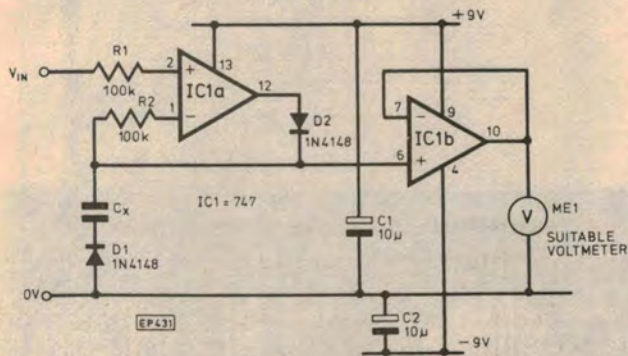


True Peak-Reading DC Voltmeter



The accompanying circuit shows a simple method of reading the "peak" rather than the average value of a varying DC waveform. It may also be used for AC signals, provided the signals are rectified prior to applying them to the input of this circuit. A 747 dual op amp is specified, but two separate 741's could be used, if more convenient.

IC1a functions as a comparator (with essentially unity gain), and signal is applied to its non-inverting input. Output voltage peaks are stored in capacitor C_x , which is charged via diode D2. D2 prevents discharge of the charge in C_x back into IC1a output, while D1 restores the DC offset created by D2. Whenever comparator IC1a detects that the input level exceeds that stored in C_x , C_x will be charged to the new level.

Functioning as a voltage follower, IC1b maintains the effective leakage resistance (shunting C_x) at a high value. If C_x is $0.22\mu\text{F}$, the practical time constant will be about 1.5 seconds. By increasing the value, to say, $100\mu\text{F}$ (tantalum) a "peak-hold" effect will be obtained, as the time constant extends to several minutes. Use of a dual BI-FET op amp (such as a LF353 or TL072) should increase the time constant still further.

Total current drain is only about 4mA, which is low enough for the unit to be energised from small batteries.

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