

GXTR31X1 Series Multi-Address Local & Remote Digital Temperature Sensor

1 Features

- Multi-channel temperature measurement:
GXTR3111: **1 local channel & 1 remote channel**
GXTR3121: **1 local channel & 2 remote channels**
- Temperature range: **-55°C ~ +150°C (local & remote channels)**
- Temperature measurement accuracy:
Local channel: **± 0.5 °C (-40 °C ~ +125 °C)**
Remote channel: **± 1 °C (-40 °C ~ +125 °C)**
- Package form:
GXTR 3111: **8 -Pin MSOP**
GXTR 3121: **10-Pin MSOP**
- Package size: **3.00 mm × 3.00 mm**
- Supply voltage: **2.7 V ~ 5.5V**
- Low quiescent current (@3.3V, 27 °C)
Local channel: **230 μA**
Remote mode: **630 μA**
Shutdown mode: **2 μA**
- Resolution: **16 bits, 0.00390625°C**
- Digital output: **compatible with SMBus™, I²C interface**
- Remote diode: features **series resistance cancellation, η factor correction, β value detection and automatic compensation, open and short circuit detection** and other functions

2 Applications

- Servers, processors, FPGAs
- Desktop and laptop computers
- Storage Area Network (SAN)
- General temperature measurement:
-industrial control
-test equipment
-medical equipment

3 Description

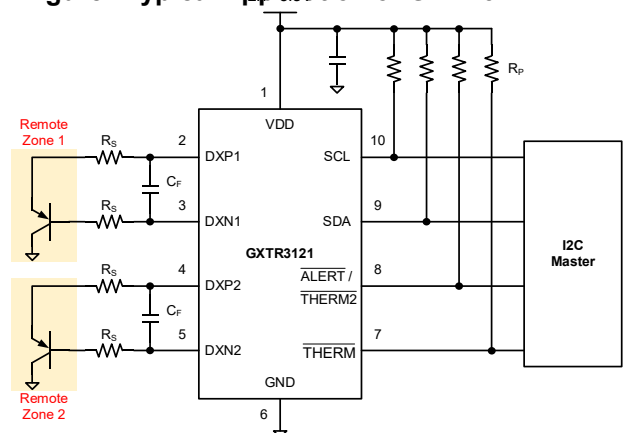
The GXTR31X1 series are high-precision and low-power digital temperature sensors compatible with

SMBus and I2C interfaces. The devices can simultaneously monitor the remote temperature of the area where up to 1 (GXTR3111)/2 (GXTR3121) remote temperature probes are located besides the local temperature of the chip. The series have functions such as series resistance elimination, programmable η factor correction, β value detection and automatic compensation, and programmable temperature thresholds, providing a high-precision, low-power reliable temperature monitoring solution.

The GXTR31X1 series are particularly suitable for temperature measurement using remote transistors (NPN / PNP Type) integrated in servers and processors under advanced processes. The series support compensation for PNP connected in transistor form with $0.09 < \beta < 21.36$ to achieve high-precision temperature measurement.

The GXTR31X1 series have a typical temperature measurement accuracy of ±0.5°C for local channels and ±1°C for remote channels respectively. The series feature a temperature measurement resolution of 0.00390625°C and a temperature measurement range of -55 ~ +150°C. The power supply voltage range of the GXTR31X1 series is 2.7 ~ 5.5 V. The series provide a 3mm × 3mm 8/10 Pin MSOP package for integration into various systems.

Figure1 Typical Application of GXTR3121



9 Ordering Information

Order Number	Chip Model	Package Information	Standard Packing Quantity	Note
GXTR3111AAU-T&R	GXTR3111AAU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111BAU-T&R	GXTR3111BAU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111CAU-T&R	GXTR3111CAU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111DAU-T&R	GXTR3111DAU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111ABU-T&R	GXTR3111ABU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111BBU-T&R	GXTR3111BBU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111CBU-T&R	GXTR3111CBU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3111DBU-T&R	GXTR3111DBU	MSOP-8 (3*3)	4000	Tape & Reel
GXTR3121AU-T&R	GXTR3121AU	MSOP-10 (3*3)	4000	Tape & Reel
GXTR3121BU-T&R	GXTR3121BU	MSOP-10 (3*3)	4000	Tape & Reel
GXTR3121CU-T&R	GXTR3121CU	MSOP-10 (3*3)	4000	Tape & Reel
GXTR3121DU-T&R	GXTR3121DU	MSOP-10 (3*3)	4000	Tape & Reel

Note: 1) The first letter after GXTR3111 indicates the difference in the IIC slave address (see [Section 6.2.2](#) for details), the second letter indicates the difference in the initial value of the local/remote THERM threshold register when it is powered on (see [Section 6.3.7](#) for details) , and U indicates that the package is 8Pin-MSOP;

2) The first letter after GXTR3121 indicates the difference in the IIC slave address (see [Section 6.2.2](#) for details), and U indicates that the package is 10Pin-MSOP;