STMP75B Product Brief

1. Description

STMP75B is a digital temperature sensor with ±0.5ºC accuracy. Temperature data can be read out directly via digital interface (compatible with SMBus, I2C or 2-wire) by MCU, Bluetooth Chip or SoC chip.

STMP75B supports I2C communication with speed up to 3000 kHz. Each chip is specially calibrated for ±0.25ºC (Max.) accuracy over 0ºC to 50ºC range in factory before shipment to customers. There is no need for re-calibration anymore for ±0.25ºC accuracy.

It includes a high precision band-gap circuit, a 12-bit analog to digital converter that can offer 0.0625ºC resolution, a calibration unit with non-volatile memory, and a digital interface block.

It has ALERT logic output pin with open drain structure, which is selectable for active low or high by programming. ALERT response is compatible with SMBus ALERT Response Address (ARA).

STMP75B can also be used as standalone thermostat.

Available Package: MSOP-8

2. Applications

- Power-Supply Temperature Monitoring
- Computer Peripheral Thermal Protection
- Notebook Computers
- Cell Phones
- Battery Management
- Office Machines
- Thermostat Controls
- Environmental Monitoring and HVAC
- Electro Mechanical Device Temperature

3. Key Features

- Operation Voltage: 1.4V to 5.5V
- Average Quiescent Current: 50.0uA (Typ.)
- Shutdown Current: 1.0uA (Typ.)
- Temperature Accuracy without calibration:
  Maximum:±0.25ºC from 0ºC to 50ºC
  Maximum:±0.5ºC from -20ºC to 85ºC
  Maximum:±1ºC from -40ºC to 125ºC 12 bit ADC for 0.0625ºC resolution
- Compatible industry LM75 with performance improved
- Compatible with SMBus and I2C interface
  Programmable Over/Under Temperature
  Programmable Active Low or High for ALERT pin Support SMBus ALERT Response Address(ARA) Generate 32 different slave address by setup A0, A1, A2 pin
- Temperature Range: -40ºC to 125ºC

4. Functional Diagram

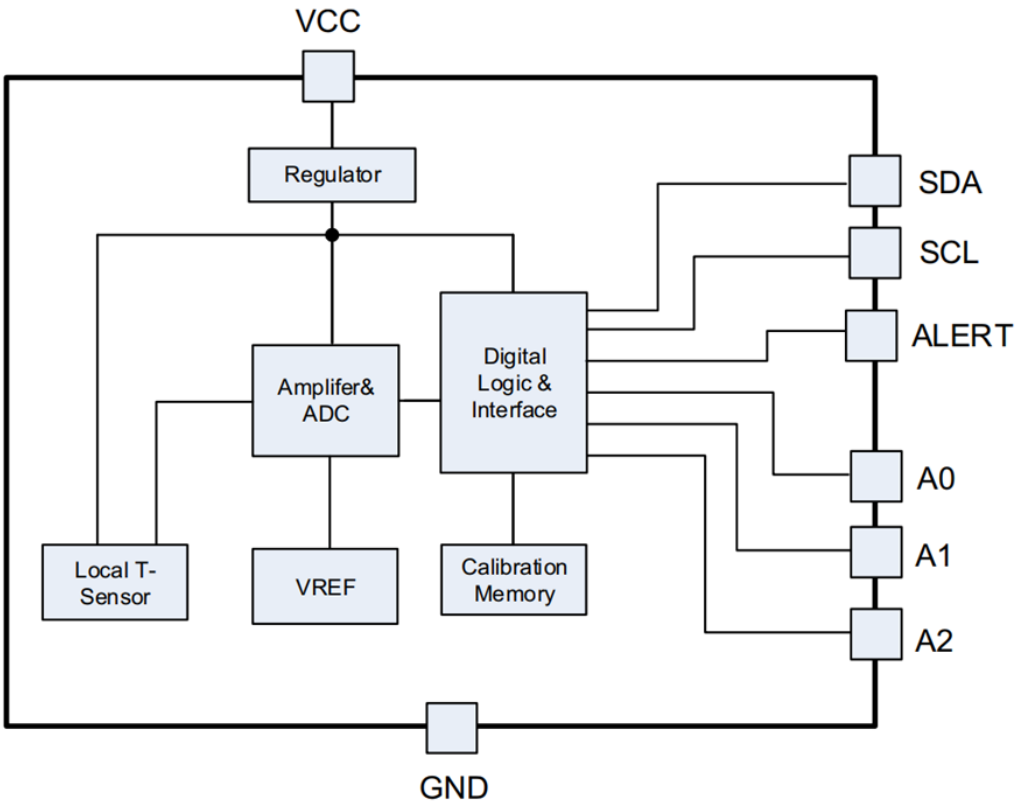

Figure 1 Functional Diagram

5. Pin Maps

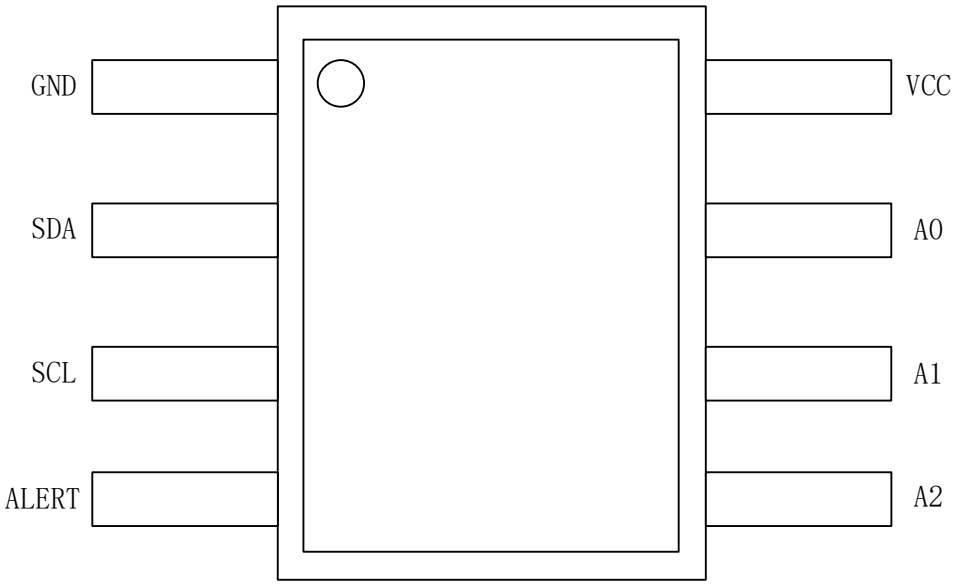

Figure 2 MSOP-8

6. Pin Descriptions

Table 1 Pin Descriptions

PIN No	PIN Name	Description
1	SDA	Digital interface data input or output pin, need a pull-up resistor to VCC.
2	SCL	Digital interface clock input pin, need a pull-up resistor to VCC.
3	ALERT	To Indicate ALERT of over or under Temperature programmed by setting T_{HIGH}/T_{LOW} register, it is open drain output with programmable active low or high. Need a pull-up resistor to VCC in application.
4	GND	Ground pin.
5	A2	Address selection pins, the chip can be defined total 32 different slave address by connecting these pins to GND, VCC, SCL or SDA pin respectively. Do not leave this pins open. See 1.5.1 **Slave Address** for detail.
6	A1	
7	A0	
8	VCC	Power supply input pin, using 0.1uF low ESR ceramic capacitor to ground