

3911
276-1706

TEMPERATURE CONTROLLER

GENERAL DESCRIPTION

The 3911 is a highly accurate temperature measurement and/or control system for use over a -25°C to +85°C temperature range. Fabricated on a single monolithic chip, it includes a temperature sensor, a stable voltage reference and an operational amplifier.

The output voltage of the 3911 is directly proportional to temperature in degrees Kelvin at 10 mV/°K. Using the internal op amp with external resistors any temperature scale factor is easily obtained. By connecting the op amp as a comparator, the output will switch as the temperature transverse the set-point making the device useful as an on-off temperature controller.

An active shunt regulator is connected across the power leads of the 3911 to provide a stable 6.8V voltage reference for the sensing system. This allows the use of any power supply voltage with suitable external resistors.

FEATURES

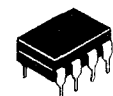
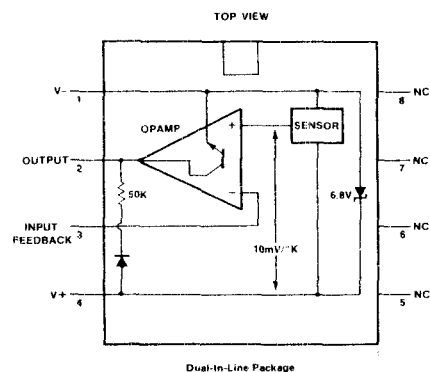
- Uncalibrated accuracy ±10°C
- Internal op amp with frequency compensation
- Linear output of 10 mV/°K (10 mV/°C)
- Can be calibrated in degrees Kelvin, Celsius or Fahrenheit
- Output can drive loads up to 35V

ABSOLUTE MAXIMUM RATINGS

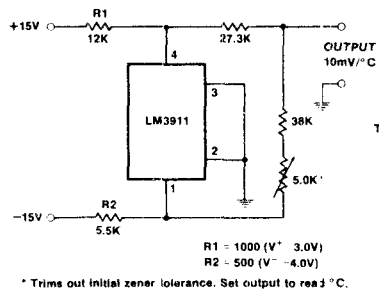
Supply Current (Externally Set).....	10 mA
Output Collector Voltage V ⁺	36V
Feedback Input Voltage Range.....	0V to +7.0V
Output Short Circuit Duration.....	Indefinite
Operating Temperature Range.....	-25°C to +85°C
Storage Temperature Range.....	-65°C to +150°C
Lead Temperature (Soldering, 10 seconds).....	300°C

TYPICAL APPLICATIONS

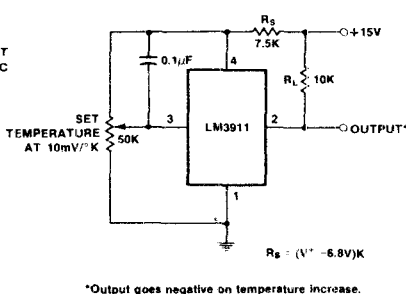
PIN CONNECTION



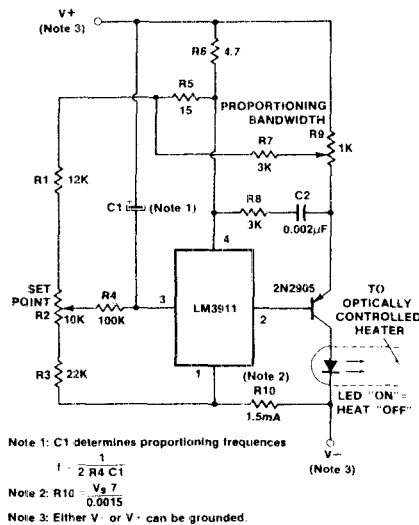
Ground Referred Centigrade Thermometer



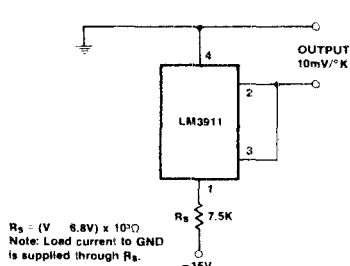
Basic Temperature Controller



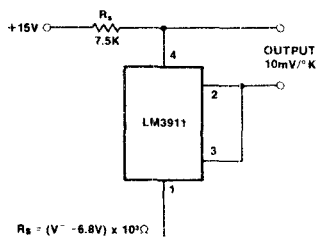
Proportioning Temperature Controller



Basic Thermometer for Negative Supply



Basic Thermometer for Positive Supply



Increased Gain and Output Drive

