

# E18-MS1PA1-PCB\_Datasheet

## 1. Introduction

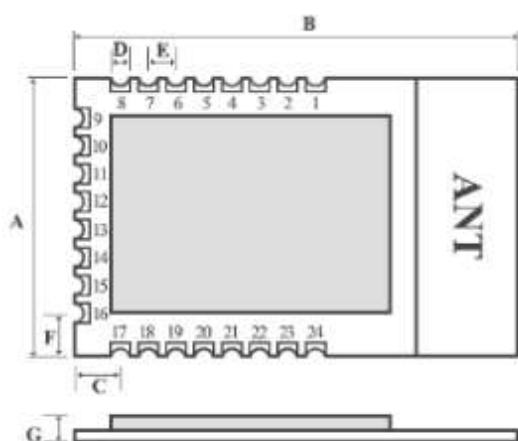


E18 is based on originally imported RF chip CC2530 from TI in America. The IC chip is integrated with 8051 microcontroller and wireless transceiver inside, which is applicable to Zigbee design and 2.4GHz IEEE 802.15.4 protocol. All the IO ports are led out by the module, which means that multi-aspect development is realizable.

## 2. Electrical parameter

No.	Parameter item	Parameter details	Description
1	RF IC	CC2530	TI
2	Size	16 * 27mm	-
3	Weight	1.6g	Average weight
4	Frequency	2405 ~ 2480MHz	2.4GHz IEEE 802.15.4
5	PCB	4-layers	Impedance-matching, lead-free
6	Connector	3 * 8 * 1.27mm	SMD
7	Supply Voltage	2.0 ~ 3.6V DC	Notes: the voltage higher than 3.6V is forbidden
8	Communication level	0.7VCC ~ 5V	VCC refers to the supply voltage
9	Operation Range	800m	Clear and open area, 4dBm,height: 2m, Air data rate: 250kbps
10	Power	20dBm	100mW
11	Air data rate	250kbps	
12	Sleep current	1.2uA	MCU in sleep , wireless closed , VCC=3.3V
13	Transmitting current	140mA@20dBm/ 28mA@4dBm	Power supply must be greater than 300mA/60mA
14	Receiving current	42mA/27mA	Receives an average current
15	Communication interface	I/O	See details in Pin definition
16	Transmitting length	1~103 bytes	For one package
17	Receiving length	1~103 bytes	For one package
18	RSSI support	Available	Find more details on <CC2530 Datasheet>
19	Antenna type	PCB	50Ω characteristic impedance
20	Operating temperature	-40 ~ +85°C	-
21	Operating humidity	10% ~ 90%	No condensation
22	Storage temperature	-40 ~ +125°C	-
23	Sensitivity	-97dBm@250kbps	Find more details on <CC2530 Datasheet>

### 3. Pin definition



1	GND	13	P1.2
2	VCC	14	P1.1
3	P2.2	15	P1.0
4	P2.1	16	P0.7
5	P2.0	17	P0.6
6	P1.7	18	P0.5
7	P1.6	19	P0.4
8	NC	20	P0.3
9	NC	21	P0.2
10	P1.5	22	P0.1
11	P1.4	23	P0.0
12	P1.3	24	RESET

Pin No.	Pin item	Pin direction	Pin application
1	GND		Ground
2	VCC		Power supply 2.0V ~ 3.6V DC
3	P2.2	Input/output	MCU GPIO
4	P2.1	Input/output	MCU GPIO
5	P2.0	Input/output	MCU GPIO
6	P1.7	Input/output	MCU GPIO
7	P1.6	Input/output	MCU GPIO
8	NC		Empty
9	NC		Empty
10	P1.5	Input/output	MCU GPIO
11	P1.4	Input/output	MCU GPIO
12	P1.3	Input/output	MCU GPIO
13	P1.2	Input/output	MCU GPIO
14	P1.1	Input/output	MCU GPIO/PA transmitting control the pin
15	P1.0	Input/output	MCU GPIO/PA receiving control the pin
16	P0.7	Input/output	MCU GPIO/PA receiving the high gain control the pin
17	P0.6	Input/output	MCU GPIO
18	P0.5	Input/output	MCU GPIO
19	P0.4	Input/output	MCU GPIO
20	P0.3	Input/output	MCU GPIO
21	P0.2	Input/output	MCU GPIO
22	P0.1	Input/output	MCU GPIO
23	P0.0	Input/output	MCU GPIO
24	RESET	Input	Reset
<p>★ Please see more details in &lt; CC2530 Datasheet &gt;, ★                      ★ such as pin definition, software drivers, and communication protocol. ★</p>			

4. Notes

No.	Item	Attention
1	Static electricity	Please try not to touch the electronic components with bare hands.
2	Welding	When welding, soldering iron needs grounding. The producer needs to wear cable electrostatic bracelet which is grounding when mass production.
3	Power supply	Power quality has a great impact on the performance of the module, please make sure the power supply has small ripple and avoid the frequent and large jitter. $\pi$ filter is recommended (Ceramic capacitor // tantalum capacitor + inductance).
4	Ground	Single-point grounding is recommended. 0 ohm resistor or 10mH inductance are recommended.
5	Antenna	How to install antenna has a great impact on the performance of the module, please make sure the antenna is exposed and vertical upward. It will lead to the transmitting distance greatly weakened if the antenna installs in the interior of housing.

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device .

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2ALPH-E18 Or Contains FCC ID: 2ALPH-E18"

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.