Atmel AT30TS750 Family

The world's most versatile digital temperature sensing solutions

The Atmel® AT30TS750 digital temperature sensor family is a group of five high-precision devices based on the industry-standard xx75 functionality. The device family offers designers a choice of available integrated nonvolatile registers and serial EEPROM for optimal flexibility and increased system performance.

The world's most versatile, real-time, digital temperature sensing solutions, featuring industry-standard and feature-rich, integrated, nonvolatile memory products to address almost every application.

The AT30TS750 digital temperature sensor family is a complete, fully factory calibrated, real-time temperature monitoring solution with ±0.5°C typical accuracy over an operating temperature range of 0°C to +85°C. The devices output digitized temperature data via a standard I²C/SMBus-compatible serial interface, eliminating the need for any external A/D converters and data post processing. The AT30TS750 family offers user-selectable temperature resolution from 9 to12 bits, user-programmable high and low temperature limits, power-saving shutdown and one-shot modes, and I²C high-speed mode compatibility. The AT30TS750 device contains nonvolatile registers to allow user configuration settings to be permanently retained across power cycles for improved system reliability. In addition, the AT30TSE752 / 4 / 8 devices offer 2-, 4-, or 8-Kbits, respectively, of integrated serial EEPROM for storing critical customer product data, and are also drop-in replacements for standalone 2-, 4-, or 8-Kbit I²C serial EEPROMs.

The AT30TS750 family provides an ideal solution for any consumer, industrial, computer, or medical application requiring a high level of system performance and product safety and reliability.

Key Features and Benefits

- Pin and software compatible with industry standard LM75-type devices
- Up to 12-bit resolution A/D converter, user-configurable (temperature-to-digital converter)
- Highly accurate temperature sensing
  - ±1°C (max.) over the 0°C to +85°C temperature range
  - ±2°C (max.) over the -20°C to +105°C temperature range
  - ±3°C (max.) over the -40°C to +125°C temperature range
- Integrated nonvolatile registers
- Integrated serial EEPROM data memory (2-, 4-, or 8-Kbits)
- I²C/SMBus™-compatible serial interface
- I²C high speed mode compatible (3.4MHz maximum clock frequency)
- SMBus time-out supported
- Programmable high and low temperature limits
- Power-saving shutdown and one-shot modes
- Alert output pin to indicate temperature alarms
- Available in 8-lead MSOP, 8-lead SOIC, and 8-pad UDFN plastic packages

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Application Examples

- **Industrial** – Industrial controls, smart meters, HVAC, lighting ballast, fire alarms, test equipment, and medical devices
- **Consumer** – Li-ion batteries, set-top boxes, audio/video equipment, game consoles, white goods, and thermostats
- **Communications** – Telecom equipment, smartphones, gateways, routers, headsets, call servers, and power supplies
- **Computers** – Desktops, laptops, netbooks, tablets, servers, and HDDs

Product Availability and Ordering Information

Atmel ordering code	Voltage range	Interface	Nonvolatile registers	Integrated EEPROM	Package	Availability
AT30TS75-XM8-T	2.7 – 5.5V	I²C/SMBus	No	No	MSOP 8	Now
AT30TS75-SS8-T	2.7 – 5.5V	I²C/SMBus	No	No	SOIC 8	Now
AT30TS75-MA8-T	2.7 – 5.5V	I²C/SMBus	No	No	UDFN 8	Now
AT30TS750-XM8-T	2.7 – 5.5V	I²C/SMBus	Yes	No	MSOP 8	Now
AT30TS750- SS8-T	2.7 – 5.5V	I²C/SMBus	Yes	No	SOIC 8	Now
AT30TS750- MA8-T	2.7 – 5.5V	I²C/SMBus	Yes	No	UDFN 8	Now
AT30TSE752- XM8-T	2.7 – 5.5V	I²C/SMBus	Yes	2-Kbits	MSOP 8	Now
AT30TSE752- SS8-T	2.7 – 5.5V	I²C/SMBus	Yes	2-Kbits	SOIC 8	Now
AT30TSE752- MA8-T	2.7 – 5.5V	I²C/SMBus	Yes	2-Kbits	UDFN 8	Now
AT30TSE754- XM8-T	2.7 – 5.5V	I²C/SMBus	Yes	4-Kbits	MSOP 8	Now
AT30TSE754- SS8-T	2.7 – 5.5V	I²C/SMBus	Yes	4-Kbits	SOIC 8	Now
AT30TSE754- MA8-T	2.7 – 5.5V	I²C/SMBus	Yes	4-Kbits	UDFN 8	Now
AT30TSE758- XM8-T	2.7 – 5.5V	I²C/SMBus	Yes	8-Kbits	MSOP 8	Now
AT30TSE758- SS8-T	2.7 – 5.5V	I²C/SMBus	Yes	8-Kbits	SOIC 8	Now
AT30TSE758- MA8-T	2.7 – 5.5V	I²C/SMBus	Yes	8-Kbits	UDFN 8	Now

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