

规格书编号

SPEC NO : KH-SAWD1921A

# 产品规格书

# SPECIFICATION

CUSTOMER 客户: \_\_\_\_\_  
PRODUCT 产品: \_\_\_\_\_ SAW DUPLEXER \_\_\_\_\_  
MODEL NO 型号: \_\_\_\_\_ KH-SAWD1921A \_\_\_\_\_  
MARKING 印字: \_\_\_\_\_ ● 5 S \_\_\_\_\_  
PREPARED 编制: \_\_\_\_\_ CHECKED 审核: \_\_\_\_\_  
APPROVED 批准: \_\_\_\_\_ DATE 日期: \_\_\_\_\_ 2021-11-8 \_\_\_\_\_

客户确认 CUSTOMER RECEIVED:		
审核 CHECKED	批准 APPROVED	日期 DATE

深圳市金航标电子有限公司  
SHENZHEN KINGHELM ELECTRONCO., LTD.

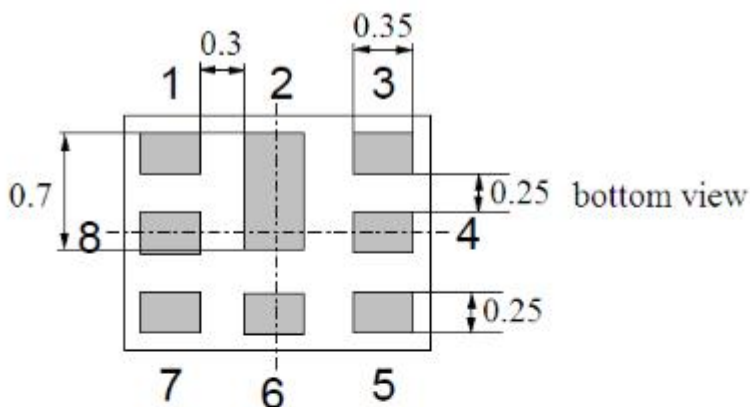
更改历史记录  
History Record

更改日期 Date	规格书编号 Spec. No.	产品型号 Part No.	客户产品型号 Customer No.	更改内容描述 Modify Content	备注 Remark
2021-7-12	SP01	KH-SAWD1921A		New design.  High power, High Isolation.	
2021-11-8	SP02	KH-SAWD1921A		Update test circuit and frequency response.	

1. Application

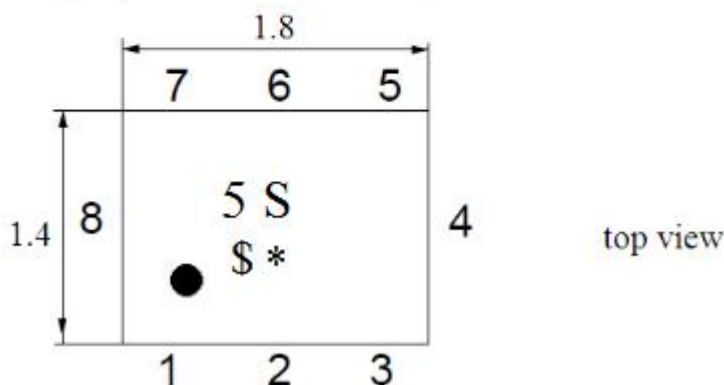
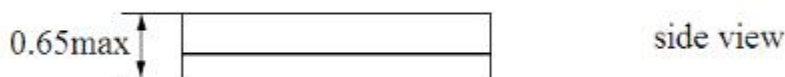
- Low-loss Saw duplexer for mobile telephone LTE and WCDMA Band1 systems.
- Low insertion attenuation and low passband ripple.
- Usable passband 60MHz
- High isolation between Tx and Rx.
- RoHS compatible

2. DIMENSION (PKG SIZE 1.8 x 1.4 x 0.65mm)



Pin configuration

- 3. Tx Input
- 6. Antenna
- 1. Rx Output
- 2,4,5,7,8 To be grounded



Marking: Laser Printing

- \$: EIAJ Code (Refer to the table 1)
- \*: Date Code (Refer to the table 2)

Table 1 \$: EIAJ Code

This rule of code is applied repeatedly every four year.

2019 2023 2027	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	A	B	C	D	E	F	G	H	J	K	L	M
2020 2024 2028	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	N	P	Q	R	S	T	U	V	W	X	Y	Z
2021 2025 2029	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	a	b	c̄	d	e	f	g	h	j	k	l	m
2022 2026 2030	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	n	o	p	q	r	s	t	u	v	w	x	y

Table 2 \*: Date Code

date	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	
code	A	B	C	D	E	F	G	H	J	K	
date	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	
code	L	M	N	P	Q	R	S	T	U	V	
date	21st	22nd	23rd	24th	25th	26th	27th	28th	29th	30th	31st
code	W	X	Y	Z	a	b	c	d	e	f	g

### 3. Maximum Rating

Items	Conditions
Operation temperature rang	-30°C ~ +85°C
Storage temperature rang	-40°C ~ +85°C
ESD voltage	ESD(MM) : 50VDC
Sensitive discharge device	ESD(HBM) : 175VDC
DC Voltage VDC	3V (25+/-2 deg.C)
Moisture Sensitivity Level	MSL 2

### 4. ELECTRICAL SPECIFICATION

Table1. Electrical Specification

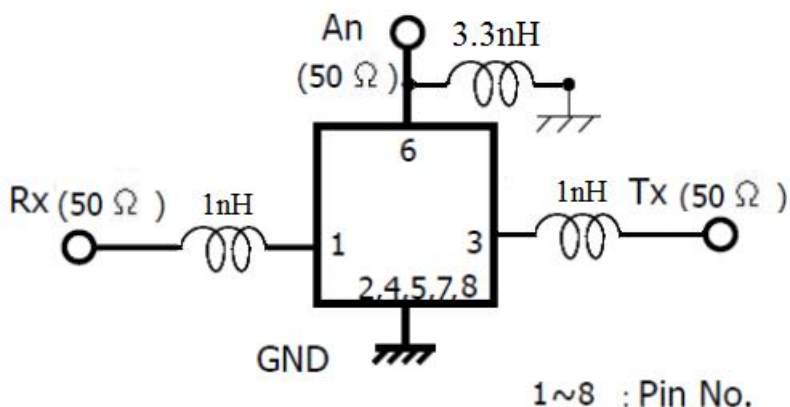
Item		Condition (MHz)	Specification			Unit	
			Min	Typ	Max		
TX	Insertion loss	1920~1980		1.7	2.0	dB	
	Pass band ripple	Any 5MHz in pass band	-	0.3	0.6	dB	
to ANT	VSWR	ANT	1920~1980	-	1.6	2.0	-
			Tx	-	1.6	2.0	-
	Input Power	1920~1980	+30dBm Ta=+50°C5000h,CW			-	
	Absolute attenuation	10~494	40	45	-	dB	
		814~894	35	45	-	dB	
		880~915	35	44	-	dB	
		925~960	35	43	-	dB	
		1226~1250	35	41	-	dB	
		1427.9~1462.9	35	42	-	dB	
		1475~1511	35	42	-	dB	
		1559~1606	40	45	-	dB	
		1805~1880	18	22	-	dB	
		2110~2170	45	49	-	dB	
		2300~2400	30	36	-	dB	
		2400~2500	28	36	-	dB	
		2620~2690	26	31	-	dB	
	3840~3960	20	24	-	dB		
	4900~5950	14	17	-	dB		

ANT to RX	Insertion loss		2110~2170	-	2.2	2.6	dB
	Pass band ripple		Any 5MHz in pass band		0.4	1.0	dB
	VSWR	ANT	2110~2170	-	1.8	2.2	-
		Rx		-	1.8	2.2	-
			10~718	50	56	-	dB
			718~748	40	55	-	dB
			814~849	40	54	-	dB
			880~915	40	52	-	dB
			1427~1463	39	47	-	dB
			1710~1785	35	44	-	dB
			1920~1980	44	52	-	dB
			2300~2400	35	40	-	dB
			2400~2500	35	40	-	dB
			2500~2570	35	40	-	dB
		4220~4340	30	37	-	dB	
		4900~5950	27	35	-	dB	

Table2. Electrical Specification

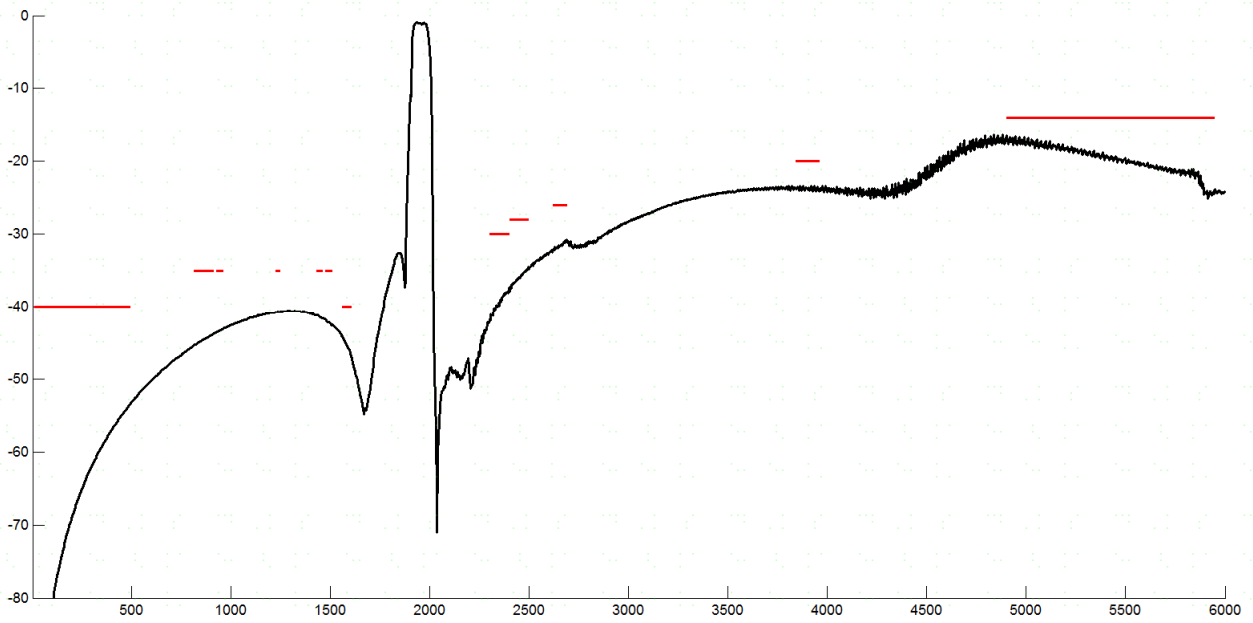
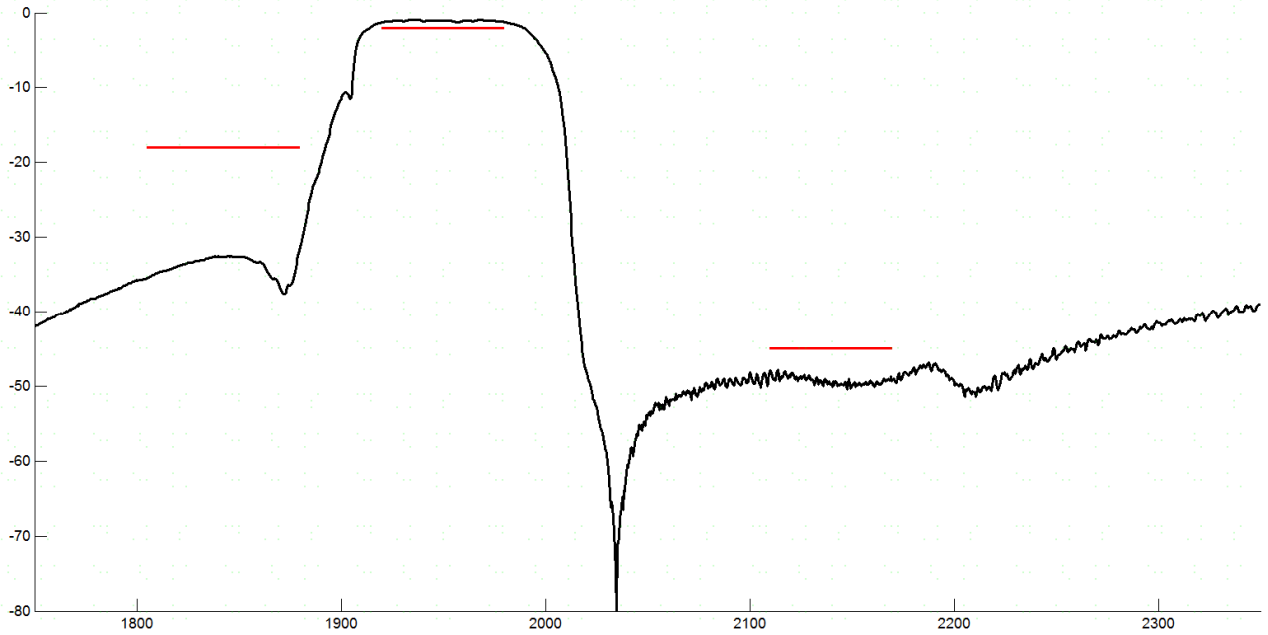
Item	Condition (MHz)	Specification			Unit
		Min	Typ	Max	
TX to RX	1574~1577	40	75	-	dB
	1920~1980	55	59	-	dB
	2110~2170	55	60	-	dB
	3830~3970	20	58	-	dB
	5750~5950	20	47	-	dB

5. TEST CIRCUIT



### 6. Typical frequency response

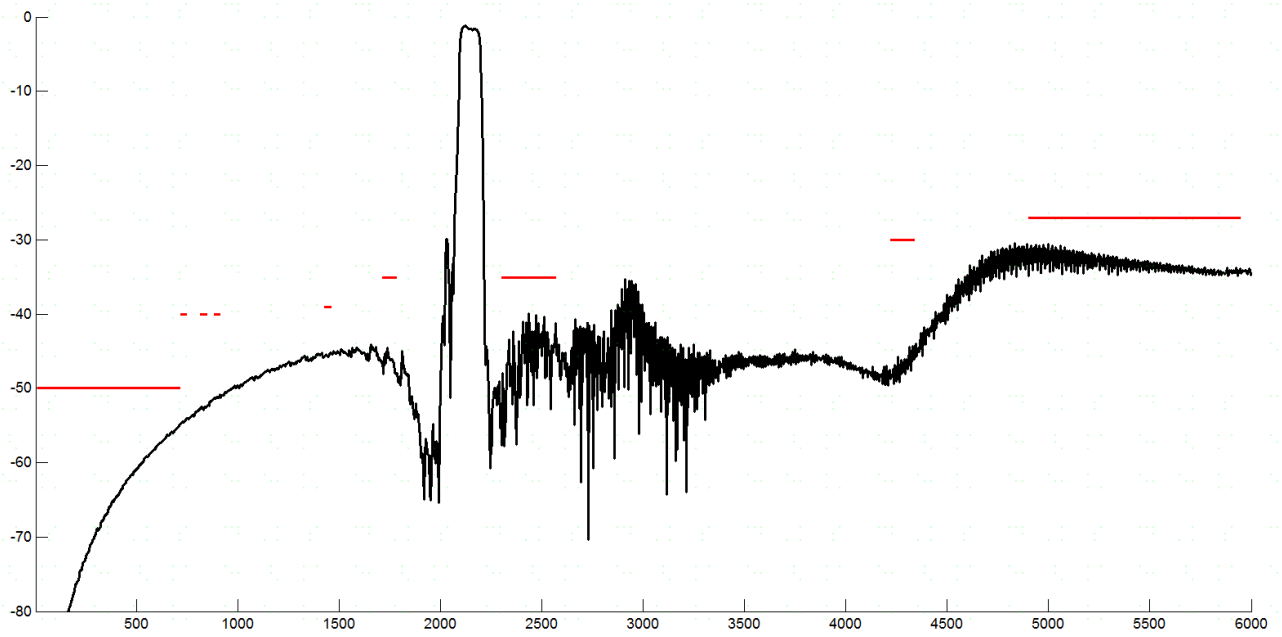
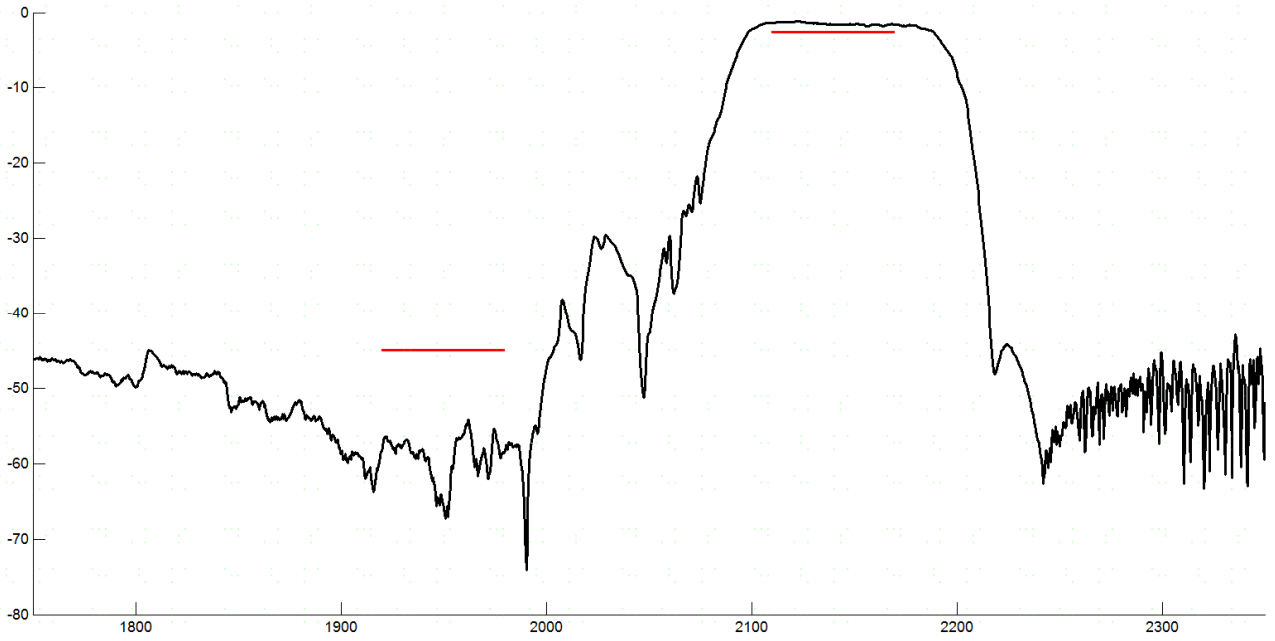
Tx to Ant



SAW DUPLEXER

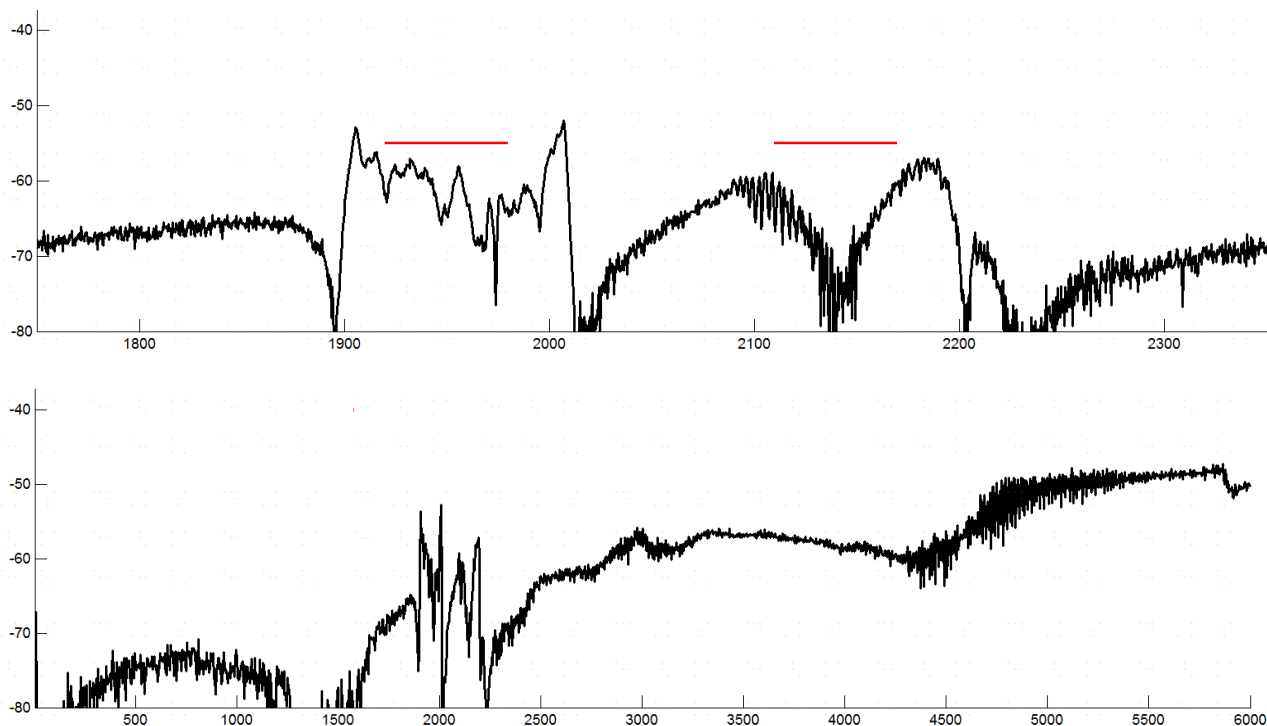
KH-SAWD1921A

Ant to Rx



**SAW DUPLEXER** **KH-SAWD1921A**

**Tx to Rx Isolation**



**7. Reliability test item & condition**

Category	Reliability test items	Test condition	Qty	Description	
Environment Test	1	Low temperature storage	-40±5℃ 240h	23	JESD22-A119
	2	High temperature storage	125±5℃ 240h	23	JESD22-A103E
	3	High temperature humidity	85℃ 85%RH, 240h	23	JESD22-A106B
	4	Thermal Shock	-40 /30min~ +85 °C/30 min 100 cycle	23	JESD22-A106A
Mechanical Test	5	Drop Test	152mm 12times Steel floor JIG(110g~150g)	23	IEC 1178-1.4.8.9
	6	Vibration	10~55Hz,amplitude 1.5mm Sweep time:1min, X.Y.Z direction, 2h/direction	23	IEC 1178-1.4.8.7
Physical Test	7	Soldering heat resistance	Reflow with 260±5℃, 10±1s (Solder Pot)	23	JIS C 5201 4.18
	8	Solderability test	235±5℃ 3 sec. (Solder Pot)	50	JIS C 5201 4.17
	9	Board adhesion	0.5mm/sec 1point push	11	IEC 68-2-21 Ue3
	10	Leak Hunting	125℃ Fluorocarbon oil leak Hunting (30±1)s	20	MIL-STD-883E 1014.9



## 8. REMARK

### 8.1 Static voltage

Static voltage between signal load & ground may cause deterioration & destruction of the component. Please avoid static voltage.

### 8.2 Ultrasonic cleaning

Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning

### 8.3 Soldering

Only pad component may be solded. Please avoid soldering another part of component.

## 9. Packing

### 9.1 Dimensions

(1) Carrier Tape: Figure 1

(2) Reel: Figure 2

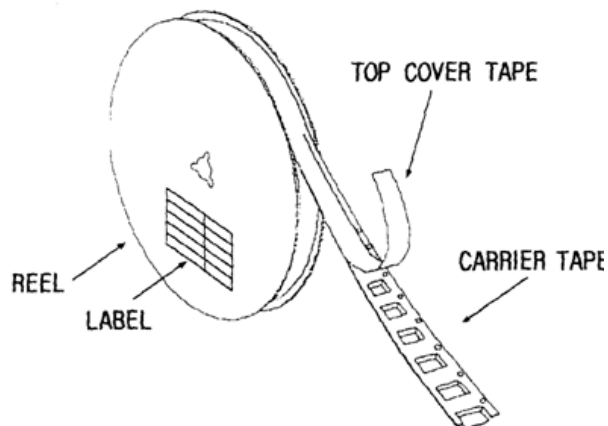
(3) The product shall be packed properly not to be damaged during transportation and storage.

### 9.2 Reeling Quantity

10000 pcs/reel  $\phi$  257.5mm

### 9.3 Taping Structure

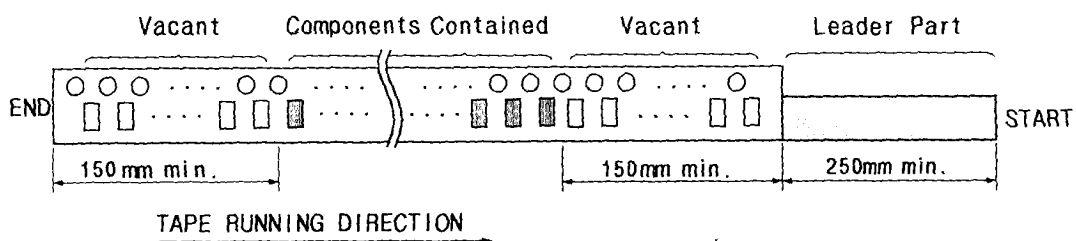
(1) The tape shall be wound around the reel in the direction shown below.



(2) Label

Device Name	
Marking	
User Product Name	
Quantity	
Lot No.	

(3) Leader part and vacant position specifications.

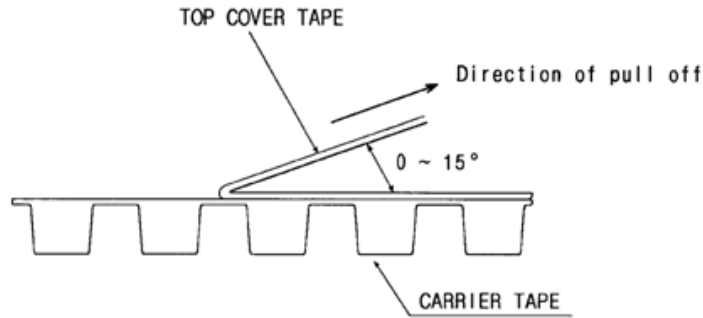


## 10. TAPE SPECIFICATIONS

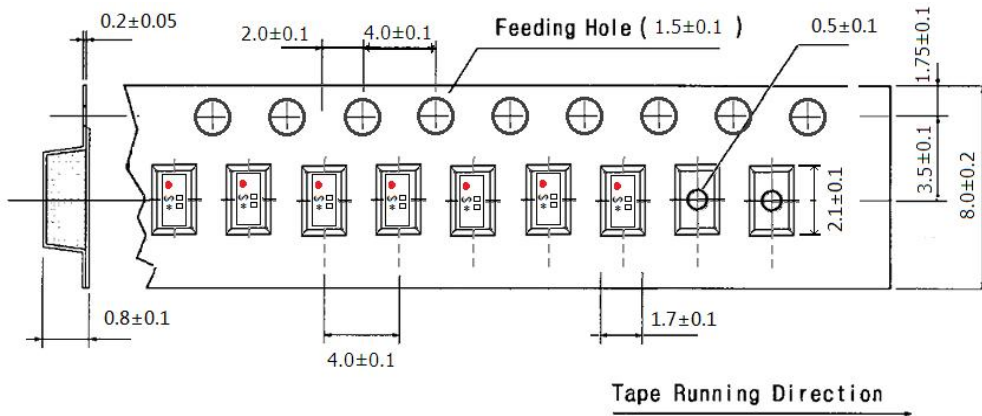
10.1 Tensile Strength of Carrier Tape: 4.4N/mm width

10.2 Top Cover Tape Adhesion (See the below figure)

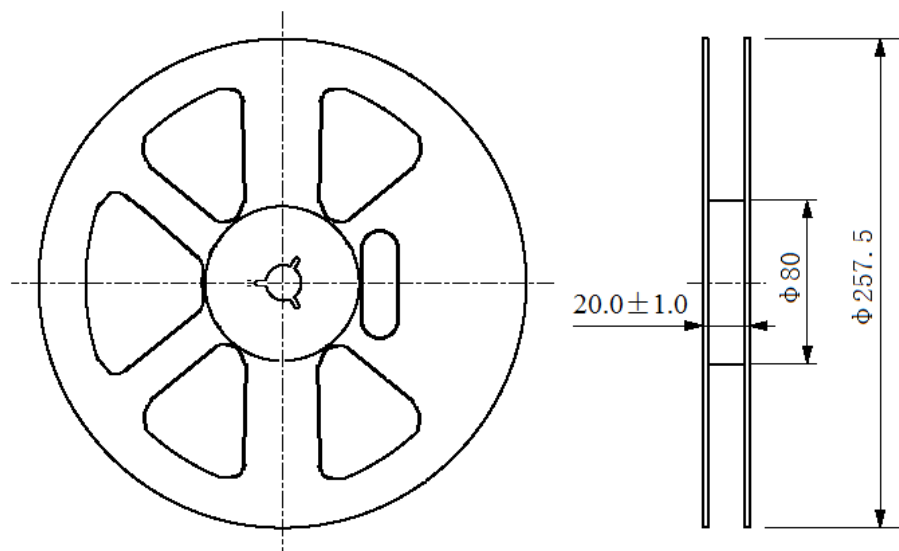
- (1) pull off angle: 0~15°
- (2) speed: 300mm/min.
- (3) force: 20~70g



[Figure 1] Carrier Tape Dimensions



[Figure 2] 10000 pcs/reel  $\phi$  257.5mm



$\phi$  257.5 Reel Dimension

(in mm)