FTY-RM03-FTV
Module Data sheet

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Website: www.phaten.com

Customer Approval

Company _____

Title _____

Signature _____

Date _____

FTY _____

Version Update Record

Version	Date	Revision Content	Editorialstaff	approval
V1.0	2018/07/06	The first version		

CONTENTS

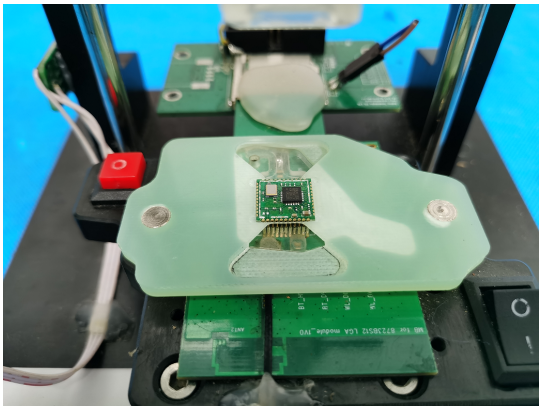
1 Overview

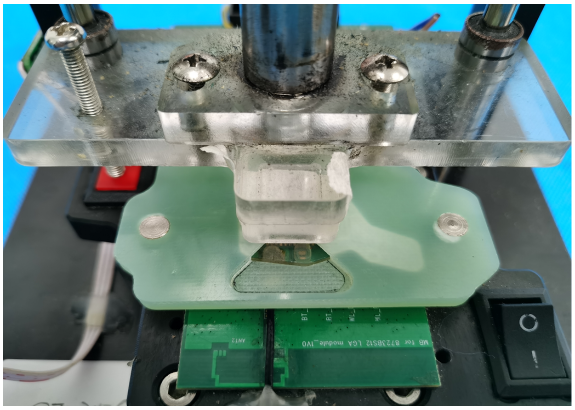
1.1 Introduction

FTY-RM03 is a highly integrated module, it puts a wireless LAN MAC, a 1T1R capability of the wireless LAN baseband, and wireless LAN RF set together. This module provides a complete solution for integrated WLAN devices with high throughput performance.Supports all IEEE 802.11b and 802.11g data rates, providing support for traditional data rates, powerful interference detection and suppression offers to prevent interference from Bluetooth, cordless phones and microwave ovens. It has synchronous and asynchronous control loop between antennas, antenna diversity function and adaptive transmission power control function to obtain better performance of the analog part of the transceiver. Provides simple traditional and 20MHz /40MHz co-existence mechanisms to ensure backward and network compatibility.

Note:

Manufacturer: Shenzhen Feiteng Cloud Technology Co., LTD
Model Number: FTY-WIFI-28
Product name: Test fixture
Installation instructions: Place the module in the groove corresponding to the fixture and press it so that the module is in good contact with the thimble on the fixture.

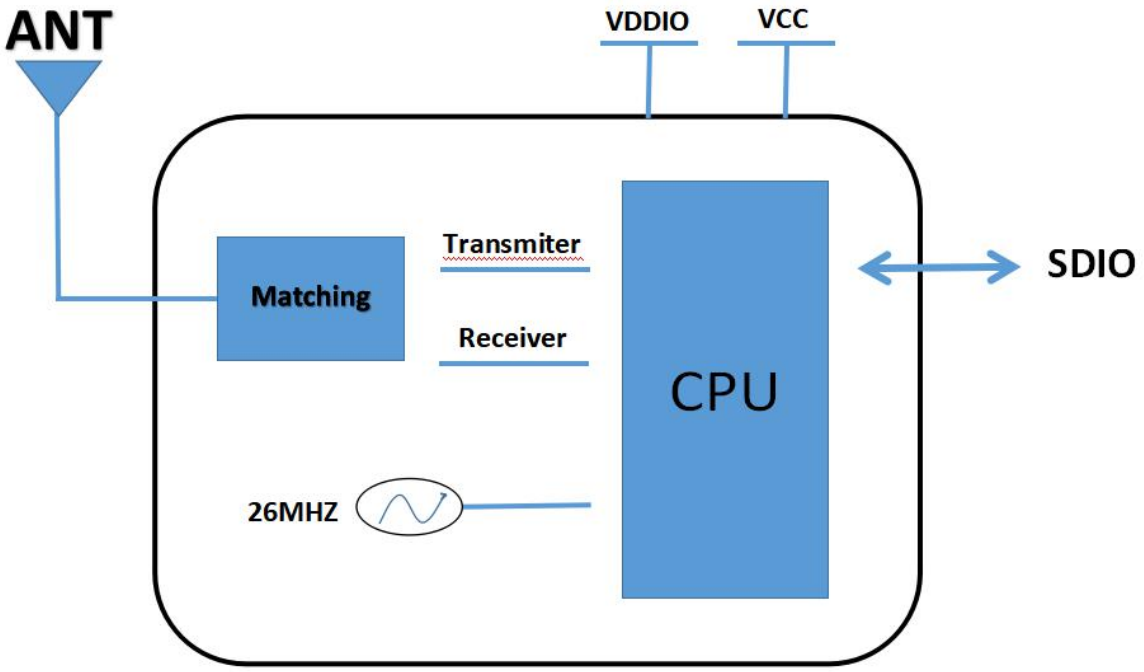




1.2 Features

- CMOS MAC, Baseband PHY, and RF in a single chip for IEEE 802.11b/g/n compatible WLAN
- Complete 802.11n solution for 2.4GHz band
- 72.2Mbps receive PHY rate and 72.2Mbps transmit PHY rate using 20MHz bandwidth
- 150Mbps receive PHY rate and 150Mbps transmit PHY rate using 40MHz bandwidth
- GSPI interface for configurable endian for WLAN
- Frame aggregation for increased MAC efficiency (A-MSDU, A-MPDU)
- Low latency immediate High-Throughput Block Acknowledgement (HT-BA)
- Channel management and co-existence
- One Transmit and one Receive path (1T1R)
- 20MHz and 40MHz bandwidth transmission
- DSSS with DBPSK and DQPSK, CCK modulation with long and short preamble
- OFDM with BPSK, QPSK, 16QAM, and 64QAM modulation. Convolutional Coding Rate: 1/2, 2/3, 3/4,and 5/6
- Maximum data rate 54Mbps in 802.11g and 150Mbps in 802.11n

1.3 Block Diagram



1.4 General Specification

Model Name	FTY-RM03-FTV
Product Description	Support WIFI:IEEE802.11b/g/n
Dimension	L x W x H: 12 x 12 x1.6mm ±0.2MM
Wi-Fi Interface	Support SDIO
BT interface	N/C
Operating temperature	0 to +70° C
Storage temperature	-10°C to 80°C
RoHS	All hardware components are fully compliant with EU RoHS directive

1.5 DC Characteristics

(1) Power Supply Characteristics

Symbol	Parameter	Minimum	Typical	Maximum	Units
VDD33	3.3V Power Supply Voltage	3.0	3.3	3.6	V
IDD33	3.3V Rating Current	/	/	600	mA

(2) Digital IO Pin DC Characteristics

Symbol	Parameter		Minimum	Typical	Maximum	Units
VDDIO(pin#22)	3.3V I/O Power Voltage	V_{IH}	2.0	3.3	3.6	V
		V_{IL}	--	0	0.9	V
		V_{OH}	2.97	--	3.3	V
		V_{OL}	0	--	0.33	V
	1.8V I/O Power Voltage	V_{IH}	1.7	1.8	2.0	V
		V_{IL}	--	0	0.8	V
		V_{OH}	1.62	--	1.8	V
		V_{OL}	0	--	0.18	V
CS(PIN#12)	Chip select	V_{IH}	2.0	3.3	3.6	V
		V_{IL}	--	0	0.9	V
WL_HOST_WAKE (PIN#13)	WLAN wake-up HOST	V_{OH}	2.97	--	3.3	V
		V_{OL}	0	--	0.33	V

2 RF Specifications

Features	Description
WLAN Standard	WLAN 11b/g/n
Frequency Range	2.412~ 2.462 GHz
Operating Channel	11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Network Architecture	Ad-hoc mode (Peer-to-Peer) Infrastructure mode Scatter Net
Security	WPA,WPA-PSK,WPA2,WPA2-PSK,WEP64bit&128bit,IEEE802.11x, IEEE 802.11i
OS Support	Windows XP/Win7/Linux/Android

2.4G Transmitter Specifications

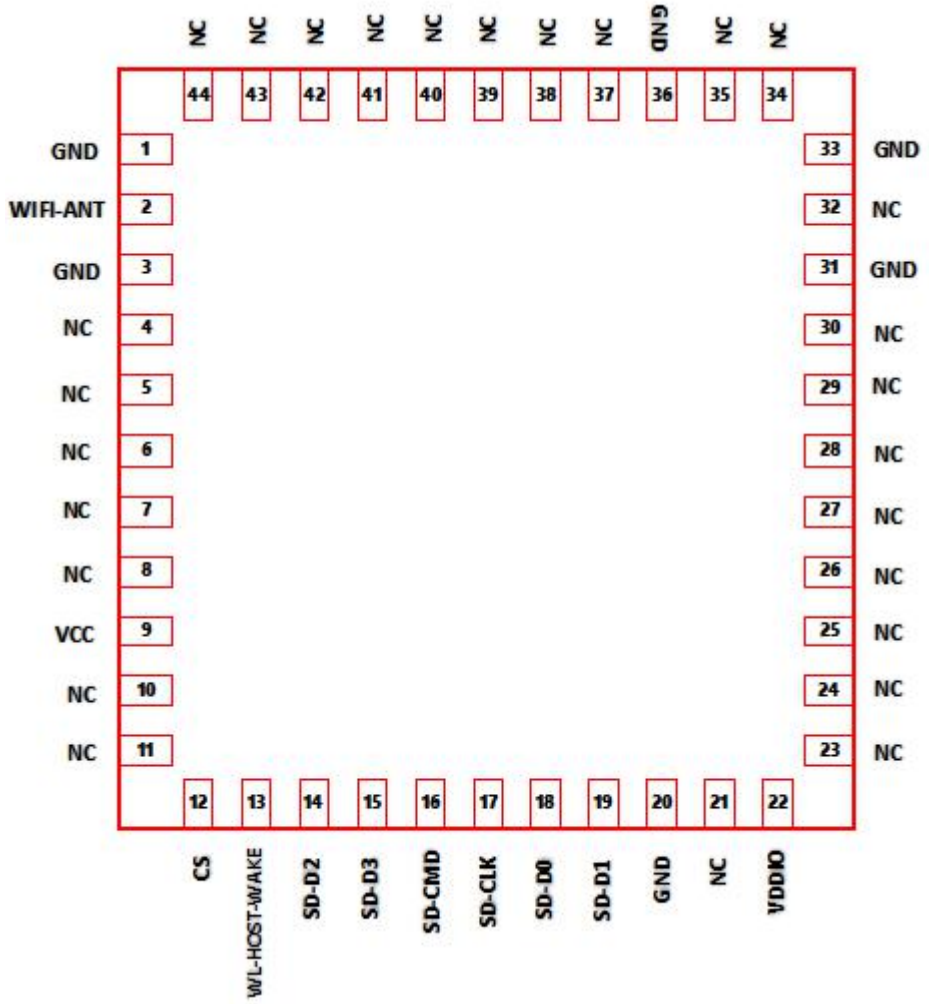
TX Rate	TX Power	TX Power Tolerance	EVM
802.1 1b @ 11 Mbps	14dBm	±2dBm	≤-18dB
802.11g@54Mbps	12dBm	±2dBm	≤-28dB
802.11n@HT20_MCS7	15dBrn	±2dBm	≤-28dB
802.11n@HT40_MCS7	14dBrn	±2dBm	≤-28dB

2.4G Receiver Specifications

RX Rate	Min Input Level(Typ)	Max Input Level(Typ)	PER
802.1 1b @ 11 Mbps	-85dBm	-85dBm	8%
802.11g@54Mbps	-70dBm	-70dBm	10%
802.11n@HT20_MCS7	-65dBrn	-65dBm	10%
802.11n@HT40_MCS7	-65dBrn	-65dBm	10%

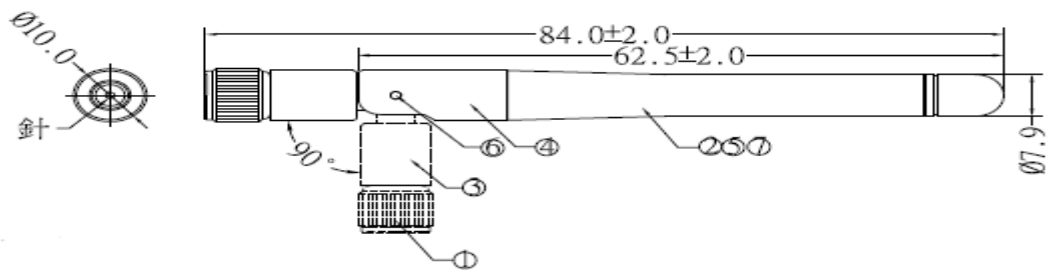
3 Pin Assignments

3.1 Pin Outline



Antenna:

1. Size(mm)



PROVIDER: Dongguan chuancheng Electronics Co., LTD
PART NAME: External antenna
SPEC: wifi 2412-2462MHz
Gain: 0dBi
connector :RP-SMA

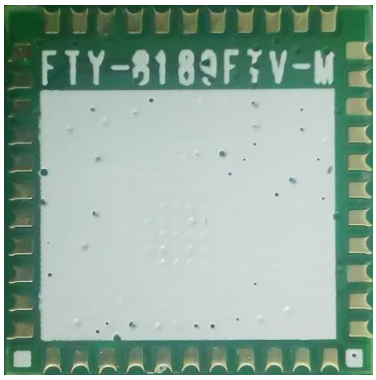
3.2 Pin Definition

Pin	Function	Description
1	GND	GND
2	WIFI_ANT	RF RX&TX Signal
3	GND	GND
4-8	NC	NC
9	VDD33	Power supply for system（3.3V±0.3V）
10-11	NC	NC
12	CS	Chip select，Activity high；Internal pull high to 3.3V at 100K Ω
13	WL_HOST_WAKE	For WLAN wake-up HOST, Internal pull high to 3.3V at 100KΩ
14	SD_D2	SDIO Data Line 2
15	SD_D3	SDIO Data Line 3
16	SD_CMD	SDIO Command Input
17	SD_CLK	SDIO Clock Input
18	SD_D0	SDIO Data Line 0
19	SD_D1	SDIO Data Line 1
20	GND	GND
21	NC	NC
22	VDDIO	VDD for SDIO Pin, the power supply is same as the signal level of SDIO bus (3.3V ~ 1.8V)
23-30	NC	NC
31	GND	GND
32	NC	NC
33	GND	GND
34-35	NC	NC
36	GND	GND
37-44	NC	NC

4 Dimensions

4.1Module Picture

L x W : 12 x 12 (+0.3-0.1) mm

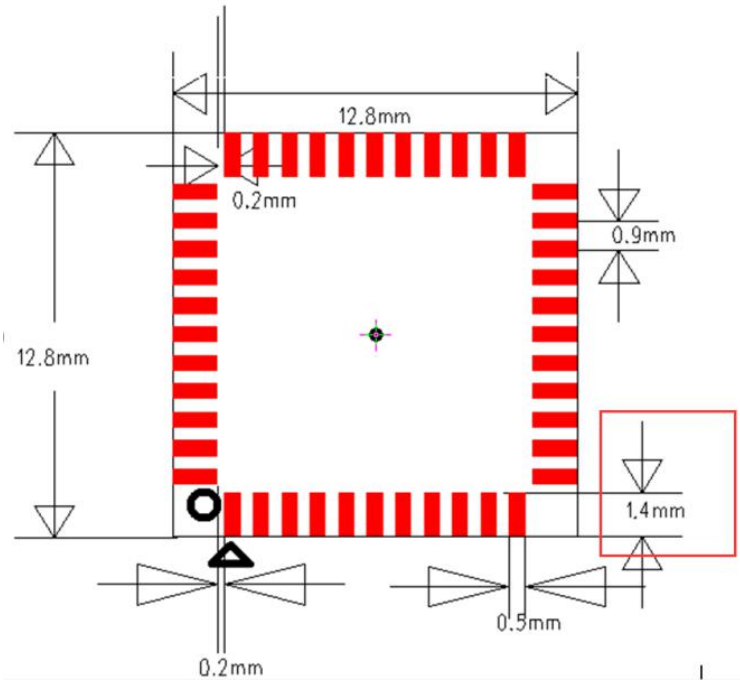


H:1.6(±0.2)mm

4.2 Module Physical Dimensions

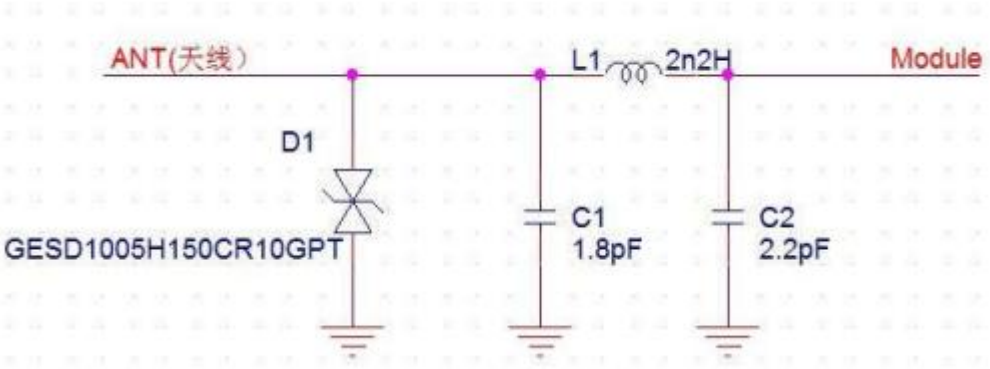
(Unit: mm)

< TOP VIEW >

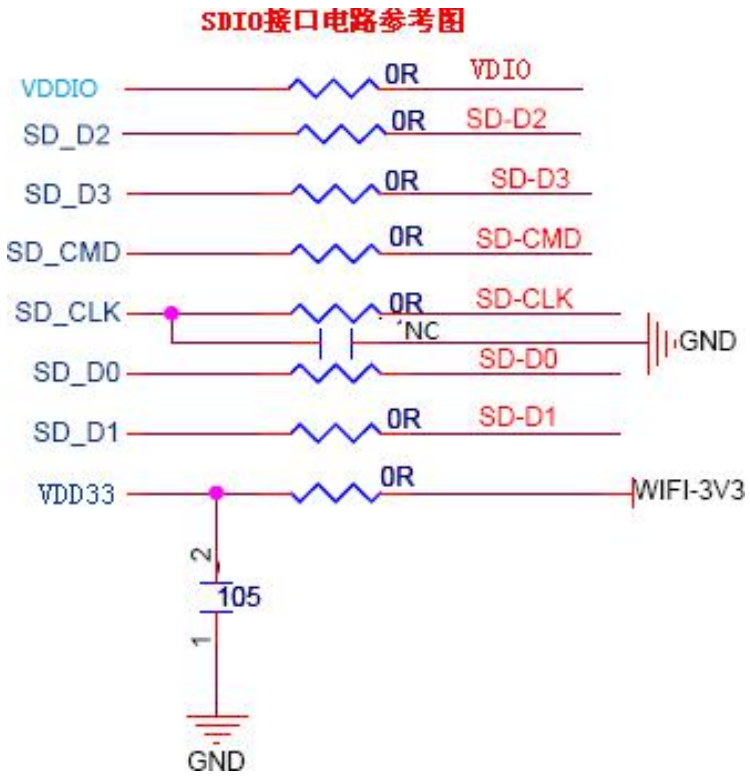


5 Reference Design

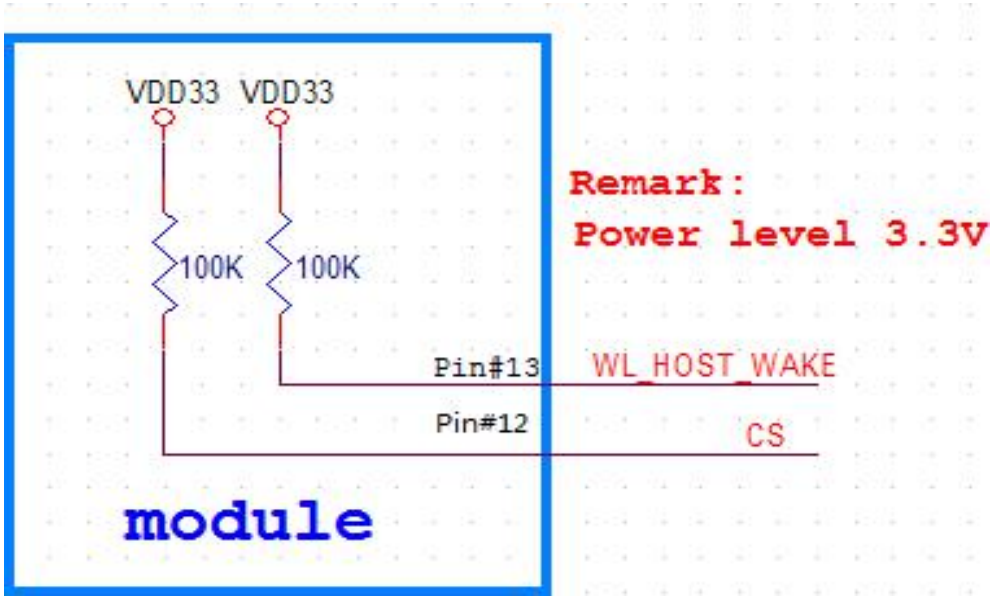
5.1 Circuit reference pictures



5.2 SDIO interface Circuit reference pictures



5.3 CS WAKE Reference circuits.

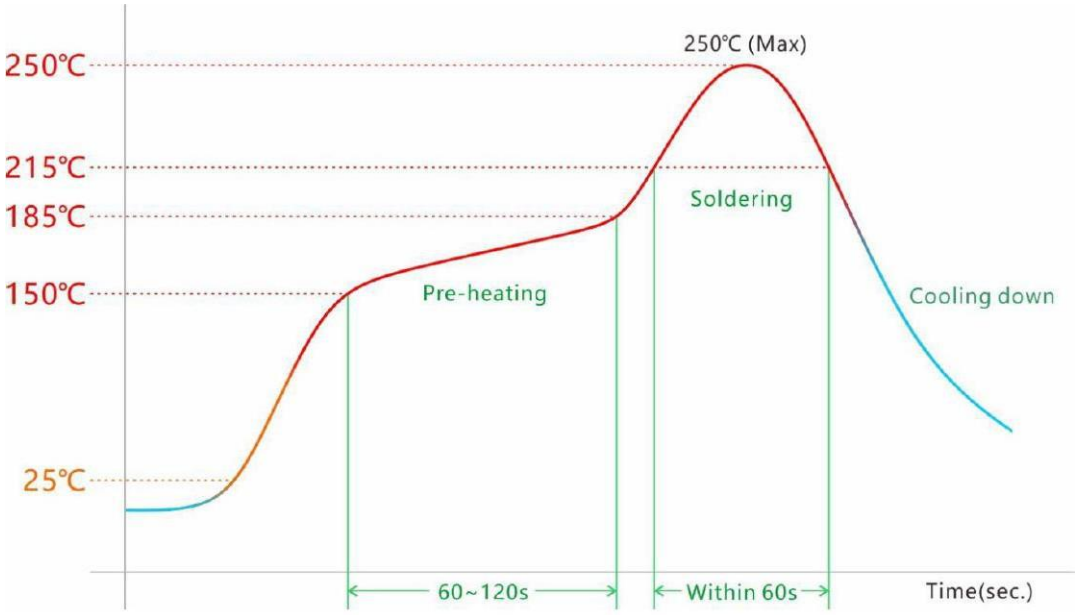


6 The Key Material List

No.	Parts	Specification	Manufacturer	Note
1	Chipset	RTL8189FTV-VC-CG	Realtek Semiconductor Corp	
2	PCB	8189FTV-M-V1.0	Shenzhen xiangyu circuit co., LTD	
3	Crystal oscillator	26MHZ 10PPM/9PF/3225 -20 to +85℃	hefei jing wei Electronics Co. Ltd.	
4				

7 Recommended Reflow Profile

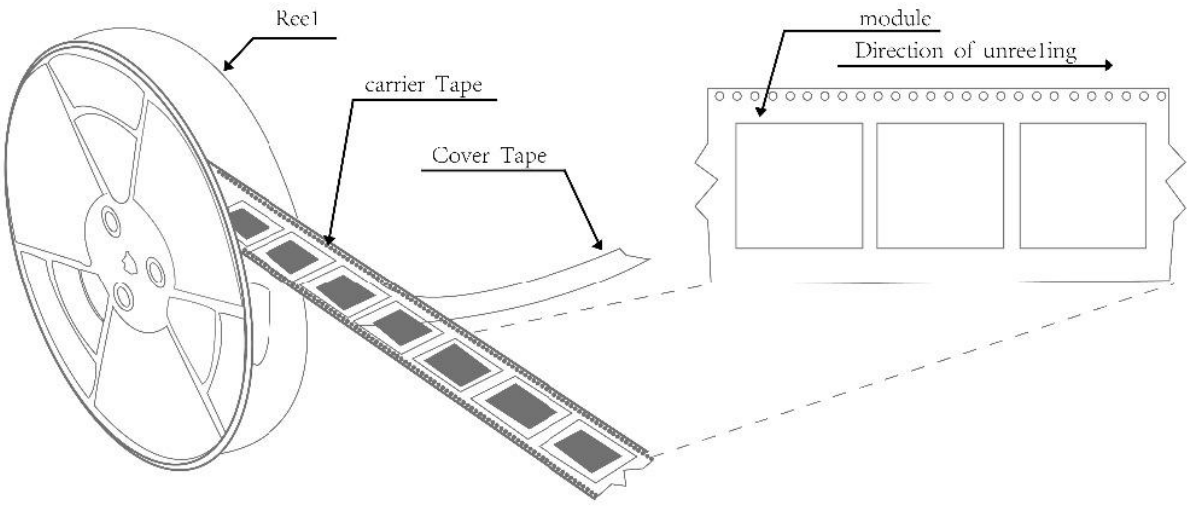
Referred to IPC/JEDEC standard.
Peak Temperature : <250° C
Number of Times : ≤2 times



8 Package Information

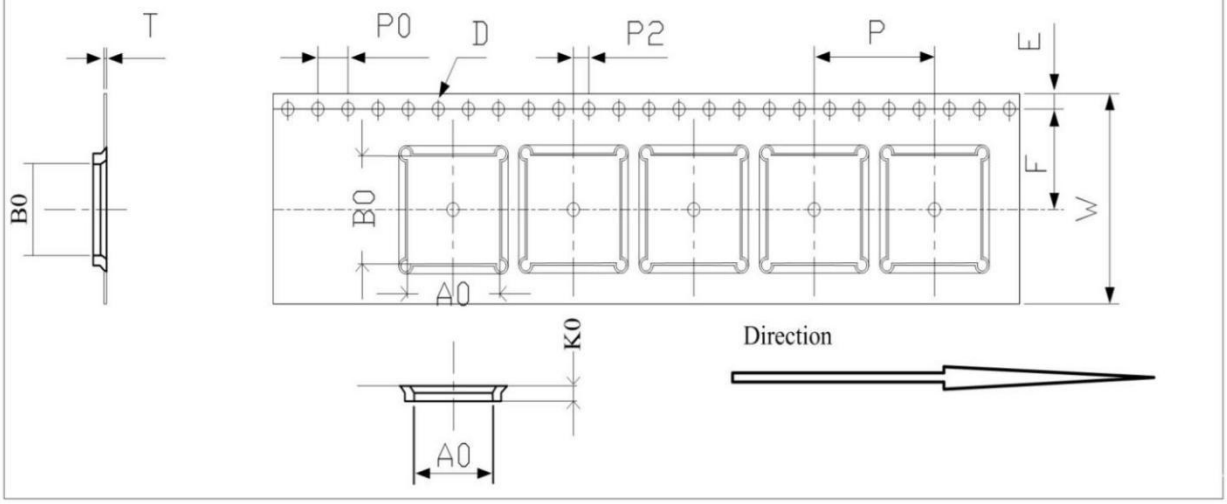
8.1Reel

A roll of 2000pcs

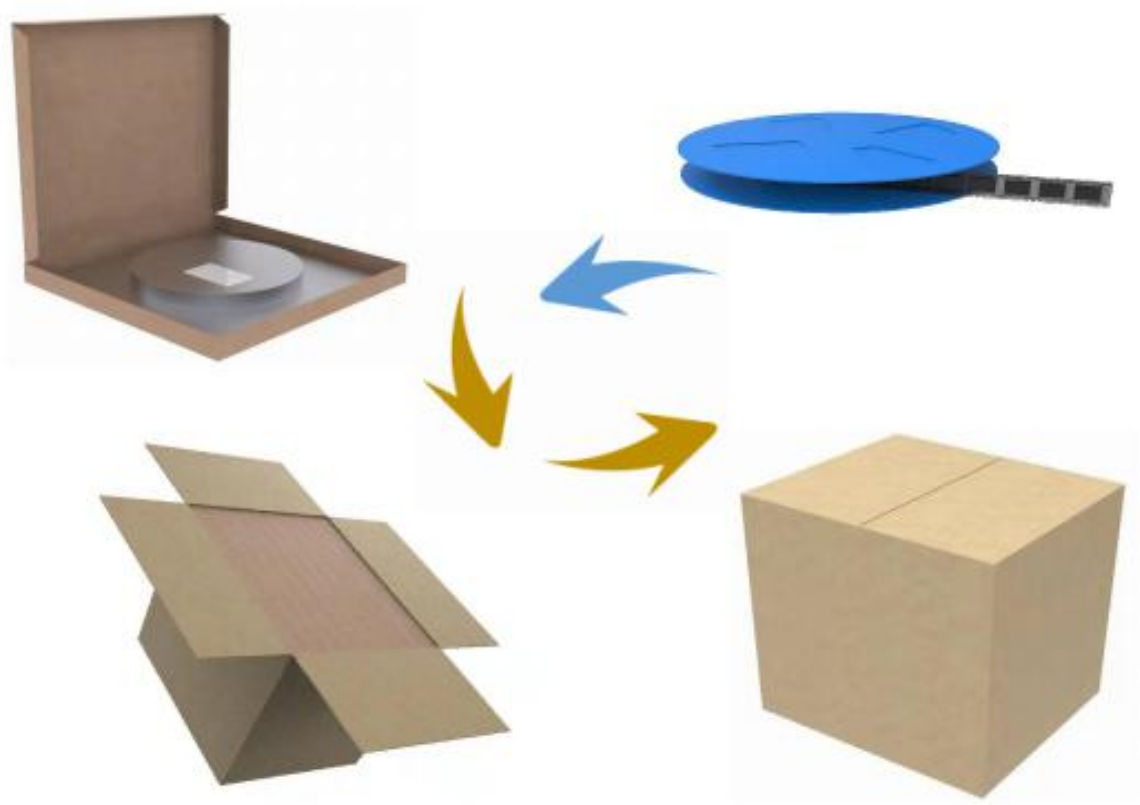


8.2 Carrier Tape Detail

ITEM	W	A0	B0	D	F	E	K0	P0	P2	P	T
DIM	24	12.40	12.40	1.50	11.5	1.75	1.70	4.0	2.0	16.0	0.30
TOLE	+0.3 -0.3	±0.10	±0.10	+0.1 -0.0	+0.1 -0.1	±0.1	±0.10	±0.1	±0.1	±0.1	±0.05



8.3 Packaging Detail



8.4 Moisture sensitivity

The Modules is a Moisture Sensitive Device level 3, in according with standard IPC/JEDEC J-STD-020, take care all the relatives requirements for using this kind of components.

Moreover, the customer has to take care of the following conditions:

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

b)Environmental condition during the production: 30°C / 60% RH according to IPC/JEDEC J-STD-033A paragraph 5.

c) The maximum time between the opening of the sealed bag and the reflow process must be 168 hours if condition

b) “IPC/JEDEC J-STD-033A paragraph 5.2” is respected

e) Baking is required if conditions b) or c) are not respected

f) Baking is required if the humidity indicator inside the bag indicates 10% RH or more

The module is limited to OEM installation only.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

This module should be installed and operated with a minimum distance 20cm between the radiator and your body. OEM integrator shall equipped the antenna to compliance with antenna requirement part 15.203& 15.204 and must not be co-located or operating in conjunction with any other antenna or transmitters. And OEM host shall implement a Class II Permissive Change (C2PC) or a new FCC ID to demonstrate complied with FCC standard.

The OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

This module support 2.4G WLAN 2412-2462MHz which compliance with part 15.247.

The final end product must be labelled in a visible area with the following:
“Contains Transmitter Module “2A3AKFTYRM03FTV”

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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 turning 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 receiving antenna.
-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.