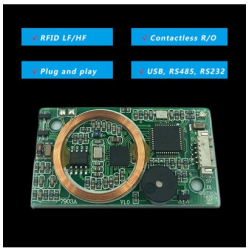


EC-LINK ECUHFA6 RFID Reader Module Instructions

ECUHFA6 RFID Reader Module

Contents

Product Introduction

EC-UHF-A-6 is a six channel module that supports the 1ISO18000-6C/EPC C1G2 protocol. Users can communicate with their devices through the RS232-TTL pins on its interface.
Its wide power supply range (DC 3.6V~5.5V) and configurable GPIO interface can provide users with more choices. Due to its low power consumption and small size, the module is very suitable for embedding into handheld mobile devices and short distance applications, such as short distance handheld devices, embedded devices, card issuers, etc.

Product characteristics

- Support the IS018000-6C/EPC C1 G2 standard protocol ;
- The standby current is less than 10uA;
- Provide AIP, library functions, and demonstration kits;

Application scope

Applied to various wireless RFID application solutions such as handheld mobile devices, item and logistics management,warehouse management, animal management, item anti-counterfeiting, product traceability, electronic product monitoring and manufacturing and processing, production automation, etc.

Product appearance

EC-UHF-A-6 module image

Module Interface Description

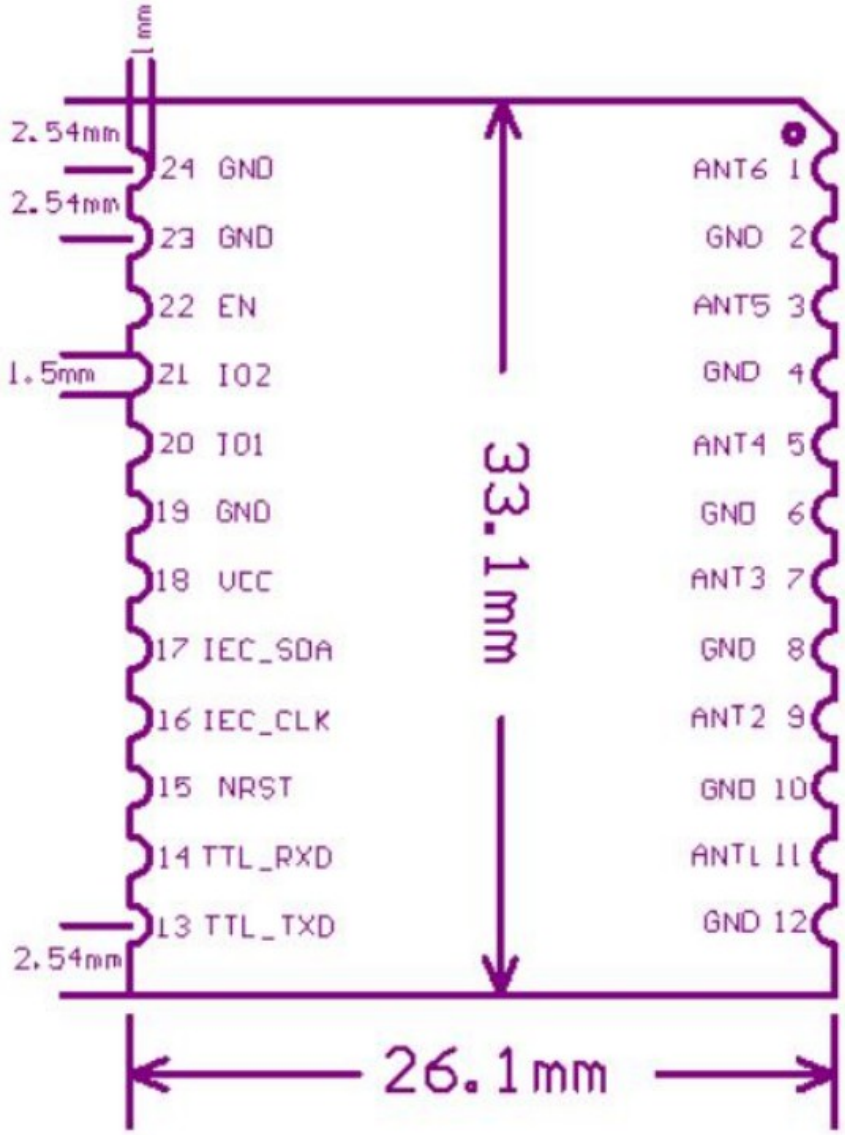
Pin number	name	Function Description
1	**ANT6**	Module RF output terminal, connected to antenna

2	**GND**	GND
3	**ANT5**	Module RF output terminal, connected to antenna
4	**GND**	GND
5	**ANT4**	Module RF output terminal, connected to antenna
6	**GND**	GND
7	**ANT3**	Module RF output terminal, connected to antenna
8	**GND**	GND
9	**ANT2**	Module RF output terminal, connected to antenna
10	**GND**	GND
11	**ANT1**	Module RF output terminal, connected to antenna
12	**GND**	GND
13	**TTL_TXD**	Module UART serial port sending pin, TTL3.3V, communication rate 115200bps
14	**TTL_RXD**	Module UART serial port receiving pin, TTL3.3V, communicatio n rate 115200bps
15	**NRST**	Module reset pin, low-level reset port, default to high-level 3.3V
16	**ICE_CLK**	Burn pin, 3.3V
17	**ICE_DAT**	Burn pin, 3.3V
18	**VCC**	Module power supply, supporting DC: 3.6V-5.5V power supply
19	**GND**	GND
20	**I/O**	Module universal IO pin, TTL3.3V
21	**I/O**	Module universal IO pin, TTL3.3V
22	**EN**	Module enable pins. Internal 10KOhHZM pull-down resistor of t he module. When the EN pin voltage is higher than 1.1V, the m odule begins to operate
23	**GND**	GND

24	**GND**	GND

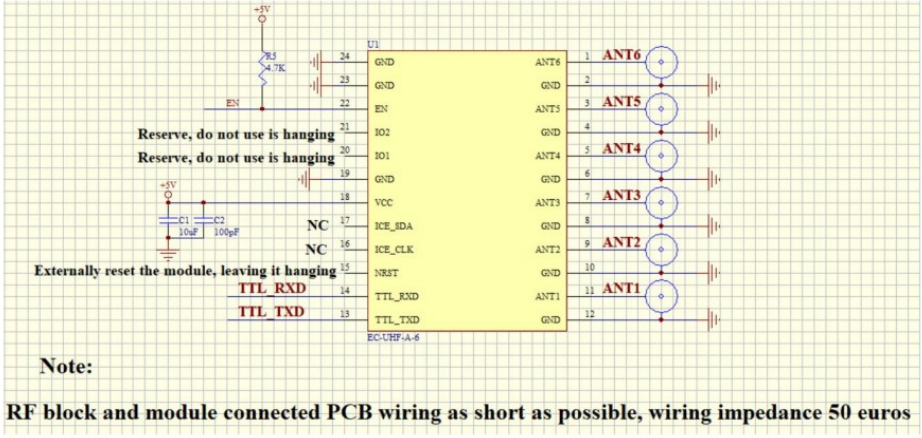
Note: The above is a description of the module EC-UHF-A-6 interface.

Product size



EC-UHF-A-6 uses reference circuits and RF wiring

Reference circuit:

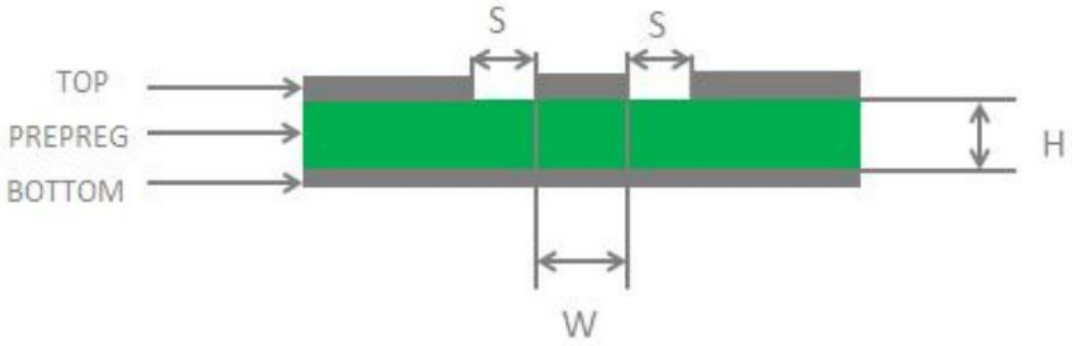


Rf wiring:

The EC-UHF-A-6 module provides an RF antenna pin for module and antenna connection. The RF track on the PCB connected to the module RF antenna pin should be a microstrip or other type of RF track with a characteristic impedance close to 50 ohms. The EC-UHF-A—6 module is equipped with a ground pin, located next to the antenna pin, to provide better grounding.

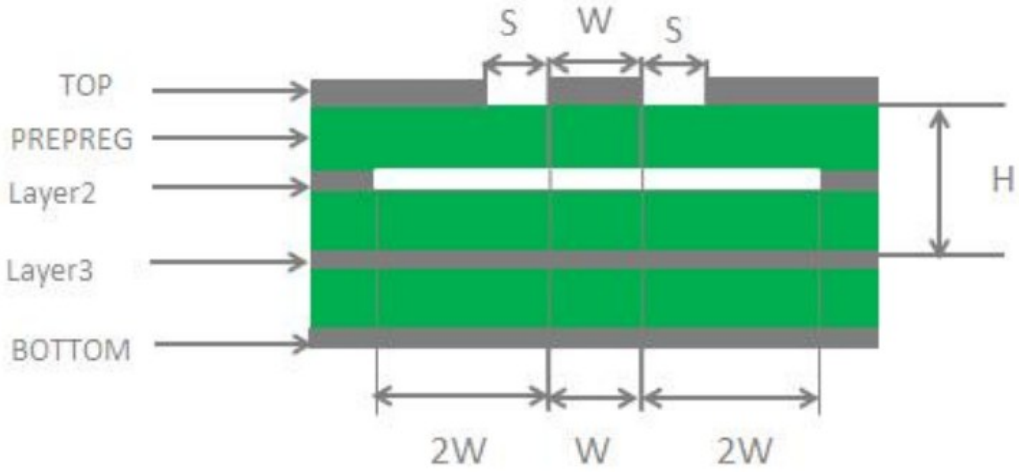
The characteristic impedance of the PCB wiring of ANT1~ANT6 should be controlled at 50 ohms, and the ground wire between them is not less than 1 mm. The impedance of the RF trace is usually determined by the width of the trace (W), the dielectric constant of the material, the height from the reference ground to the signal layer (H), and the distance between the RF trace and the ground (S). Microstrip or coplanar waveguides are commonly used in RF layouts to control characteristic impedance. The following are reference designs for microstrip or coplanar waveguides with different PCB structures:

Microstrip design on two layers:

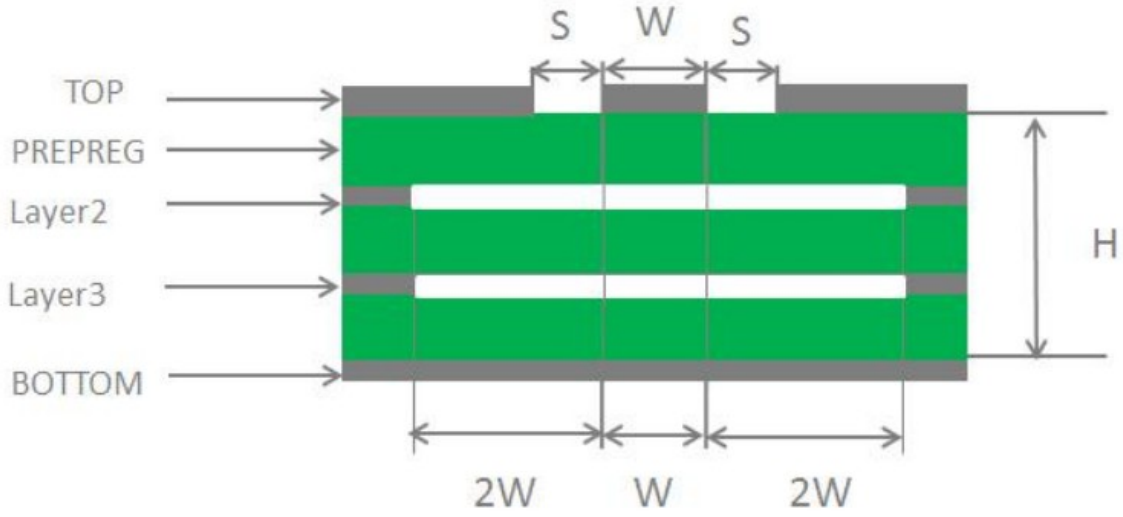


Two designs of four-layer PCB coplanar waveguides

1. The third layer is the base ground, and the first layer is the RF cable



2. Thefourth layer is the base ground, and the first layer is the RF cable



The above information is for reference only, it is recommended to consult relevant materials or consult professionals for more information

TECHNICAL INDEX

- Working frequency: 840-960MHz;
- Support protocol: ISO 18000-6C/EPC C1G2;
- Working voltage: DC:+3. 6V +5.5V;
- Standby current: standby state current<l10ul;
- RF channel: 6 channels;
- EC-UHF-A-6 The operating peak current is about 160mA at 20 dBm emission;
- Size: EC-UHF-A-6 33.1 x 26.1 x 2.8 (in millimeters);
- Transmission power: EC-UHF-A-6 0-20dBm, software adjustable, 1.5dBm step;
- Communication distance: EC-UHF-A-6 1 meter (outdoor open space, 25mm) X 25mm ceramic antenna) ;
- Communication interface: TTL-RS232 (Baud rate: 115200bps, data bit: 8, stop bit: 1, parity bit: none, flow control bit: none) ;
- Working temperature: —25 ‘C +80 C;
- Storage temperature: —35 ‘C +85 C;

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.
Changes or modifications not expressly approved by the party responsible for compliance could void the user’ s authority to operate the equipment.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursua nt to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful inte rference in a residential installation. This equipment generates uses and can radiate radio frequency energy a nd, if not installed and used in accordance with the instructions, may cause harmful interference to radio com munications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turn ing the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receivingantenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help important announcement

Important Note:
Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
Country Code selection feature to be disabled for products marketed to the US/Canada.
This device is intended only for OEM integrators under the following conditions:

1. The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2. The transmitter module may not be co-located with any other transmitter or antenna,

As long as the two conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Important Note:
In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling
The final end product must be labeled in a visible area with the following" Contains FCC ID: 2A83H-ECUHFA6 "

Manual Information to the End User
The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user''s manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

Integration instructions for host product manufacturers according to KDB 996369 D03
OEM Manual v01r01

2.2 List of applicable FCC rules
CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular transmitter

2.3 Specific operational use conditions
This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

2.4 Limited module procedures
Not applicable

2.5 Trace antenna designs
Not applicable

2.6 RF exposure considerations
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

2.7 Antennas
This radio transmitter FCC 1D:2A83H-ECUHFAG has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna No.	Model No. of antenna:	Type of antenna:	Gain of the antenna (Max.)	Frequency range:
RFID	/	External Antenna	-28.41	840-960MHz

2.8 Label and compliance information
The final end product must be labeled in a visible area with the following" Contains FCC ID:2A83H-ECUHFA6″

2.9 Information on test modes and additional testing requirements
Host manufacturer is strongly recommended to confirm compliance with FCC requirements for the transmitter when the module is installed in the host

2.10 Additional testing, Part 15 Subpart B disclaimer
Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B

2.11 Note EMI Considerations
Host manufacture is recommended to use D04 Module Integration Guide recommending as "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.

2.12 How to make changes
This module is stand-alone modular. If the end product will involve the Multiple simuttaneously transmitting

condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system. According to the KDB 996369 D02 Q&A Q12, that a host manufacture only needs to do an evaluation (i.e., no C2PC required when no emission exceeds the limit of any individual device (including unintentional radiators) as a composite. The host manufacturer must fix any failure.

ISED Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, a nd (2) This device must accept any interference, including interference that may cause undesired operation of the device.
The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).
This device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.
This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.
This equipment should be installed and operated with minimum distance Ocm between the radiator & your body.
ISED Modular Usage Statement
NOTE 1: When the ISED certification 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 the wording ”Contains transmitter module IC: 29739-ECUHFA6” or “Contains IC: 29739-ECUHFA6”.

Documents / Resources

	EC-LINK ECUHFA6 RFID Reader Module [pdf] Instructions 2A83H-ECUHFA6, 2A83HECUHFA6, ECUHFA6, ECUHFA6 RFID Reader Module, RFID Reader Module, Reader Module, Module

References

- User Manual