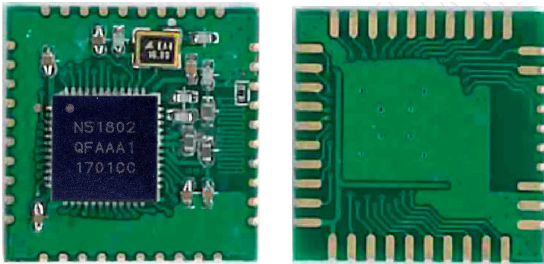


# BT10-1

## Bluetooth LE 4.2 & Proprietary 2.4Ghz Module



BT10-1 is a multi-protocol RF module using NORDIC SoC nRF51802. This module is ideal for low power wireless sensing device applications such as mobile phone accessories, sports, fitness equipment, consumer electronics, HID, health care, and etc.. The module has been designed to provide ultra-low power, low cost and robust 2.4 GHz communications and compliant with Bluetooth Version 4.2 low energy (BLE, Single Mode) solution.

### FEATURES:

- Bluetooth version 4.2 (LE, single mode) compliant.
- Range of proprietary 2.4Ghz protocols
- Powerful ARM® Cortex®-M0 microcontroller
- 256KB In-System-Programmable flash and up to 16KB of system SRAM
- With supply voltage range (1.8 to 3.8V) and with lowest power.
- Powerful Peripherals
- Excellent receiver sensitivity
- Programmable output power
- On board PCB Antenna and crystal
- Excellent receiver sensitivity
- Dimension: 14.3mm x 14.3mm FR4 PCB
- Module Thickness : 2.0mm

### Absolute Maximum Ratings

Description	Condition	Min.	Typ.	Max.	Unit
Supply Voltage (VCC_nRF)		- 0.3		3.9	V
Voltage on any digital/ analog IO		- 0.3		FCC_nRF + 0.3	V
Input amplitude driven by external clock on XL1		200		600	mV pp
Input RF level		-		5	dBm
Storage temperature range		-40		125	°C

### Recommended Operating Conditions

	Min.	Typ.	Max.	Unit
Operating supply voltage (VDD5)	1.8	-	3.8	V
Operating ambient temperature range, TA	- 25	25	75	°C

### DC Characteristics

TA=25°C, VCC\_nRF = 3V

		Min.	Typ.	Max.	Unit
VIH	Lowest GPIO input voltage reliably interpreted as a <High>	0.7 * VCC_nRF	-	VCC_nRF	V
VIL	Highest GPIO input voltage reliably interpreted as a <Low>	GND	-	0.3* VCC_nRF	V
GPIO VOH at 5 mA load	High-drive GPIOs only	VCC_nRF-0.3	-	VCC_nRF	V
GPIO VOL at 5 mA load	High-drive GPIOs only	GND	-	0.3	V
GPIO VOH at 0.5 mA load	Std.-drive GPIOs only	VCC_nRF-0.3	-	VCC_nRF	V
GPIO VOL at 0.5 mA load	Std.-drive GPIOs only	GND	-	0.3	V
Pull-up resistance		11	13	16	KΩ
Pull-down resistance		11	13	16	KΩ



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### Typical Current Consumption $T_A=25^{\circ}\text{C}$ , $V_{CC\_nRF} = 3\text{V}$

Description	Condition	Min.	Typ.	Max.	Unit
Core Current Consumption	TX mode, 0dBm output power, no peripherals activity, low MCU activity	-	10.5	-	mA
	TX mode, 5 dBm output power, no peripherals active, low MCU activity	-	16	-	mA
	RX mode, standard module, no peripherals active, low MCU activity	-	13	-	mA
	Active, Run current at 16Mhz (XOSC). Executing code from flash memory	-	4.1	-	mA
	Current drawn by 1V2 regulator and 16Mhz XOSC when both are on at the same time	-	810	-	$\mu\text{A}$
	For HFCLK in 1Mhz mode3. Current drawn by 1V2 regulator and 16Mhz XOSC when both are on at the same time	-	520	-	$\mu\text{A}$
	SYSTEM-ON base current with 16KB RAM enabled	-	3	-	$\mu\text{A}$
	Additional current in SYSTEM OFF per retained RAM block (8KB)	-	0.6	-	$\mu\text{A}$
	Current in SYSTEM OFF, no RAM retention	-	0.6	-	$\mu\text{A}$

**Note:** The current consumption depends on applications

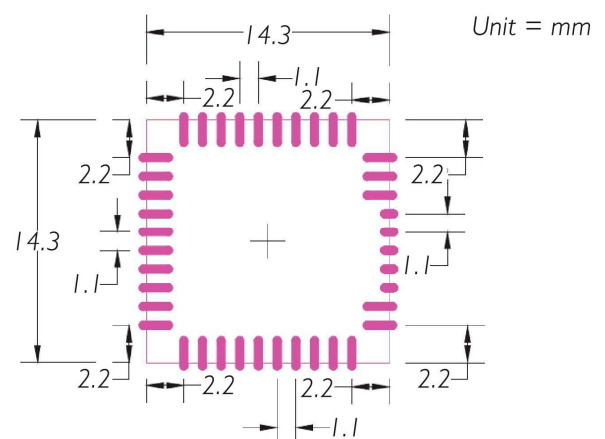
### RF Character $T_A=25^{\circ}\text{C}$ , $V_{CC\_nRF} = 3\text{V}$

Description	Condition	Min.	Typ.	Max.	Unit
Frequency Range		2402	-	2480	MHz
Channel Spacing		-	2	-	MHz
Output Power		-30	-	4	dBm
Receiver Sensitivity		-	-89	-	dBm
Frequency Error Tolerance		-250		250	kHz

### Outline Dimension of PCBA

TOP VIEW

Thickness	2.0mm (Max.)
PCB Thickness	0.8mm (+/- 0.1mm)
Dimension	14.3mm x 14.3mm (+/-0.5mm)



\* Features and specification are subject to change without notice.



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