AP-12 Module/ Carrier Board Application Note

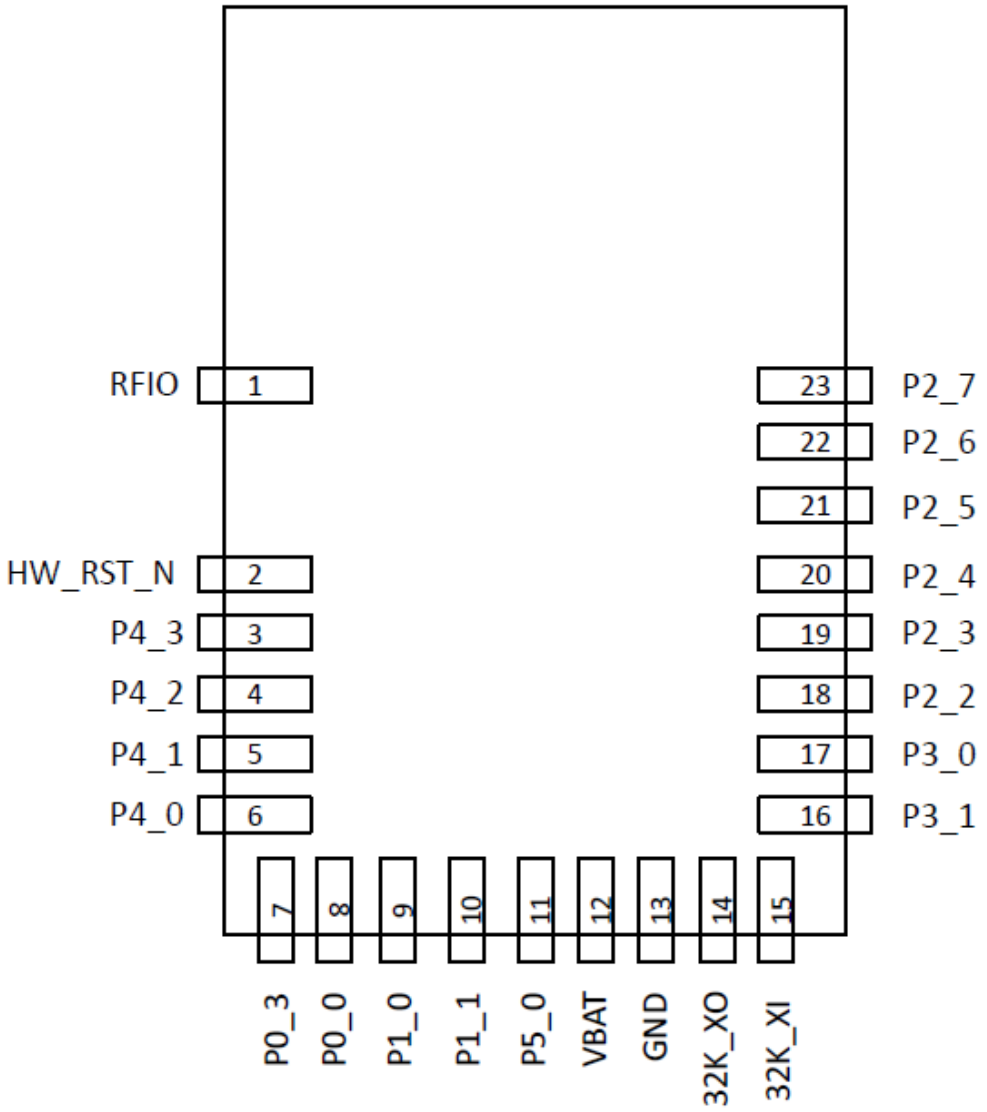
Vesrsion 02

20F-B, No.98, Sec.1, Xintai 5th Rd., Xizhi Dist., New Taipei City
Tel: 886-2-28961888 Fax: 886-2-28961899
https://www.btc.com.tw/SCS/IOT/iot_en.php

目錄

1. PIN ASSIGNMENT

1.1. AP-12SC/AP-12SE Pin Assignment



1.1.1 Pin Description

Pin	Symbol	I/O	ADC	Pull	Description
1	RFIO	--	--	--	BT RX/BT TX interface
2	HW_RST_N	I	--	--	Hardware reset pin; low active
3	P4_3	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
4	P4_2	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function

					with internal strong/ weak pull-up and pull-down
5	P4_1	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
6	P4_0	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
7	P0_3	IO	--	--	LOG_UART TX Power on trap: Pull-up for normal operation Pull-down to bypass executing program code in flash (PAD internal pull-up by default)
8	P0_0	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
9	P1_0	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
10	P1_1	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
11	P5_0	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down
12	VBAT	P	--	--	Battery voltage input DC1.8V~3.6V
13	GND				Ground
14	32K_XO	A/IO	--	--	32k crystal output or external 32k clock output(optional)
15	32K_XI	A/IO	--	--	32k crystal input or external 32k clock input(optional)
16	P3_1	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down HCI_UART_RX
17	P3_0	IO	--	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down

					HCI_UART_TX
18	P2_2	IO	ADC2	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down AUXADC input 2
19	P2_3	IO	ADC3	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down AUXADC input 3
20	P2_4	IO	ADC4	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down AUXADC input 4
21	P2_5	IO	ADC5	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down AUXADC input 5
22	P2_6	IO	ADC6	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down AUXADC input 6
23	P2_7	IO	ADC7	U/D	General purpose IO 8mA driving capacity with wakeup function with internal strong/ weak pull-up and pull-down AUXADC input 7

Note：

Type： A: analog, I: input, O: output, P: power

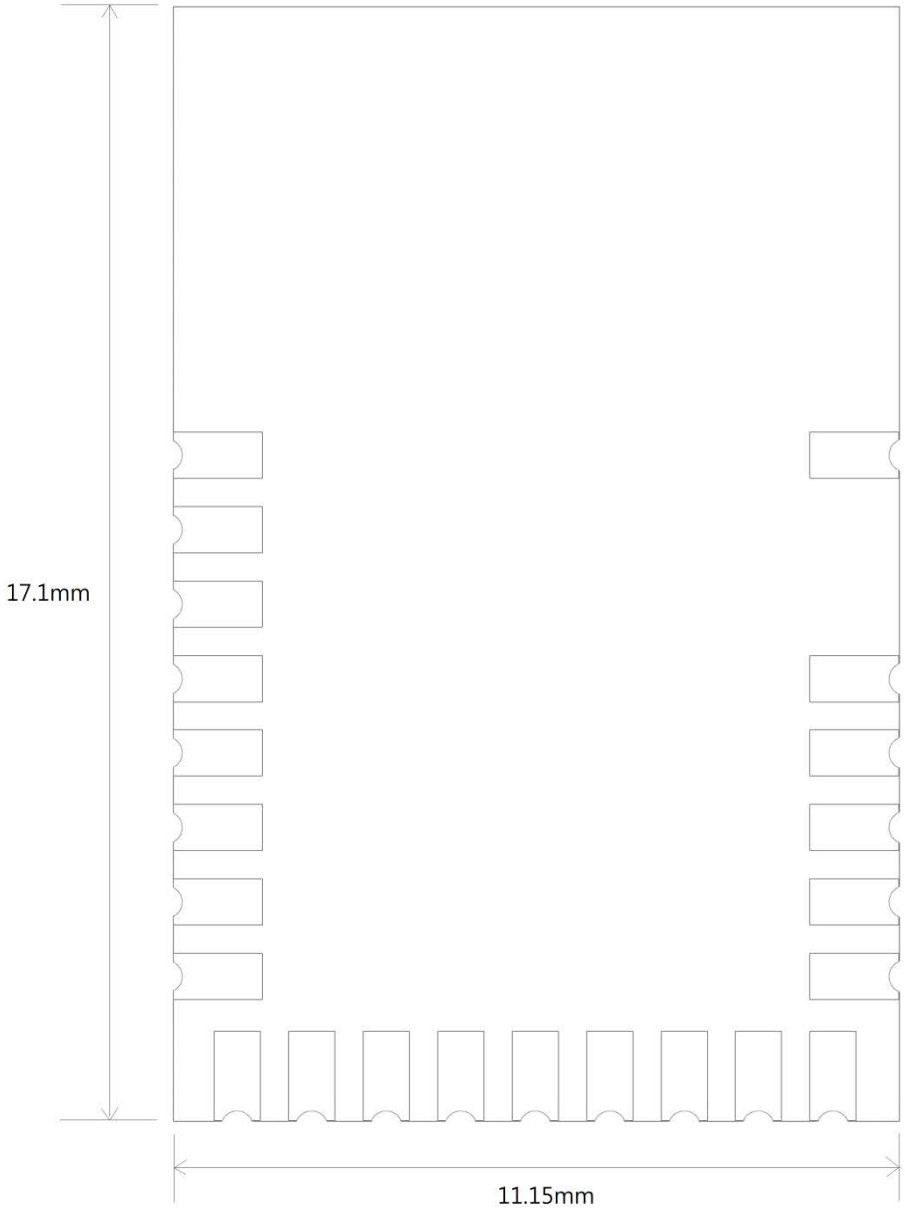
Pull： U: pull up, D: pull down

Pull up： Strong or Weak selectable

Pull down： Strong or Weak selectable

2. AP-12 PCBA DIMENSION

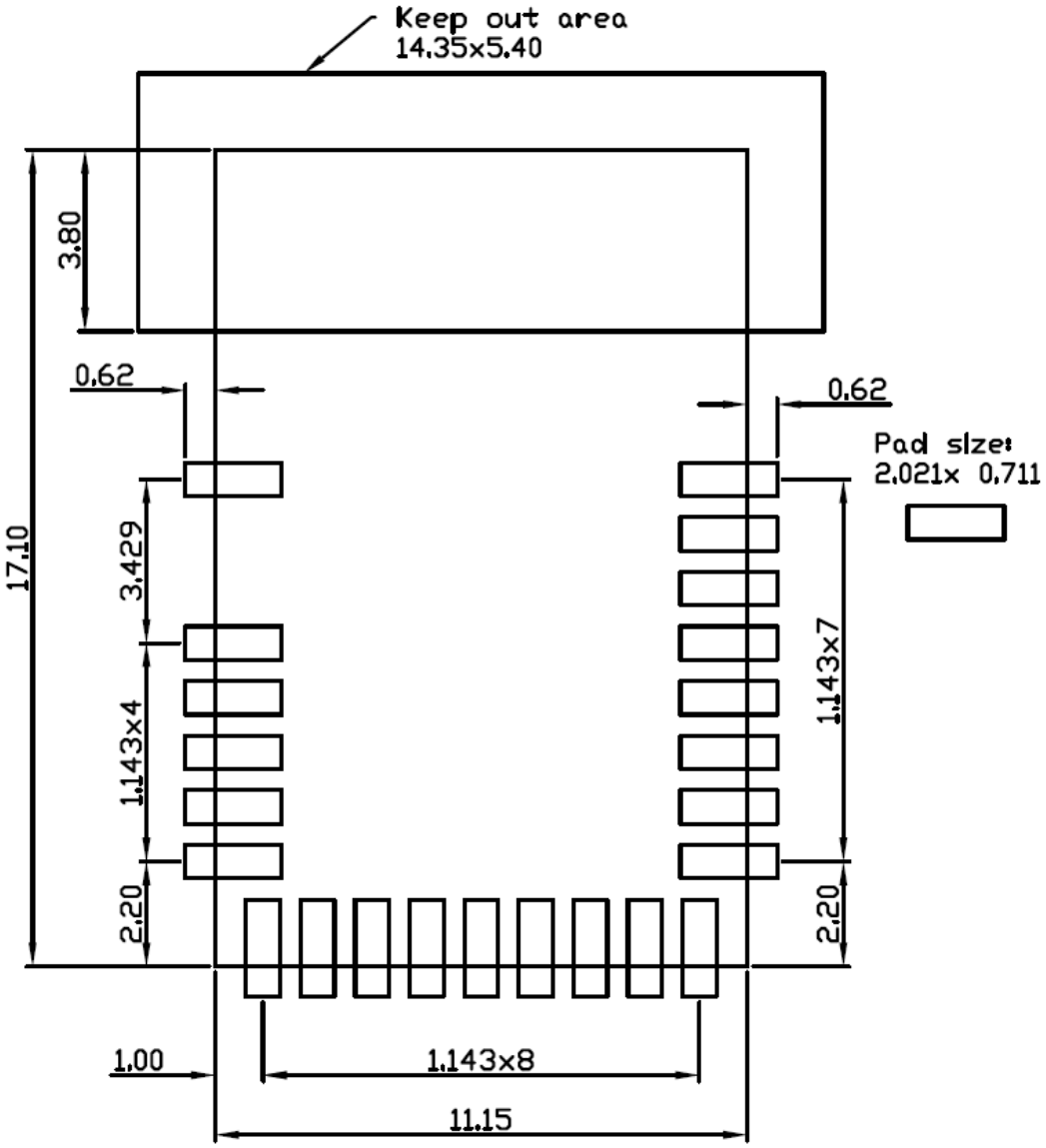
2.1. AP-12SC/AP-12SE PCBA Dimension



2.2. AP-12SC/AP-12SE Layout Footprint

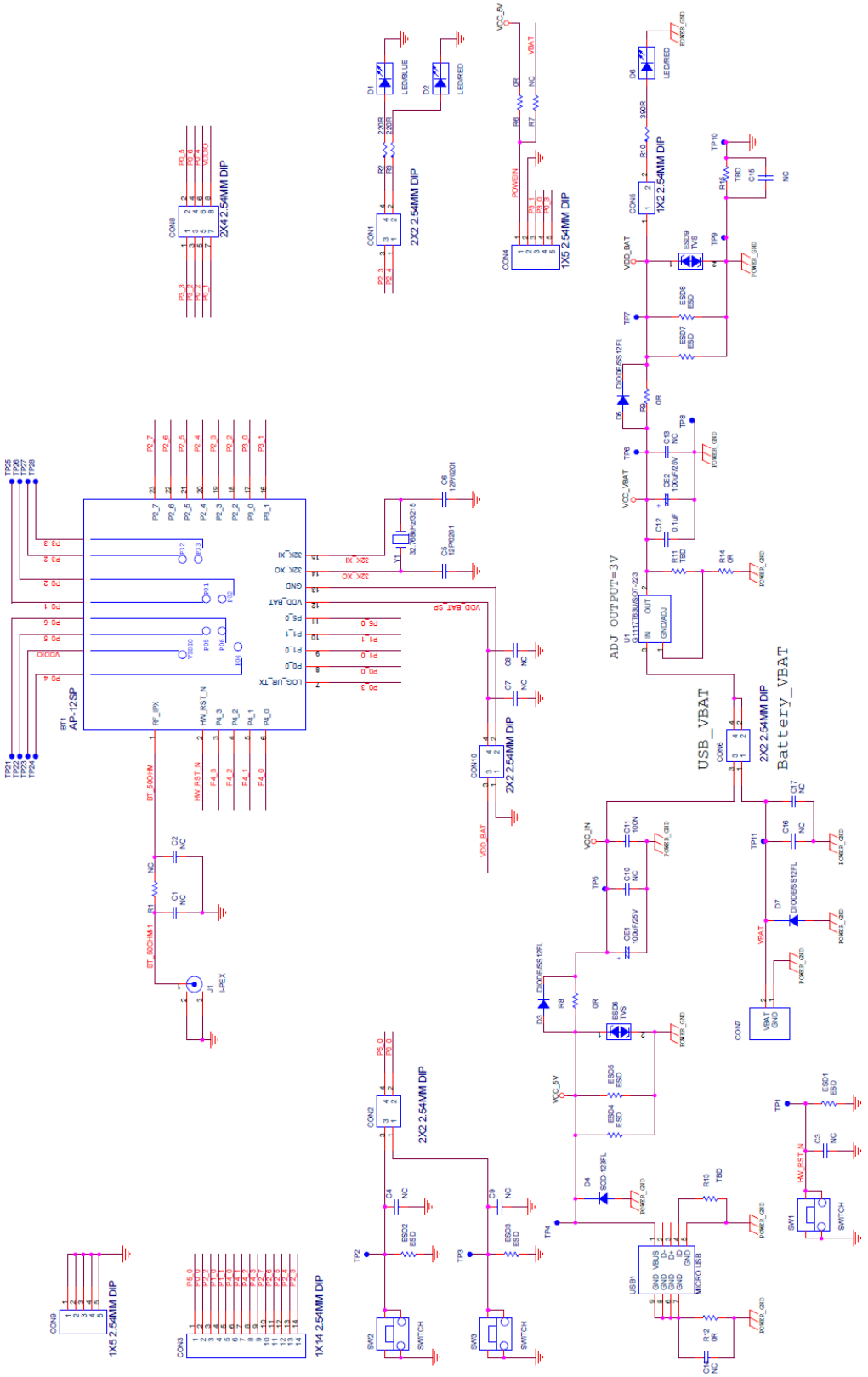
Follow below footprint and keep out area in your PCB layout

PCB under keep out area must be no routing and no cupper. It is better to keep empty space under keep out area.



3. AP-12SC/AP-12SE EVB SCHEMATIC

Reference application circuit of AP-12SC/AP-12SE



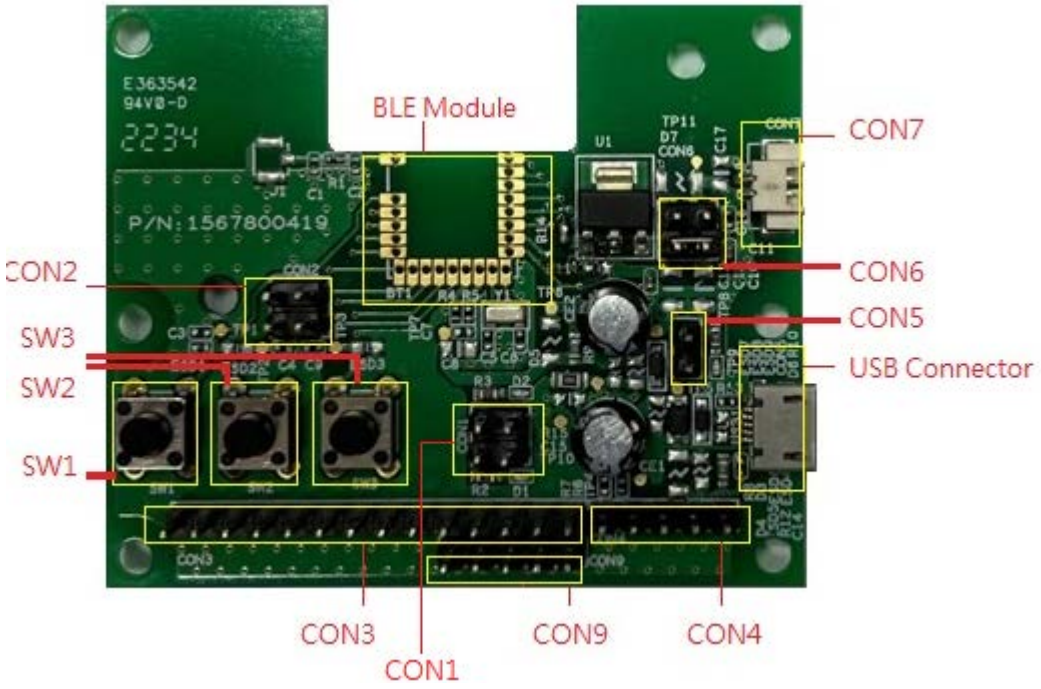
4. AP-12 EVALUATION BOARD

4.1. Model Name

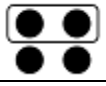
Model Name	AP-12SCCB	AP-12SECB
Description	Evaluation Board of AP-12SC	Evaluation Board of AP-12SE

AP-12 EVB(Evaluation Board) is an extension board with power input, firmware upgrade, GPIO pins and convenient for development

4.2. Evaluation Board Picture



4.3. Function Description and Pin Assignment

PIN/ Function	**Description**
CON1	Indicator LED enable/disable 1. Enable D1, connect P2_3 pin to D1  2. Enable D2, connect P2_4 pin to D2 
CON2	SW1,SW2,SW3 enable/disable 1. Enable SW2, connect P5_0 pin to SW2

	 2. Enable SW3, connect P0_0 pin to SW3 
CON3	Module I/O and function pins All moudlle I/O pins are connected to CON3 and pin names are printed on board
CON4	Firmware Upgrade pins Pin names are printed on board
CON5	Power indicator LED enable/disable Enable CON5. LED is lighted up when DC power is supplied 
CON6	Power supply switch Eanble CON6, battery supply DC power from CON7 to BLE module Vbat pin and carrier board  Eanble USB connector, DC power can supply from USB connector to carrier board andBLE module 
CON7	Battery power input connector
SW1	Reset Pin
SW2	Switch2. Enabled by CON2
SW3	Switch3. Enabled by CON2
USB Connector	Micro USB female connector. Used only for DC power supply
BLE Module	Solder AP-12SC or AP-12SE module in this place

5. VERSION CHANGE LIST

- 2022/02/01 Version 01 Release
- 2022/04/24 Version 02 Release