

Order Number LBAA0QB1SJ-295

860-930MHz LPWA Module
 Chipset: Chipset Semtech (SX1262) + STM (STM32L)
 Modulation: FSK, OOK and LoRa™ Modulation

Small form factor LoRaWAN™ module
 MCU Chipset: STM32L0 Series
 CPU: ARM Cortex-M0+
OPEN MCU for Applications
 Peripheral Interfaces: I2C, UART, USB, SPI
 Pre-certified radio regulatory approvals: 868 & 930 MHz spectrum

Secured MCU flash as Option with Trusted Objects



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With just 10.0 mm x 8.0 mm x 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, China 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.

www.trusted-objects.com/en-secure-products/en-secure-platform/en-to-protect-2.html

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.

Learn how LoRa works

Product Type	Module
Product Status	under development recommended
Grade	Consumer
Frequency	860-930MHz
Frequency MHz (min)	860
Frequency MHz (max)	930
Operating Temperature Range	-40 to +85
Chipset	Chipset Semtech (SX1262) + STM (STM32L)
Modulation	FSK, OOK and LoRa™ Modulation
Antenna	External
Sleep Clock	No
System Clock	Integrated 32MHz (TCXO, frequency error = ±2ppm); 32.768KHz (frequency error = ±20ppm)



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Transmit Power	Up to +22dBm
Operating Temperature °C (min)	-40
Operating Temperature °C (max)	85
Mounting Type	LGA
Package	Resin mold
Dimension	10.0 x 8.0 x 1.60 mm
Supply Voltage (Vdc)	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
Receiver Sensitivity	-137dBm @ 1% PER, 125kHz BW, SF=12
Transmit Mode Current	118mA @ 22dBm setting
Receive Mode Current	15.5mA @ 125kHz BW
Technology	LPWA
Host Interface	I2C/ UART/ USB/ SPI
FCC/IC Certified	FCC/IC "Reference" Certified
RoHs Compliant	Yes
Certification	Certification Compliant with RoHS directive; LoRaWAN Certified
Purchase Product available for 100Kpcs/year minimum	

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