



# 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  $\pm 1^{\circ}\text{C}$  (+20 $^{\circ}\text{C}$  to +80 $^{\circ}\text{C}$ )  
 $\pm 3^{\circ}\text{C}$  (-10 $^{\circ}\text{C}$  to +120 $^{\circ}\text{C}$ )
- +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  $\pm 3\%$  from 20 $^{\circ}\text{C}$  to 80 $^{\circ}\text{C}$  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

## Ordering Information

ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G7931D51U	G7931	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$	TSSOP-20
G7932D51U	G7932	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$	TSSOP-20

Note: D5: TSSOP-20

1: Bonding Code

U: Tape & Reel

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## 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  $\pm 1^{\circ}\text{C}$  for multiple transistor manufacturer. Local accuracy is  $\pm 3^{\circ}\text{C}$ . 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<sup>TM</sup>) 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<sup>TM</sup> is a trademark of Intel Corp

## Pin Configuration

