

Supplementary 1

Peak detector circuit

The output of the peak detector circuit is simply the amplitude of the signal input. The circuit consists of three parts; a voltage divider, the peak detector and a buffer amplifier. The voltage divider adjusts the voltage to the range of the comparator in the peak detector. The peak detector is based around a fast comparator (MAX961, Maxim Integrated, San Jose, CA, USA) and a traditional peak detector circuit. The comparator compares the voltage over the condensator to the input signal and charges the condensator through its logical high signal when the condensator voltage is lower than the signal amplitude. The result is a fast peak detector with a stable output signal that can be fed into the buffer amplifier to transform the impedance before the signal is acquired through the measurement system.

