

SIMPLE MUSICAL CHIME GENERATOR

The circuit shown is that of a multiple feedback band-pass filter. The present is used to add some positive feedback and so further increase the Q factor. The principle of operation is as follows. A short click (pulse) is applied to the filter and this makes it ring with a frequency which is its natural resonance frequency. The oscillations die away exponentially with respect to time and in doing so closely resemble many naturally occurring percussive or plucked sounds. The higher the Q the longer the decay time constant. High frequency resonances resemble chimes, whereas lower frequencies would like claves or bongos. By arranging several of these circuits, all with different tuning, to be driven by pulses from a rhythm generator an interesting pattern of sounds can be produced. There may be some stability problems when high Q or high frequency operation is involved. To achieve better performance, an op-amp with a greater bandwidth than the 741 should be used.

Alternatively, a different structure, such as a state variable filter could be used. Qs of up to 500 can be obtained with this latter circuit.

