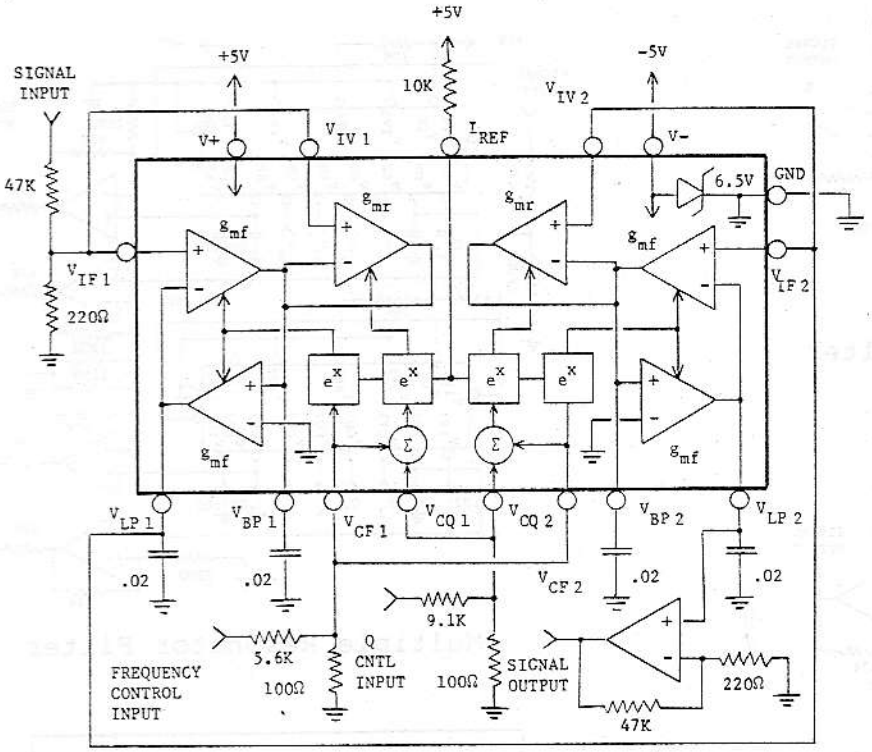
CURTIS ELECTROMUSIC SPECIALTIES

ADVANCE PRODUCT INFORMATION

CEM 3350 Dual Voltage Controlled State Variable Filter



Block Diagram and Connection as Standard Four Pole Low Pass Filter

Features

- Low Cost
- Two Independent State Variable Filters in a Single 16 Pin DIP
- Separate Frequency Control Inputs for Each
- Separate Q Control Inputs for Each
- Wide Frequency Sweep Range: 15 Octaves Typ.
- Wide Q Control Range: ½ to 100 Typ.
- Exponential Control Scales for Both Frequency and Q
- Two Simultaneous Outputs on Each: Low Pass, Bandpass, or High Pass Possible
- Two Simultaneous Inputs for Each: Fixed Gain and Variable Gain
- Chip Configureable Into Many Unique V.C. Filters
- Requires Exceptionally Few External Components
- Wide Supply Range: ±3V to ±18V

Description

The CEM 3350 is a dual voltaged controlled state-variable filter intended for electronic musical instruments and other signal processing applications. Although the two filters are completely independent, they may be easily interconnected to form a wide variety of filter responses. Each filter provides both voltage control of center/cut-off frequency over more than 12 octaves and voltage control of Q from ½ to greater than 100. All control scales are exponential, allowing for easier control of the parameters over their wide ranges.

Each filter also provides two signal inputs, a fixed gain input and a variable gain input. For signals applied to the fixed gain input, the gain in the passband will remain constant as the Q is varied. For signals applied to the variable gain input, the gain at the response peak will remain constant as the Q is varied. The input signal may be proportioned between these two inputs to provide any desired characteristic: the connection in the Block Diagram simulates the standard 4 pole music synthesizer low pass, for example.

Finally, each filter provides two simultaneous outputs, making directly available low pass, band pass, and high pass responses depending upon where the input signal is applied.

Able to operate over a wide supply range and requiring an absolute minimum of external components, the versatile CEM 3350 allows new and unique filter responses to be created with a high degree of voltage control over the defining parameters.

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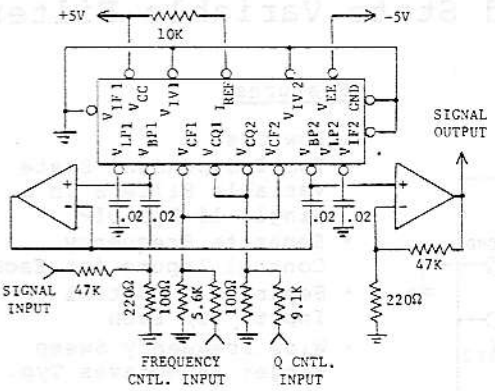
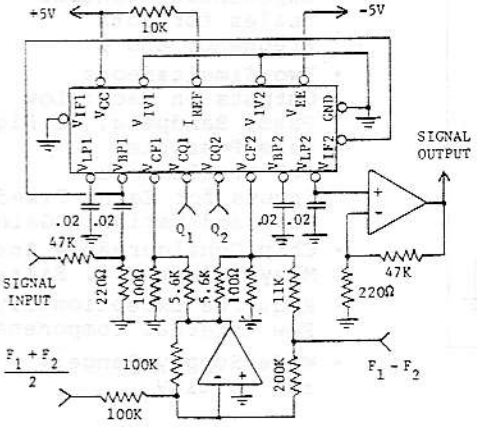
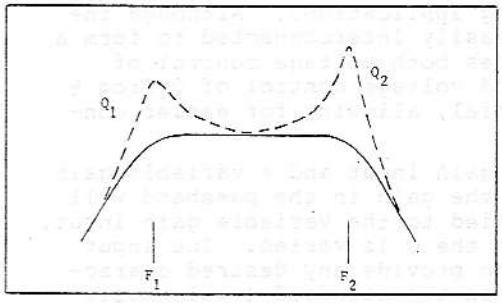


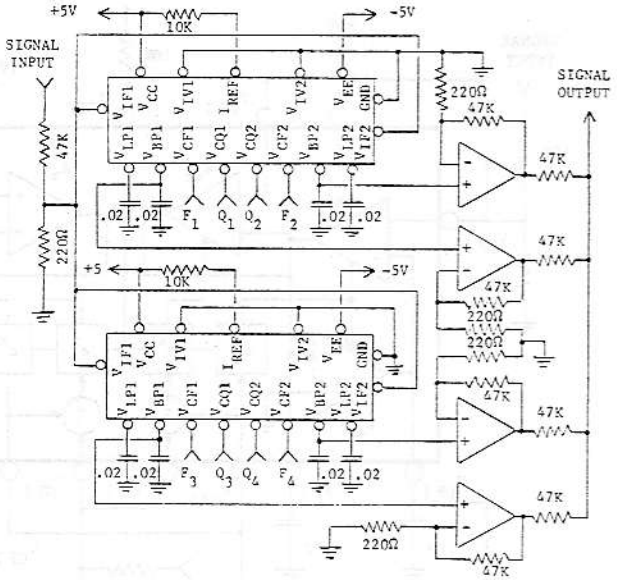
4-Pole High Pass Filter



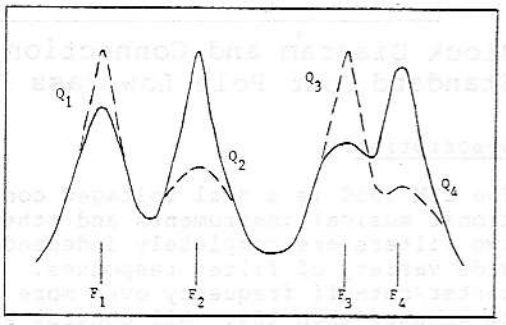
Variable Bandpass Filter



Response of Variable Bandpass Filter



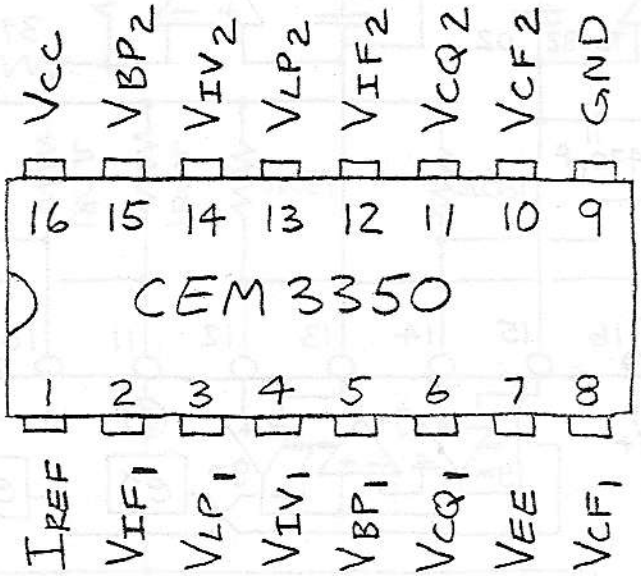
Multiple Resonator Filter



Response of Multiple Resonator Filter

CEM3350 DUAL STATE VARIABLE V.C. FILTER

PIN OUT & DESCRIPTION OF PINS



IREF: REFERENCE CURRENT INPUT. IREF SHOULD BE 200 - 400 μA. PIN IS 1.5V ABOVE VEE.

VIF: FIXED SIGNAL INPUT. PASSBAND GAIN REMAINS CONSTANT AS Q IS VARIED. MAX. = ± 50 MV.

VIV: VARIABLE GAIN INPUT. PASSBAND GAIN DECREASES AS Q IS INCREASED. MAX. = ± 50 MV.

VLP: LOW PASS OUTPUT AND ONE OF 2 FREQUENCY DETERMINING CAPS. SHOULD BE BUFFERED WITH HI Z (< 10nA) OP AMP TO OBTAIN OUTPUT.

VBP: BANDPASS OUTPUT AND OTHER OF 2 FREQUENCY DETERMINING CAPS. SHOULD BE BUFFERED WITH HI Z (< 10 nA) OP AMP TO OBTAIN OUTPUT.

VCF: FREQUENCY CONTROL INPUT. RANGE IS −200 MV TO 0 MV. SCALE IS −18 MV PER OCTAVE.

VCQ: Q CONTROL INPUT. RANGE IS + 30 MV TO − 90 MV. SCALE IS A DOUBLING OF Q PER −18 MV.

VEE: MINUS SUPPLY. MIN. = −3V. MAX = − (24 − Vcc).

Vcc: POSITIVE SUPPLY. MIN. = +3V. MAX = 24 + VEE.

CEM 3350
DUAL STATE VARIABLE FILTER

CONNECTIONS FOR PRODUCING ALL STANDARD RESPONSES