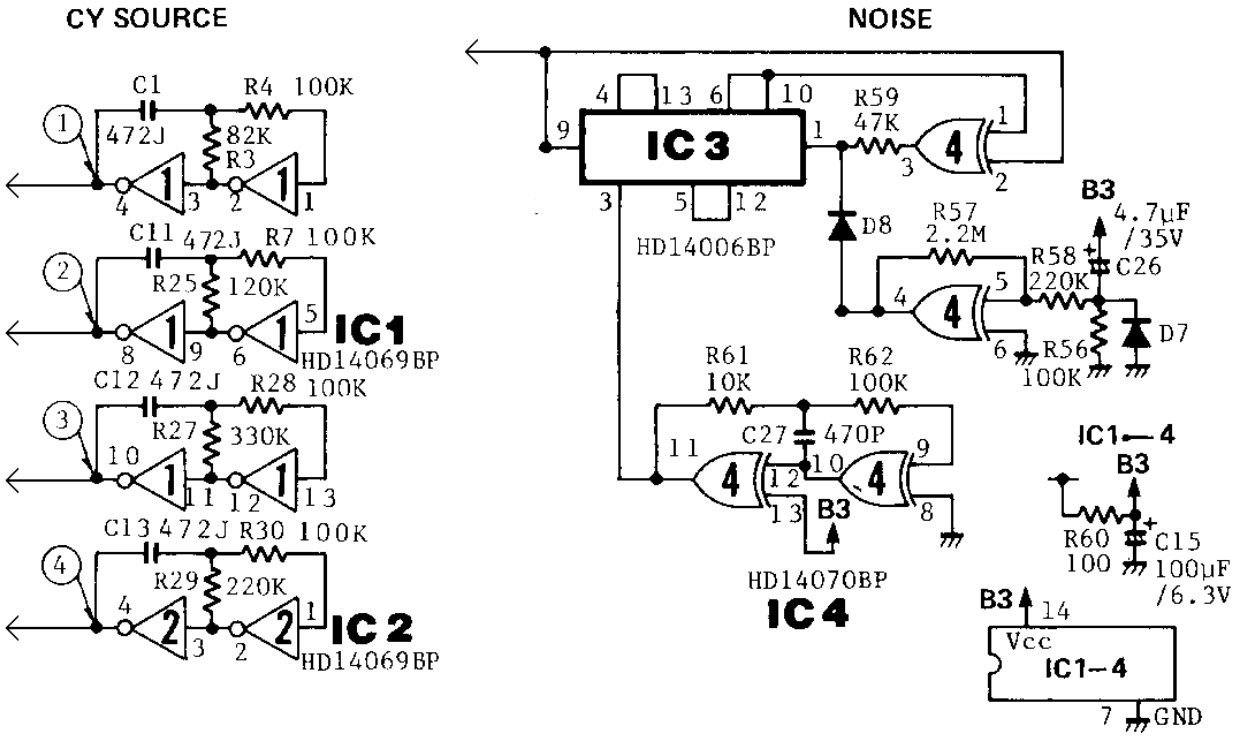
Delptronics Noise Chip

The Noise Chip produces white noise and metallic sounds perfect for percussion circuits like for snares, hand claps, maracas, and cymbals. It is a microcontroller (a PIC12F1571 or PIC12F1822) programmed to output white noise and four square waves.

Noise Chip Pinout:



The Noise Chip saves a lot of circuitry. It is functionally equivalent to the below schematic of the Boss DR-110 noise and cymbal sound circuitry. Similar circuitry was used in all the classic analog drum machines. The DR-110, and the TR-909 used a 16-stage shift register to generate white noise. The Noise Chip uses 32-stages. The TR-808 and most other machines used a reverse biased transistor, which adds even more complexity since it takes at least 12V to get noise.



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The Noise Chip operates at 1.8V to 5.5V. If the rest of the circuit uses a higher voltage, the Noise Chip will need to be supplied by a voltage regulator.

The frequencies of oscillators 1-4 are 1136 Hz, 794 Hz, 444 Hz, and 305 Hz respectively. The four oscillators are typically mixed and filtered to produce metallic sounds for cymbals.

For sample circuits that you can use with the Noise Chip, take a look at existing drum machine schematics such as the Delptronics LDB-1se drum machine:
https://delptronics.com/documents/LDB1seSchematic.pdf

Schematics for vintage drum machines can also be found on the Internet, like on this page:
http://experimentalistsanonymous.com/diy/Schematics/Full%20Synths%20Drum%20Synths%20and%20Misc%20Synth/