

SENSYLINK Microelectronics

(CT7511)

***0.5 °C Accuracy, JEDEC DDR5 Grade B,
Digital Temperature Sensor With I2C
and I3C Interface***

CT7511 is a Digital Temperature Sensor with ± 0.5 °C Accuracy Compatible with I2C and I3C Interface. It is ideally used in DDR5 DIMM Modules, Workstations and SSDs etc.

1. Description

The CT7511 is a high-accuracy temperature sensor with an I2C/I3C compliant digital interface supporting In Band Interrupts (IBI). Supporting the interface requirements of JEDEC JESD302-1 for Grade-B devices, the CT7511 exceeds the temperature accuracy requirements of the specification, enabling higher performance DDR5 memory modules. Available in a compact 6-ball WLCSP package, CT7511 is designed for high-speed, high-accuracy and low-power thermal monitoring applications.

The CT7511 has a typical accuracy of ± 0.25 °C over the entire temperature range from -40 °C to $+125$ °C and offers an on-chip 11-bit analog-to-digital converter (ADC) providing a temperature resolution of 0.25 °C.

The CT7511 is designed to operate from a core power supply of 1.8 V and I/O power supply of 1 V, with a low typical average quiescent current of 5.3 μ A when performing conversions every 125 ms.

Available Package: CSP-6 package.

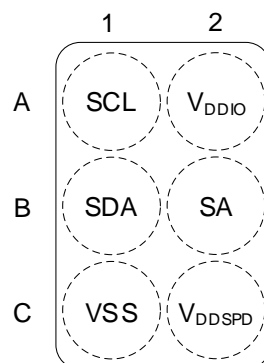
2. Features

- Supports JEDEC JESD302-1 DDR5 Grade B temperature sensor
- Exceeds JEDEC temperature accuracy specification:
 - ± 0.25 °C typical
 - ± 0.5 °C maximum ($+75$ °C to $+95$ °C)
 - ± 0.75 °C maximum (-40 °C to $+125$ °C)
- Operating temperature range: -40 °C to $+125$ °C
- Low power consumption:
 - 5.3 μ A typical average quiescent current
 - 0.7 μ A typical standby current
- I/O power supply of 1 V
- Core power supply of 1.8 V
- Two wire serial bus interface (I2C and I3C basic operation modes)
- Up to 12.5MHz data transfer rate in I3C basic mode
- In Band Interrupt (IBI) for alerting host
- Parity error check function for host writes
- Packet error check function for host read and writes
- 11-bit resolution: 0.25 °C (1 LSB)
- Standard CSP-6 package with 0.5mm pitch

3. Application

- DDR5 DIMM modules
- Server
- Laptops
- Workstations
- SSDs

4. PIN Configurations (Top View)



CSP-6(Package code J6)

5. Typical Application

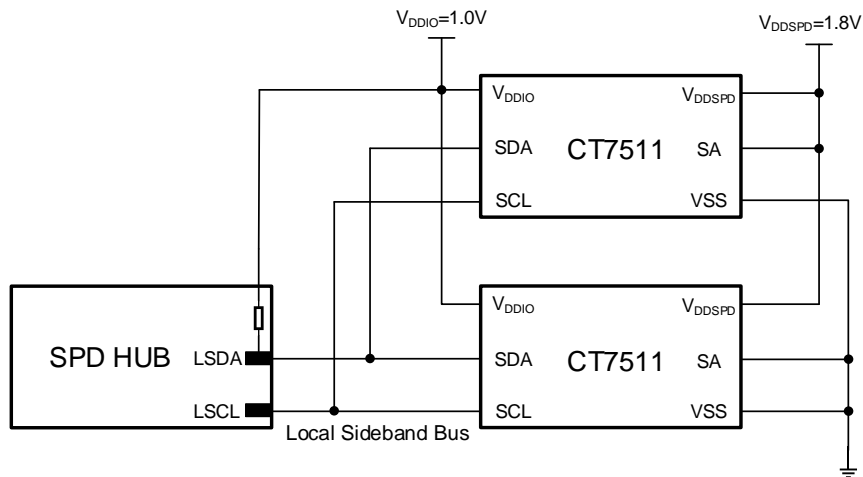


Figure 1 Typical Application of CT7511

6. Pin Description

PIN		I/O	Description
Name	BALL		
SA	B2	I	Address select. Connected to V_{DDSPD} or GND
SCL	A1	I	Serial clock
SDA	B1	I/O	Serial data input and output. Pin may be open-drain or push-pull in I3C mode and open drain in I2C mode
V_{DDIO}	A2	I	Supply voltage for sensor I/Os
V_{DDSPD}	C2	I	Supply voltage for sensor core
VSS	C1	-	Ground

7. Function Block

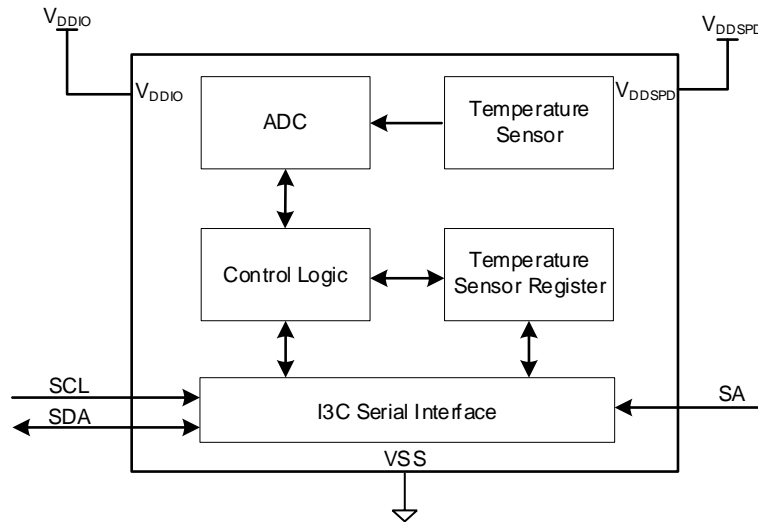
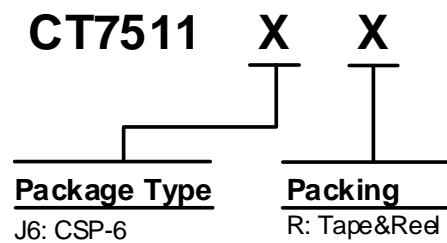


Figure 2 Function Block Diagram

8. Ordering Information



Order PN	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CT7511J6R	Halogen free	CSP-6	HR	Tape & Reel	3,000	-40°C~+125°C

Notes

- Sensylink can meet RoHS 2.0/REACH requirement. So most package types Sensylink offers only states halogen free, instead of lead free.
- For very small package, there's two characters to stands for part number



SENSYLINK Microelectronics Inc.

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