

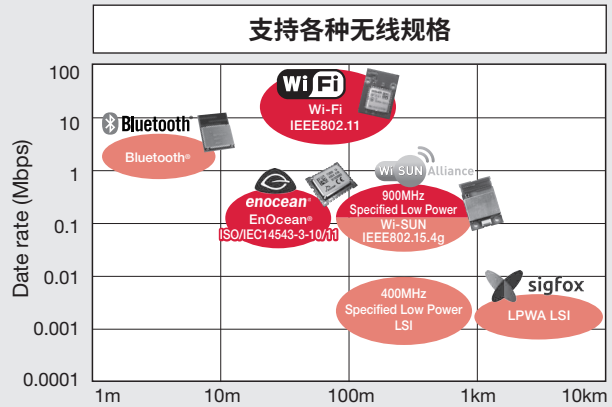
无线通信模块

关于罗姆的无线通信技术	P.270	Wi-SUN通信模块(特定小功率通信模块)	P.270
无线LAN模块	P.270	Bluetooth®模块	P.271
EnOcean®通信模块	P.271	13.56MHz(NFC)无线充电模块	P.271

关于罗姆的无线通信技术

■无线通信

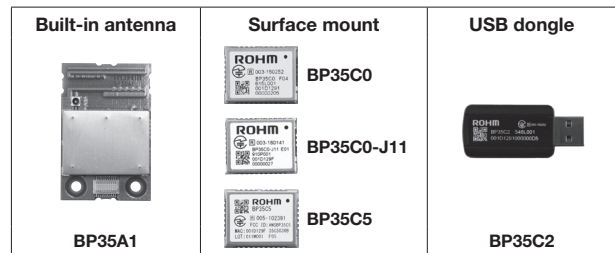
罗姆集团进行广泛的无线通信元器件研发。



Wi-SUN通信模块 (特定小功率通信模块)



- 920MHz频段 特定小功率无线模块
- 先进接收灵敏度
- 内置天线无需高频设计
- 发送功率已调整完毕
- MAC地址已写入完毕
- 已获得日本电波法认证
- 使用LAPIS Technology生产的LSI



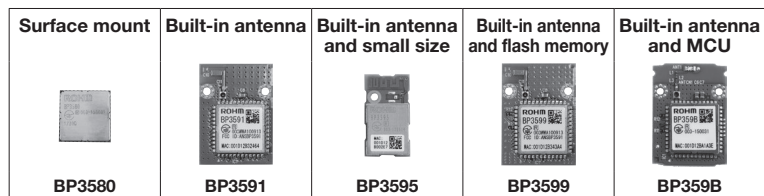
Wi-SUN通信模块(特定小功率通信模块)

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Host I/F	Compatible Standards	Radio law Certification	Dimensions (mm)	Package
BP35A1	2.7 to 3.6 (Single power)	-20 to +80	UART	Wi-SUN Route-B	TELEC	22.0×33.5×3.9	Connector joint type 0.5mm pitch, 20pin
BP35C0	2.6 to 3.6 (Single power)	-30 to +85	UART	Wi-SUN Route-B/HAN	TELEC	15.0×19.0×2.6	SMD 1.27mm pitch, 28pin
BP35C0-J11	2.6 to 3.6 (Single power)	-30 to +85	UART	Wi-SUN Route-B/HAN/Enhanced HAN	TELEC	15.0×19.0×2.6	SMD 1.27mm pitch, 28pin
BP35C2	5.0 (Single power)	-20 to +50	USB	Wi-SUN Route-B/HAN	TELEC	21.4×49.7×8.5	USB Dongle
BP35C5	2.6 to 3.6 (Single power)	-30 to +85	UART	Wi-SUN FAN	TELEC/FCC	15.0×19.0×2.6	SMD 1.27mm pitch, 30pin

无线LAN模块



- IEEE802.11b/g/n对应无线LAN模块
- 配备罗姆自制基带IC
- 发送功率已调整
- 已获得日本无线电波法认证



无线LAN模块

Part No.	Supply Voltage (V)	Operating Temperature (°C)	Host I/F	Compatible Standards/Module Specifications	Onboard IC	Dimensions (mm)	Package*
BP3580	3.1 to 3.5 (Single power)	-40 to +85	USB/SDIO/UART	•IEEE802.11b/g/n	BU1805AGU	17.0×17.0×2.3	SMD 1.27mm pitch, 48pin
BP3591	3.1 to 3.5 (Single power)	-40 to +85	USB/SDIO/UART	•IEEE802.11b/g/n •BP3580 and chip-antenna into 1 module	BU1805AGU	24.0×33.1×4.7	Connector joint type 0.5mm pitch, 34pin
BP3595	3.1 to 3.5 (Single power)	-40 to +85	USB/SDIO/UART	•IEEE802.11b/g/n •The small size type of BP3591	BU1805AGU	15.3×27.6×2.6	Connector joint type 0.4mm pitch, 30pin
BP3599	3.1 to 3.5 (Single power)	-40 to +85	USB/SDIO/UART	•IEEE802.11b/g/n •Type with flash memory mounted on BP3591 •Firmware is written in a flash memory	BU1805AGU	24.0×33.1×4.7	Connector joint type 0.5mm pitch, 34pin
BP359B	3.1 to 3.5 (Single power)	-40 to +70	UART	•IEEE802.11b/g/n •Type with MCU and flash memory mounted on BP3591 •Firmware is written in a flash memory	BU1805AGU	24.0×33.1×4.7	Connector joint type 0.5mm pitch, 34pin

*使用自创的电源模块封装。

Bluetooth® 模块 Bluetooth®

- 超低消耗电流, 适用于需要延长硬币电池和纽扣电池寿命的设备
- 支持Bluetooth® low energy单通道的模块
- 内置图形天线, 出货时已调整无线特性
- 已通过的电波法认证: 日本电波法认证、FCC、ISED(IC)、CE
- 已获得Bluetooth认证



Bluetooth® low energy 模块 (LAPIS Technology 产品)											
Part No.	Supply Voltage (V)	Operating Temperature (°C)	Host I/F	Bluetooth Certification	Radio law Certification	Module Specification	Include Flash/RAM	Include Crystal Oscillator	Include Antenna	Dimension (mm)	Package
MK71511-NNN	1.7 to 3.6	-40 to +85	UART SPI	Ver5.2 (Single mode) QDID: 146733 (RF-PHY Component)	TELEC/FCC/ISED/CE	Role: Master/Slave Application: Blank	Flash: 192KB RAM: 24KB	32MHz 32.768kHz	Pattern	9.7x13.4x2.0	M-FLGA54-9.7X13.4-0.80-9Y
MK71511A-NNN								32MHz			M-FLGA54-9.7X13.4-0.80-9Y
MK71521-NNN							Flash: 512KB RAM: 64KB	32MHz 32.768kHz			M-FLGA54-9.7X13.4-0.80-9Y
MK71521A-NNN							32MHz	M-FLGA54-9.7X13.4-0.80-9Y			

Bluetooth®是Bluetooth SIG的注册商标。

EnOcean® 通信模块

EnOcean®通信模块是利用环境发电的无需电池的无线通信模块。

- 特点**
- 支持EnOcean®通信标准(ISO/IEC14543-3-10/11)
 - 内置天线无需高频设计
 - 已获得日本电波法认证

* 本产品已获得日本电波法认证, 可作为928MHz频带特定小功率无线电台使用。

EnOcean®通信模块、元器件											
Frequency Band	Use Target Area	Products									
		Energy converter for motion energy harvesting (for the switch module)	Transmitter module (for switch module)	Push button multi-channel switch module	Energy harvesting wireless transceiver module	Programmable transceiver module	Energy harvesting magnet contact module	Energy harvesting temperature sensor module	Humidity sensor module	Receiver USB module	Development kit
928MHz	Japan	ECO 200	PTM 535J	PTM 215J	STM 400J	TCM 410J	STM 429J	STM 431J	HSM 100	USB 400J	EDK 400J*
868MHz	Europe·China	ECO 200	PTM 535	PTM210/PTM215	STM 300	TCM 310	STM 329	STM 331	HSM 100	USB 300	EDK 350
902MHz	North America	ECO 200	PTM 535U	PTM 215U	STM 300U	TCM 310U	STM 320U	STM 331U	HSM 100	USB 500U	
921MHz	Asia	ECO 200	-	-	-	-	-	STM 431T	HSM 100	USB 500T	

*EDK 400J包装内物品: PTM 215J(开关模块)/USB 400J(接收用USB模块)/PTM 535J(开关模块用电路板)/ECO 200(开关模块用电磁感应发电元件)/STM 431J(温度传感器模块)/STM 400J(能量采集无线模块)/EOP 350(编程板: 置换STM 431J、STM400J等固件时使用)/USB电缆(连接EOP 350和PC的电缆)


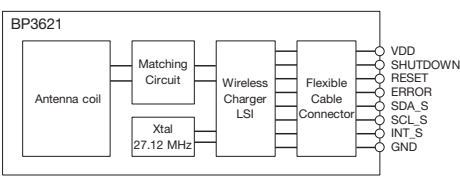
●EDK 400J内的STM 400J贴装于用于连接EOP 350的专用电路板上。

*EnOcean®是日本碍子株式会社の注册商标。


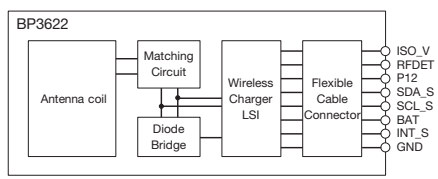
13.56MHz(NFC)无线充电模块

13.56MHz无线充电模块是搭载天线的电路板一体化模块。可大幅减少天线设计和匹配调整的开发工时, 轻松实现无线充电功能。有助于实现可穿戴式设备及IoT设备等所需的小型、无连接器、防水防尘等框体的设计。

BP3621 (输电模块)

BP3622 (受电模块)

大范围供电型13.56MHz无线充电输电模块

Part No.	Transmitter/Receiver	Module type	Module size (mm)	Weight (g)	Supply Voltage (V)	Output Power (Max) (mW)	Feeding Distance (d) (mm)	Operating Temperature (°C)	Interface
New BP3621	Power Transmitter	Wide Range type	35.0x26.0x1.5	0.80	4.5 to 5.5	-	10	-10 to +50	8pin, 0.5mm pitch, FPC connector

大范围供电型13.56MHz无线充电受电模块

New BP3622	Power Receiver	Wide Range type	24.0x17.0x1.5	0.38	-	200	10	-10 to +50	8pin, 0.5mm pitch, FPC connector
-------------------	----------------	-----------------	---------------	------	---	-----	----	------------	----------------------------------