



成都亿佰特电子科技有限公司
Chengdu Ebyte Electronic Technology Co.,Ltd.

E05-MLE124AP2 Datasheet V1.0

1. Introduction

E05-MLE124AP2



E05-MLE124AP2 is a wireless transceiver module, operates at 2.4 GHz with small-size and 100mW transmitting power. With gold-plated SMA-K RF interface and stable batch production, the module is suitable for various applications.

E05-MLE124AP2 is based on original imported RF chip nRF24LE1 from Nordic in Norway. And equipped with 20dBm power amplifier chip imported from USA, which makes the transmitting power achieves 100mW (20dBm). QFN24, imported industrial components, lead-free process, built-in 51 microcontroller, stable performance, high communication speed, small-size by professional

hardware design. All those features are all convenient for all kinds of embedded development..

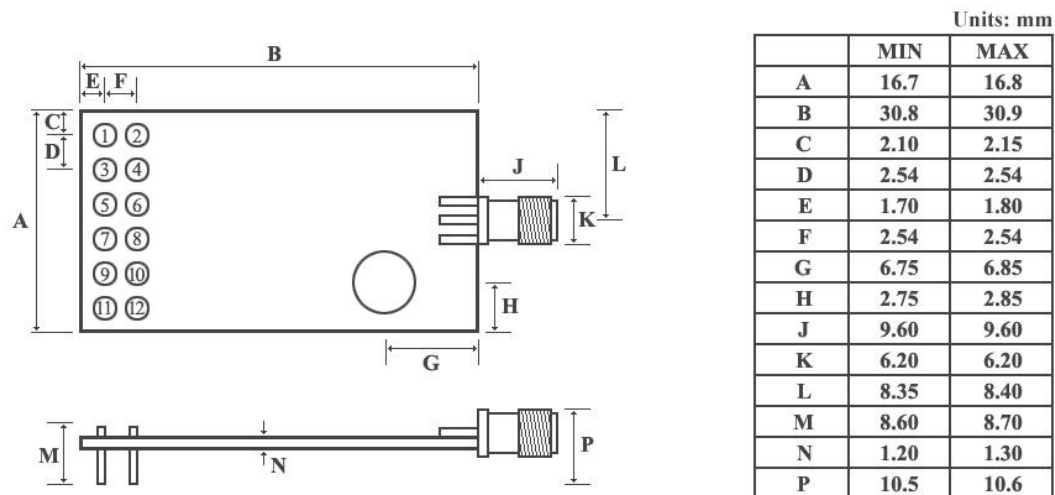
2. Electrical parameter

E05-MLE124AP2

No.	Parameter item	Parameter details	Description
1	RF IC	nRF24LE1	Nordic
2	Size	16.7 * 30.8mm	Without antenna & SMA
3	Production process	Machine	Lead-free
4	Connector	2 * 6 * 2.54mm	Plug-in
5	Supply voltage	2.0 ~ 3.6V DC	Notes: the voltage higher than 3.6V is forbidden
6	Frequency Band	2400 ~ 2525MHz	Adjustable
7	Communication level	0.7VCC ~ 3.6V DC	VCC refers to the supply voltage
8	Operation Range	About 1100m	Test condition: Clear and open area, 20dBm ,antenna gain: 5dBi , height: 2m , Air date rate: 250Kbps
9	Transmitting power	Maximum 20dbm	About 100mW
10	Air data rate	250kbps ~ 2Mbps	Can be configured to 250k , 1M , 2Mbps
11	Sleep current	1.0uA	MCU and wireless is disabled, VCC=3.0V
12	Transmitting current	128mA@20dBm	The largest emission current
13	Receiving current	20mA	Receives an average current
14	Communication interface	I/O	QFN24
15	Transmitting length	3 level FIFO.	1~32 bytes for one package
16	Receiving length	3 level FIFO.	1~32 bytes for one package
17	RSSI support	N/A	Support simple data packet loss statistics
18	Antenna type	SMA-K	50 ohm characteristic impedance
19	Sensitivity	-99dBm	250kbps
20	Operating temperature	-40 ~ +85°C	Industrial-grade
21	Operating humidity	10% ~ 90%	Relative humidity, without condensation
22	Storage temperature	-40 ~ +125°C	Industrial-grade

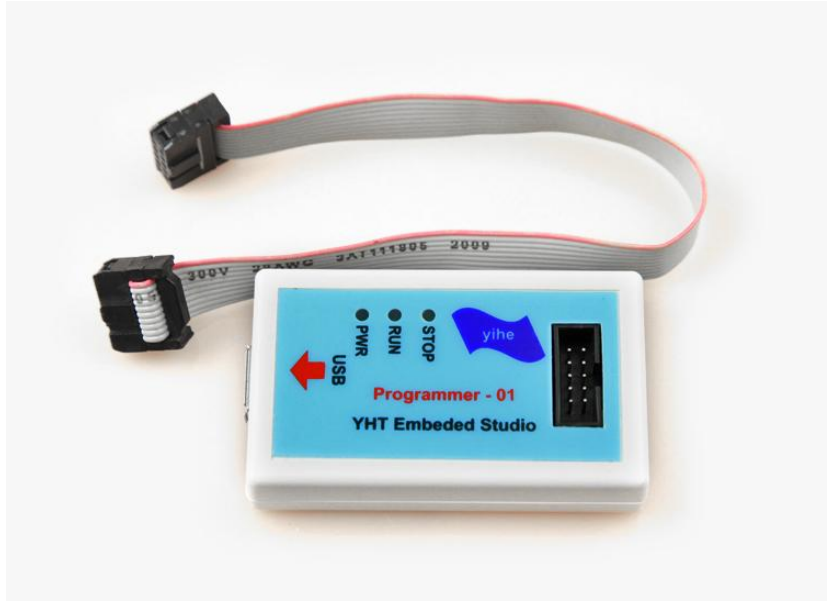
3. Pin definition

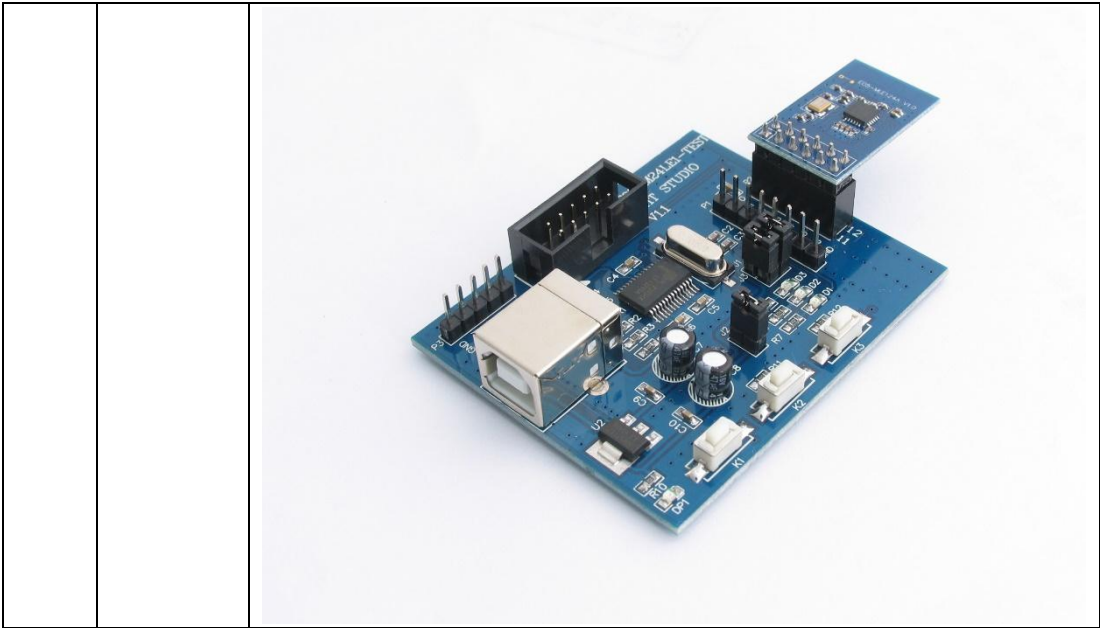
E05-MLE124AP2



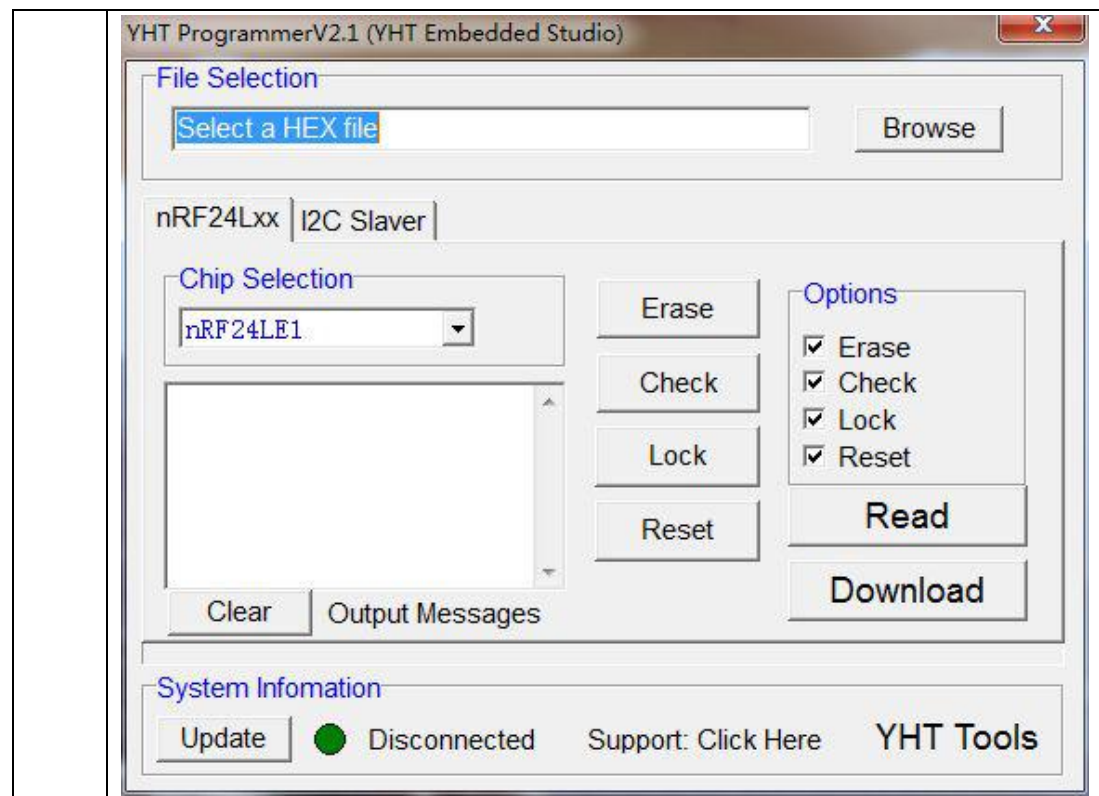
Pin No.	Pin item	Pin direction	Pin application
1	VCC		Power supply 2.0V ~ 3.6V DC
2	P0.2	Input/Output	MCU GPIO
3	RST	Input	low level reset pin
4	P0.3	Input/Output	MCU GPIO
5	RXEN	Input	Switch for the receiving LNA function. Opened when high level, disabled when low level. The receiving sensitivity is greatly improved when it is on.
6	P0.4	Input/Output	MCU GPIO
7	P0.0	Input/Output	MCU GPIO
8	P0.5	Input/Output	MCU GPIO
9	P0.1	Input/Output	MCU GPIO
10	P0.6	Input/Output	MCU GPIO
11	PROG	Input	For programming (Floating is allowed)
12	GND		Ground
<p style="text-align: center;">★ Please see more details in < nRF24LE1 Datasheet >, ★ ★ such as pin definition, software drivers, communication protocol. ★</p>			

4. USAGE**E05-MLE124AP2**

No.	Keyword	Note
1	Download firmware	<p>Embedded 51 MCU, KEIL C51 can be used for software development.</p> <p>Program-download can only use our specified downloader YHT01-PROG, URAT or any other tools like JTAG、ISP、ICP cannot be used for download.</p> <p>Demo program can be provided for user as reference.</p> <p>User can download the compiled HEX file directly, or modify on the basis of primary code to achieve their needs.</p> <p>Due to the GPIO of program downloaded and some function reuse of base board, Please unplug the programmer after download to avoid dysfunction of GPIO reuse.</p> 
2	Testing base board	<p>We advise to use our specialized base board E05-MLE124-T for software development (click the Model-No can open the link), the module can be inserted on the base board directly.</p> <p>This base board leads to all GPIO of the module, and provides USB-TTL UART, LED, the user key, programmer interface etc., Easy for users to develop the product.</p>



5. SoftwarinstallationE05-MLE124AP2	
No.	Note
1	<p>We advise to use UV4 and above version for KEILC51,Please check KEIL （ Help menu ）</p>
2	<p>Programming software YHT Programmer.exe, doesn’ t need to install, can be used directly. The user can choose chip or HEX file to do the operations of download, read, erase and encryption. The interface is as follows:</p>



6. Series of products

E05-MLE124AP2

Model	RF IC	Package	Power	Range	Antenna Type
E05-MLE124A	nRF24LE1	Plug-in	0dBm	100m	PCB
E05-MLE124AP2	nRF24LE1	Plug-in	20dBm	1100m	SMA-K
E05-MLE132A	nRF24LE1	Plug-in	0dBm	100m	PCB
E05-MLE132AP2	nRF24LE1	Plug-in/SMD	20dBm	1100m	PCB/IPEX

7. FAQ

E05-MLE124AP2

★ Operation Range is too short to reach the ideal distance

1	Barrier	2.4G frequency features with poor penetration due to its physical properties, it has deep influence on the operation range when there are barriers.
2	Interference resource	Temperature, humidity, same frequency interference can increase the packet loss rate of the communication
3	Metal	Metal objects around the antenna, antenna placed inside metal case, which cause the signal attenuation badly.
4	Parameter values	Wrong parameter setting. Setting the air data rate too high, which lead to the shorter distance.

8. About us

E05-MLE124AP2



Chengdu Ebyte Electronic Technology Co., Ltd is a high-tech company, focus on wireless transmission. Our company owns a number of independent research & development products and obtain unanimously approved customers. With powerful R&D team, our company can provide customers with perfect After-sales service and technical assistance.



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