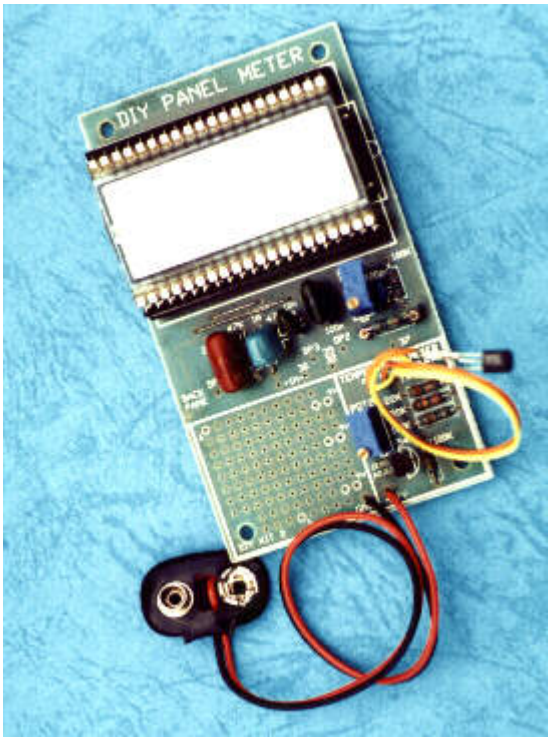
TW-DIY-5002

CIRCUIT DESCRIPTION The potential difference (PD) across a silicon diode is dependent on its temperature and current through it. Its temperature coefficient is negative, that is, the voltage falls with increasing temperature. This fall is approximately linear and is typically -2.2mV/oC. That is, there is the same drop in voltage when the diode cools from 88 oC to 87 oC as there is when it cools from 23 oC to 22 oC. Better sensors have better linear characteristics. In this Kit we have used a transistor as a diode (base and collector shorted together) which has a more linear temperature response over a bigger range than a diode does. The temperature meter measures the PD across the diode after an offset voltage which is available from pins 1 and 32 of the 7106 has been added. The two 100K 10-turn trimpots are used to calibrate the sensor at two known temperatures. The calibration is easily done using water with ice in it to calibrate zero degrees Centigrade and putting the sensor in a jet of steam from a boiling water kettle to calibrate for 100 oC. The decimal point has been hard-wired on. (The enclosed literature shows you circuits of how to obtain a variable decimal point.)



Temperature Meter Kit - DIY

This Kit shows how much of electronics today can be contained in a single chip, the Intersil 7106. Commercial low cost digital volt meters are nothing more than this kit, some switches and passive components and a nice plastic case.

COMPONENTS
Resistors 1% metal film:
1M brown black black yellow 2
22K red red black red 1
47K yellow violet black red 1
100K brown black black orange 3
220K red red black orange 1
Capacitors:
100p 101 monoblok 1
220n 224 metallized 1
10n 103 mylar 1
100n 104 mylar 1
470n 474 metallized 1
BC547 or BC548 2
10 turn trimpot 2
40 pin IC socket 3
7106 IC 1
hookup wire
9V battery snap 1
Box #2 and screws 1
LCD VI302-DP-RC 1
Kit 2 PCB 1"