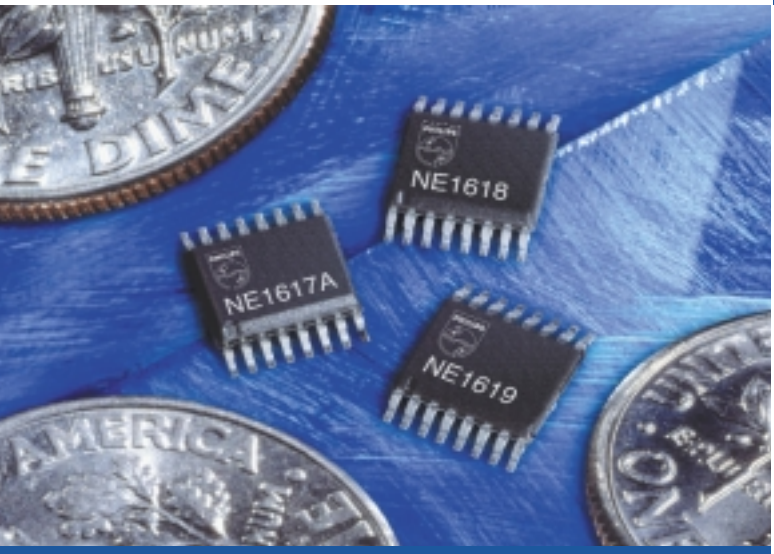
Philips Semiconductors expands its standard analog portfolio with new temperature sensors in small 16 lead SSOP package

Temperature Sensors

NE1617A, NE1618, NE1619



These temp sensors operate at a temp range of 0 to +120° C.

Key Features

- The 1617A is a replacement for the MAX1617 and ADM1021
- Monitors internal and remote temperatures
- No calibration required
- Programmable alarm, for over/under temperature conditions.
- Programmable temperature/voltage limits, to control internal alarms – NE1619
- SMBus 2-wire serial interface
- 3 V to 5.5 V supply range – NE1617A/ NE1618
- 2.8 V to 5.5 V supply range – NE1619
- Small 16-lead SSOP package

Applications

- Desktop computers
- Notebook computers
- Smart battery packs
- Industrial controllers
- Telecom equipment

The Philips Semiconductors temperature sensor family is intended for use in personal computers where thermal monitoring of hardware and electrical components is critical. These devices are capable of measuring the internal temperature of µProcessors that incorporate an embedded diode. These sensors also incorporate an embedded diode of their own to monitor internal ambient temperatures. The associated devices can communicate over a standard 2-wire serial interface using internal device pins SCLK and SDATA. These devices employ 4 SMBus protocols: Write Byte, Read Byte, Send Byte and Receive Byte. The NE1617A, NE1618 and NE1619 are configured as slaves on the SMBus system. The external master µProcessor is responsible for initiating start, stop, and clock signals for SMBus communications. Data is serially transmitted in groups of 9 bits using 9 clock pulses, including 8-bit data byte followed by a 1-bit acknowledgement.

The NE1617A is an accurate 2-channel temperature monitor that is capable of measuring internal and remote temperatures. The NE1617A and NE1618 are capable of up to nine devices per bus; the NE1619 is capable of two. Normal operating conditions require the NE1617A and NE1618 to update the temperature data at the programmed rate, which is selectable from 125 ms to 16 seconds. These devices also have an internal one-shot command that will force a temperature reading if needed. The chip contains a programmable alarm for over/under temperature fault conditions.

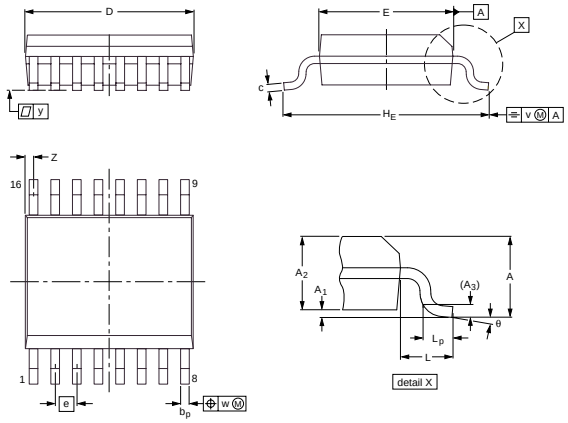
NE1618 can be substituted for the NE1617A and has an extra mode for improved thermal tracking. This device can be operated in extended mode for resolution of 0.125°C. The extended mode of operation only applies to the remote sensor.

The NE1619 has evolved beyond the NE1617A and NE1618. This device is able to monitor temperature and supply voltages, both internal and remote. This device also has programmable temperature and voltage limits used to control internal alarms. The NE1619 uses a consistent conversion rate of approximately 500 ms. An A/D converter is included onboard, which can be used for operation and data collection.

SPECIFICATIONS (Typical)

Features	NE1617A	NE1618	NE1619[2]
Temperature Resolution	1°C	1°C or 0.125°C[1]	1°C
Accuracy Local (On-Board) Sensor	±2°C	±2°C	±2°C
Accuracy Remote Sensor	±3°C	±3.0°C or ±1°C[1]	±3°C
Supply Range	3 V to 5.5 V	3 V to 5.5 V	2.8 V to 5.5 V
Supply Current Operation Mode	70 µA	80 µA	250 µA
Supply Current Standby Mode	3 µA	3 µA	100 µA
Packaging	16 lead SSOP	16 lead SSOP	16 lead SSOP

[1]Extended Mode of Operation.
[2]Compatible with Intel "Heceta 4" specifications and reference designs utilizing it.



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	D(1)	E(1)	e	H_E	L	L_p	v	w	y	Z(1)	θ
mm	1.73	0.25 0.10	1.55 1.40	0.25	0.31 0.20	0.25 0.18	5.0 4.8	4.0 3.8	0.635	6.2 5.8	1.0	0.89 0.41	0.2	0.18	0.09	0.18 0.05	8° 0°

Note
1. Plastic or metal protrusions of 0.20 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT519-1						99-05-04

SSOP16: plastic shrink small outline package; 16 leads; body width 3.9 mm; lead pitch 0.635 mm

For more information, contact your Philips Semiconductors distributor or www.semiconductors.philips.com/analog

North America
Tel: 1 800 234-7381
Internet:
www.semiconductors.philips.com/analog

Europe
Fax: +31 79 3685126

Asia
Fax: 886 2 2134-2941

Japan/Korea
Fax: +81-3-3740-5057
Internet (in Japanese):
www.philips.co.jp/semicon/

Printed in the USA 611660/21K/FP/2pp/1100 9397-750-07609