



SPECIFICATION

Surface Acoustic Wave Filter

USER

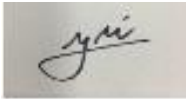


USER PART No.

WISOL PART No. **SFX897FYT02**

DOC. No. SMS-51-L-SFT FX-212

DATE December 6, 2018

REVISION 000

WISOL					
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1. REVISION HISTORY

000	December 6, 2018	All Page	Make specification
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2. DEFINITION

2-1. PART No.

SFX897FYT02

① ② ③ ④ ⑤ ⑥

No.	EXPLANATION
①	SAW Filter
②	Design Type
③	Center Frequency : Tx 897.5MHz (880 ~ 915MHz)
④	Input:50ohm,Output:50ohm
⑤	Package size: 1.8×1.4mm ²
⑥	Design Revision (02 : Molding Type)

2-2. APPLICATION : LTE B8 Duplexer

2-3. SPEC

ESD Level HBM=300V

3. PRECAUTIONS

3-1. This device should not be used in any type of fluid such as water, oil, organic solvent, etc.

3-2. This is a hermetic device.

MSL(Moisture Sensitive Level) is the '2a' level.

3-3. Ultrasonic cleaning shall be avoided.

3-4. Isopropyl Alcohol and Ethyl Alcohol can be used for cleaning. Contact us before using other cleaning solvents than above

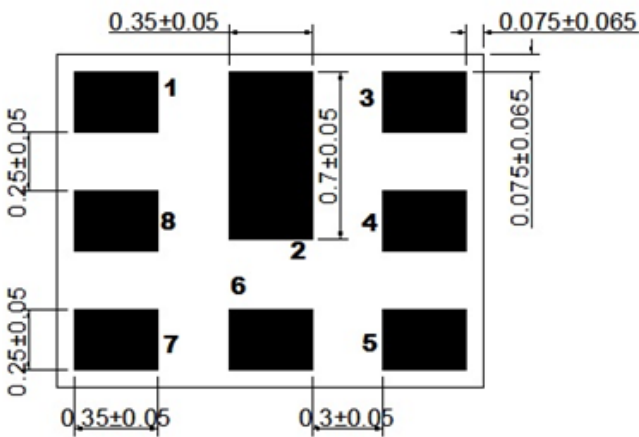
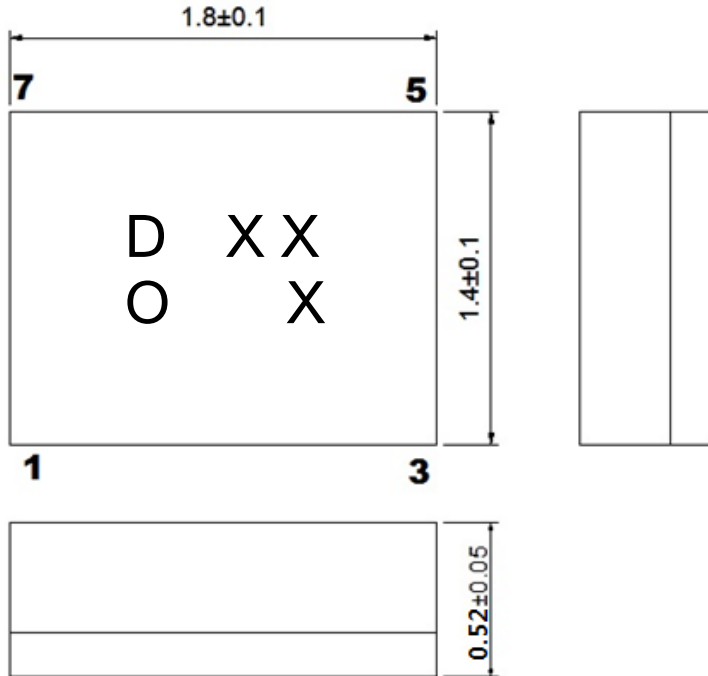
3-5. This is an electrostatic sensitive device.

Please avoid static voltage during operation and storage.

3-6. Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.

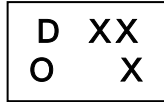
3-7. If any malfunction due to designing or manufacturing which is out of specification occurs within one year after the products have been delivered, the maker should exchange the defective products.

4. OUTLINE DRAWING & DIMENSIONS



No.	Function
1	Rx Output
3	Tx Input
6	Antenna
2, 4, 5, 7, 8	GND

5. MARKING



5-1. D XX X

- The 1st character 'D' indicates the model name of SAW Filter SFX897FYT02.
- The 2nd character 'X' indicates the year and the month of manufacture..

Year	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
2017	1	2	3	4	5	6	7	8	9	A	B	C
2018	D	E	F	G	H	I	J	K	L	M	N	O
2019	P	Q	R	S	T	U	V	W	X	Y	Z	a
2020	1	2	3	4	5	6	7	8	9	A	B	C

※ This rotates by the 3 years.

- The 3rd, 4th character 'X' indicates Lot No.

5-2. ○

- This symbol indicates input pin 1.
- This indicates the producing center
 - : China

5-3. Marking : Laser Marking

6. PERFORMANCE

6-1. MAXIMUM RATINGS

CHARACTERISTICS	RATINGS	UNITS	NOTES
DC Permissive Voltage	5	V	
Maximum Input Power	30	dBm	CW, 55°C, 5000hr
Operating Temperature Range	- 20 ~ + 85	°C	°C
Storage Temperature Range	- 40 ~ + 85	°C	°C

6-2. ELECTRICAL CHARACTERISTICS
6-2-1. TABLE

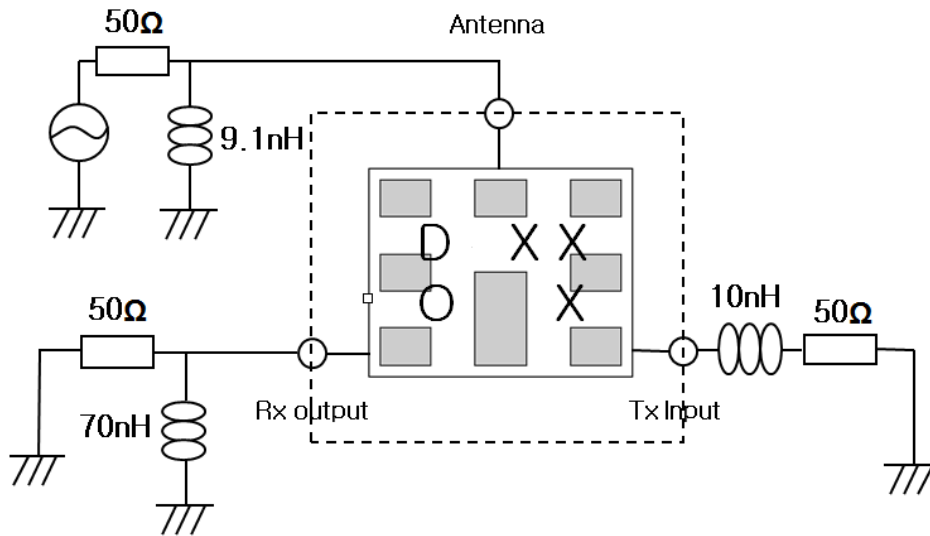
Ta = -20 ~ +85°C

*1. PCB loss is de-embedded.

Item	CONDITION [MHz]	UNIT	RATING			Note
			Min.	Typ.(25°C)	Max.	
TX → ANTENNA						
Insertion Loss(*1)	880 ~ 915	dB		2.0	2.7	Over Temp
	880 ~ 915	dB		2.0	2.5	+23 to +27°C
	882.5 ~ 912.5	dBINT		1.7	2.5	Any 4.5MHz
Inband Ripple	880 ~ 915	dB		1.0	2.5	
VSWR	880 ~ 915	-		1.8	2.2	
	880 ~ 915	-		1.8	2.2	
Absolute Attenuation	10 ~ 716	dB	25	30		
	925 ~ 960	dB	33	50		Over. Temp. Rx
	925 ~ 960	dB	40	50		+23 to +27°C Rx
	1559 ~ 1563	dB	35	43		
	1565 ~ 1573	dB	35	43		
	1573 ~ 1577	dB	35	43		
	1760 ~ 1840	dB	40	49		
	2110 ~ 2170	dB	40	45		
	2400 ~ 2500	dB	40	44		
2620 ~ 2745	dB	39	44			
Termination Impedance : Tx / ANT			50Ω(+ 10[nH]) / 50Ω(// 9.1[nH])			
ANTENNA → RX						
Insertion Loss(*1)	925 ~ 960	dB		2.4	3.6	Over Temp
	925 ~ 960	dB		2.4	2.7	+23 to +27°C
	927.5 ~ 957.5	dBINT		1.9	2.7	Any 4.5MHz
Inband Ripple	925 ~ 960	dB		1.1	2.5	
VSWR	925 ~ 960	-		1.8	2.5	
	925 ~ 960	-		1.8	2.5	
Absolute Attenuation	10 ~ 880	dB	50	56		
	880 ~ 915	dB	45	56		Over Temp. Tx
	880 ~ 915	dB	50	56		+23 to +27°C Tx
	1805 ~ 1920	dB	50	63		
	1920 ~ 1980	dB	40	45		
	2400 ~ 2500	dB	40	50		
	2500 ~ 2570	dB	40	45		
Termination Impedance : ANT / Rx			50Ω(// 9.1[nH]) / 50Ω(// 70[nH])			

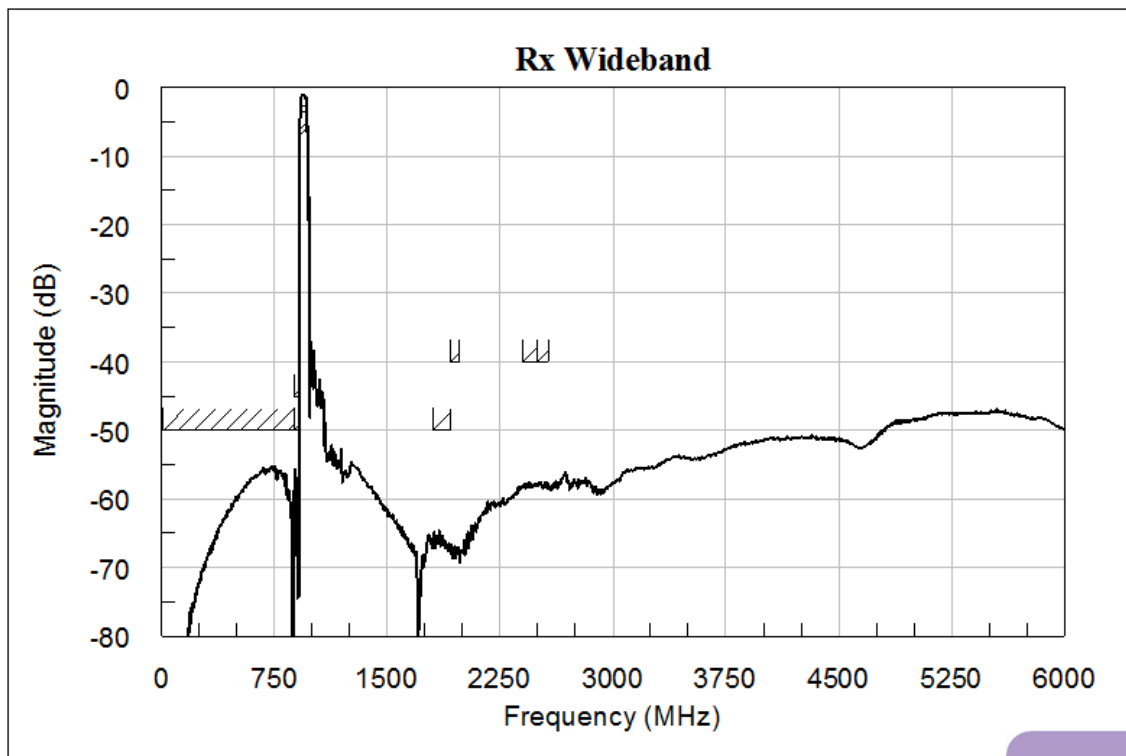
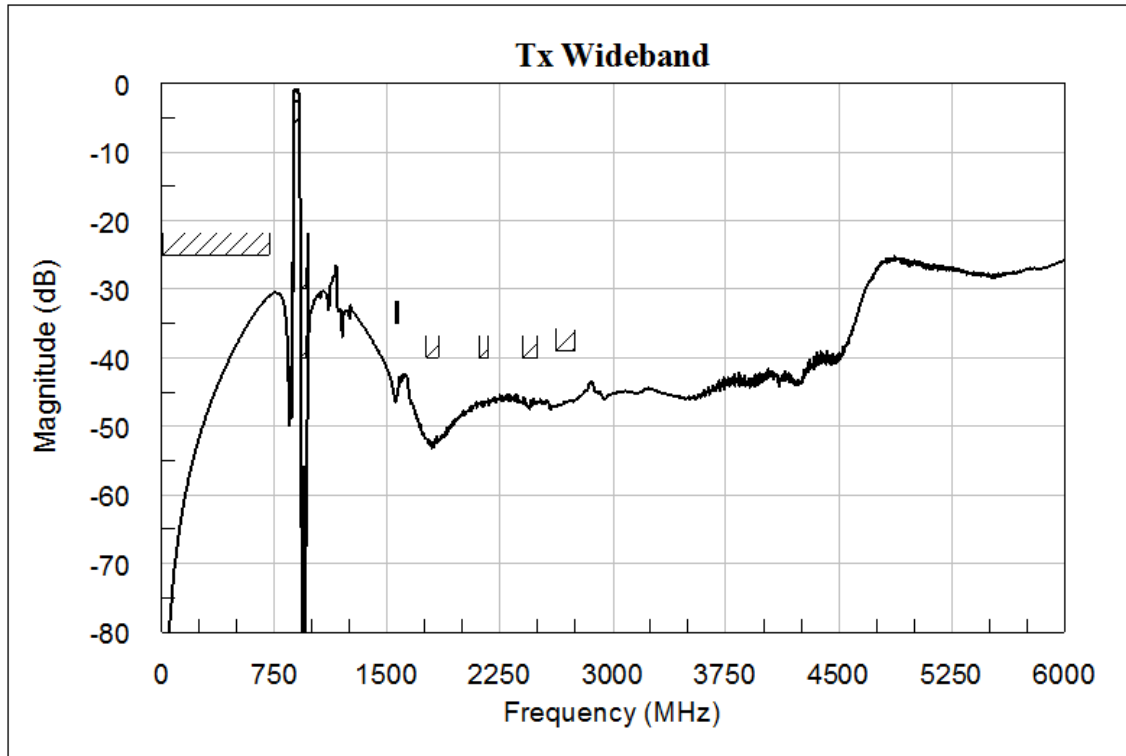
TX → RX						
Isolation between Rx and Tx	882.5 ~ 912.5	dBINT	55	58		Any 4.5MHz, Tx
	927.5 ~ 957.5	dBINT	50	58		Any 4.5MHz, Rx

6-2-2. TEST FIXTURE

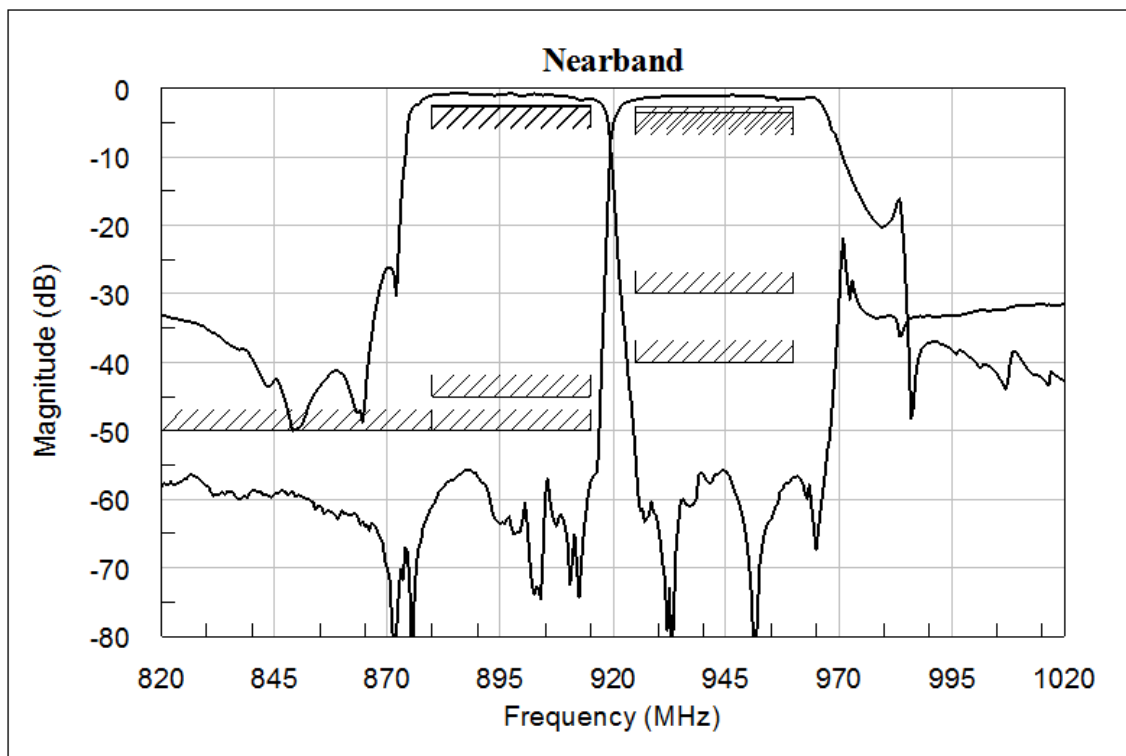
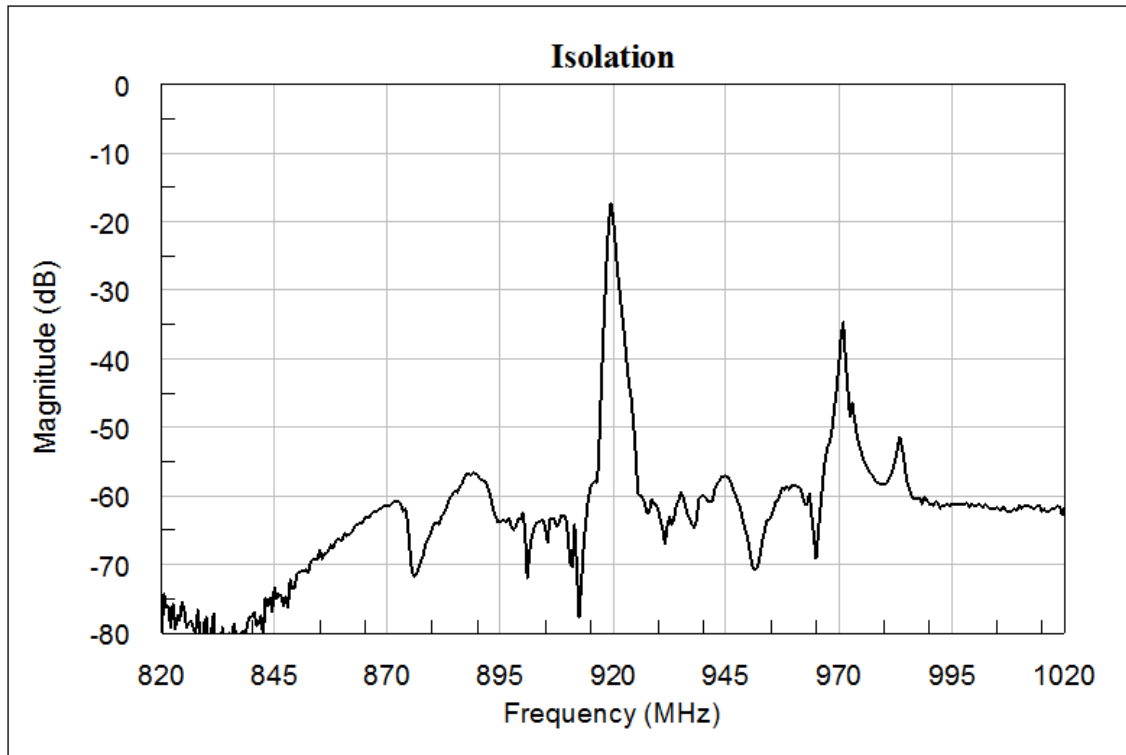


<Top View>

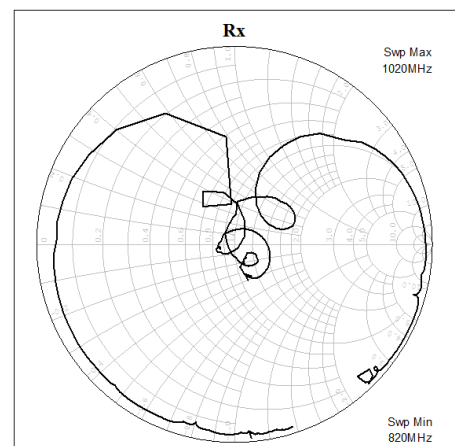
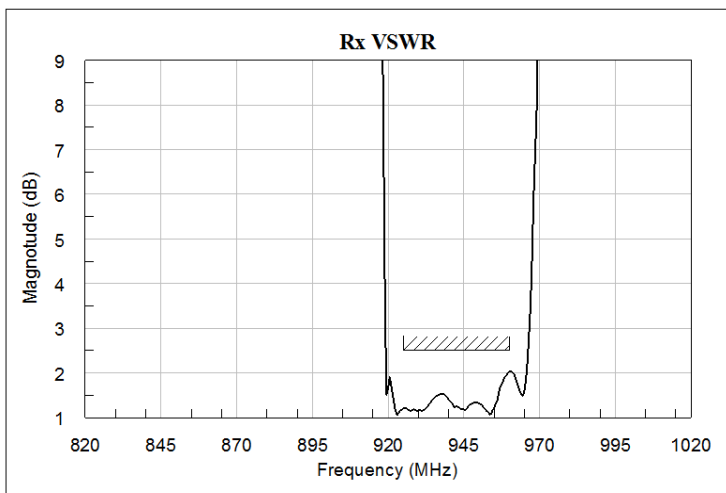
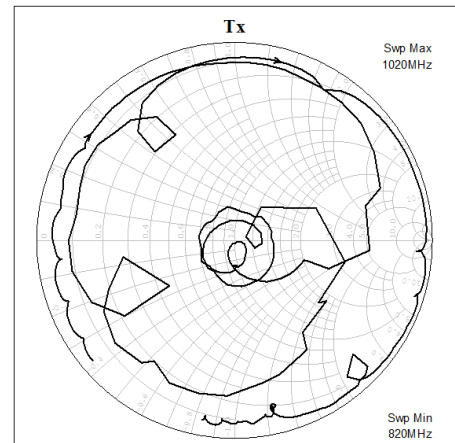
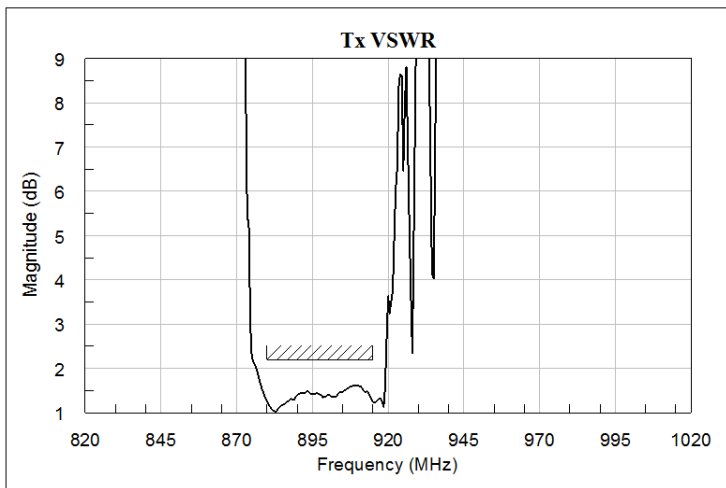
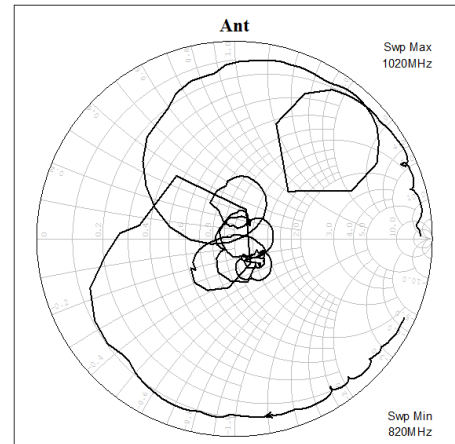
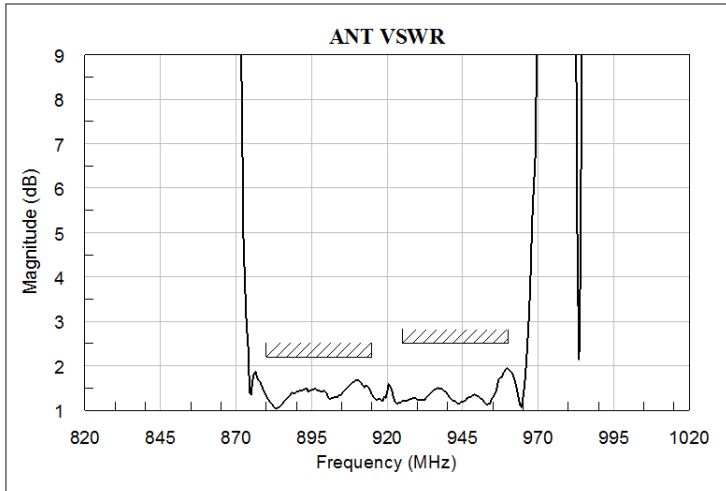
6-2-3. GRAPH



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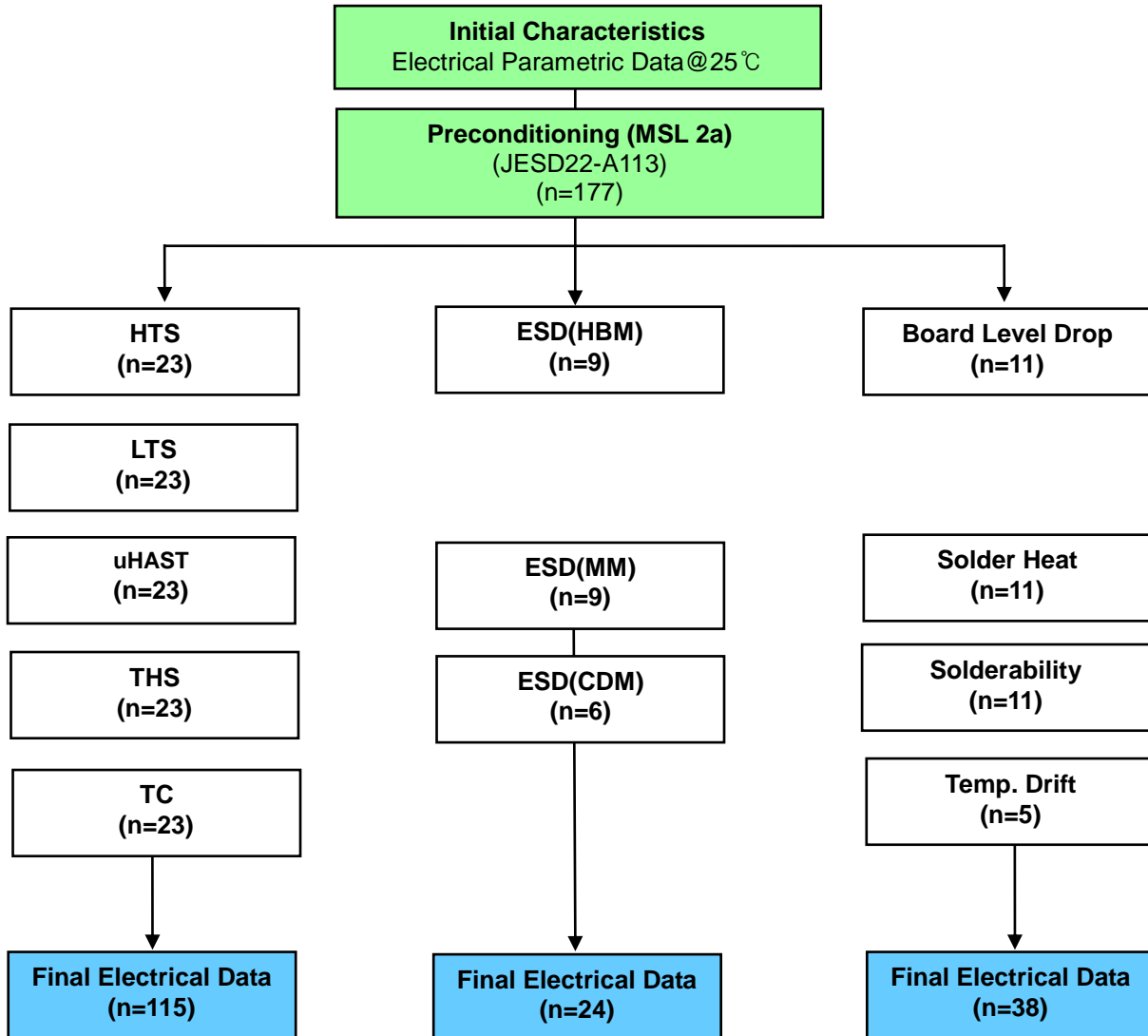


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7. RELIABILITY

7-1. ENGINEERING SAMPLE FLOW CHART



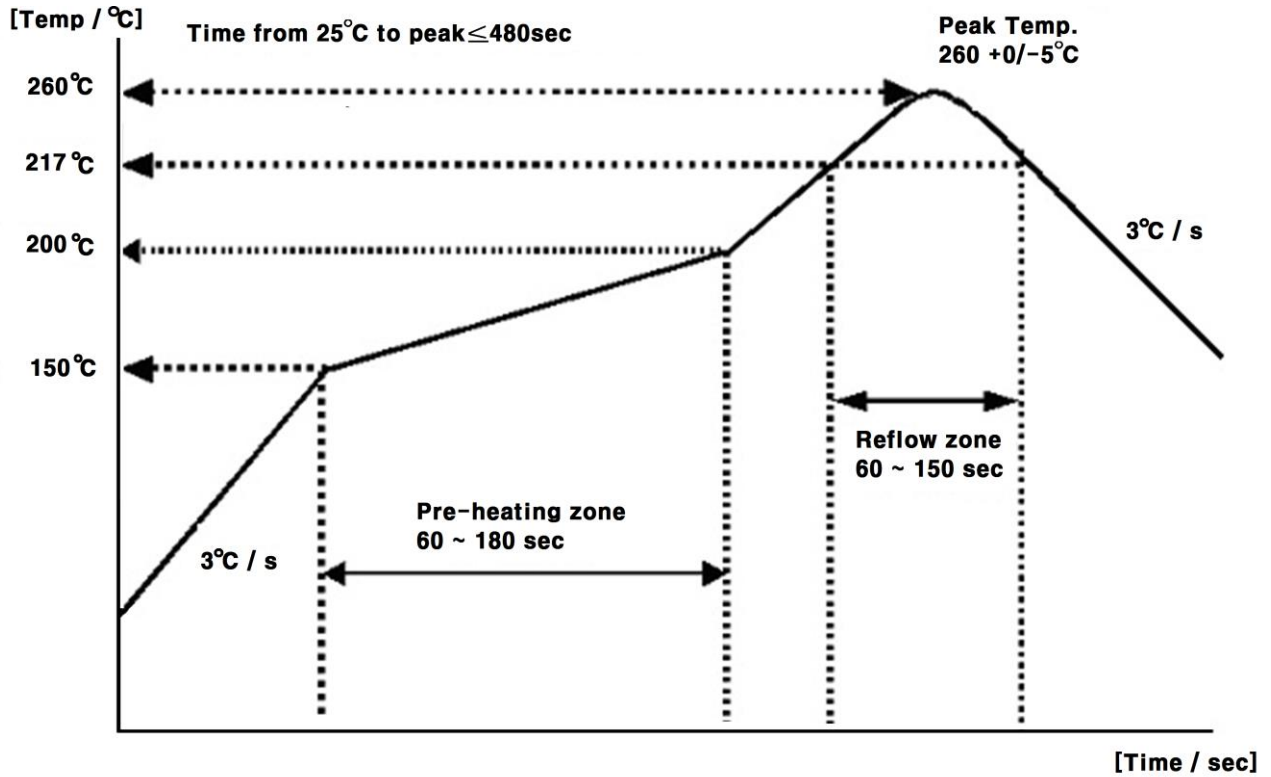
7-2. TEST ITEM & CONDITION

CATEGORY	TEST ITEM	TEST CONDITION	REMARK
Preconditioning		Bake + Soak(MSL or above) + 3X Reflow duration (Soak 60°C 60% 120HR)	JESD22-A113



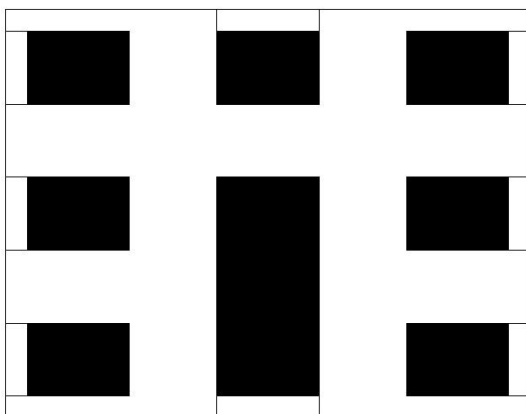
TEST ITEM	REMARK	TEST CONDITION	Duration
HTS (High Temperature Storage)	JESD22-A103	condition A +125(-10/+0)°C	1000hr
LTS (Low Temperature Storage)	JESD22-A119	condition A -40(-10/+0)°C	1000hr
uHAST (Unbiased HAST)	JESD22-A118	condition A 130±2°C, 85±5%, 33.3psi	96hr
THS (Temperature Humidity Storage)	JESD22-A101	85±2°C, 85±5% RH	1000hr
TC (Temperature Cycle)	JESD22-A104	condition B (-55°C⇔ +125°C) Soak mode 4 (30min)	500cycle
ESD(HBM)	JESD22-A114	200V, 250V, 300V	All pin 1sec 1time
ESD(MM)	JESD22-A115	100V 150V 200V	All pin 1sec 1time
ESD(CDM)	JESD22-C101	1.0KV, 1.2KV	All pin 1sec 1time
Board Level Drop Test	-	120 cm, 152 cm	12times 19times
Solder Heat Resistance	JESD22-B106C	260°C Solder Pore Dipping	10sec
Solderability	JESD22-B102E	235°C Solder Pore Dipping	3sec
Temp Drift		-40°C => 25°C => 125°C	조건당 2HR

8. REFLOW CONDITION

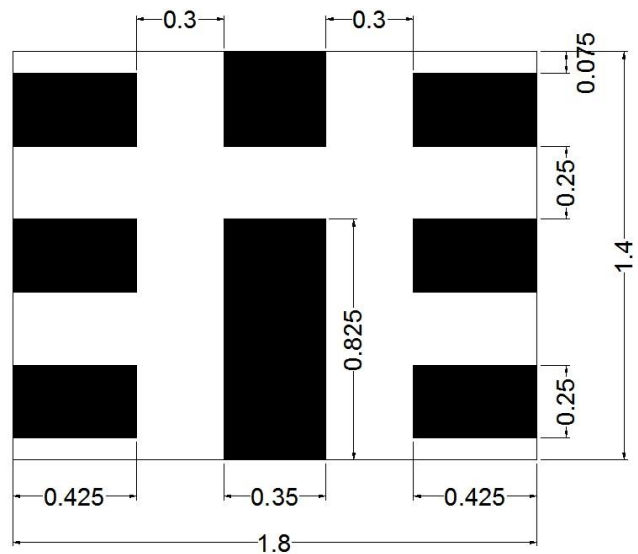


9. RECOMMENDED PCB DIMENSIONS

[unit : mm]



[SAW, X-ray Top view]



[PCB, X-ray Top view]

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10. CAUTION

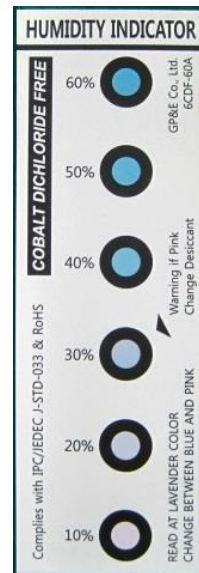
Moisture Sensitivity Device Caution (MSL LEVEL=2a)

1. Calculated shelf life in sealed bag : 12 month at < 40°C and < 90% relative Humidity(RH)
 2. Peak package body temperature : **260°C**
 3. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must be
 - (a) Mounted within : 672 hours of factory conditions ≤30°C/60% RH, or
 - (b) Stored per J-STD-033
 4. Device require bake, before mounting, if :
 - (a) Humidity Indicator Card reads > 60% when read at 23±5°C
 - (b) 3(a) or 3(b) are not met
 5. If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure
- Note : Level and body temperature defined by IPC/JEDEC J-STD-020

Aluminum Pack (310mmX370mm)



HIC(Humidity Indication Card)

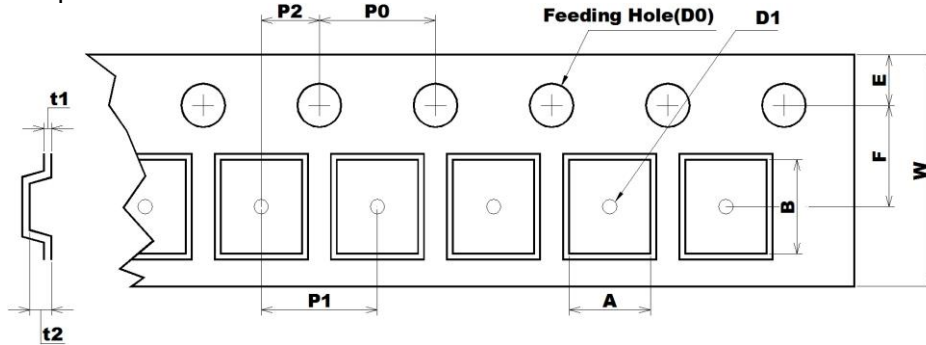


10 to 60% RH

11. PACKING

11-1. DIMENSIONS

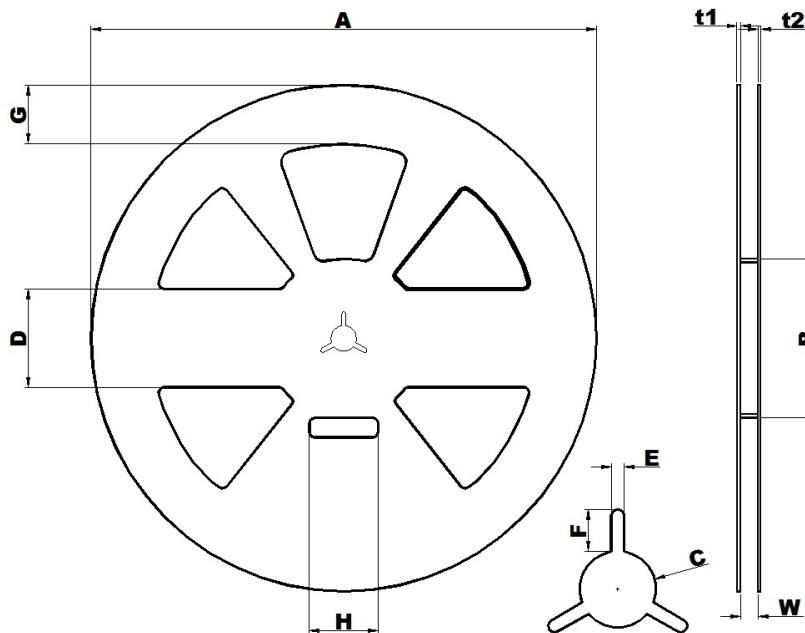
- Carrier Tape



[Unit: mm]

A	B	D0	D1	E	F	P0	P1	P2	t1	t2	W
1.60	2.00	Ø1.55	Ø1.00	1.75	3.50	4.00	4.00	2.00	0.25	0.80	8.00
0.05	0.05	0.05	MIN	0.10	0.05	0.10	0.10	0.05	0.05	0.05	0.10
-0.05	-0.05	-0.05	-	-0.10	-0.05	-0.10	-0.10	-0.05	-0.05	-0.05	-0.10

- Reel



[Unit: mm]

A	B	C	D	E	F	G	H	t1	t2	W
Ø258.0	Ø81.0	Ø13.0	50.0	2.2	7.0	30.0	35.0	1.8	1.5	9.0
+1.0	+1.0	+0.5	+0.8	+0.3	+0.5	+0.8	+1.0	+0.5	+0.5	+1.0
-0.5	-1.0	-0.5	-0.8	-0.3	-0.5	-0.8	-1.0	-0.5	-0.5	-0.5

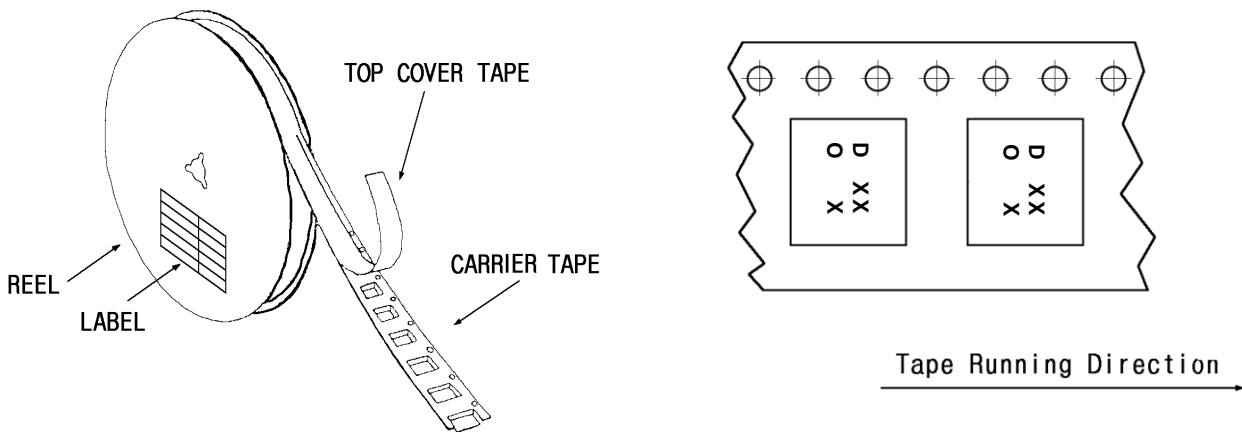
- The product shall be packed properly not to damaged during transportation and storage.


11-2. REELING QUANTITY

10 inch reel : 8,000 pcs/reel

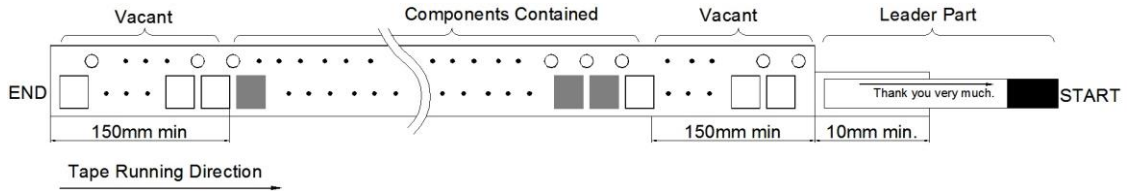
11-3. TAPING STRUCTURE

11-3-1. The tape shall be wound around the reel in direction shown below.


11-3-2. BARCODE LABEL

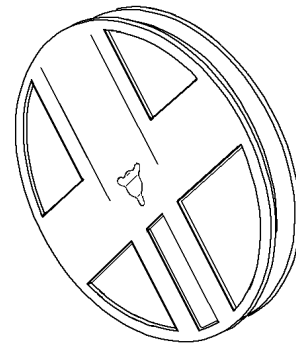
	① MODEL NAME BARCODE
	② Model Name
	③ Reel number
	④ Quantity / Marking

1-3-3. Leader part and vacant position specifications.

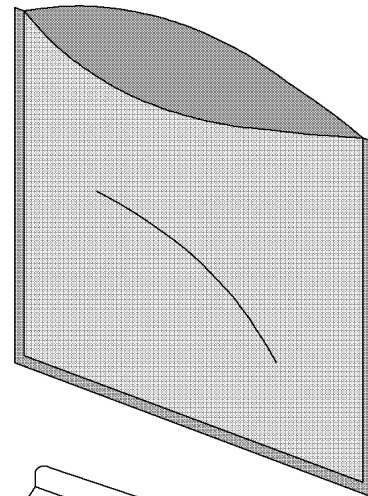


11-4. INNER BOX(Reel Packing) STRUCTURE

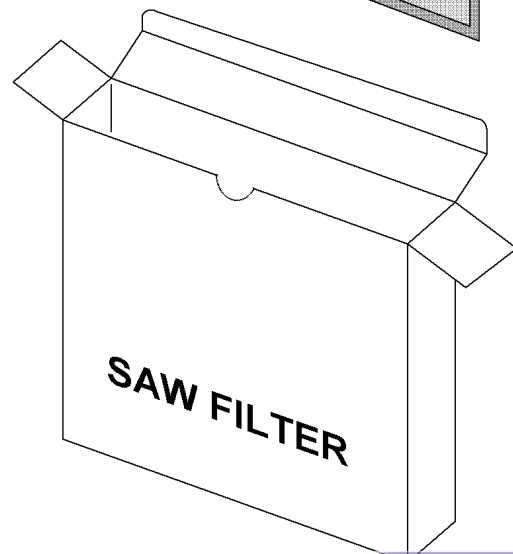
Material: Polycarbonate



Material : Polyethylene + Aluminium
Size : 310×370mm²



Material : Paper
Size: (D)260×(W)37×(H)265mm³

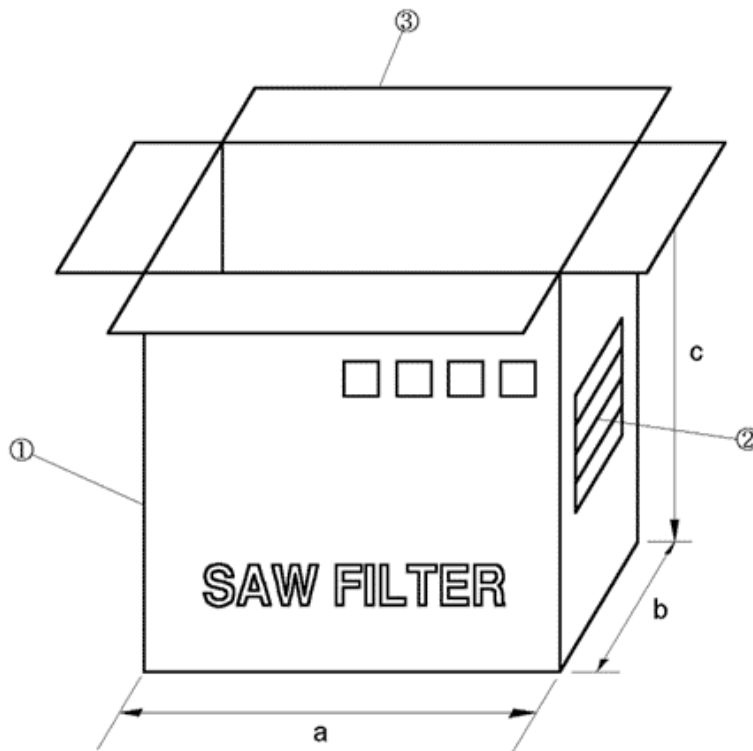


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11-5. OUTER BOX STRUCTURE

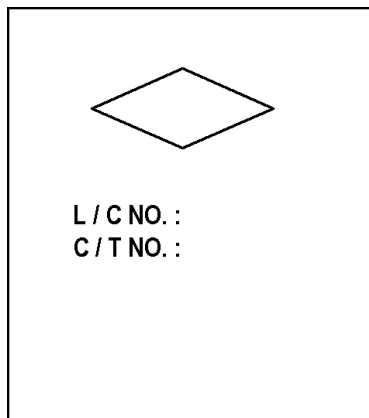
Material : Paper

TYPE	SIZE(mm)			Inner Box #
	a	b	c	
A	270	240	275	6 boxes



SIDE ①

SIDE ②



MODEL	
Q'TY	EA
USER	
DATE	. .

- SIDE is the same as front side.

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12. TAPE SPECIFICATIONS

12-1. Tensile Strength of Carrier Tape: 4.4N/mm width

12-2. Top Cover Tape Adhesion (See the below figure)

- pull of angle: 0~15 degree
- speed: 300mm/min.
- force: 20~70g

