# Two Remote and One Local Temperature Sensors and 3/4 Fan Controllers with SMBus Interface

## Features

- **Measures Two Remote and One Local Temperatures**
- **Adjustable Offset for Each Sensor via SMBus**
- **Accuracy: Remote ±1°C (+20°C to +80°C)**
  **±3°C (-10°C to +120°C)**
- **+4.5V to +5.5V Supply Range**
- **Alert Signal for Diode Fault, Fan Fail, and Fan Out of Control**
- **Supports SMBus Alert Response**
- **Fan Drivers Using Linear Control Algorithm**
- **Closed Loop Speed Control and programmable 8 Bits Open Loop Voltage Control for Fan**
- **Wide speed control range for Fan, Accuracy within 2%, when FANx_SET_CNT > 50**
- **Internal Current-limit and Over-temperature Protection for the Fan Controllers**
- **Build-In Inverters for Driving Crystal**
- **Optional Internal Clock Accuracy ±3% from 20°C to 80°C at 5V VCC**
- **20-Pin TSSOP Package**

**Applications**

- **Projector, LCD TV, PDP TV**
- **Desktop and Notebook**
- **Central Office Computers**
- **Telecom Equipments**
- **Industrial Controls**
- **LAN Servers**

## General Description

The G7931/G7932 contains 3 precise digital thermometers, 3/4 fan controllers, fan failure detection.

The thermometers report the temperature of 2 remote sensors and 1 local sensor. The remote sensors are diode-connected transistors typically a low-cost, easily mounted 2N3904 NPN type or the diode built-in in CPU. Remote accuracy is ±1°C for multiple transistor manufacturer. Local accuracy is ±3°C. The G7931/G7932 also support offset adjust function via SMBus to fix the error due to different CPU diode or parasitic resistors.

The 2-wire serial interface accepts standard System Management Bus (SMBus™) Write Byte, Read Byte, Send Byte, and Receive Byte commands. The SMBus address is 70h 72h for write and 7173hh for read for G7932.For G7931, ADD0 pin selects 3 different SMBus addresses. (see " SMBus Digital Interface" section)

G7931/G7932 contains 3/4 fan controllers which perform closed-loop and open-loop control. G7931/ G7932 determines the current fan speed based on the FG inputs and an externally supplied 32.768kHz clock. The driving ability is 5mA. G7931/G7932 also provides ALERT for fan fail and out of control event.

***SMBus™** is a trademark of Intel Corp*

## Ordering Information

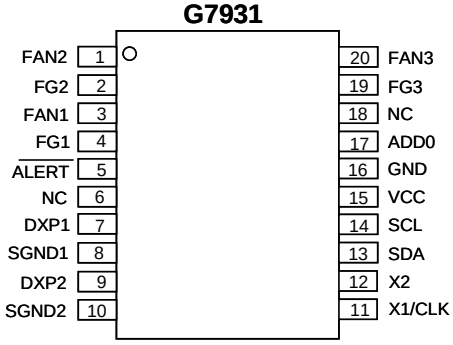
| ORDER NUMBER | MARKING | TEMP. RANGE | PACKAGE (Green) |
|---|---|---|---|
| G7931D51U | G7931 | -55°C to +125°C | TSSOP-20 |
| G7932D51U | G7932 | -55°C to +125°C | TSSOP-20 |

Note: D5: TSSOP-20
1: Bonding Code
U: Tape & Reel



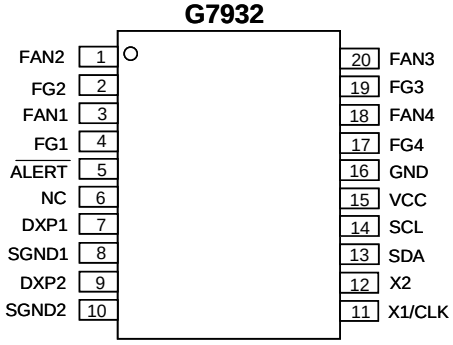
## Pin Configuration

**G7931**




**TSSOP-20**

**G7932**




**TSSOP-20**