

Specification

產品規格書

產品名稱 (Product): DK-9186 WiFi module

解決方案 (Solution): Realtek RTL8720CM-VA2 QFN Package

產品型號 (Model No.):

DK-9186 Realtek RTL8720CM-VA2 Module PCB Antenna

Issued Date: 2022/05/16

1. Description

The DK-9186 is a wireless module that is built around the Realtek RTL8720CM chip. The Realtek RTL8720CM is a highly integrated single chip with a low-power-consumption mechanism ideal for IoT (Internet of Things) applications. It combines a Real-M300 CPU (up to 100MHz), Wi-Fi, Bluetooth, Wireless MAC/Baseband/RF, and configurable GPIOs that can function as digital peripherals for various product applications and control usage. The RTL8720CM's embedded memory configuration enables simpler and faster application development. It offers the following benefits:

- Complete IoT solution (low-level development, cloud services, APP)
- Support AT + application set secondary development
- Support OTA wireless upgrade
- Support Bluetooth smart networking,

1.1. Application

- IoT
 - Home automation
 - Sensor networks
 - Building automation
 - Industrial
 - Retail
 - Interactive entertainment devices
 - Remote control
 - Gaming controller

1.2. Features

- Arm®v8M KM4 MCU
- 802.11 b/g/n 1x1, 2.4GHz + Bluetooth 4.2
- Wi-Fi simple configuration
- 256 KB internal SRAM on SoC and 4MB external flash on Dev. Board
- Compact size with (L) 25 x (W) 17 x (H) 2.9 mm.

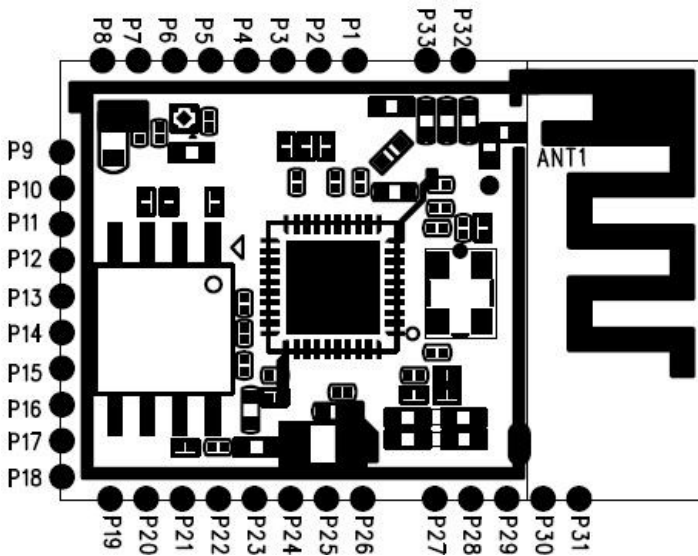
2. Product Dimension

2.1. Pin Assignment

Pin define		Pin name	Pin number
P1	DGND	GND	
P2	GND	GND	
P3	GPIO	GPIOA_2	18
P4	GPIO	GPIOA_3	19
P5	GPIO	GPIOA_4	20
P6	UART_TX	GPIOA_14/UART0_OUT	34
P7	UART_RX	GPIOA_13/UART0_IN	33
P8	3V3	VDD	
P9	SCL	GPIOA_19/I2C_SCL	40
P10	SDA	GPIOA_20/I2C_SDA	1
P11			
P12			
P13	PWM	GPIOA_17/PWM[5]	38
P14	PWM	GPIOA_18/PWM[6]	39
P15	PWM	GPIOA_23/PWM[7]	3
P16			
P17			
P18			
P19			
P20			
P21			
P22			
P23			
P24	Hardware EN	CHIP_EN	14
P25			
P26			
P27	FW download	GPIOA_0/SWD_CLK	15
P28	FW download	GPIOA_1/SWD_DATA	16
P29			
P30			
P31			
P32	UART_LOG_RX	GPIOA_15/UART2_IN	36
P33	UART_LOG_TX	GPIOA_16/UART2_OUT	37

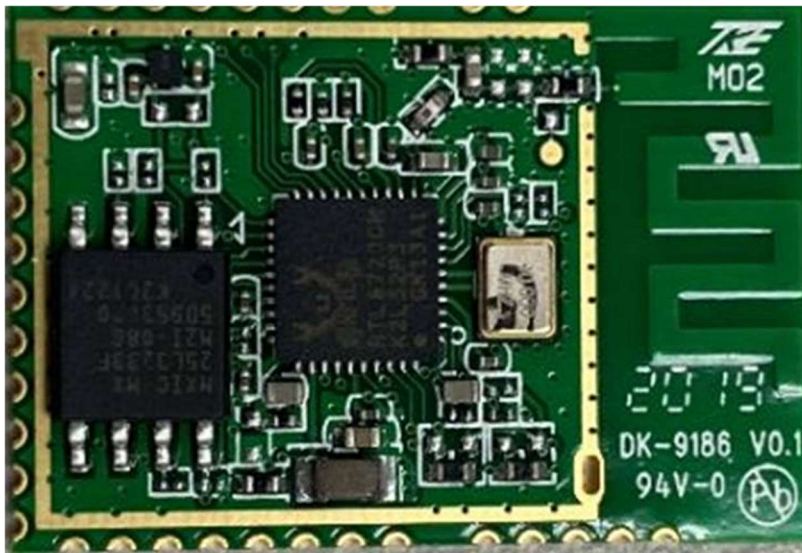
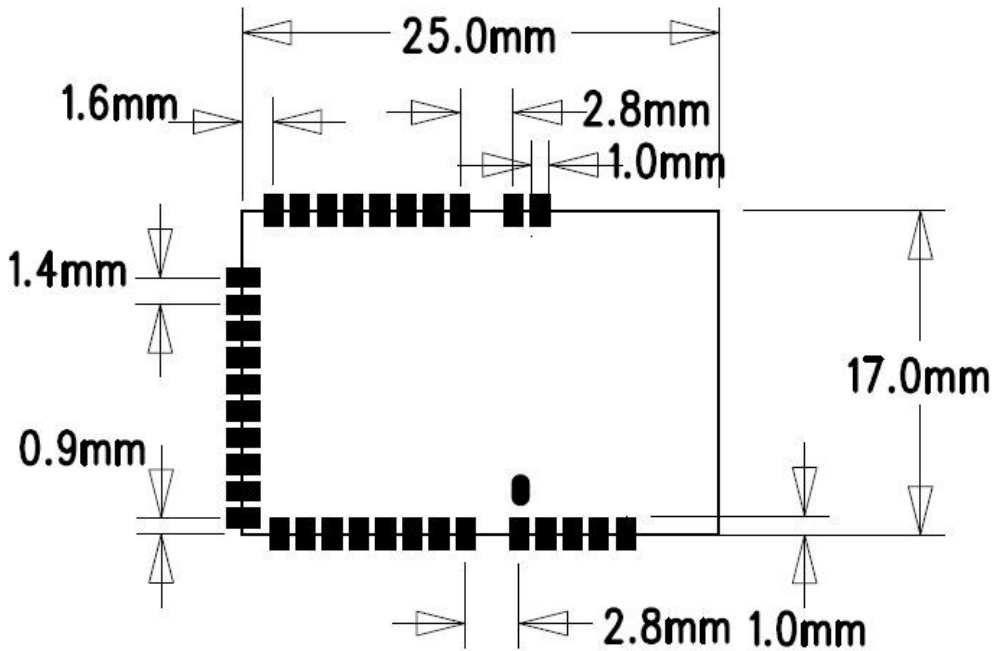
2.2. PCB Dimensions & Pin Indication

<u>PCB Size (in mm)</u>			
	Min.	Norm	MAX.
L		25	
W	-0.15	17	+0.2
H		2.9	



2.3. Recommended Layout of Solder Pad

Graphs are all in Top View, Unit in mm



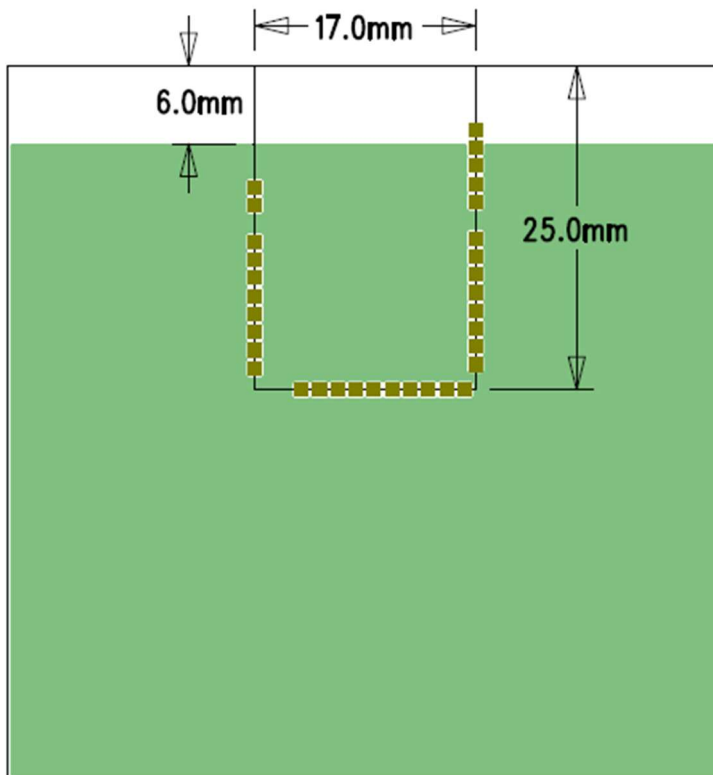
2.4. RF Layout Suggestion (aka Keep-Out Area)

Please follow below instruction to have better wireless performance. Make sure to keep the “No-Ground-Pad” as wider as you can when there is no enough space in your design.

No Ground Pad should be included in the corresponding position of the antenna in **EACH LAYER**.

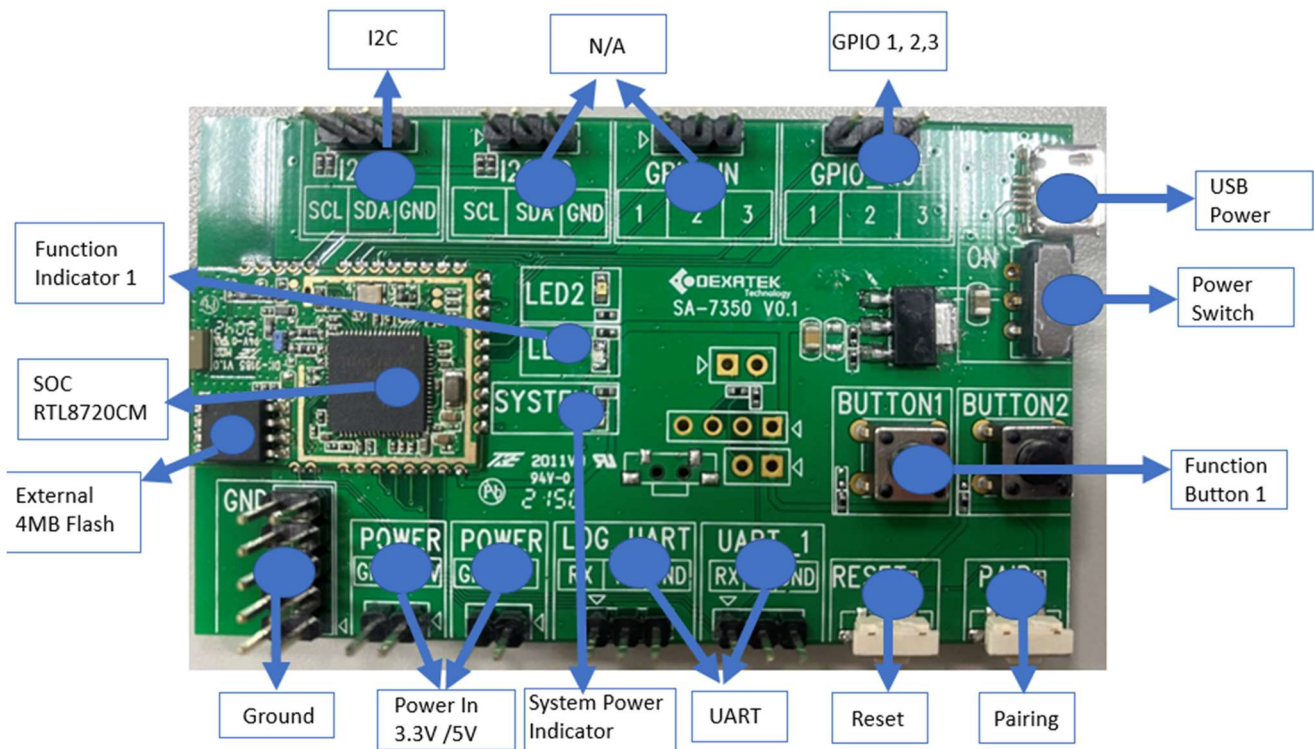
Place the module towards the edge of PCB to have better performance than placing it on the center.

PCB ANT LAYOUT All Layers Keepout



DK-9186 EVB Guide

The DK-9186 EVB is based on the RTL8720CM SoC and designed for IoT System Extended



DK-9186 Demo kit Spec	
SoC	RTL8720CM-VA2
WLAN	802.11 b/g/n 1x1, 2.4GHz + Bluetooth 4.2
Antenna	PCB Antenna
RAM	256KB Internal SRAM
External flash	4MB
Indicator	Function*1(Green) System Power(Blue)
Button	Function Button *1
UART	UART *2
GPIO	GPIO OUT*3
I2C	I2C*1
Power	3.3V / 5V
EVB dimension	75.69mm 44.83mm