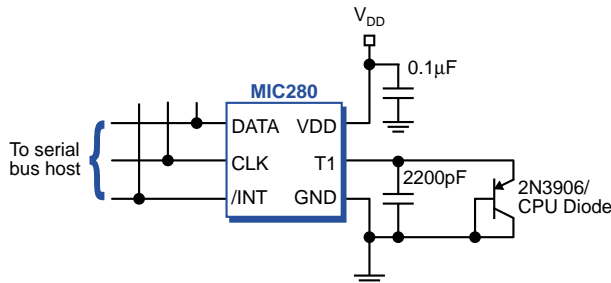


MIC184/280/284/384 Multi-Zone Thermal Supervisors

The MIC184/280/284/384 are digital thermal supervisor ICs that monitor their own internal temperature and the temperature of one or more remote PN junctions. The remote junctions can be low-cost transistors or embedded thermal diodes such as those in Intel® and AMD® microprocessors, Xilinx VIRTEX™ FPGAs, and other high performance devices. Temperature samples are compared against user-programmed over and under-temperature thresholds. The host is notified via an interrupt signal when temperature is outside the programmed limits. Host communication is via a 2-wire I²C™/SMBus™-compatible serial bus. Up to 8 devices can share the same 2-wire bus, allowing simple distributed temperature sensing networks.



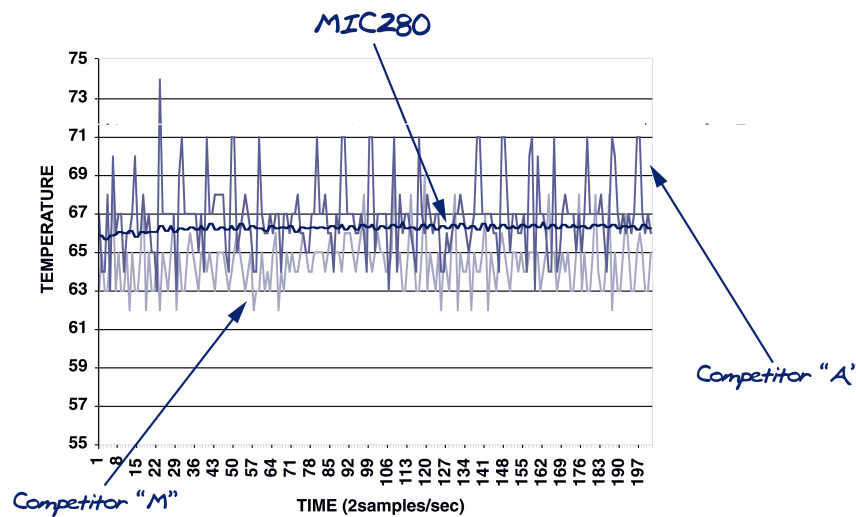
MIC280 Typical Application Circuit

Noise Immunity Is Key!

Regardless of the specified accuracy of a temperature sensing IC, the limiting factor in most systems is noise! Our analog front-end is optimized for temperature measurement, reducing errors. Less of the thermal envelope will be eaten up by the error budget. It's like buying a bigger fan or heatsink! Sophisticated error correction and auto-calibration techniques help achieve results superior to legacy implementations with fewer routing headaches! Only one signal wire and ground connect to the remote PN junction. (Previous ICs require a pair of dedicated signal traces.) Fewer signal traces mean easier PCB routing and fewer IC pins, facilitating smaller packages.

Features such as configuration locking, wiring fault reporting, a serial bus timeout, and independent over-temperature alarms enhance system reliability. Interrupt mask and status bits and the SMBus Alert Response Address protocol enhance ease-of-use. Micrel's thermal supervisor lineup includes one, two, and three-zone supervisors. All of them feature industry leading noise immunity, small footprints, and reduced PCB routing.


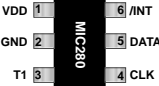


Accuracy and Noise vs. Legacy Thermal Supervisors

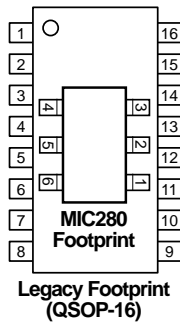


Data taken from an actual PC motherboard running a suite of benchmarking software to induce CPU heating.

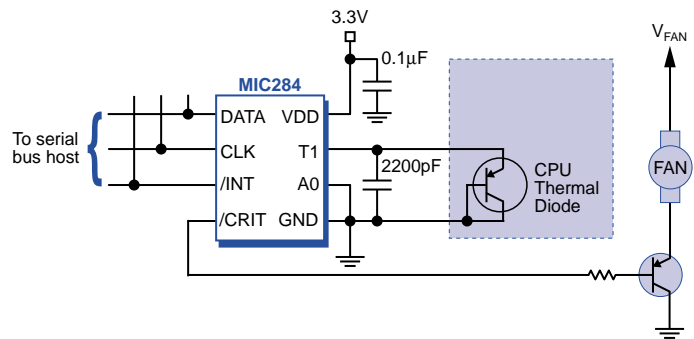
SMBus is a trademark of Intel Corporation. I²C is a trademark of Philips Electronics, N.V.
VIRTEX is a trademark of Xilinx Corporation

Features

<h3>MIC184</h3>	<ul style="list-style-type: none"> ◆ Pinout and S/W compatible upgrade for industry standard LM75 ◆ One set of limit registers for monitoring either zone ◆ Bit in configuration register selects internal or external zone ◆ 9-bit resolution (0.5°C) ◆ User can switch zones in real time ◆ Interrupt status and mask bits ◆ Failsafe response to diode faults ◆ SOIC-8 and MSOP-8 packages 	
<h3>MIC280</h3>	<ul style="list-style-type: none"> ◆ Micrel's newest and flagship thermal supervisor for PC applications ◆ Precision CPU monitoring: $\pm 1^{\circ}\text{C}$ from $+60^{\circ}\text{C}$ to $+100^{\circ}\text{C}$ ◆ 12-bit (0.0625°C) resolution for remote zone ◆ Six sets of independent threshold settings ◆ SMBus™ timeout, A.R.A. protocol, and voltage-tolerant I/O ◆ Reports diode faults ◆ Configuration locking and warm resets via software ◆ Itty-Bitty™ SOT23-6 package – the world's smallest thermal diode supervisor 	
<h3>MIC284</h3>	<ul style="list-style-type: none"> ◆ Optimized for computing applications ◆ 2-Zone supervision plus an output for system shutdown or fan control ◆ 8-bit resolution (1°C) ◆ Threshold, hysteresis, and result registers are provided for both zones ◆ Failsafe response to diode faults ◆ SOIC-8 and MSOP-8 packages 	
<h3>MIC384</h3>	<ul style="list-style-type: none"> ◆ World's first 3-zone thermal supervisor in an 8-pin package! ◆ Great for dense boards with multiple CPUs, FPGAs, etc. ◆ 8-bit resolution (1°C) ◆ Threshold, hysteresis, and result registers for all three zones ◆ Failsafe response to diode faults ◆ SOIC-8 and MSOP-8 packages 	



The MIC280 is a
Size and Accuracy Breakthrough!



MIC284 Features a Dedicated Output for
Thermal Shutdown or Fan Control

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