

# Shenzhen Guangyuanfa Electronics Co., LTD

## SPECIFICATIONS

Customer	Shenzhen Ailaier technology co., Ltd
Number	HDC-H01
Customer model	
Product model	PBX-3216 C1
Manufacture	Shenzhen Ailaier technology co., Ltd
Address	A1101, Yixing Court, No. 3161, Binhe Avenue, Binhe Community, Nanyuan Street, Futian District, Shenzhen, China
Date	2024. 12. 9

# CHIP-2450-21 Specification

Operating Temp. : -40°C~+85°C

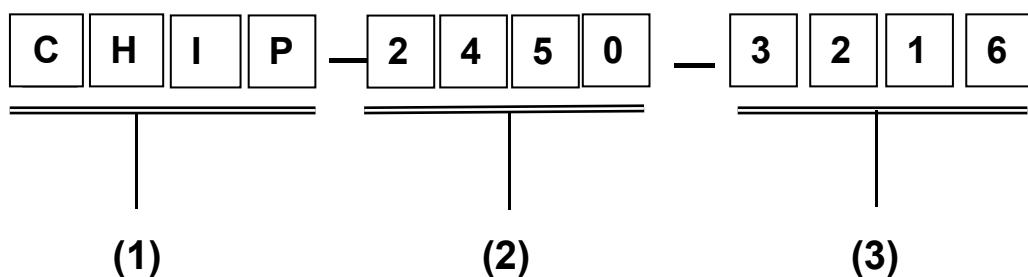
## 1. FEATURES:

- Light weight, compact
- Wide bandwidth, low cost
- Built-in antenna with high gain

## 2. APPLICATIONS:

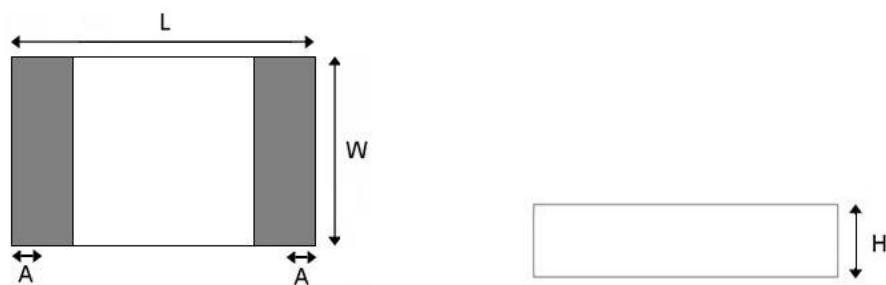
- Bluetooth, Wireless LAN, Mobile TV
- Home RF system, etc

## 3. PRODUCT IDENTIFICATION



- (1) Product type: Multilayer chip Antenna
- (2) Center Frequency: 2450MHz
- (3) External Dimensions (L×W) (mm): 3.2\*1.6

## 4. SHAPE AND DIMENSIONS:

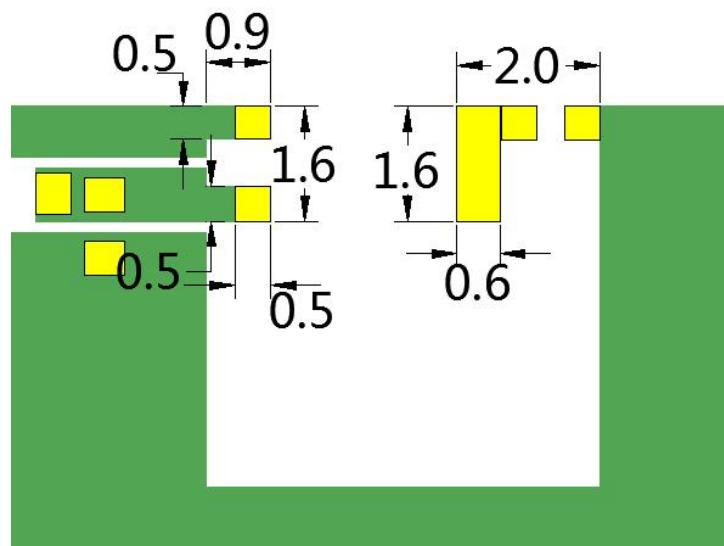
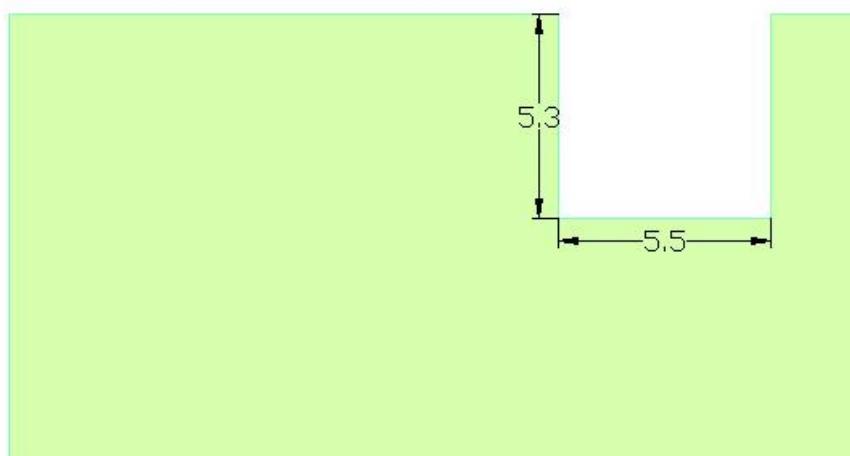
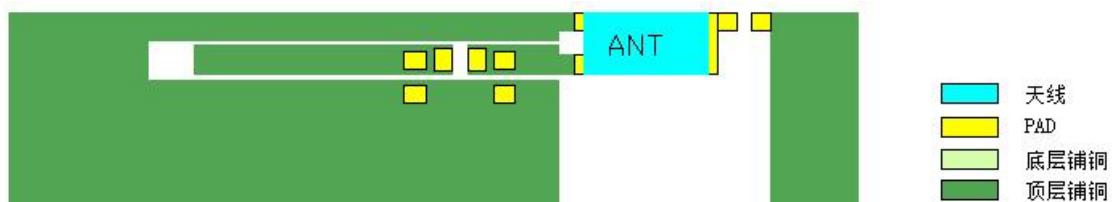


### SHAPE AND DIMENSIONS

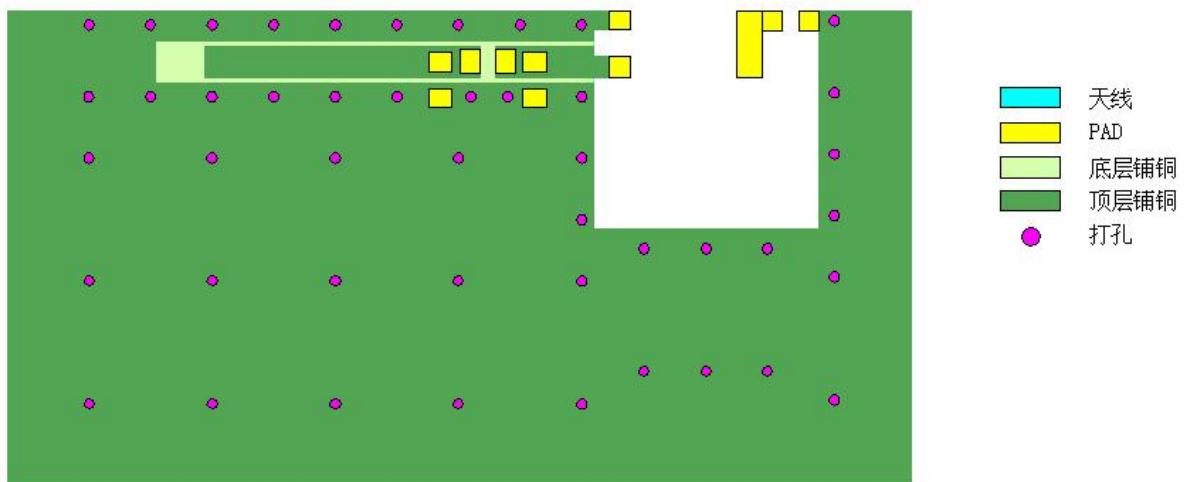
L	W	H	A
3.1±0.3	1.6±0.3	0.52±0.2	0.4±0.25

**Test board reference dimensions:**

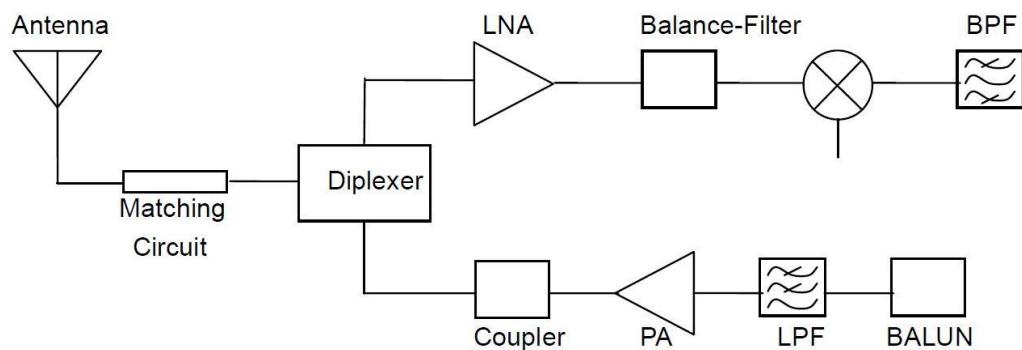
Unit: mm



## Schematic diagram of borehole



## APPLICATION GUIDE



## 5. SPECIFICATIONS:

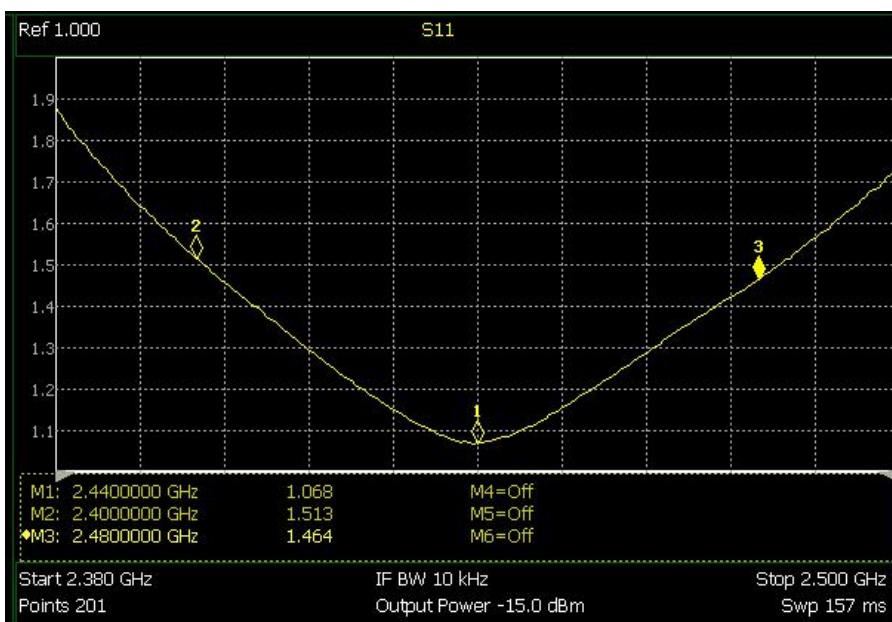
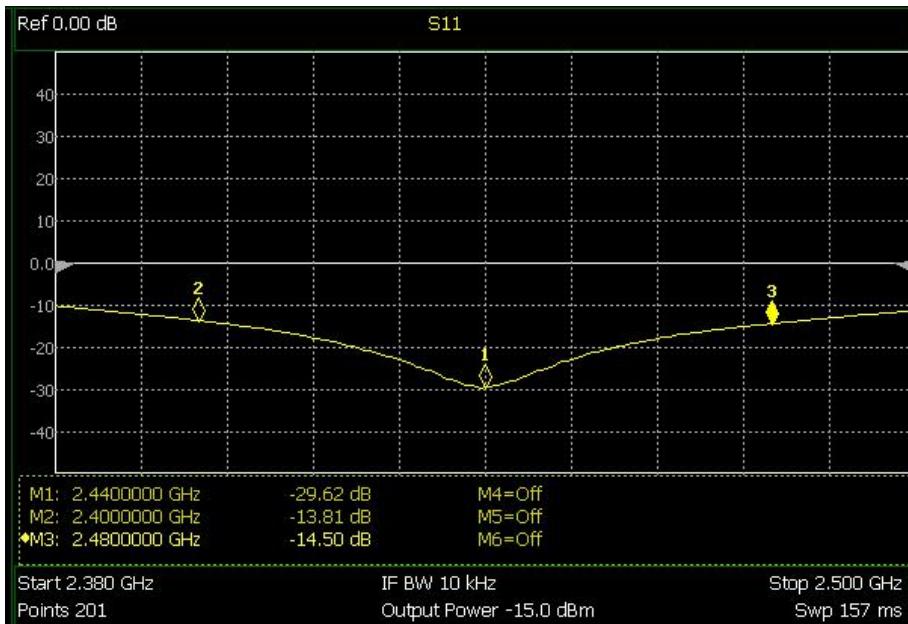
测试项	规格
Bandwidth	2400~2483MHz
Polarization mode	Linear polarization
Maximum gain	2.6 dBi
Efficiency	72.30%
Input impedance	50 Ω

\* Test condition: Test board size 90\*40 mm

Matching circuit: Pi matching circuit will be required

## 6. Electrical Characteristics :

### Return Loss

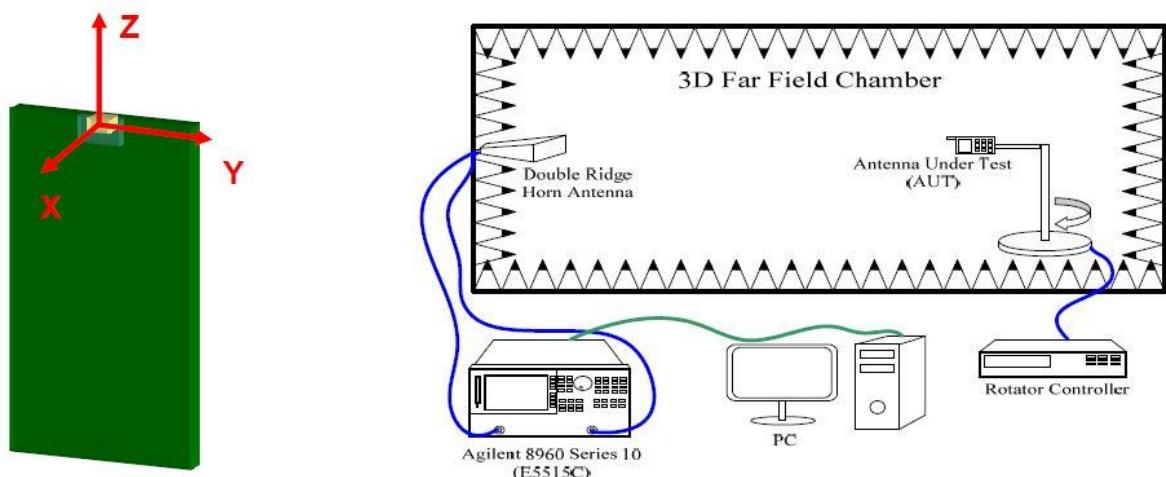


### Standing Wave Ratio (SWR)

Mark	Frequency	VSWR
1	2400 MHz	1.513
2	2440 MHz	1.068
3	2480 MHz	1.464

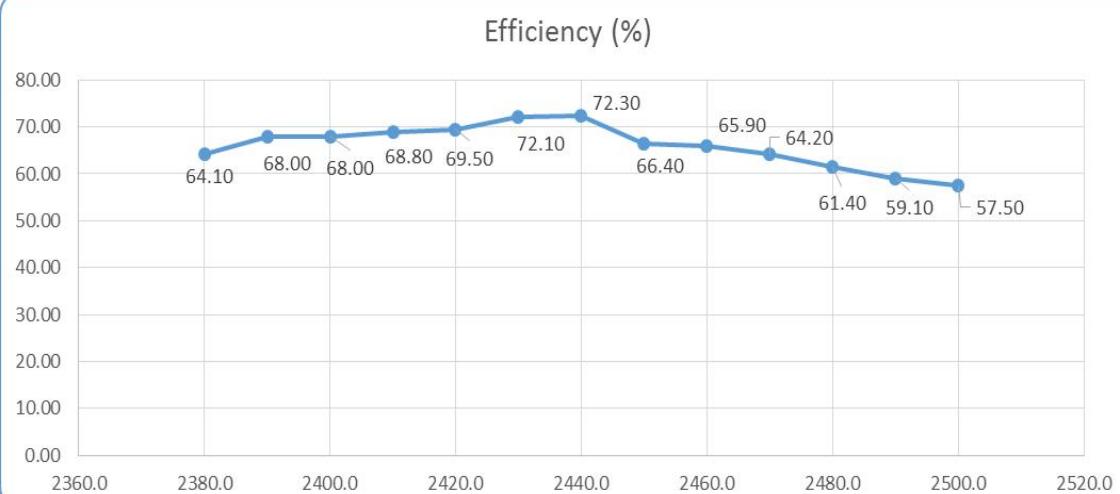
## Radiation Pattern

The Gain pattern is measured in FAR-field chamber. DUT is placed on the table of rotator, a standard horn antenna and Vector Network Analyzer is used to collect data.

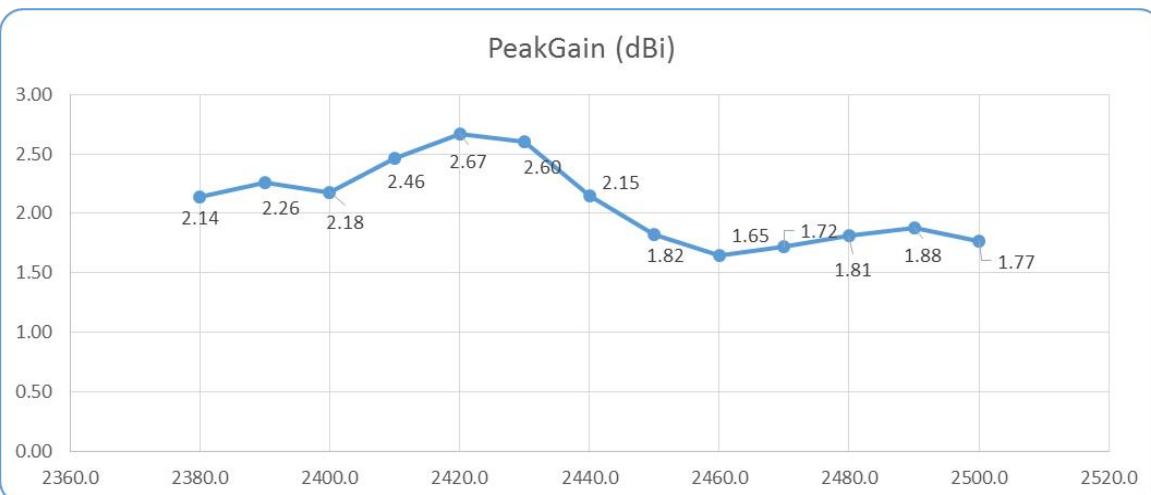


Frequency(MHz)	PackGain(dBi)	Efficiency(%)
2400	2.18	68.0
2440	2.60	72.3
2480	1.81	61.4

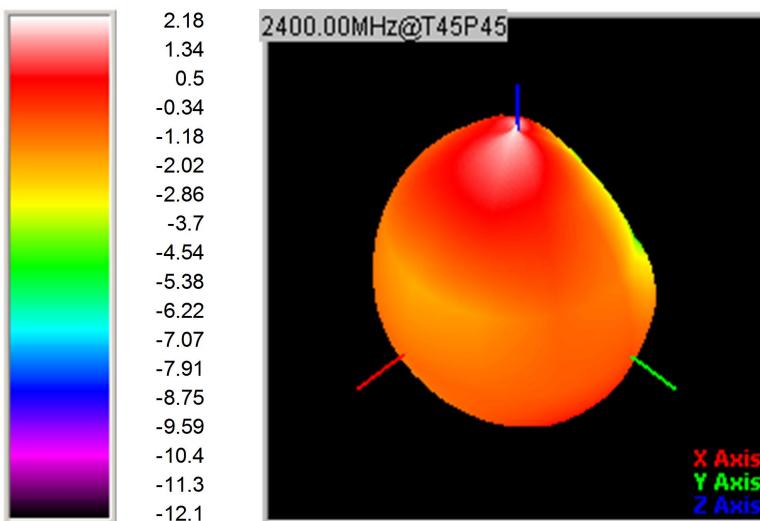
## ◎ Efficiency



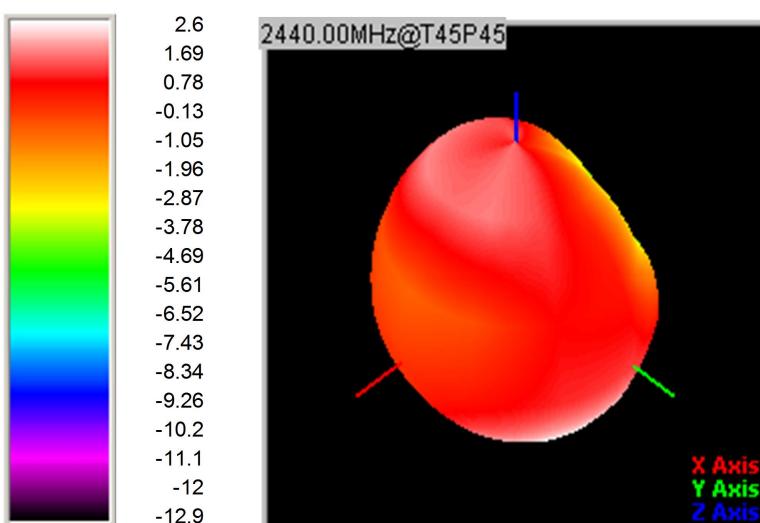
## ◎ Maximum Gain



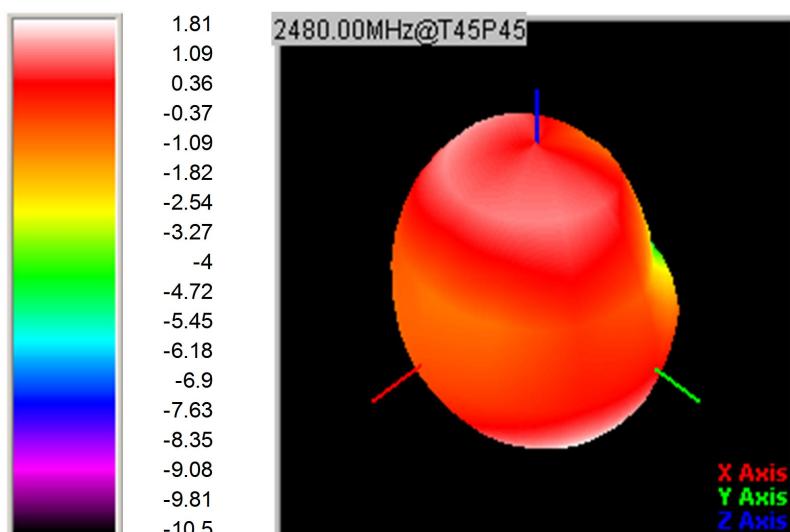
◎ 3D Gain Pattern (2400 MHz)



◎ 3D Gain Pattern (2440 MHz)



◎ 3D Gain Pattern (2480 MHz)



## 7. Environmental Characteristics

### (1) Reliability Test

Item	Condition	Specification
Thermal shock	1. $30 \pm 3$ minutes at $-40^\circ C \pm 5^\circ C$ , 2. Convert to $+105^\circ C$ (5 minutes) 3. $30 \pm 3$ minutes at $+105^\circ C \pm 5^\circ C$ , 4. Convert to $-40^\circ C$ (5 minutes) 5. Total 100 continuous cycles	No apparent damage Fulfill the electrical spec. after test.
Humidity resistance	1. Humidity: 85% R.H. 2. Temperature: $85 \pm 5^\circ C$ 3. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
High temperature resistance	1. Temperature: $150^\circ C \pm 5^\circ C$ 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Low temperature resistance	1. Temperature: $-40^\circ C \pm 5^\circ C$ 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Soldering heat resistance	1. Solder bath temperature : $260 \pm 5^\circ C$ 2. Bathing time: $10 \pm 1$ seconds	No apparent damage
Solderability	The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of $245 \pm 5^\circ C$ for $3 \pm 1$ seconds.	No apparent damage

### (2) Storage Condition

#### (a) At warehouse:

The temperature should be within  $0 \sim 30^\circ C$  and humidity should be less than 60% RH.

The product should be used within 1 year from the time of delivery.

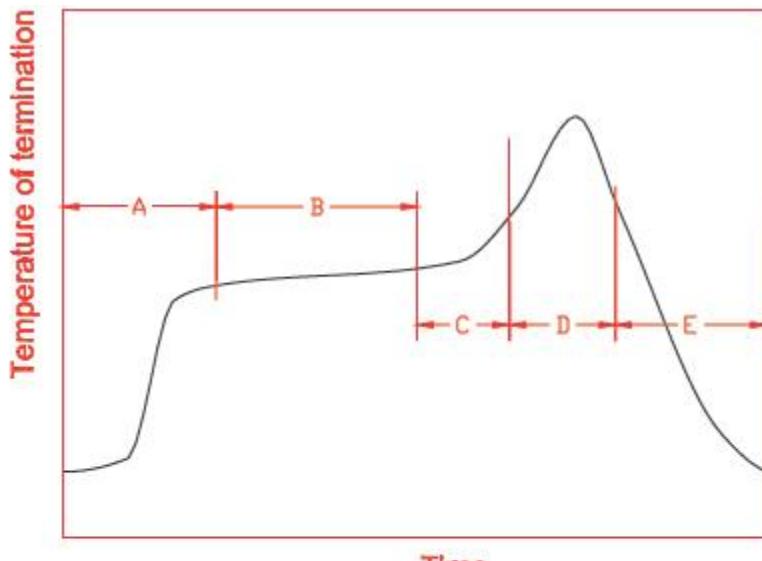
#### (b) On board:

The temperature should be within  $-40 \sim 85^\circ C$  and humidity should be less than 85% RH.

### (3) Operating Temperature Range

Operating temperature range :  $-40^\circ C$  to  $+105^\circ C$ .

## 8. Recommended Reflow Soldering



A	1 <sup>st</sup> rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140°C to 160°C	60s to 120s
C	2 <sup>nd</sup> rising temperature	Preheating to 200°C	20s to 40s
		if 220°C	50s~60s
		if 230°C	40s~50s
D	Main heating	if 240°C	30s~40s
		if 250°C	20s~40s
		if 260°C	20s~40s
E	Regular cooling	200°C to 100°C	1°C/s ~ 4°C/s

\*reference: J-STD-020C

### (1) Soldering Gun Procedure

Note the follows, in case of using solder gun for replacement.

- The tip temperature must be less than 350° C for the period within 3 seconds by using soldering gun under 30 W.
- The soldering gun tip shall not touch this product directly.

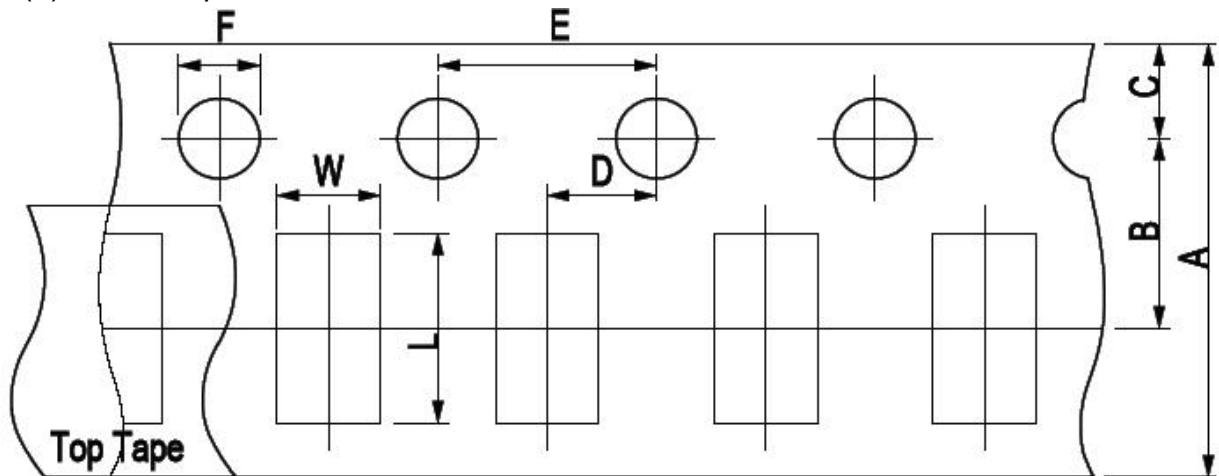
### (2) Soldering Volume

Note that excess of soldering volume will easily get crack the body of this product.

## 9. Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 5000pcs/Reel

(2) Carrier tape dimensions



Type	A	B	C	D	E	F	L	W
2450-21	$8.00 \pm 0.3$	$3.50 \pm 0.05$	$1.75 \pm 0.1$	$2.00 \pm 0.05$	$4.00 \pm 0.1$	$1.50 \pm 0.1$	$2.30 \pm 0.1$	$1.55 \pm 0.1$

(3) Taping reel dimensions

