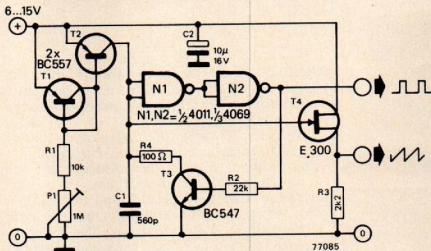


sawtooth-
CCO

This sawtooth waveform generator which is built round a current controlled oscillator is distinguished by its large sweep range. It is suitable for use in electronic music applications, and the narrow output pulse also enables the circuit to be used as a pulse-CCO for sample/hold circuits.

The circuit consists of a controllable current source (T1, T2), a trigger (N1, N2) and a switch (T3). As soon as the circuit is switched on capacitor C1 is charged by the current source. When the voltage across C1 reaches the threshold value of N1, T3 is turned on via N1 and N2, and C1 is dis-

charged, after which the whole cycle repeats itself. The sawtooth output signal which is buffered by FET T4 has a peak-to-peak value of approx. 1.3 V.

With the component values shown in the diagram, the frequency can be adjusted from approx. 5 to 500 kHz (with P1). Although a higher output frequency is possible, there is a corresponding deterioration in the waveform. With $C1 = 5n6$ and $R1 = 1k$, the frequency range runs from 0.5 ... 500 kHz.

In place of NANDs inverters may be used.