

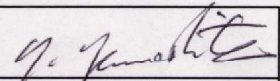
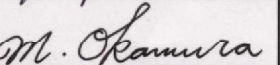
NO. TPQ-2D02Z

Apr. 09. 2002

TECHNICAL REPORT

Product name : SURFACE MOUNTABLE CHIP ANTENNA

Item : AHD1403-244ST01

Approval	
Drawn	

MITSUBISHI MATERIALS CORPORATION
ADVANCED PRODUCTS COMPANY

Surface mountable chip antenna AHD1403-244ST01 Specification	Drawing No	Page
	RJC-AP-0003E	1/4

Type	AHD1403-244ST01	Date	July.26.2001
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1. Scope of application

The specification is applied to surface mountable chip Antenna AHD1403-244ST01.

2. Part Number System

(Ex.) A H D 1 4 0 3 - 2 4 4 ST01 T
 (1) (2) (3) (3) (4) (5)

(1) Series AHD : AHD series

(2) Length 14 : Length L=14mm (rounded off to the first digit place).

(3) Width 03 : Width W=3mm (rounded off to the first digit place).

(4) center frequency 244 : center frequency f0 = 2440MHz

(indicated in upper 3digit of center frequency f0[MHz])

(4) MMC internal code ex) ST01

(5) Packaging form T : Tape package 4000pcs./reel

3. Structure

3-1. material

Base material Al₂O₃ based ceramic

Conductor Ag based thick film

3-2. Size and Dimensions See Fig.1.

3-3. Terminal description See Fig.1.

3-4. Visual No major defects that would effect the life or use of the components

3-5. Standard evaluation board and Land pattern See Fig.2. and Fig.3.

4. Operating temperature range

-25°C to +85°C

5. Electrical Characteristics

Table.1 Electrical characteristics

Description	Value
Impedance	50Ω
Frequency range	2400MHz to 2484MHz
V.S.W.R at B.W	3.0max

[Note] Electrical characteristics should be measured on our evaluation board
 Details of evaluation board is shown in Fig.2.and Fig.3.

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6. Precautions

6.1. Handling

Excessive stress or mechanical shock may damage to products , therefore , please be careful in handling or transporting products and assemblies with this product .

6.2. Storage

Products should be stored as it packaged (as sealed up) under normal temperature and humidity .

To avoid degradation or destruction of products , please do not store under conditions below.

- In an atmosphere containing corrosive gas (SO_x , NO_x , Cl₂ , NH₃ etc.)
- Dusty Place
- Humid place , where water condenses

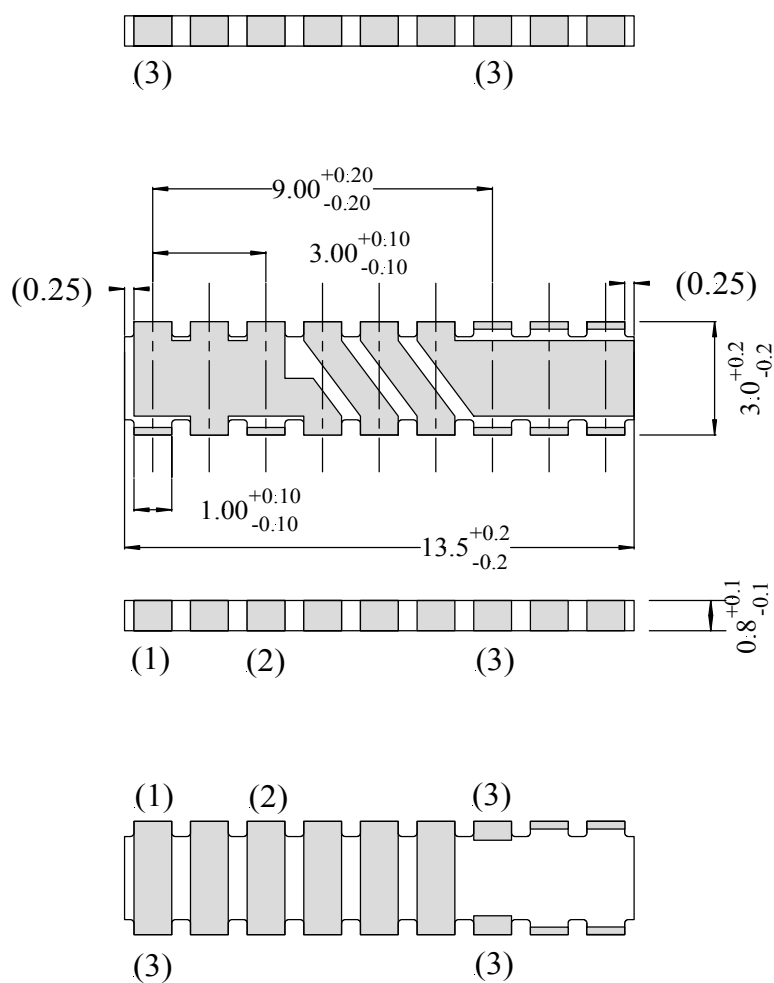
Stored products should be used within 3 months of receipt (If once the seal of covertape is broken , please use immediately)


If this period is exceeded please verify solderability of products .

[Recommended storage condition]

Temperature -10°C to 40°C

Humidity 15%R.H. to 85%R.H



 : conductor

<Terminal description>

(1) : Gnd

(2) : Feeding electrode

(3) : fixing electrode (Should be connected with floating pad)

Fig.1. Dimensions (Unit:mm)

Substrate : FR-4 (Both print)
 Thickness : 0.8mm
 Copper : 0.035mm
 Size : W=25mm , L=50mm

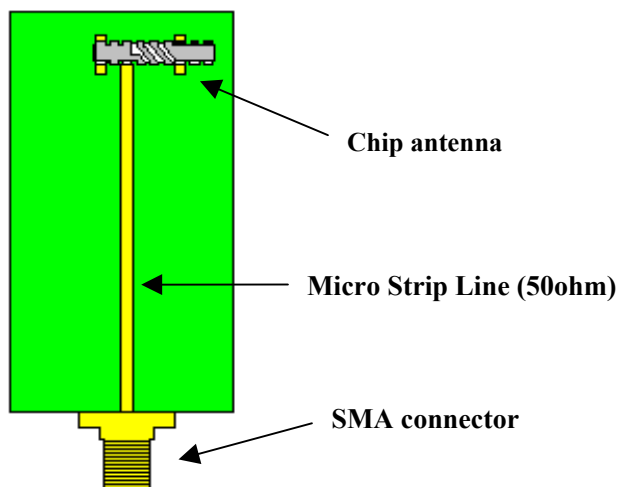


Fig.2. Outline of standard evaluation board

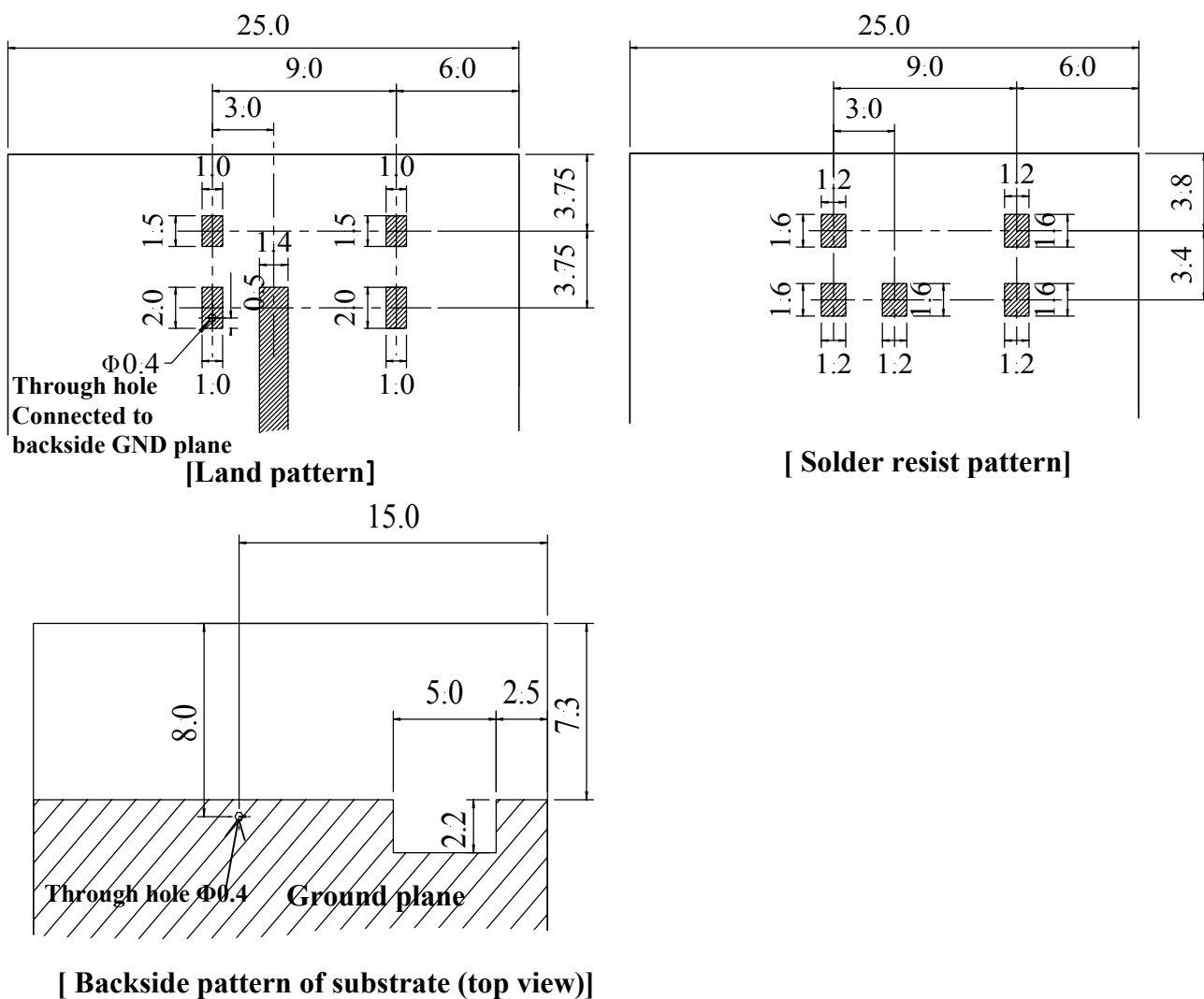


Fig.3. Dimensions of Land pattern (Unit : mm)

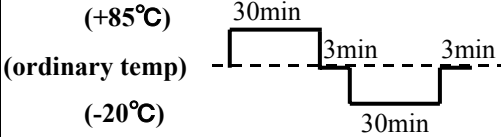
Surface mountable chip antenna AHD series characteristic specification	Drawing No	Page
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Type	AHD series	Date	December.10.2001
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1. Scope of application

This specification is applied to surface mountable chip Antenna AHD series.

2. Climatic Quality

Item	Test Method	Performance
Cold test	Test temperature : $-25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ Test duration : 1000hrs +48,-0 hrs After completion of the test, allow the sample to stand under the standard condition for at 2hrs.	After the test ,shall satisfy the band width specification.
Dry heat test	Test temperature : $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Test duration : 1000hrs +48,-0 hrs After completion of the test, allow the sample to stand under the standard condition for at 2hrs.	After the test ,shall satisfy the band width specification.
Damp heat Test	Test temperature : $+60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Test relative humidity : 90% 95% Test duration : 1000hrs +48,-0 hrs After completion of the test, allow the sample to stand under the standard condition for at 2hrs.	After the test ,shall satisfy the band width specification.
Temperature cycle Test	 <p style="text-align: center;"><i>Fig.1. Operations per One Cycle</i></p> <p>One cycle is the operation shown in Fig.1 . This cycle is repeated 65 times After completion of the test, allow the sample to stand under the standard conditions for at 2hrs.</p>	After the test ,shall satisfy the band width specification.

Surface mountable chip antenna AHD series characteristic specification	Drawing No	Page
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3. Solderability

Item	Test Method	Performance
Solderability Test	Immerse into melted solder. Solder : H63A Flux : Rosin 25wt% (According to JIS C2571) Soldering temperature : 230°C ± 3°C Duration of immersion : 5sec. ± 1sec Preheating : 150°C , 60sec.	At least 90% of the terminal electrode must be covered with new solder.
Resistance to reflow soldering Heat Test	Reflow soldering temperature : Peak temperature : 240°C Keeping time at peak temp : within 5sec Solder : Sn63/Pb37 solder paste Temperature profile : see fig.2.	After the test, shall satisfy the band width specification. Visual : No mechanical damage

Surface mountable chip antenna AHD series characteristic specification

Drawing No

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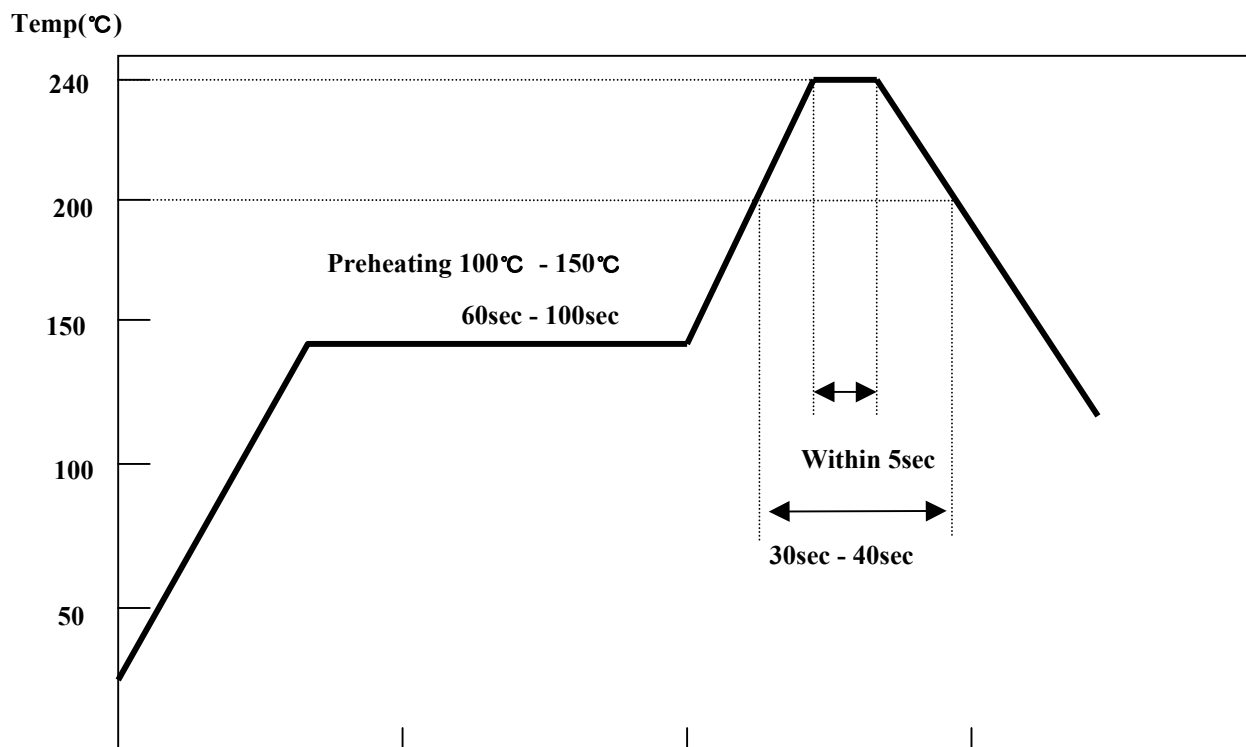


Fig.2. Reflow temperature profile

Surface mountable chip antenna AHD1403 series Packaging Specification		Drawing No	Page
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Type	AHD1403 series	Date	July.26.2001

1. Scope of application

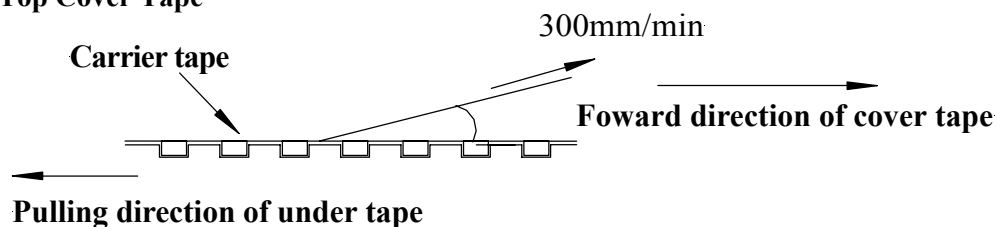
This specification is applied to surface mountable chip Antenna AHD1403 series.

2. Packaging(Tape package)

2-1. Dimensions of Taping see fig.1.

2-2. Dimensions of Reel see fig.2.

2-3. Peel Force of Top Cover Tape



In the case, the cover tape is pulled off under the above conditions.

The cover tape adhesion to strength should be as follows.

Top Cover Tape : 0.7N max

2-4. Structure of Taping

(1) Taping must have Leader and empty component compartments as shown in Fig.3.

(2) Chip Antenna Orientation in carrier tape is shown in Fig.1.

2-5. Packaging quantity

4000 (pcs./Reel)

2-6. Items described on shipping

(1) Ordered part number(PART NO)

(2) Packaging Quantity(QUANTITY)

(3) Received order number(SERIAL)

(4) Part number (ITEM)

2-7. Items described on shipping box

(1) Received order number(PACKAGE ID)

(2) Number of shipping box(PACKAGE COUNT)

(3) Packaging quantity(QUANTITY)

(4) Ordered number(TRANS ID)

(5) Ordered part number(CUST PROD)

(6) Part number (ITEM)

(7) Customer name(CUSTOMER)

(8) Customer's machine name(MODEL NO)

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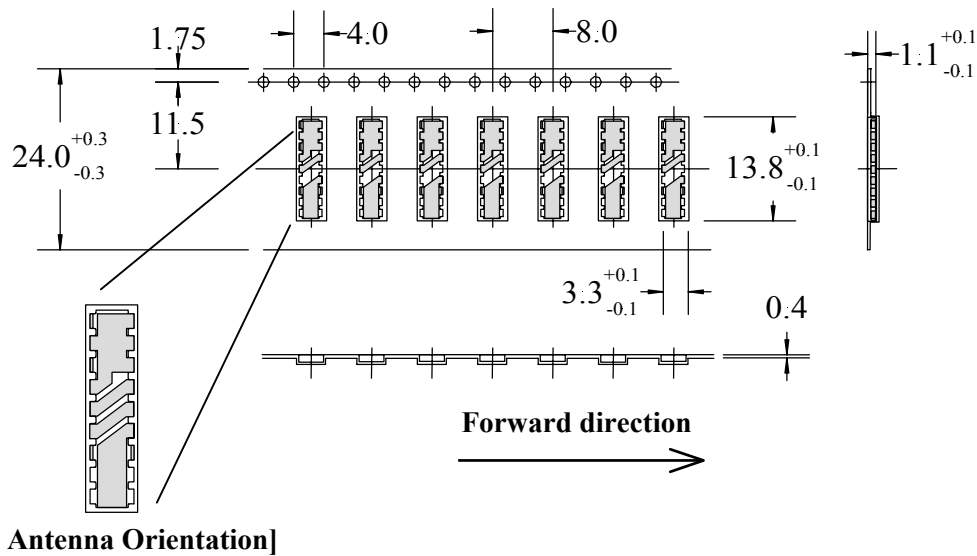


Fig.1. Dimensions of Taping [Unit:mm]

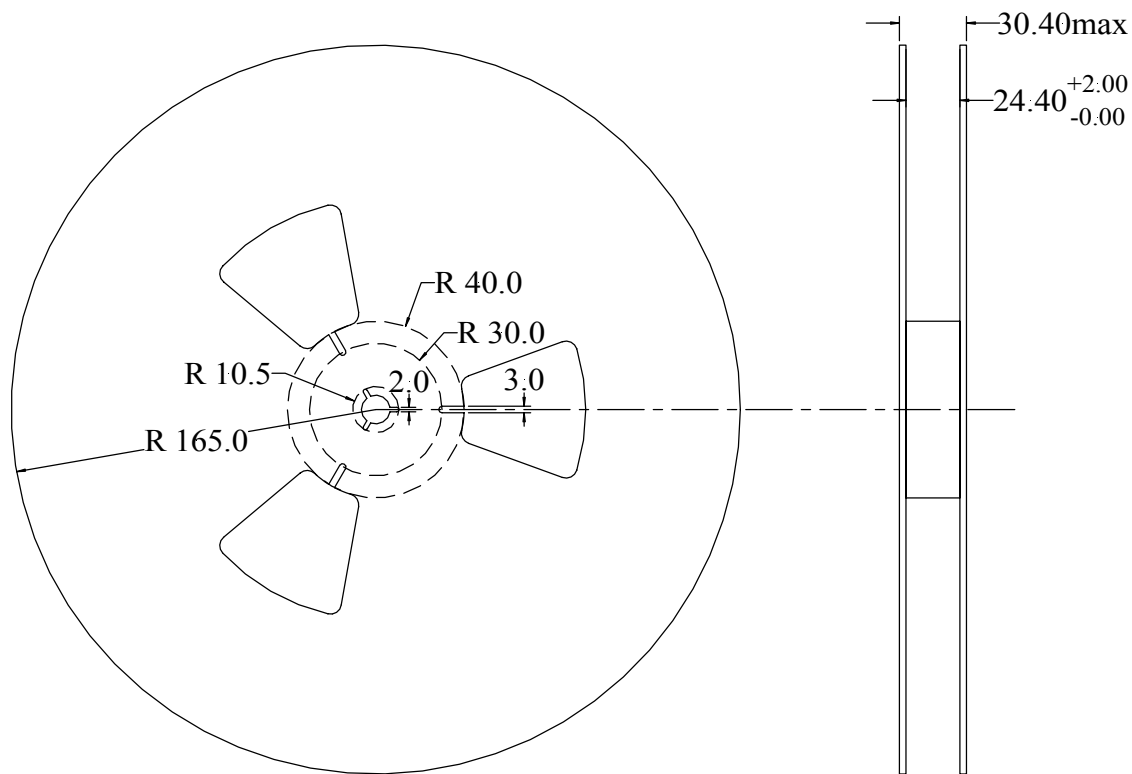


Fig.2. Dimensions of Reel [Unit:mm]

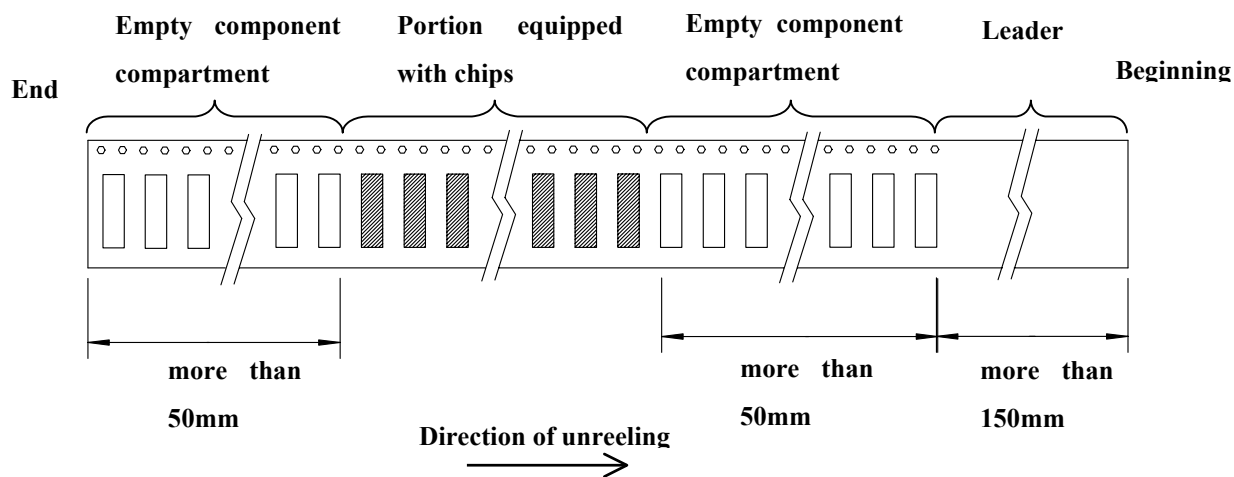


Fig.3. Structure of Taping