

The Circuit Slices CS031 VCF module is a quality, four pole, voltage-controlled, low pass filter with voltage-controlled resonance for the Eurorack synthesizer format sold at an affordable price.

Specifications & Features for the CS031 VCF

High-quality, yet affordable Eurorack low pass VCF

Based on the SSI2144 chip from Sound Semiconductor (new version of the classic SSM2044)

- Four-Pole Low Pass

- Differential inputs

- Large Sweep Range – Typical 20,000 to 1

- Low control feedthrough

(See the SSI2144 data sheet for complete specifications for this chip)

Two signal inputs: Sig 1 and SIG 2 (SIG 2 with an attenuator)

Two Frequency CV inputs: CV 1 and CV 2 (CV 2 with an attenuator)

One Resonance CV input: CV RES, with an attenuator

One output (OUT)

Five front-panel controls (FREQUENCY, RESONANCE, SIG 2, CV 2, CV RES)

Frequency CV factory-tuned to 1V per octave

Small depth: 33 mm (1.3”) with power cable plugged in (great for use in “skiff” cases)

Panel width: 8 HP

Low power consumption:

- +12V @ 15mA

- 12V @ 14mA

Reverse power protection

Modern SMT manufacture and single PCB design makes the module very affordable

Includes power cable, case screws, and shorting jumpers

Setup & Installation

Route the ribbon-cable power connector to your power bus and mount the panel into your case using the supplied screws. While this module does include reverse power protection, please be careful making the connection to your power bus and double check your connection before applying power.

The red stripe on the ribbon cable must be toward the -12V pin on your power bus.

User adjustments (optional)

The PCB's TRIM1 trimmer is factory-tuned for a 1V per octave response. If necessary, the VCF can be changed or re-tuned by applying a 1V per octave control voltage to CV 1. Adjust RESONANCE and FREQUENCY controls to bring the VCF into self-oscillation -- this will produce a sinewave at the output. Adjust TRIM1 so that a one volt input control change produces a one octave change in the sinewave pitch. This is not a critical adjustment, and not usually necessary.

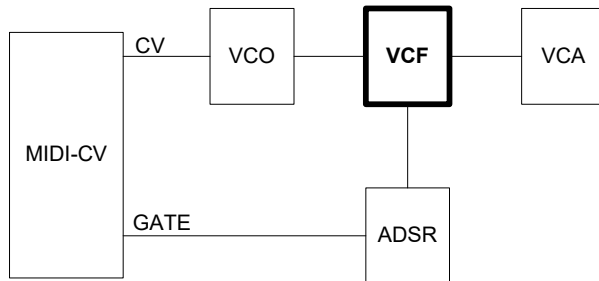
The PCB's "OFFSET", TRIM2, trimmer is an optional component that is not necessary for the typical use of this PCB as a single VCF. It is only useful in some polyphonic implementations where a number of VCFs need to closely track the same control voltage.

Signal Inputs

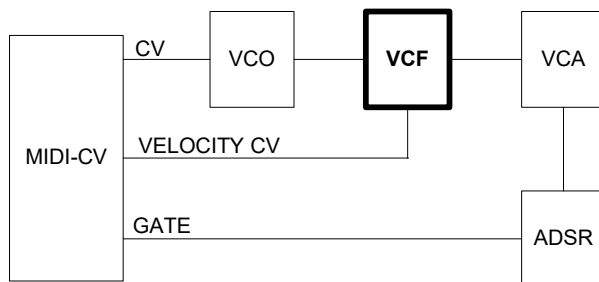
The SIG 1 and SIG 2 inputs are "differential". SIG 1 is non-inverting and SIG 2 is inverting. Also, SIG 2 is attenuated by 3dB. This allows two signals of the same phase to be summed without cancellation.

Patch Ideas

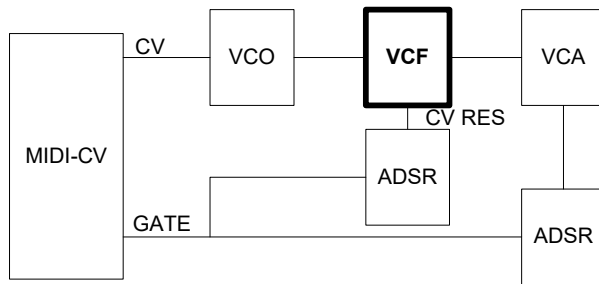
Typical patch:



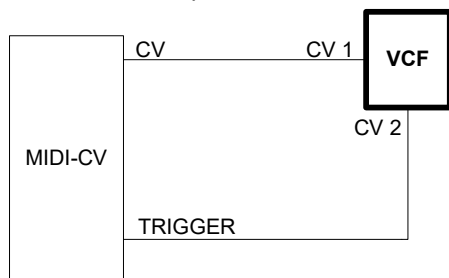
Using velocity CV to control the VCF:



Controlling resonance using an ADSR:



Self-Oscillation patch:



With the FREQUENCY control at about half, adjust RESONANCE clockwise until the VCF oscillates. You can also add a trigger pulse or short pulse from an ADSR into the CV 2 input. Adjusting the CV 2 control will allow you to add a percussive attack to this patch but may likely detune this patch's 1V per octave tuning.

This module is warranted for one year with parts, under normal use – not including the application of reverse or over-voltage power by customer. Return shipping to Circuit Slices from customer not included. Return to Circuit Slices, LLC for repairs. Circuit Slices, LLC reserves the right to replace the module if necessary. Please keep your receipt / packing slip for warranty information.

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