K2070-BT

Dual-Mode BT Audio Module

Combo Stamp Module

DATASHEET

REV: 1.1

DATA: 18.03.2018

Revision History

Date	Revision Content	Revised By	Version
2018/01/06	- Preliminary	Liu	1.0
2018/03/12	- Pin Definition Modified	Liu	1.1

Contents

目录

1. Introduction

1.1 About KERTONG

KERTONG Technologies Inc was established in Shenzhen in 2008. It is located in Baoan, Shenzhen. It is a high-tech enterprise specializing in the radio - related radio frequency series module application and the integrated solution platform of the products. At present, the product lines are: wireless network WIFI access module, wireless routing application module, wireless Bluetooth module, wireless Bluetooth box module, NFC communication module, GPS navigation module, Zigbee control module, wireless communication module and so on, as well as related module application solutions. The company has a complete set of 60 radio frequency integrated testers, 10 communication integrated testers, with a variety of wireless testing standards.

1.2 Product Overview

KERTONG Technologies to announce a low-cost and low-power consumption the combo module of K2070-BT model which has all of the module designed dedicated for intelligent audio and wireless data transmission. K2070-BT is a device compatible with BT2.1 EDR/BT5.0(BLE) Specification, and support Multi BT profiles such as A2DP,HSP,SPP,HID,GATT/GAP, especially it support two modes of source and sink at the same time for audio applications. It could work in master mode (Host), can also be used to connect to SPP,HID device (Device).KERTONG Technologies to announce a low-cost and low-power consumption the combo module of K2070-BT model which has all of the module designed dedicated for intelligent audio and wireless data transmission. K2070-BT is a device compatible with BT2.1 EDR/BT5.0(BLE) Specification, and support Multi BT profiles such as A2DP,HSP,SPP,HID,GATT/GAP, especially it support two modes of source and sink at the same time for audio applications. It could work in master mode (Host), can also be used to connect to SPP,HID device (Device).

Inside, K2070-BT integrates an ARM Cortex-M4 core and CYPRESS Bluetooth Transceiver chip, with a CPU frequency up to 150MHz , 1 MB Flash/512KB SRAM, and rich peripheral interfaces (I2SU UART / SPIART / SPIN I2CU USB2.0 and Bluetooth PCM etc.). K2070-BT has advantage like high integration level, low power consumption, high Bluetooth RF performance, low cost and customize software, making it an ideal device for intelligent audio and wireless data transmission applications, and easily adapt to different customer requirements.

2. Features

✧ Support BT2.1+EDR/BT5.0 dual mode to work parallelly
✧ Support both A2DP Sourceand Sink mode, and is configurable
✧ Support HSP/HFP BT profile with AG and HF modes
✧ Support BT Device mode Profile，such as SPP、HID for BT data- transmission application
✧ Support BT 5.0 GATT/GAPv profile
✧ Support BT Host mode to connect to SPP、HID device
✧ Support connecting to multi slave device parallelly in master mode
✧ Support OTA firmware upgrading
✧ Support application interface to Webchat and the AirSync protocol
✧ Support Ultra low power, lower to 3uA in Deep Sleep（HID OFF）mode
✧ Support high UART Baudrate up to 921600bps
✧ Customize software according to the different requirement
✧ Support Patch process，Half-hole pin and ROHS process
✧ Integrated available well-tuned 2.4G PCB antenna；also support external antenna
✧ AFH to avoid signal interference with high RF performance up to 30m in open condition
✧ Easy to get started and well encapsulation to avoid knowing details of BT protocol when using it as an alternative solution to the tradition serial data transmission.

3. Applications

K2070-BT module is well-designed for BT audio, it supports A2DP/HSP profile and both I2S and PCM data formats. For A2DP and can work in both A2DP Source and Sink, which has great extension and strong flexibility.

K2070-BT also supports SPP/HID BT profile in both master and slave mode. It can be used in short distance wireless data transmission and remote control, and also can be conveniently connected to Bluetooth devices on wireless terminals (such as PC computers, smart phones, etc) to do data exchange between the two modules and avoid the tedious cable connection and space restriction.

4. Specification

Operating Frequency Band	2.4GHz-2.48GHz unlicensed ISM band
Bluetooth Specification	V2.1+EDR, BT5.0（BLE）
Output Power Class	Programmable Class 1, Class 2 or Class 3
GFSK RX Sensitivity	-92dBm
Operating Voltage	3.3V
Main Interface	UART, I2S, PCM
Other Interface	I2C, SPI
Dimension	22mm(L) x 12mm(W) x 2mm(H)

5. Electrical Characteristics

Absolute Maximum Ratings		
Rating	Min	Max
Storage Temperature	-40℃	+85℃
Operating Temperature	-30℃	+75℃
Supply Voltage: VDD	2.5V	3.6V
Other Terminal Voltages	VSS-0.3V	VDD+0.3V

6. Interface

Power	Voltage +3.3V；current：I<20mA （Ave）
Host Interface	UART
Audio interface	I2S, PCM
Other	I2C, SPI

7. Typical Applications and PIN Description
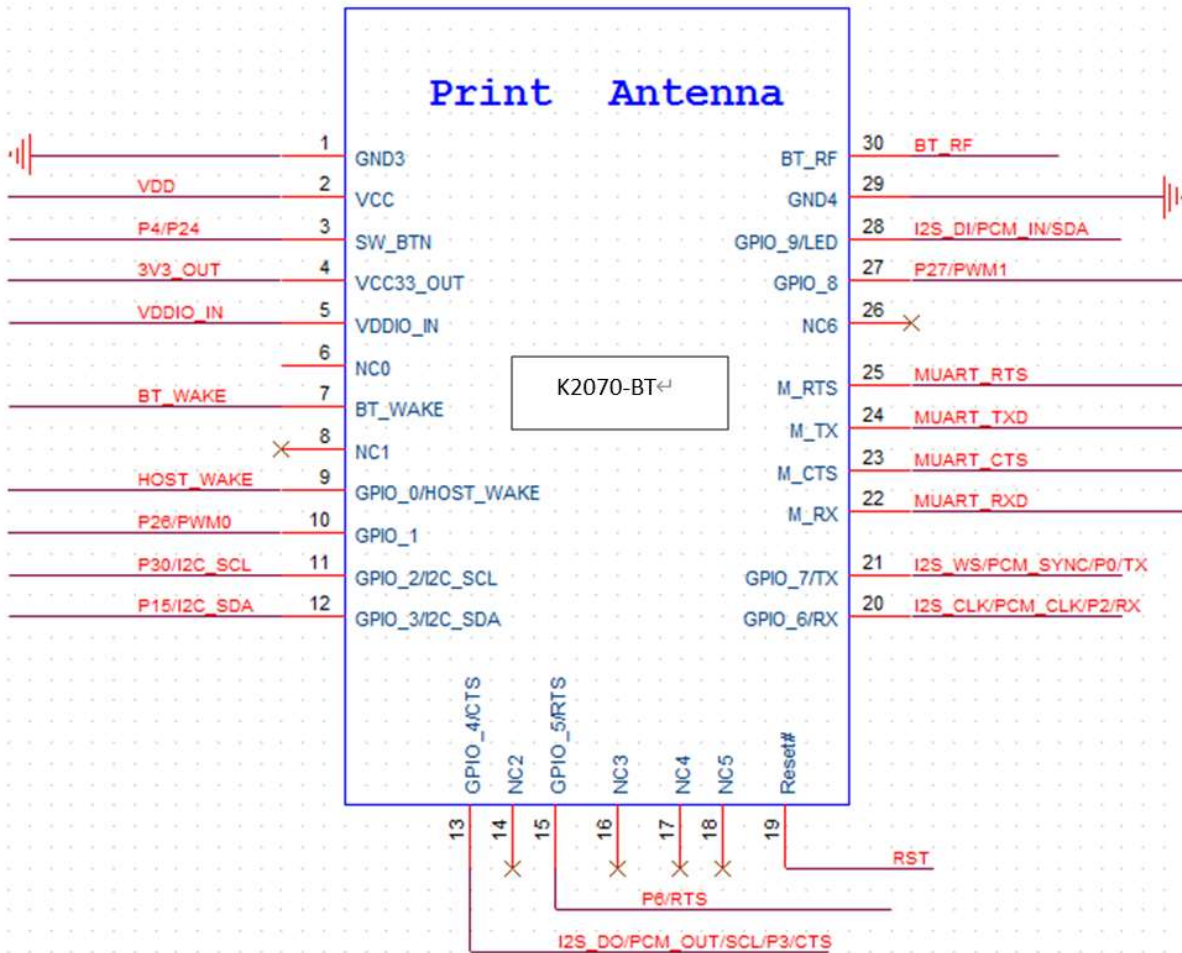
Pin.No	Name	Type	Description
1	GND3	Ground	Ground
2	VCC	Power	3.3V Power input
3	SW_BTN	I/O	GPIO
4	VCC33_OUT	Power	3.3V power output，only for the peripheral module NC when not used
5	VDDIO_IN	Power	VDDIO input 1）BT707A：not used, NC 2）BT707B: connect external to system VDDIO which is not 3.3V（e.g., 1.8V or 2.5V etc）
6	NC0		NC
7	BT_WAKE	I/O	GPIO；use as a signal to wake up module
8	NC1		NC
9	GPIO_0/HOST_WAKE	I/O	GPIO Used as a INT signal to wake the HOST
10	GPIO_1	I/O	GPIO
11	GPIO_2/I2C_SCL	I/O	GPIO

			I2C SCL
12	GPIO_3/I2C_SDA	Power	GPIO I2C SDA
13	GPIO_4/CTS	Ground	GPIO UART CTS Audio I2S_DO/PCM_OUT
14	NC2		
15	GPIO_5/RTS	I/O	GPIO UART RTS
16	NC3		NC
17	NC4		NC
18	NC5		NC
19	Reset#	Input	RESET
20	GPIO_6/RX	I/O	GPIO UARTRX Audio I2S_BCLK/PCM_CLK
21	GPIO_7/TX	I/O	GPIO UART TX AudioI2S_WS/PCM_SYNC
22	M_RX	I/O	uart for Firmware download，can be NC can be used as GPIO
23	M_CTS	I/O	uart for Firmware download，can be NC can be used as GPIO
24	M_TX	I/O	uart for Firmware download，can be NC can be used as GPIO
25	M_RTS	I/O	uart for Firmware download，can be NC can be used as GPIO
26	NC6		NC
27	GPIO_8	I/O	GPIO
28	GPIO_9/LED	I/O	GPIO Can be used as audio I2S_DI/PCM_IN
29	GND4	Ground	GPIO
30	BT_RF	I/O	RF external antenna signal 1）BT707 uses PCB onboard antenna by default(32PIN NC directly) 2）if need to use external or self-designed antenna（32PIN use to connect to external antenna），please contact us。

※ if GPIO is NC when not used.
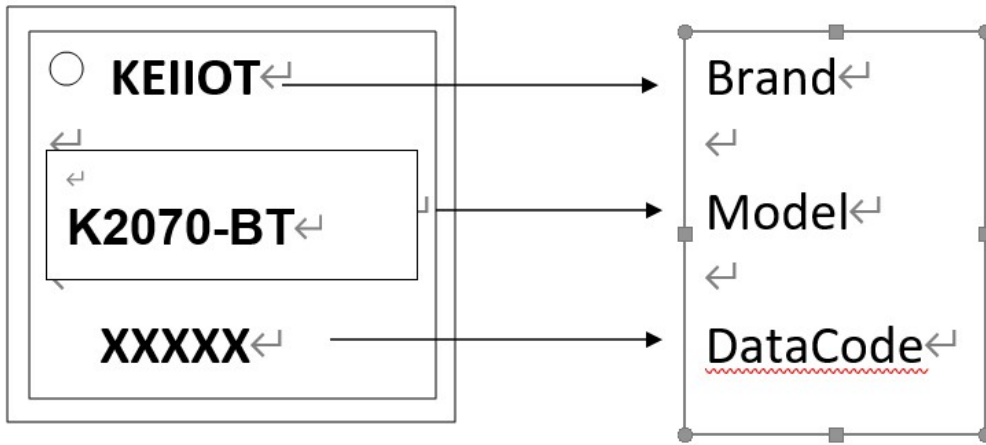
8. Physical Dimensions（unit: millimeters）
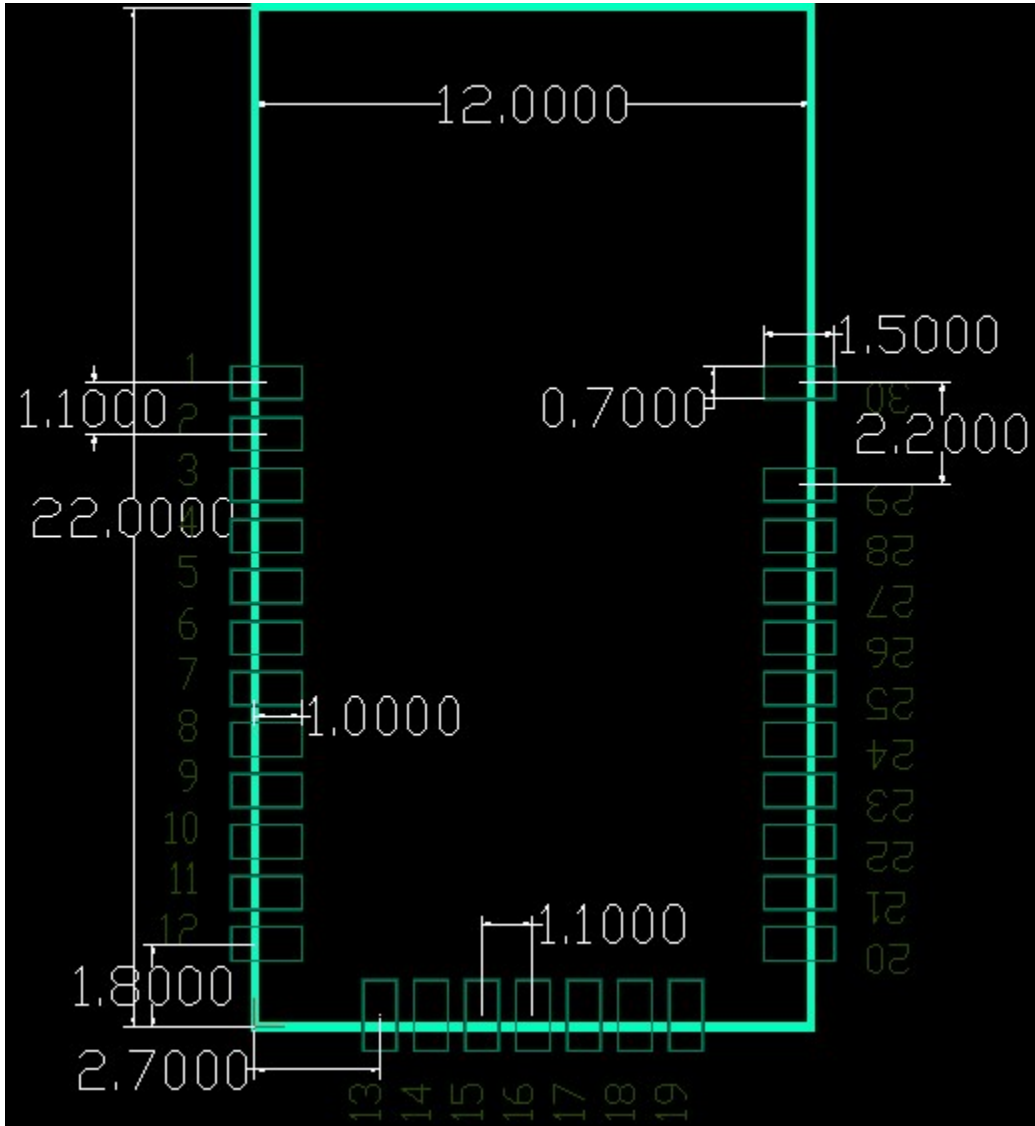
※ *the upper area(no physical pin) is 2.4G Bluetooth antenna, The PCB area directly below it needs to be cleared, and keep away from metal material as far as possibl. Bluetooth module is usually placed near the edge of the PCB board.*

9. Package Information

W	24.00±0.30
A0	12.30±0.10
B0	12.30±0.10
K0	1.80±0.10
E	1.75±0.10
F	11.50±0.10
P0	4.00±0.10
P1	16.00±0.10
P2	2.00±0.10
D0	1.50 $^{+0.10}_{-0.00}$
D1	Ø1.50MIN
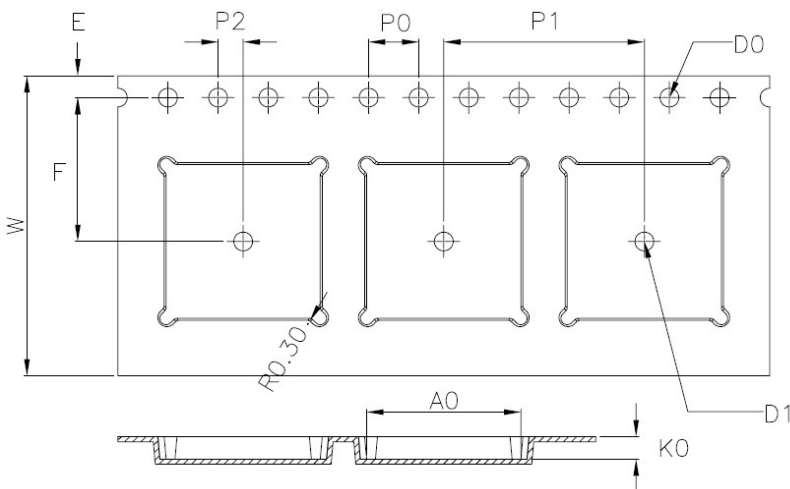
1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.
6. Packing length per 22" reel : 98.5 Meters.(1:3)
7. Component load per 13" reel : 1500 pcs.

1> 1500pcs of per disc

2> 1500pcs * 5 =7500pcs (one Cartoon)

Humidity indicator

Desiccant

B

A

C

C

50mm

338mm

355mm

C

D

360mm

285mm

375mm
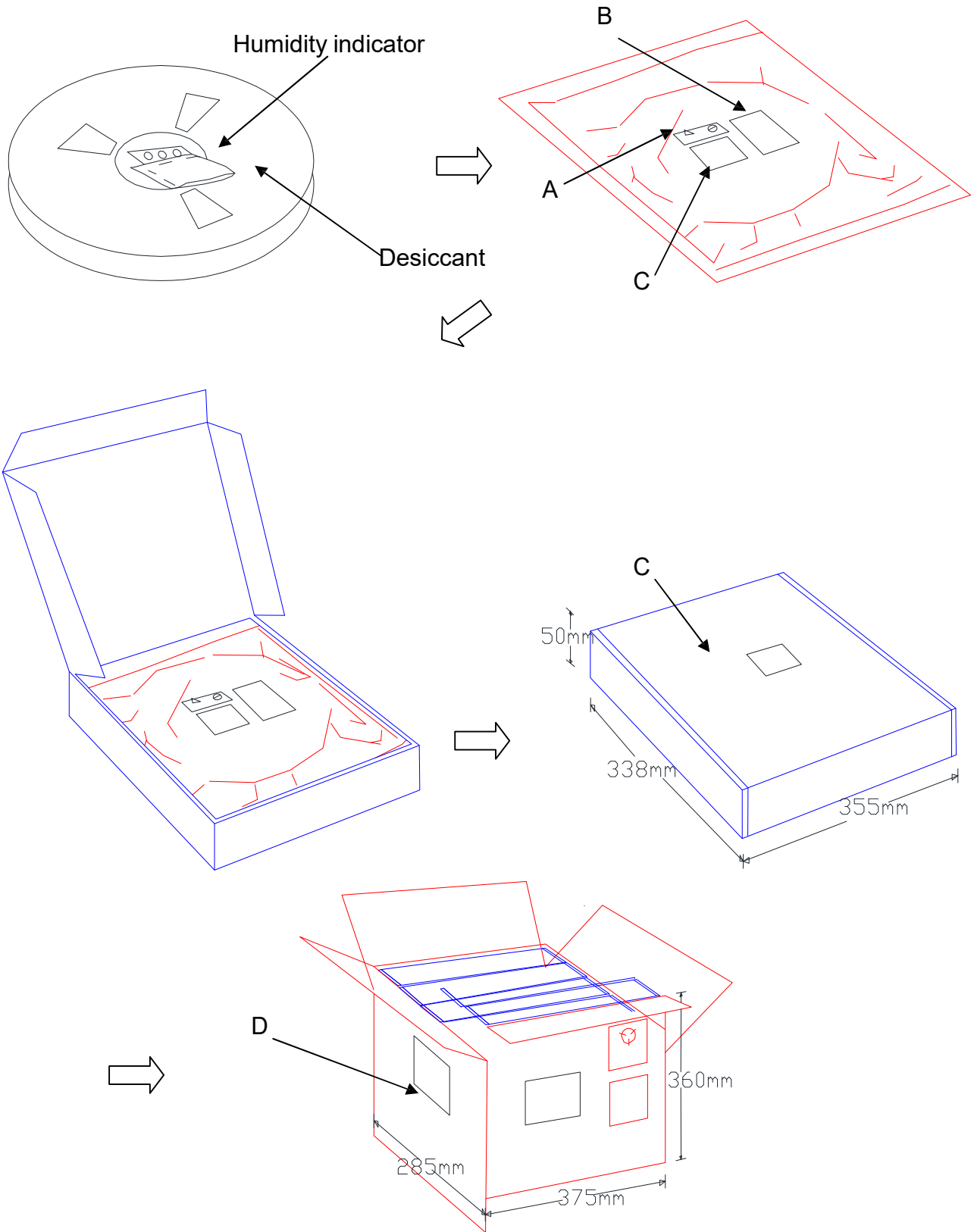
10.   This product is RoHS compliance

Wireless module before the SMT Note:

When customers Open stencil must be sure the hole bigger to the Wireless module plate, please press 1 to 1 and 0.7 mm is widened to open outward, the thickness of 0.12 mm.

① Can't get the wifi module bare hands when needs,must we wear the gloves and static ring.

The furnace temperature according to the size of the customer the mainboard ,generally like to stick on a tablet standard temperature of 250 + - 5,can do 260 + - 5. Storage and use Wifi module control should pay attention to the following matters:

① Module of the storage life of vacuum packaging：

1-1.   Storage life：12 months. Storage conditions:<40 . Relative ℃ humidity:<90%R.H.

1-2.   1-2.After this bag is opened , devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be

1-3.   Check the humidity card :stored at ≦20%RH.If :30%~40%(pink)or greater than 40%(red).Labeling module has moisture absorption.

① Mounthed within 168 hours at factory conditions of: ≦ ℃t 30% ， ≦60%R.H.

② Once opened, the workshop the preservation of life for 168 hours.

1-4.   If baking is required,devices may be baked for:

① Modules must be to remove module moisture problem.

② Baking temperature: 125 , 8 hours. ℃

③ After baking, put proper amount of desiccant to seal packages.

1-5.   The actual number of module vacuum packing which is based on the actual number of packages to the customer requirements.

2.   Module reel packaging items as follows.

2-1.   Storage life：12 months. Storage conditions:<40 . Relative ℃ humidity:<90%R.H.

2-2.   Module apart packing after 168 hours，To launch patch need to bake, to remove the module hygroscopic, baking temperature conditions：125℃，8hours.

2-3.   The actual number of module reel packing which is based on the actual number of packages to the customer requirements.

3.   Module pallet packaging items as follows：

3-1.   Storage life：3 months. Storage conditions:<40 . Relative ℃ humidity:<90%R.H.

3-2.   Module if not used within 48 hours, before launch the need for baking,   baking temperature: 125 , 8 hours. ℃

3-3.   Pallet packaging each plate is 100 PCS.The actual number of module pallet packing which is based on the actual number of packages to the customer requirements.

12. MSL Level / Storage Condition

Caution
This bag contains
MOISTURE-SENSITIVE DEVICES

LEVEL 4

If blank, see adjacent bar code label

1. Calculated shelf life in sealed bag: 12 months at <40°C and <90% relative humidity(RH)

2. Peak package body temperature: **250** ℃

   If blank, see adjacent bar code label

3. After bag is opened, devices that will be subjected to reflow Solder or other high temperature process must be

   a) Mounted within: **48** hours of factory conditions

   If blank, see adjacent bar code label

   ≤30℃/60% RH, or

   b) Stored per J-STD-033

4. Devices require bake, before mounting, if:

   a) Humidity Indicator Card reads>10% for level 2a- 5a devices or>60% for level 2 devices when read at 23±5℃

   b) 3a or 3b are not met.

5. If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure.

Bag Seal Date: _____

If blank, see adjacent bar code label

Note: Level and body temperature defined by IPC/JEDEC J-STD-020

※NOTE : Accumulated baking time should not exceed 96hrs