

Temperature Sensors

Fan Control

- Monitor and control fan speed according to temperature reading
- Daisy-chain multiple temperature points using TMP05 closed-loop control

Analog—Voltage Output

- Linear output voltage vs. temperature
- Operate up to 150°C

Analog—Current Output

- No lead wires or linearization circuitry required
- Perfect for remote sensing, superior interface rejection
- Durable, high temperature operation packages



Integrated ADCs and DACs

- One chip solutions
- Reduce cost and board space
- Ideal for closed-loop applications
- Multiple options and applications

Trip Point

- Simple temperature alarm switches
- 2 trip point options available
 - Factory set trip point temperature sensors
 - Pin-selectable trip point temperature sensors

Digital Output

- 3 interface options
 - Single-wire: mark-space ratio
 - 2-wire: SMBus/I²C[®]
 - 3-/4-wire: SPI[®]
- User-programmable alarms
- Power saving mode of operation
- Space-saving packages: 2.1 mm × 2 mm



Temperature Sensors

Part Number	Interface	Function/Resolution	Max Error	Temperature Range (°C)	Supply V @ 25°C (V)	Max Current	Packages	Features
Analog Output								
AD22100	Voltage out	22.5 mV/°C	±2°C @ -50°C, ±2°C @ +150°C	-50 to +150	4 to 6.5	650 µA	T0-92, 8-lead SOIC	Ratiometric sensor
AD22103	Voltage out	28 mV/°C	±2.5°C @ 0°C to +100°C	0 to +100	2.7 to 3.6	600 µA	T0-92, 8-lead SOIC	Ratiometric sensor
TMP35/ TMP36	Voltage out	10 mV/°C	±2°C @ +25°C	-40 to +125	2.7 to 5.5	50 µA	T0-92, 5-lead SOT-23, 8-lead SOIC	Voltage output, wide temperature range
TMP37	Voltage out	20 mV/°C	±2°C @ +25°C	+5 to +100	2.7 to 5.5	50 µA	T0-92, 5-lead SOT-23, 8-lead SOIC	Voltage output, limited temperature range
AD590	Current out	1 µA/°K	±5.0°C @ -55°C to +150°C	-55 to +150	4 to 30	298.2 µA	T0-52, 2-lead FP, 8-lead SOIC	2-terminal IC temperature transducer
AD592	Current out	1 µA/°K	±5.0°C @ -55°C to +150°C	-25 to +105	4 to 30	298.2 µA	T0-92	Low cost precision temperature transducer
Digital Output								
TMP03/ TMP04	PWM	0.1°C/LSB	±4°C @ -20°C to +100°C	-40 to +150	4.5 to 7	1.3 mA	T0-92, 8-lead SOIC, 8-lead TSSOP	Open collector, CMOS/TTL compatible output
TMP05/ TMP06	PWM	0.025 resolution	±1°C @ 0°C to +70°C	-40 to +150	2.7 to 5.5	0.6 mA	5-lead SC70, 5-lead SOT-23	Open-drain, push-pull, daisy-chain mode, one shot mode
AD7314	SPI	10-bit local	±2°C @ -35°C to +85°C	-35 to +85	2.65 to 5.5	1.4 mA	8-lead MSOP	10-bit temperature sensor, low voltage
ADT7301	SPI	13-bit local	±1°C @ 0°C to +70°C	-40 to +150	2.7 to 5.25	1.6 mA	6-lead SOT-23, 8-lead MSOP	13-bit temperature-to-digital conversion
ADT7302	SPI	13-bit local	±2°C @ 0°C to +70°C	-40 to +150	2.7 to 5.25	1.6 mA	6-lead SOT-23, 8-lead MSOP	13-bit temperature-to-digital conversion
ADT7311	SPI	16-bit local	±3°C @ -40°C to +85°C	-55 to +150	2.7 to 5.5	270 µA	8-lead SOIC	AEC-Q100 qualified, 16-bit digital temperature sensor
ADT7312	SPI	16-bit local	±1°C @ +130°C to +150°C	-55 to +175	2.7 to 5.5	270 µA	Die form	AEC-Q100 qualified, 16-bit resolution, high temperature accuracy
ADT75	I²C/SMBus	12-bit local	±1°C @ 0°C to +70°C	-55 to +125	3 to 5.5	525 µA	8-lead SOIC, 8-lead MSOP	12-bit temperature-to-digital conversion, improved LM75
AD7414/ AD7415	I²C/SMBus	10-bit local	±1.5°C @ -40°C to +70°C	-40 to +125	2.7 to 5.5	0.1 mA	6-lead SOT-23, 5-lead SOT-23, 8-lead MSOP	10-bit temperature sensor, supports SMBus alert function
ADT7408	I²C/SMBus	10-bit local	±3°C @ +40°C to +125°C	-20 to +125	3 to 3.6	550 µA	8-lead LFCSP	12-bit only temperature sensor in LFCSP package
ADT7410	I²C/SMBus	16-bit local	±0.5°C @ -40°C to +100°C	-55 to +150	2.7 to 5.5	270 µA	8-lead SOIC	16-bit highly accurate digital temperature sensor
Trip Point								
ADT6501/ ADT6502/ ADT6503/ ADT6504	Factory set	10°C increments	±4°C @ -15°C to +15°C	-55 to +125	2.7 to 5.5	50 µA	5-lead SOT-23	Open-drain, push-pull, over- and undertemperature indicators
ADT6401/ ADT6402	Pin selectable	10°C increments	±4°C @ -15°C to +15°C	-55 to +125	2.7 to 5.5	50 µA	6-lead SOT-23	Three pins—hi, lo, or floating determines temperature trip point
TMP01	Resistor programmable	Voltage out (+5 mV/°K)	±1.5°C @ +25°C	-55 to +125	4.5 to 13.2	500 µA	8-lead SOIC, 8-lead PDIP	Resistor programmable window comparator with V _{OUT}
Integrated Digital Output with DACs/ADCs/Both								
AD7417	I²C/SMBus	10-bit local	±1°C @ +25°C	-40 to +125	2.7 to 5.5	0.6 mA	16-lead SOIC, 16-lead TSSOP	4-channel external 10-bit ADC input and temperature sensor
AD7418	I²C/SMBus	10-bit local	±1°C @ +25°C	-40 to +125	2.7 to 5.5	0.6 mA	8-lead SOIC, 8-lead MSOP	1-channel external 10-bit ADC input and temperature sensor
AD7817	SPI	10-bit local	±1°C @ +25°C	-55 to +125	2.7 to 5.5	2 mA	16-lead SOIC, 16-lead TSSOP	4-channel external ADC input and temperature sensor
AD7818	SPI	10-bit local	±2°C @ +25°C	-55 to +125	2.7 to 5.5	2 mA	8-lead SOIC, 8-lead MSOP	1-channel external ADC input and temperature sensor
ADT7516/ ADT7517/ ADT7519	SMBus/SPI	10-bit local and 10-bit remote	±2°C @ 0°C to +85°C	-40 to +125	2.7 to 5.5	3 mA	16-lead QSOP	12-/10-/8-bit quad DAC, 10-bit 4-channel ADC, 10-bit temp sensors
ADT7411	SMBus/SPI	10-bit local and 10-bit remote	±3°C @ 0°C to +85°C	-40 to +125	2.7 to 5.5	3 mA	16-lead QSOP	10-bit, 8-channel ADC with 10-bit local and remote temp sensors
ADT7316/ ADT7317/ ADT7318	SMBus/SPI	10-bit local and 10-bit remote	±3°C @ 0°C to +85°C	-40 to +125	2.7 to 5.5	3 mA	16-lead QSOP	12-/10-/8-bit quad DAC with 10-bit local and remote temp sensors
Fan Controllers								
ADT7470	I²C/SMBus	PWM fan control	Connects to TMP05/TMP06	-40 to +125	3.0 to 5.5	0.8 mA	16-lead QSOP	4-channel PWM fan control using TMP05/TMP06 temperature sensor

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