

High-precision, Low-Power Digital Temperature Sensor Compatible with SMBus and I²C Interface

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1 Features

- Temperature range: -55°C ~ +150°C
- Temperature accuracy: $\pm 0.3^{\circ}\text{C}$ / $\pm 0.5^{\circ}\text{C}$
- High resolution: 9~12 bits @16bits
- Supply voltage range: 1.4V ~ 5.5V
- Conversion Time: 32ms
- Low quiescent current:
Conversion current: 40 μA
Shutdown current: 0.2 μA
- Digital output:
SMBus, I²C interface compatibility
- Package Information:

PART NUMBER	PACKAGE	BODY SIZE (mm ²)
GXT311xxD	DFN-8	3.00 × 3.00
GXT311xW	WLCSP-8	0.70 × 0.90

2 Applications

- Portable, battery-powered applications
- Power supply temperature monitoring
- Thermal protection of computer's peripheral equipment
- Laptops
- Battery management
- Thermostatic control
- Electromechanical equipment temperature
- General temperature measurement:
 - Industrial control
 - Test equipment
 - Medical equipment

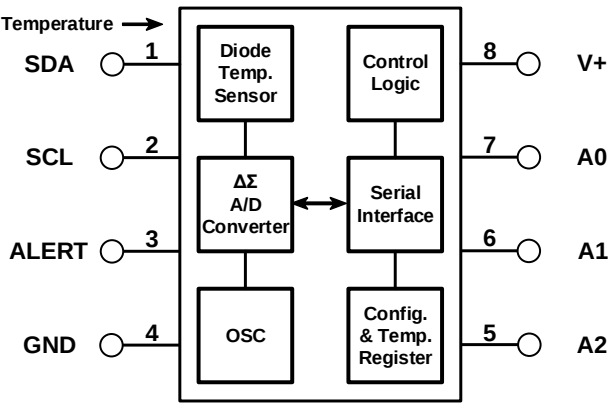
3 Description

GXT311 family is a high-precision, low-power digital temperature sensor including two models: GXT311A and GXT311B, which can be used for temperature measurement in communications, computers, consumer electronics, environment, industry and instrumentation applications. GXT311H series can provide a temperature measurement accuracy of $\leq \pm 0.3^{\circ}\text{C}$ within the normal operating range of -40° C to +125° C; GXT311N series can provide a temperature accuracy of $\leq \pm 0.5^{\circ}\text{C}$ within the normal operating range of -40° C to +125° C. GXT311 family have good temperature linearity and features an extended temperature measurement mode with a range from -55 °C to +150°C.

The rated operating voltage range of GXT311 family is 1.4V~5.5V, and the maximum quiescent current during temperature measurement is as low as 40 μA . The 16-bit ADC integrated inside the chip has a resolution as low as 0.00390625°C.

GXT311 family adopts a 3.00mm×3.00mm DFN - 8 package and is compatible with SMBus and I²C interfaces; GXT311A series can accommodate up to 32 slaves on one bus, and GXT311B series can accommodate up to 16 slaves on one bus. GXT311 family have SMBus alarm function. GXT311B provides input pins that can be used by the host computer to reset the chip.

Figure 1 the Block Diagram of GXT311 Family



10 Ordering Information

Order Number	Chip Model	Package	SPQ	Note
GXT311AND-T&R	GXT311AND	DFN-8	4000	Tape & Reel
GXT311AHD-T&R	GXT311AHD	DFN-8	4000	Tape & Reel
GXT311BND-T&R	GXT311BND	DFN-8	4000	Tape & Reel
GXT311BHD-T&R	GXT311BHD	DFN-8	4000	Tape & Reel
GXT311NW-T&R	GXT311NW	WLCSP-6	4000	Tape & Reel
GXT311HW-T&R	GXT311HW	WLCSP-6	4000	Tape & Reel

Note:

A/B in the above table indicates the pin difference, where A indicates that pin 5 is the A2 address pin, and B indicates that pin 5 is the $\overline{\text{RESET}}$ reset pin;

N/H represents the difference in temperature measurement accuracy, where N represents the ordinary temperature measurement accuracy, and H represents the high temperature measurement accuracy;

D represents the DFN-8 package, and W represents the WLCSP-6 package;