

Product Brief

PHY6222

High-Performance, Ultra-Low-Power, Full-Stack/
Multiprotocol, Bluetooth LE 5.4 System on Chip



奉加科技

PHYPLUS Technologies



Bluetooth 5.4

TX/RX

4.6/4mA

OFF Mode

0.3uA

-99dBm

@BLE 1Mbps

10dBm

Max TX Power

109dB@1Mbps

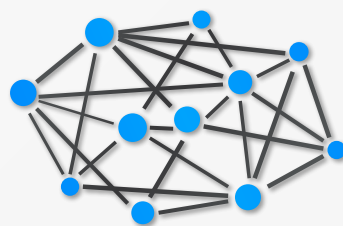
Link Budget

-105dBm

@BLE 125Kbps

22

GPIO



BLE Mesh 1.1

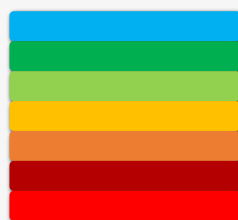


AoA/AoD
Direction Finding

2.4GHz



Proprietary 2.4GHz
Protocol Stack



Full-stack
Bluetooth Solution



matter

BLE+Zigbee Coexistence

SPECIFICATION

MCU	High-performance Low-power 32-bit
Memory	128KB-8MB Flash; 64KB SRAM, all programmable retention in sleep mode; 4-way Instruction Cache with 8KB Cache RAM; 96KB ROM; 256bit efuse.
Sensitivity	-99dBm@BLE 1Mbps -105dBm@BLE 125Kbps -96dBm@BLE 2Mbps TX Power -20 to +10dBm in 3dB steps
Power Consumption	0.3uA@OFF Mode (IO wake up only) 1uA@Sleep Mode with 32KHz RTC 2.7/3.6/4.6uA @ Sleep Mode with 32KHz RTC and 32/48/64KB SRAM retention TX/RX: 4.6/4mA@3.3V MCU: <60uA/MHz
Protocol	Compliant to Bluetooth 5.4 SIG-Mesh Full Features; LE 2Mbps High Speed; LE Coded PHY Long Range; LE Multi-connection and Master-slave Switching; LE Data Length Extension; AoA/AoD Direction Finding; LE Advertising Extensions/Periodical Advertising Sync Transfer BLE+Zigbee multi-protocol stack coexistence; Proprietary 2.4G
GPIO	22 General Purpose I/O pins GPIO status retention in off/sleep mode GPIO configurable as serial interface and programmable IO MUX function mapping All pins can be configured for wake-up and triggering interrupt
Peripherals	3 quadrature decoder(QDEC) 6-channel PWM 2-channel PDM/I2C/SPI/UART DMIC/AMIC with microphone bias 8-channel 12bit ADC with low noise voice PGA
Timer/Counters	6-channel 32bit timer, one watchdog timer Real timer counter (RTC)
Oscillators	Internal High/Low frequency RC osc 32KHz RC osc for RTC with +/-500ppm accuracy 32MHz RC osc for HCLK with 3% accuracy
Hardware Security	AES-128 encryption hardware
Operating Temperature	-40°C ~+85°C (Consumer) -40°C ~+105°C (Industrial)
RoHS Package	QFN32 (4x4)/QFN24(3x3)

OVERVIEW

世界一流的超低功耗高性能蓝牙/Zigbee系统级芯片 PHY6222，专为物联网数传和组网领域设计。

高性能多模射频收发机

通过硬件模块的充分复用以最低代价实现多模数字收发机。发射机最大发射功率达到10dBm；BLE 1Mbps速率下接收机灵敏度达到-99dBm，链路射频预算109dB@1Mbps；0dBm时收发功耗4.6/4mA（TX/RX）。此外创新了无需调制系数估计的相干解调（Coherent Demodulation），提供3dB的解调增益，将通信距离和抗干扰能力提高了数倍。

超低功耗芯片设计

采用高效率片上电源管理、低功耗射频前端、低功耗时钟产生架构、振荡器快速启动技术等电路技术，实现最低的峰值、平均和休眠功耗，保证常规200mAH的纽扣电池供电状态下能够持续工作五年以上。

自主知识产权全栈蓝牙方案和多协议栈支持



2Mbps高速率
Coded PHY长距离
BLE多连接和主从切换
AoA/AoD无线定位
扩展广播/周期广播



Friend Node
Low Power Node
Proxy Node
Relay Node



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2.4GHz PHY+ Phyplus
私有2.4G协议栈

多样化的应用领域

智能穿戴设备、智能家居、智能照明、智能电表、自拍器、防丢器、遥控器、手机外设、电子价签、蓝牙信标、医疗健康、智能楼宇、智慧工业.....

Series Comparison

PHY62 Series	PHY6222	PHY6232	PHY6228	PHY6235	PHY6230	PHY6212
Bluetooth Qualified	5.4	5.4	5.4	5.4	5.4	5.4
Zigbee 3.0	N	N	N	N	N	N
MCU	32-bit	32-bit	32-bit	32-bit	32-bit	32-bit
SRAM	64K	64K	64K	8K	8K	138K
FLASH	128K-8M	256/512K	512K	256/512K	16KB OTP	512K/2M
TX/RX (mA)	4.6/4	8.6/8	4.6/4	10/10	10/10	6.7/6.7
OFF (uA)	0.3	0.3	0.3	1.6	0.7	0.7
Sensitivity@BLE 1M	-99	-99	-99	-96	-96	-97
Sensitivity@BLE 125K	-105	-105	-105	-	-	-103
Sensitivity@Zigbee 250K	-	-	-	-	-	-
Max TX Power	10	10	10	10	10	10
GPIO	22	19	66	15	19/11/3	33/19
Package	QFN32/24	SSOP24 SOP16	QFN88/64	SSOP24 SOP16	QFN24/SSOP24 SOP16/TSOP8 SOP6/MSOP10	QFN48/32

关于奉加

奉加科技(上海)股份有限公司致力于研发世界一流的低功耗射频芯片技术与自主知识产权的通信协议栈，为AIoT提供灵活、安全、多功能、高性价比的低功耗无线通信芯片和方案。

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