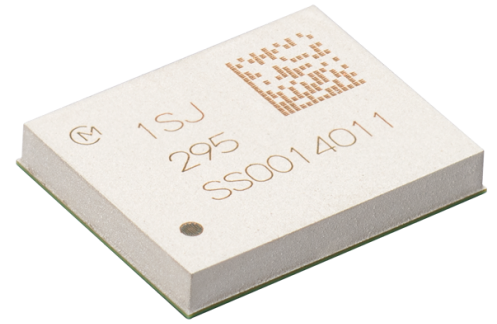


Type 1SJ LBAA0QB1SJ-295



The Type 1SJ (LBAA0QB1SJ-295) module is one of the smallest LoRaWAN™ modules in the industry.

This module has a lower power consumption and higher output than previous products.

Radio Law certification has already been obtained for major regions. Open MCU design support is available.

Product Status

In Production ?

LoRa connectivity knowledge shared
Murata Community Forum,
your LoRa questions answered by fellow connectivity professionals

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- [↓ Series Overview](#)
- [↓ Block Diagram](#)
- [↓ Technical Support](#)
- [↓ Application Guide](#)

| | |
|---------------------------------|------------------------------------|
| Product Type | Module |
| Part.No | LBAA0QB1SJ-295 |
| LoRaWAN™ Channel Band | 860-930MHz |
| Chipset | Semtech (SX1262) + STM (STM32L) |
| Modulation | FSK and LoRa™ Modulation |
| Antenna | External |
| Operating Temperature Range | -40 to +85 |
| Dimension | 10.0 mm × 8.0 mm × 1.6 mm |
| Interface Voltage (Vdc for VIO) | 3.3 Vdc |
| Supply Voltage min | 2.2V for VDD_MCU, VDD_RF, VDD_TCXO |
| Supply Voltage max | 3.6V for VDD_MCU, VDD_RF, VDD_TCXO |
| Transmit Mode Current | 118mA @ 22dBm setting |

| | |
|----------------------|--------------------------------------|
| Transmit Power | Up to +21.5dBm |
| Receive Mode Current | 15.5mA @ 125kHz BW |
| Receiver Sensitivity | -135.5dBm @ 1% PER, 125kHz BW, SF=12 |
| Host Interface | I2C/ UART/ USB/ SPI |
| RoHS Compliant | Yes |
| Technology | LPWA |
| FCC/IC Certified | FCC/IC "Reference" Certified |

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Series Overview

With just 10.0 mm × 8.0 mm × 1.6 mm, Murata developed the smallest LoRa module available in the world today. Suitable for a wide range of high-volume applications where small size, long range, extended battery life, security and a competitive price point are requirements.

Based upon a second-generation Semtech SX1262 radio frequency IC (RFIC), the Type 1SJ LoRa module also features an open STM32L0 microcontroller (MCU) from STMicroelectronics along with an RF switch and 192kB of Flash memory and 20kB of RAM. This extensive memory provision ensures that sufficient resources are available for the application layers.


Also housed in the tiny module is a temperature controlled crystal oscillator (TXCO) and multiple communication interfaces including UART / I2C / SPI / ADC / USB and various GPIOs.

Designed for deployment globally, the module supports ISM bands from 868 MHz to 916 MHz, including those used in Europe, USA, India and the Pacific rim.

The device has a single part number globally, simplifying customer supply chains.

Operating from a single supply rail (up to 3.9V DC), the Type 1SJ module incorporates several low power modes that allow the real time clock (RTC) to operate while drawing a typical current of just 1.3µA.

This enhanced current consumption allows devices based upon Murata’s module to operate for years from a single battery.

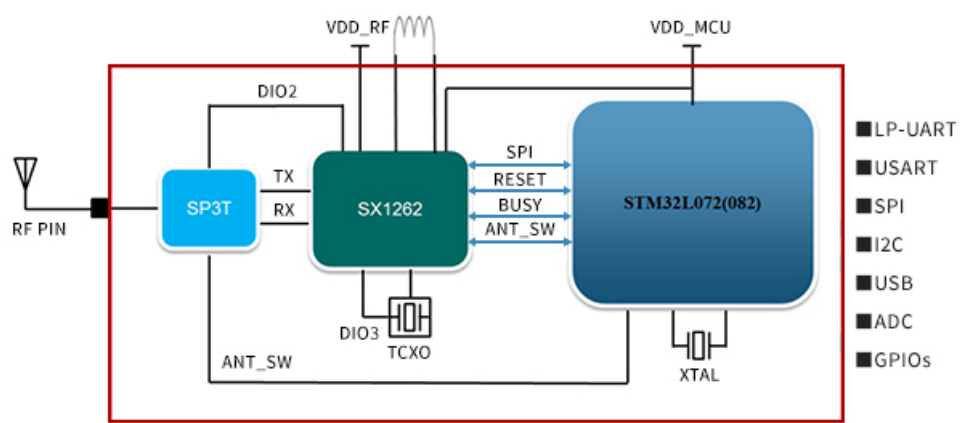
As option, the open MCU allows the module to be easily flashed with code from [Trusted Objects “TO Protect Library”](#)  that ensures the Flash memory is secure and encrypted, protecting the end system against the ever-increasing threat of malicious tampering.

The resin mold package provides physical ruggedness, allowing the module to operate across the temperature range -40°C to +85 °C.

The new Type 1SJ LoRa module will help designers to develop solutions that meet the most demanding requirements, especially in areas such as asset tracking, utilities, agriculture, smart cities, smart buildings, industrial and other IoT applications.

Sample quantities of the new module, along with a full evaluation kit are available with immediate effect.

Block Diagram



Technical Support

> Technical support documents



Application notes, datasheets, etc. are available here for reference.

Type 1SJ technical support documents page

> Evaluation kits and steps before implementation



See here for the available evaluation kits and the steps before implementation.

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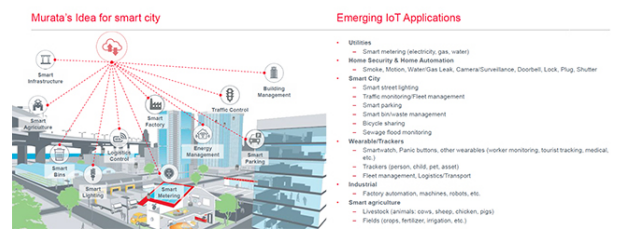
Application Guide

Standard examples of application

Typical applications for this module includes smart metering, wearables, tracking, M2M and internet of things (IoT) edge nodes.

Accommodating a wide range of temperature.

IoT Business Cases, which presents a number of new IoT application concepts, is available for download.



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- > Type 1SC(LBAD0XX1SC)
- > Type 1WG(LBAD00XX1WG)
- > Type ABZ(CMWX1ZZABZ-093)
- > Type 1SE(LBAD0ZZ1SE)
- > Type 1SJ (LBAA0QB1SJ-296)
- > Type 1SC-SM(LBAD0XX1SC)
- > Type ABZ CMWX1ZZABZ
- > Type ABZ(CMWX1ZZABZ-104)
- > Type 1SJ(LBAA0QB1SJ)
- > Type 1SJ (LBAA0QB1SJ-686)
- > Type 1SC-DM(LBAD0XX1SC)
- > Type ABZ(CMWX1ZZABZ-078)
- > Type ABZ(CMWX1ZZABZ-102/mQ200)
- > **Type 1SJ (LBAA0QB1SJ-295)**
- > Type 1WL(LBEU5ZZ1WL)

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