ADVANCE INFORMATION



National Semiconductor

LM50B/LM50C Single-Supply Centigrade Temperature Sensor

General Description

The LM50 is a precision integrated-circuit temperature sensor that can sense a -40°C to +125°C temperature range using a single positive supply. The LM50's output voltage is linearly proportional to Celsius (Centigrade) temperature (+10 mV/°C) and has a DC offset of +500 mV. The offset allows reading negative temperatures without the need for a negative supply. The ideal output voltage of the LM50 ranges from + 100 mV to + 1.75V for a - 40°C to + 125°C temperature range. The LM50 does not require any external calibration or trimming to provide accuracies of ±3°C at room temperature and ±4°C over the full -40°C to + 125°C temperature range. Trimming and calibration of the LM50 at the wafer level assure low cost and high accuracy. The LM50's linear output, +500 mV offset, and factory calibration simplify circuitry required in a single supply environment where reading negative temperatures is required. Because the LM50's quiescent current is less than 130 µA, self-heating is limited to a very low 0.2°C in still air.

Battery Management

- Automotive
 FAX Machines
- PAX Machines
 Printers
- Portable Medical Instruments
- Power Supply Modules

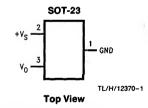
Features

- Calibrated directly in ° Celsius (Centigrade)
- Linear + 10.0 mV/°C scale factor
- ±2°C accuracy guaranteed at +25°C
- Specified for full -40° to +125°C range
- Suitable for remote applications
- Low cost due to wafer-level trimming
- Operates from 4.5V to 10V
- Less than 130 µA current drain
- Low self-heating, less than 0.2°C in still air
- Nonlinearity less than 0.8°C over temp

Applications

- Computers
- Disk Drives

Connection Diagrams



See NS	Package Number M03B
(JEDEC	Registration TO-236AB)

Order Number	SOT-23 Device Marking	Supplied As	
LM50BIM3	T5B	250 Units on Tape and Reel	
LM50CIM3	T5C	250 Units on Tape and Reel	
LM50BIM3X	T5B	3000 Units on Tape and Reel	
LM50CIM3X	T5C	3000 Units on Tape and Reel	

