

# ***SENSYLINK Microelectronics***

## **(CAD2512A08)**

### ***12-Bit, 8-Ch ADC and Temperature Sensor System Monitor with I<sup>2</sup>C Interface***

***CAD2512A08 is a system monitor chip to monitor 8-channels external analog input and sense local temperature with I<sup>2</sup>C Interface.***

***It is ideally used in Communications Infrastructure, Thermal and Hardware Server Monitors, System Monitors and Industrial and Medical Systems.***

**12-Bit, 8-Ch ADC and Temperature Sensor System Monitor with I<sup>2</sup>C Interface**

## 1. Description

The CAD2512A08 is a system monitor chip with I<sup>2</sup>C interface.

The CAD2512A08 include a local temperature sensor, 8-channel analog input. An onboard temperature sensor, combined with WATCHDOG window comparators, and an interrupt output pin  $\overline{\text{INT}}$  allow easy monitoring and out-of-range alarms for every channel. A high performance internal reference is also available to provide for a complete solution in the most difficult operating conditions.

Analog input can be used for voltage monitor, like connecting analog output temperature sensor (CT7035) or monitor power supply voltage.

The CAD2512A08 supports standard mode (100kHz) and fast mode (400kHz) I<sup>2</sup>C interface.

Available Package: TSSOP-16, QFN3x3-16 package.

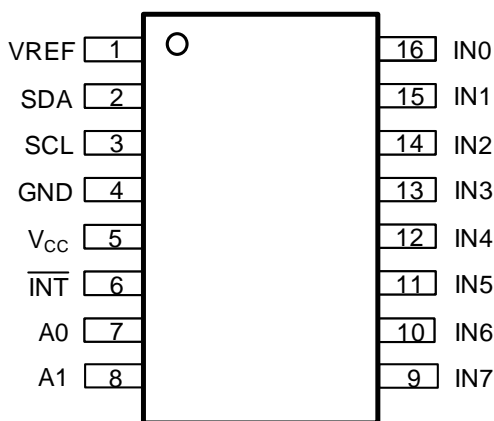
## 2. Features

- Operation Voltage: 3V to 5.5V
- 12Bit Resolution Delta-Sigma ADC
- Local Temperature Accuracy:
  - (-25°C to 100°C)  $\pm 1^\circ\text{C}$ (Max.)
  - (-40°C to 125°C)  $\pm 1.5^\circ\text{C}$ (Max.)
- 2.56V Internal VREF or Variable External VREF
- WATCHDOG Window Comparators with Status and Mask Registers of All Measured Values
- Independent Registers for Storing Measured Values
- $\overline{\text{INT}}$  Output Notifies Microprocessor of Error Event
- I<sup>2</sup>C/SMBus Serial Bus Interface Compatibility
  - ✓ 9 Selectable Addresses
  - ✓ TIME-OUT Reset Function to Prevent I<sup>2</sup>C Bus Lock-Up
- Individual Channel Shutdown to Limit Power Consumption
- Deep Shutdown Mode to Minimize Power Consumption
- Temperature Range: -40°C to 125°C

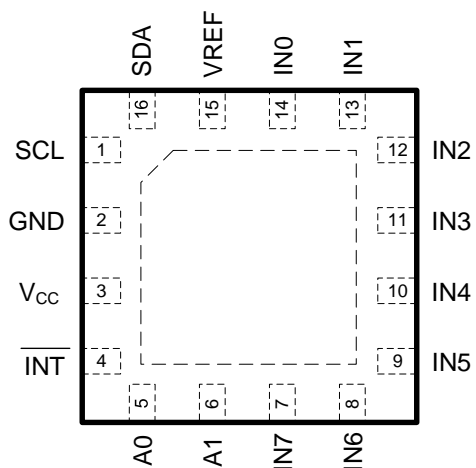
## 3. Applications

- Communications Infrastructure
- Thermal and Hardware Server Monitors
- System Monitors
- Industrial and Medical Systems

## 4. PIN Configurations



TSSOP-16 (Package Code MT)



QFN3x3-16 (Package Code QN)

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### 5. Typical Application

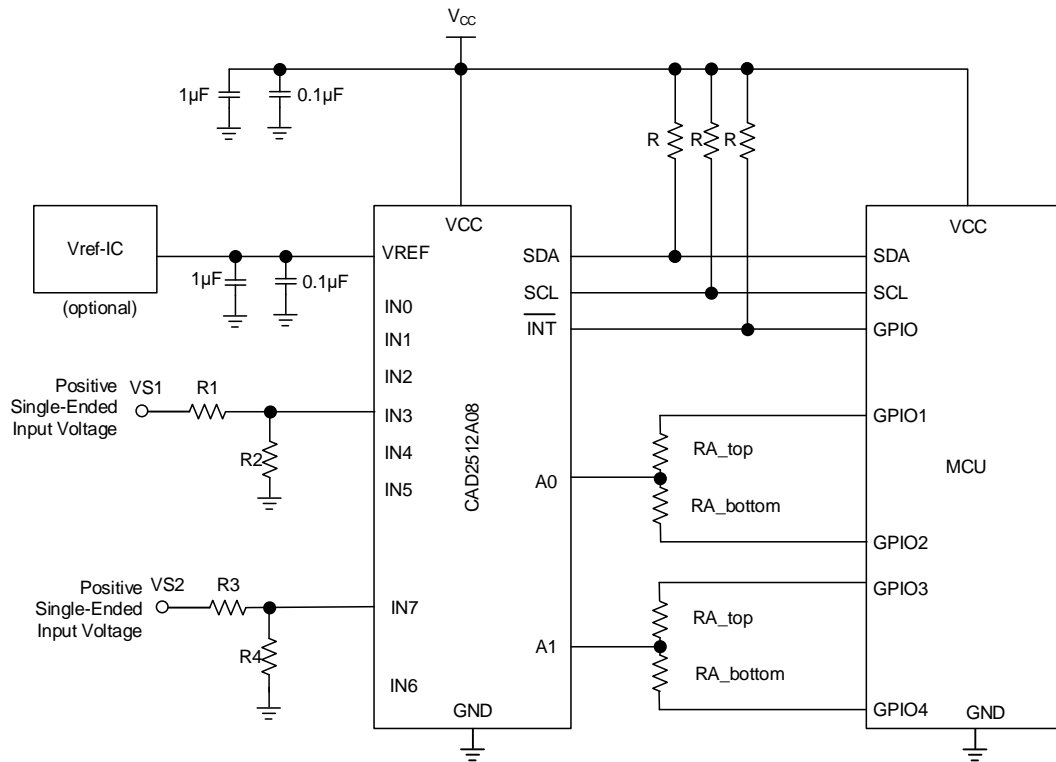


Figure 1 Typical Application of CAD2512A08

**12-Bit, 8-Ch ADC and Temperature Sensor System Monitor with I<sup>2</sup>C Interface**
**6. Pin Description**

PIN Name	PIN No.		Description
	TSSOP-16	QFN3x3-16	
VREF	1	15	ADC external reference. CAD2512A08 allows two choices for sourcing VREF: Internal or External. If the 2.56V internal VREF is used, leave this pin unconnected. If the external VREF is used, source this pin with a voltage between 1.25V and V <sub>CC</sub> . At Power-On-Reset (POR), the default setting is the internal VREF. Bypass with the parallel combination of 1μF (electrolytic or tantalum) and 0.1μF (ceramic) capacitors.
SDA	2	16	Serial Bus Bidirectional Data. NMOS open-drain output. Requires external pull-up resistor to function properly.
SCL	3	1	Serial Bus Clock. Requires external pull-up resistor to function properly.
GND	4	2	Power Ground. Internally connected to all of the circuitry.
VCC	5	3	3.0V to 5.5V power. Bypass with the parallel combination of 1μF (electrolytic or tantalum) and 0.1μF (ceramic) bypass capacitors.
$\overline{\text{INT}}$	6	4	Interrupt Request. Active Low, NMOS, open-drain. Requires external pull-up resistor to function properly.
A0	7	5	Tri-Level Serial Address pins that allow 9 devices on a single I <sup>2</sup> C bus.
A1	8	6	Tri-Level Serial Address pins that allow 9 devices on a single I <sup>2</sup> C bus.
IN7	9	7	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN6	10	8	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN5	11	9	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN4	12	10	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN3	13	11	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN2	14	12	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN1	15	13	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.
IN0	16	14	The full scale range will be controlled by the internal or external VREF. This input can only be assigned as single-ended.

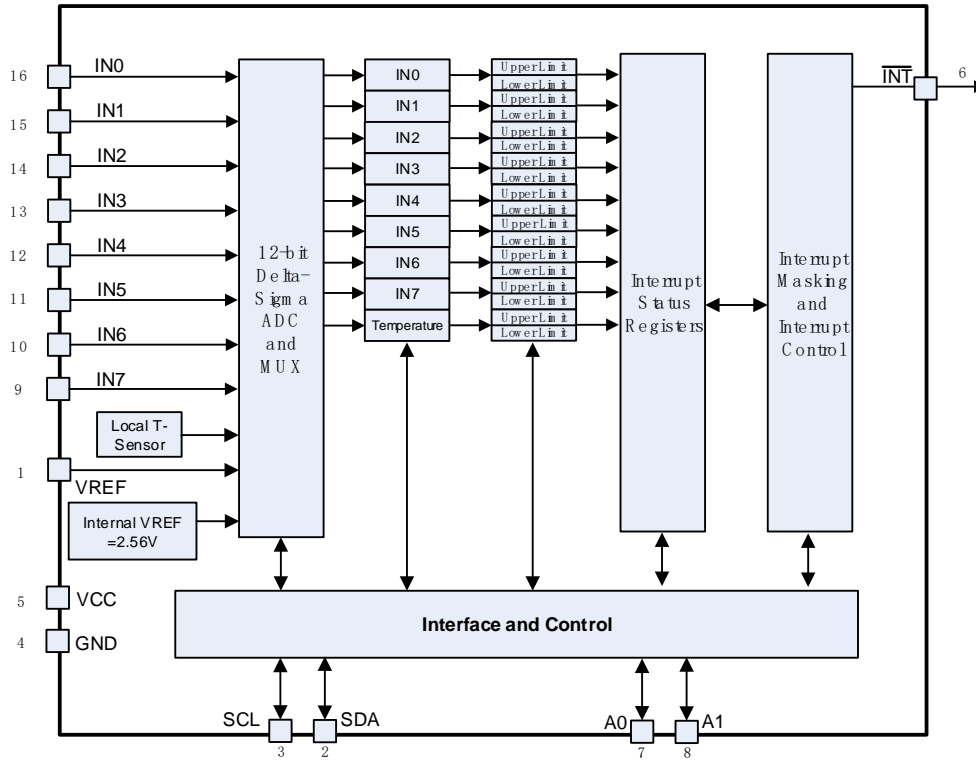
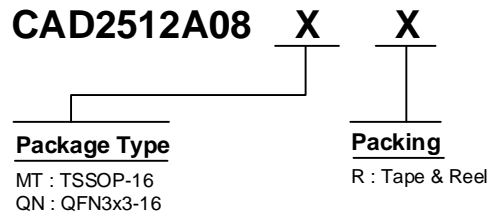
**12-Bit, 8-Ch ADC and Temperature Sensor System Monitor with I<sup>2</sup>C Interface**
**7. Function Block**


Figure 2 CAD2512A08 Function Block

**12-Bit, 8-Ch ADC and Temperature Sensor System Monitor with I<sup>2</sup>C Interface**

## 8. Ordering Information



Order PN	Green <sup>1</sup>	Package	Marking ID <sup>2</sup>	Packing	MPQ	Operation Temperature
CAD2512A08MTR	Halogen free	TSSOP-16	2512A08 YWWAXX	Tape & Reel	4,000	-40°C ~ +125°C
CAD2512A08QNR	Halogen free	QFN3x3-16	2512A08 YWWAXX	Tape & Reel	3,000	-40°C ~ +125°C

**Notes:**

1. Sensylink can meet RoHS2.0/REACH requirement. Most package types Sensylink offers only states halogen free, instead of lead free.
2. Marking ID includes 2 rows of characters. In general, the 1st row of characters are part number, and the 2nd row of characters are date code plus production information.



## ***SENSYLINK Microelectronics Inc.***

***[www.sensylink.com](http://www.sensylink.com)***

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