

CEM 3371

μ P Controllable Waveform Generator

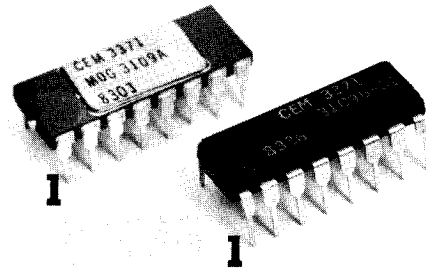
The CEM 3371 is a general purpose dual voltage controlled waveform generator intended for generating arbitrary waveforms when used in conjunction with a microprocessor - DAC system. A typical application would be in the generation of envelope waveforms in musical instruments, where with only three sampled voltages, two completely independent envelopes may be generated with any starting voltage, ending voltage, shape, duration, and amplitude.

The three determining parameters are Asymptote voltage (A), Time control voltage (T), and Peak Clamp voltage (P). All three inputs are very high impedance, low bias current inputs, and therefore may be supplied from a single multiplexed DAC output with only a CMOS multiplexer and hold capacitors.

The output selected with Output Select (OS) will follow any change in the asymptote voltage level, but at a rate determined by the Time control voltage. With proper interconnection of a few external components, the output wave shape may be RC (exponential), linear, or anything in between. The Time control input varies the time constant in an exponential manner over a minimum range of 50,000:1. The Peak Clamp voltage will cause the output, as it is charging or discharging toward its asymptote, to stop and hold indefinitely at that level. Whenever this occurs, the Peak

Sense output (PS) will go low, indicating to the processor that the output is in the clamped condition. The typical application for this clamp circuit would be to set the envelope peak and to indicate the end of the attack portion of the envelope.

The asymptote, time, and peak clamp circuitry is switchable between two buffered outputs with the Output Select, and therefore may be multiplexed to generate two independent waveforms.



Features

- Low Cost
Minimal Hardware/Minimal Software System
- Extreme Flexibility Determined with Only Three Parameters
- Arbitrary Waveforms Possible
- Not Limited to ADSR
- Normal and Inverted Envelope Possible
- Variable Envelope Amplitudes
- Ability to Set Waveform Quiescent Level Eliminates Initial Level S & H and C.V. Mixer.
- 0 to +5V, High Z Control Inputs for Easy Interface to System DAC through CMOS Multiplexer
- Low Offset Between Asymptote and Peak C.V. Inputs and Final Output

Block and Connection Diagram

