Single Chip Digital Voltmeter (LCD Based)

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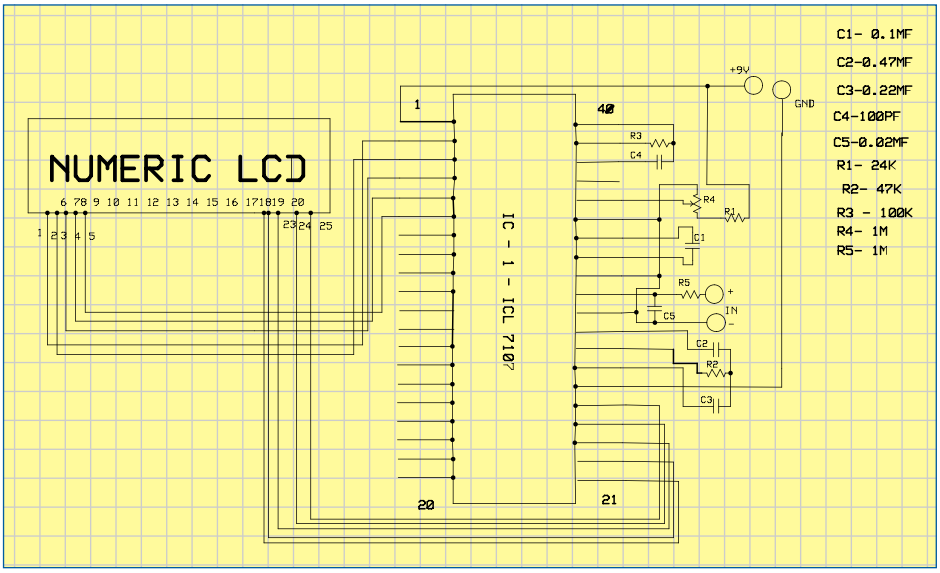
In this circuit we have used ICL7106.This a single chip IC, which is used for volt, current and temperature measurement meter.

The Intersil ICL7106 and ICL7107 are high performance, low power, 31/2 digit A/D converters. Included are seven segment decoders, display drivers, a reference, and a clock. The ICL7106 is designed to interface with a liquid crystal display (LCD) and includes a multiplexed backplane drive; the ICL7107 will directly drive an instrument size light emitting diode (LED) display. The ICL7106 and ICL7107 bring together a combination of high accuracy, versatility, and true economy. It features auto zero to less than 10mV, zero drift of less than 1V/AC, input bias current of 10pA (Max), and rollover error of less than one count. True differential inputs and reference are useful in all systems, but give the designer an uncommon advantage when measuring load cells, strain gauges and other bridge type transducers. Finally, the true economy of single powersupply operation (ICL7106), enables a high performance panel meter to be built with the addition of only 10 passive components and a display.



Detailed Description

Analog Section

They are (1) auto-zero (A-Z), (2) signal integrate (INT) and (3) de-integrate (DE) in side of a ICL7106 IC

Auto-Zero Phase

During auto-zero three things happen. First, input high and low are disconnected from the pins and internally shorted to analog COMMON. Second, the reference capacitor is charged to the reference voltage. Third, a feedback loop is closed around the system to charge the auto-zero capacitor CAZ to compensate for offset voltages in the buffer amplifier, integrator, and comparator. Since the comparator is included in the loop, the accuracy is limited only by the noise of the system. In any case, the offset referred to the input is less than 10V.