

## WATER TEMPERATURE SENSOR

The DS18B20 digital thermometer provides 9-bit to 12-bit Celsius temperature measurements and has an alarm function with nonvolatile user-programmable upper and lower trigger points. The DS18B20 communicates over a 1-Wire bus that by definition requires only one data line (and ground) for communication with a central microprocessor. In addition, the DS18B20 can derive power directly from the data line (“parasite power”), eliminating the need for an external power supply.

### **SPECIFICATIONS:**

- Unique 1-Wire® Interface Requires Only One Port Pin for Communication
- Reduce Component Count with Integrated Temperature Sensor and EEPROM
  - Measures Temperatures from  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  ( $-67^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$ )
  - $\pm 0.5^{\circ}\text{C}$  Accuracy from  $-10^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
  - Programmable Resolution from 9 Bits to 12 Bits
  - No External Components Required
- Parasitic Power Mode Requires Only 2 Pins for Operation (DQ and GND)
- Simplifies Distributed Temperature-Sensing Applications with Multi Drop Capability
  - Each Device Has a Unique 64-Bit Serial Code Stored in On-Board ROM
- Flexible User-Definable Nonvolatile (NV) Alarm Settings with Alarm Search Command Identifies Devices with Temperatures Outside Programmed Limits
- Available in 8-Pin SO (150 mils), 8-Pin  $\mu\text{SOP}$ , and 3-Pin TO-92 Packages



## SENSOR NODE

LSN50v2 is a Long Range LoRaWAN Sensor Node. It is designed for outdoor use and powered by Li/SOCl<sub>2</sub> battery for long term use, power consumption and secure data transmission. It is designed to facilitate developers to rapidly deploy industrial level LoRaWAN and IoT solutions. LSN50 v2 helps users to turn the idea into a practical application and make the Internet of Things a reality. It is easy to program, create and connect your things everywhere. LSN50v2 is based on SX1276/SX1278 allows the user to send data and reach extremely long ranges at low data-rates. It provides ultra-long range spread spectrum communication and high interference immunity whilst minimising current consumption. It targets professional wireless sensor network applications such as irrigation systems, smart metering, smart cities, smartphone detection, building automation, and so on.

### **SPECIFICATIONS :**

- STM32L072CZT6 MCU
- SX1276/78 Wireless Chip
- Pre-load bootloader on USART1/USART2
- MDK-ARM Version 5.24a IDE
- I2C, LPUSART1, USB
- 2x12bit ADC, 1x12bit DAC
- 18xDigital I/Os
- LoRa™ Modem
- Preamble detection
- Baud rate configurable
- CN470/EU433/KR920/US915
- EU868/AS923/AU915
- Open source hardware / software
- Available Band: 433/868/915/920 Mhz
- IP68 Waterproof Enclosure
- Ultra Low Power consumption
- AT Commands to change parameters
- Power Options: AC Powered / 4000mah battery for long term use

