

# Logic Output Temperature Sensor Family

## Product Information

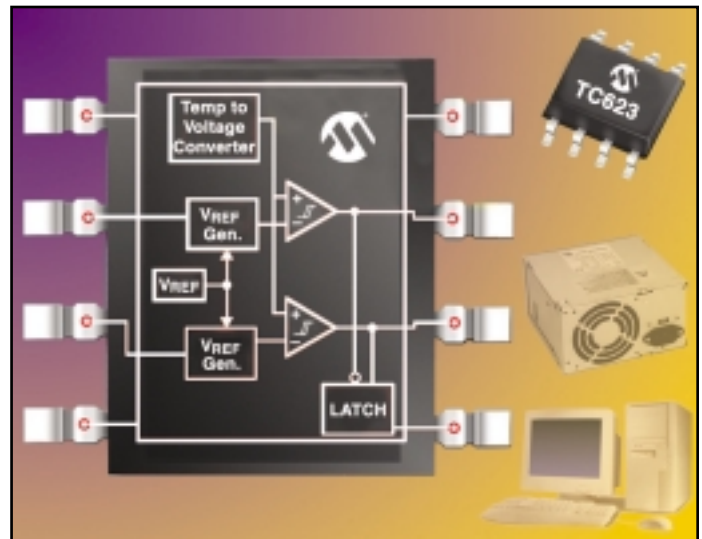


The **TC07/620/621/622/623/624/** and **6501/6502/6503/6504** are logic output temperature sensors.

Microchip's logic output temperature sensor family offers excellent temperature accuracy ( $\pm 1^\circ\text{C}$  typical) with a very low operating current of less than  $600\mu\text{A}$ . These devices can replace mechanical switches in a variety of sensing and control applications. The output is driven active when the temperature crosses the temperature trip point. A built-in hysteresis prevents output chattering at the temperature threshold level.

Various devices operate over a power supply range of 2.7V to 18V and are usable over a wide temperature range ( $-40^\circ\text{C}$  to  $+125^\circ\text{C}$  or  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$ ). A variety of features provided on select devices address a broad applications spectrum: programmable hysteresis, remote temperature sensing, dual temperature limit output, externally set trip points, and TO-220 packaging for heat sink temperature measurement.

High accuracy, low operating current, competitive features and ease of use make these devices the ideal choice for protecting electronic components that can be damaged by exposure to high or low temperatures. Examples of heat-sensitive applications are projectors, laptops, PCs, servers, networking equipment, printers, power supplies, UPS, amplifiers, motors, and set-top boxes. Other applications include temperature alarms, simple fan control, temperature regulation, fire/heat detection, industrial heating and cooling.



### Features:

- Typical accuracy as tight as  $\pm 0.5^\circ\text{C}$
- Operating current as low as  $40\mu\text{A}$
- 2.7V to 18V available supply voltages
- Programmable hysteresis for TC07/6501/6502/6503/6504
- Dual trip-points for TC620/621/623
- External temperature sensor for TC621
- Small SOT-23, MSOP and SOIC packages

### Related Application Notes:

- AN3 TC620/621 Solid-State Temperature Sensors
- AN6 TC620/621 Solid-State Temperature Sensors

# Logic Output Temperature Sensor Family *Continued*

## Additional Information:

- Microchip's web site: [www.microchip.com](http://www.microchip.com)
- Microchip's *Technical Library CD-ROM*, Order No. DS00161
- *Analog Interface Handbook*, Order No. DS00207
- Product Line Card, Order No. DS00148
- *Analog Design Pack CD-ROM*, Order No. DS51205

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Product	Typical Accuracy	Maximum Temperature Range	V <sub>CC</sub> Range	Max. I <sub>Q</sub>	Features	# of Pins/ Packages
TC07	±1°C	-40°C to +125°C	2.7V to 5.5V	300µA	Programmable Hysteresis	8MS, 8SN
TC620	±1°C	-40°C to +125°C	4.5V to 18V	400µA	Dual Trip-point	8P, 8SN
TC621	Note 1	-40°C to +85°C	4.5V to 18V	400µA	Dual Trip-point, External Temperature Sensor	8P, 8SN
TC622	±1°C	-40°C to +125°C	4.5V to 18V	600µA	TO-220 for Direct Heat Sink Mounting	8P, 8SN, 5AT
TC623	±1°C	-40°C to +125°C	2.7V to 4.5V	250µA	Dual Trip-point	8P, 8SN
TC624	±1°C	-40°C to +125°C	2.7V to 4.5V	300µA	Low Cost	8P, 8SN
TC6501	±0.5°C	-55°C to +125°C	2.7V to 5.5V	40µA	Cross to MAX6501, Open Drain	5CT
TC6502	±0.5°C	-55°C to +125°C	2.7V to 5.5V	40µA	Cross to MAX6502, Push Pull	5CT
TC6503	±0.5°C	-55°C to +125°C	2.7V to 5.5V	40µA	Cross to MAX6503, Open Drain	5CT
TC6504	±0.5°C	-55°C to +125°C	2.7V to 5.5V	40µA	Cross to MAX6504, Push Pull	5CT

**Note:** These devices use an external temperature sensor. Accuracy of the total solution is a function of the accuracy of the external sensor.

**Package Key:** AT = TO-220, CT = SOT-23A, P = PDIP, MS = MSOP, SN = SOIC

### Americas

Atlanta (770) 640-0034  
 Austin – Analog (512) 345-2030  
 Boston (978) 692-3848  
 Boston – Analog (978) 371-6400  
 Chicago (630) 285-0071  
 Dallas (972) 818-7423  
 Dayton (937) 291-1654  
 Detroit (248) 538-2250  
 Los Angeles (949) 263-1888  
 Mountain View (650) 968-9241  
 New York (631) 273-5305  
 Rocky Mountain (480) 792-7966  
 San Jose (408) 436-7950  
 Toronto (905) 673-0699

### Asia /Pacific

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 China – Beijing 86-10-8528-2100  
 China – Shanghai 86-21-6275-5700  
 Hong Kong 852-2-401-1200  
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 Japan 81-45-471- 6166  
 Korea 82-2-554-7200  
 Singapore 65-334-8870  
 Taiwan 886-2-2717-7175

### Europe

Denmark 45-4420-9895  
 France 33-1-69-53-63-20  
 Germany 49-89-627-144-0  
 Germany – Analog 49-89-895-650-0  
 Italy 39-039-65791-1  
 United Kingdom 44-118-921-5869



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