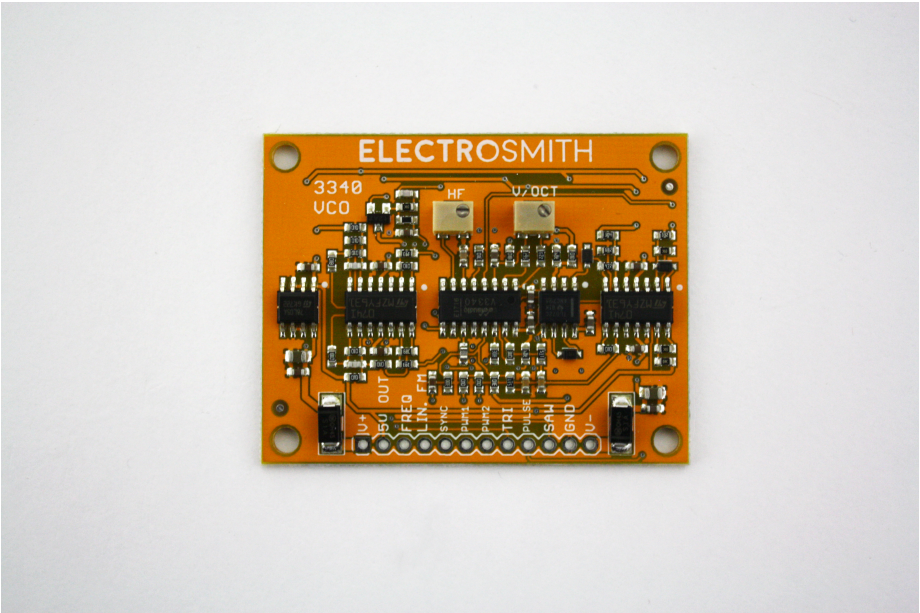


Electrosmith 3340 VCO



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## ES 3340

### Voltage Controlled Oscillator

The Electrosmith 3340 VCO is an analog oscillator that uses a reissue of the legendary CEM3340 IC. This chip was responsible for some of the most iconic synth sounds in history. It features simultaneous output of Sawtooth, Triangle, and Pulse waveforms. These can be modulated and controlled via the frequency, FM, and PWM inputs. Two on-board trimpots allow for precise tracking of various pitch standards and can be calibrated to accurately respond up to 10+ octaves.

- Sawtooth, Triangle, and Pulse waveform outputs
- Pure analog waveform generation
- Designed with +/-12V but can be powered from +/-15V and others
- Can be calibrated to various pitch tracking standards

### Electrical Characteristics

The board is designed for:

V+ = +12V

V- = -12V

Powering from different supply levels (+10V to +15V) is possible, but will have an effect on the gain of the output waveforms, and the control scalings.

Parameter	min	max	units
Waveform Amplitude	-5	5	V
Frequency Range	0.05	80000	Hz
Frequency Input	-8	12	V
PWM Inputs	0	+5	V
+5V Output	4.5	5.5	V

### Pin Descriptions

#### 1. V+

Positive Supply Input. Designed for +12V

Can operate within +10V and +15V

## **2. 5V**

This is a Regulated 5V output (up to 100mA) that can be used as a control reference (for PWM) or for other things in the applied circuit.

## **3. Freq**

Frequency control for all waveforms. This pin is a summing node for any number of voltage control inputs.

Typical input would be a potentiometer wired up between V+ and GND with a resistor between the wiper and the control pin.

For coarse adjustment and 1V/Octave CV Inputs use 100K

For fine adjustment use 1M

For LFO applications, negative voltage will decrease frequency down to .05Hz.

Voltages below -8V will stop oscillation.

## **4. Lin. FM**

Linear frequency modulation input.

DC Blocked to prevent undesirable biases on the frequency of the oscillator.

## **5. Sync**

Conventional hard sync input based on Figure 5 from the Curtis CEM3340 Datasheet.

## **6. PWM Pot**

Pot input for pulse width modulation.

No resistor from the wiper necessary. Just connect the pot to +5V and GND, and connect the wiper to this pin.

Expected input: 0 to +5V

PWM Clips at the top and bottom to maintain an audible output signal regardless of the input.

## **7. PWM CV**

CV input for pulse width modulation.

Expected input 0-5V connected directly to pin.

## **8. Tri**

Triangle Wave Output

10Vpp output

## **9. Pulse**

Pulse Wave Output

10Vpp output

Duty cycle affected by PWM control pins.

## **10. Saw**

Ramp Wave Output

10Vpp output

## **11. GND**

Connect to ground.

## **12. V-**

Negative Supply Input. Designed for -12V.

Can operate within -4V and -15V