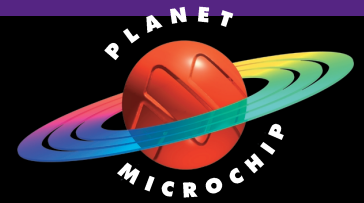


Logic Output Temperature Sensor Family

Product Information

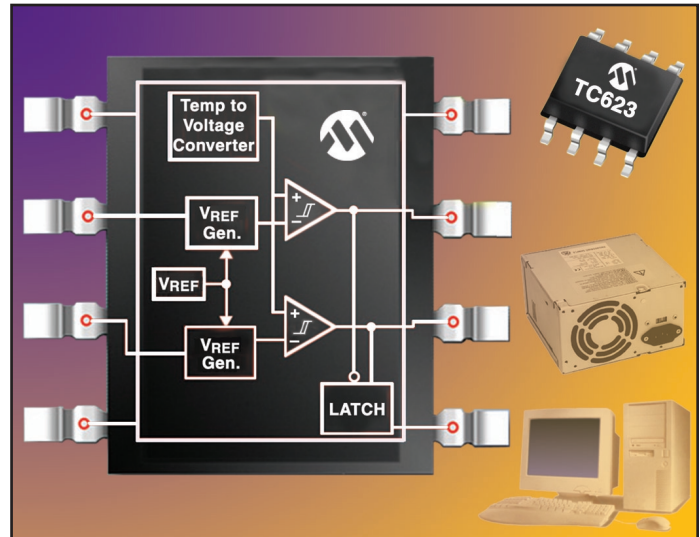


The **TC07/620/621/622/623/624/** and **6501/6502/6503/6504** are logic output temperature sensors.

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°C to $+125^\circ\text{C}$ or -55°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
- 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

Logic Output Temperature Sensor Family

Product	Typical Accuracy	Maximum Temperature Range	V _{CC} Range	Max. I _Q	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

Australia 61-2-9868-6733
 China – Beijing 86-10-8528-2100
 China – Shanghai 86-21-6275-5700
 Hong Kong 852-2-401-1200
 India 91-80-229-0061
 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



MICROCHIP

The Embedded Control Solutions Company®

Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199 • (480) 792-7200 • Fax (480) 792-9210

The Microchip name and logo, and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Inc. in the U.S.A. and other countries. All other trademarks are the property of their respective owners. Information subject to change. ©2001 Microchip Technology Inc. Printed in the U.S.A. All rights reserved. DS21640A 6/01