



SPECIFICATION

Surface Acoustic Wave Filter

USER




USER PART No.

SEMCO PART No. **SFHG00YA002**

DOC. No. **SMS-51-L-SFT FX-35**

DATE **July 9, 2013**

REVISION **Preliminary**

| | | | | | |
|--------------|---|----------------------|--|---------------------|--|
| WISOL | | | | | |
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1. REVISION HISTORY

| | | | |
|-------------|--------------|----------|--------------------|
| Preliminary | July 9, 2013 | All Page | Make specification |
|-------------|--------------|----------|--------------------|

2. DEFINITION

2-1. PART No.

SFHG00YA002

① ② ③ ④ ⑤ ⑥

| No. | EXPLANATION |
|-----|--|
| ① | SAW Filter |
| ② | Design Type |
| ③ | Center Frequency :1900.0MHz(1880 ~ 1920) |
| ④ | Input:50ohm,Output:100ohm |
| ⑤ | Package size: 1.1×0.9mm ² |
| ⑥ | Design Revision (02 : Molding Type) |

2-2. APPLICATION : Band-Pass Filter for TDSCDMA LTE B39 Rx Balanced

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.

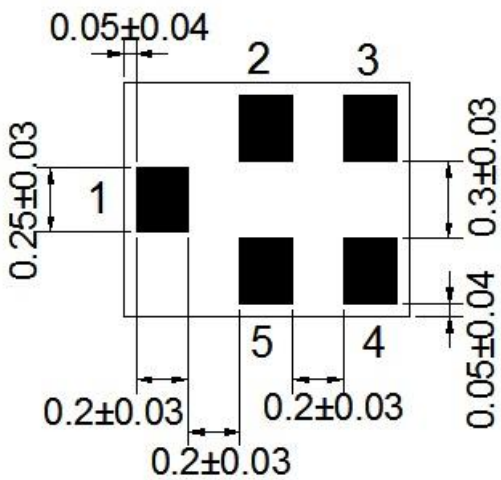
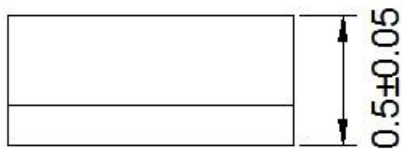
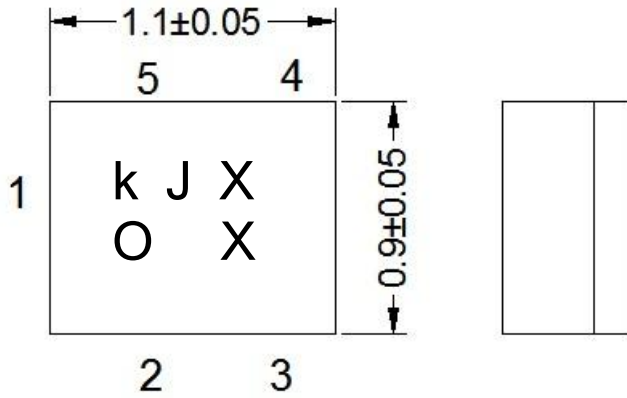
Please avoid static voltage during operation and storage.

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.

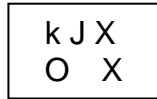
4. OUTLINE DRAWING & DIMENSIONS

[Unit: mm]



| No. | Function |
|------|------------------|
| 2, 5 | Ground |
| 1 | Unbalanced Input |
| 3,4 | Balanced Output |

5. MARKING



5-1. k J X X

- The 1st 2nd character 'kJ' indicates the model name of SAW Filter SFHG00YA002.
- The 3rd character 'X' indicates the year and the month of manufacture.

| Year | Month | | | | | | | | | | | |
|------|-------|---|---|---|---|---|---|---|---|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2013 | P | Q | R | S | T | U | V | W | X | Y | Z | a |
| 2014 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C |
| 2015 | D | E | F | G | H | I | J | K | L | M | N | O |
| 2016 | P | Q | R | S | T | U | V | W | X | Y | Z | a |

※ This rotates by the 3 years.

- The 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

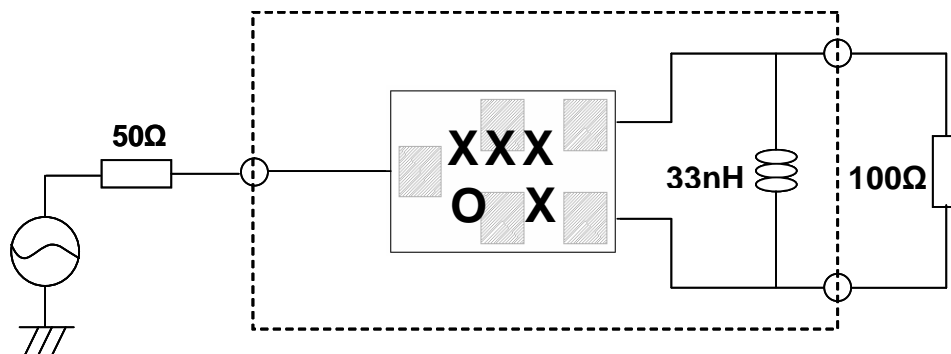
6-1. MAXIMUM RATINGS

| CHARACTERISTICS | RATINGS | UNITS |
|-----------------------------|------------|-------|
| DC Permissive Voltage | 5 | V |
| Maximum Input Power | 15 | dBm |
| Operating Temperature Range | - 30 ~ +85 | °C |
| Storage Temperature Range | - 40 ~ +85 | °C |

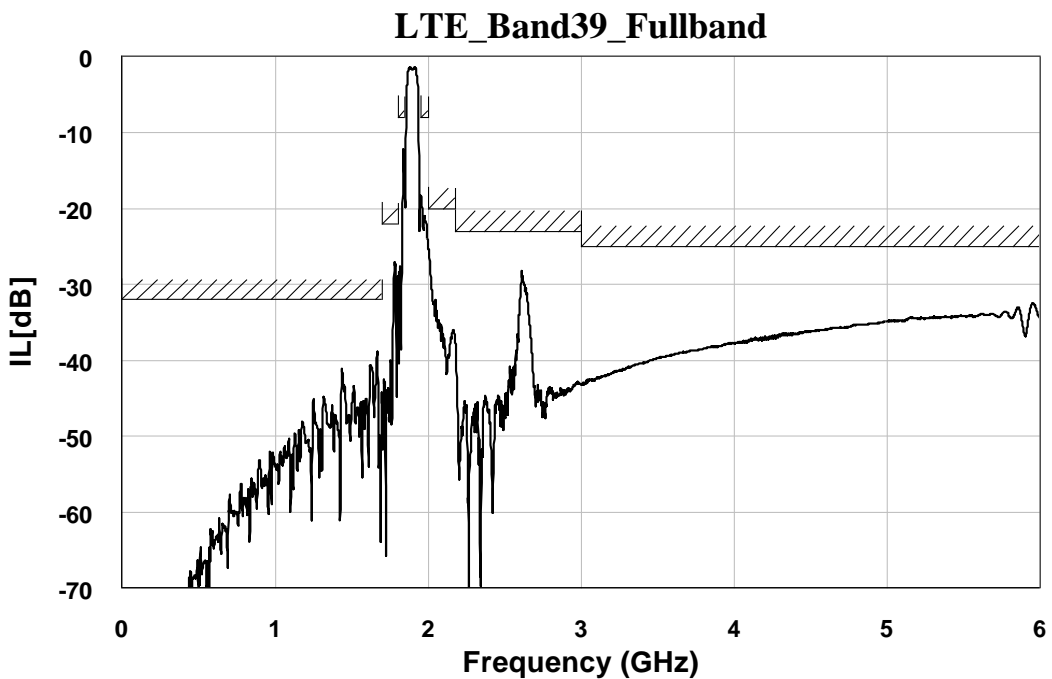
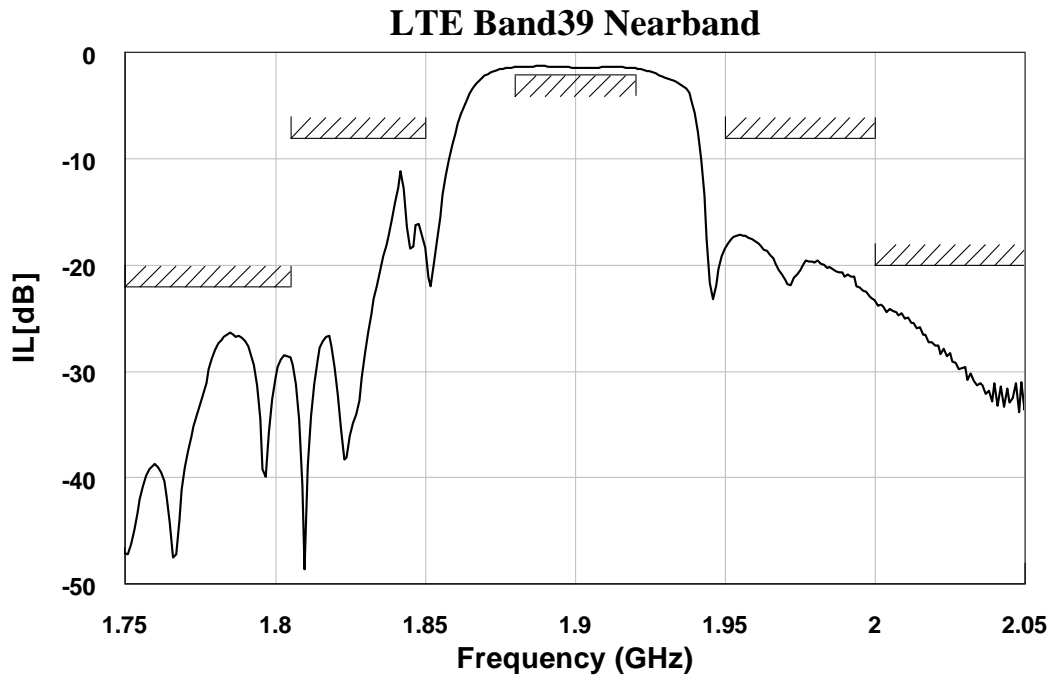
6-2. ELECTRICAL CHARACTERISTICS
6-2-1. TABLE

Ta = - 30 ~ +85°C

| Item | FREQUENCY RANGE [MHz] | UNIT | SPECIFICATION | | |
|-----------------------|--------------------------|---|---------------|----------------|------|
| | | | Min. | Typ. (25°C) | Max. |
| Insertion Loss | 1880 ~ 1920 | dB | - | 1.4 | 2.1 |
| Inband Ripple | 1880 ~ 1920 | dB | - | 0.2 | 0.9 |
| Input VSWR | 1880 ~ 1920 | - | - | 1.4 | 2.0 |
| Output VSWR | 1880 ~ 1920 | - | - | 1.6 | 2.0 |
| Amplitude Imbalance | 1880 ~ 1920 | dB | -2.0 | - | +2.0 |
| Phase Imbalance | 1880 ~ 1920 | degree | -20 | - | +20 |
| Absolute Attenuation | DC ~ 1700 | dB | 32 | 39 | - |
| | 1700 ~ 1805 | dB | 22 | 27 | - |
| | 1805 ~ 1850 | dB | 8 | 12 | - |
| | 1950 ~ 2000 | dB | 8 | 18 | - |
| | 2000 ~ 2175 | dB | 20 | 24 | - |
| | 2175 ~ 3000 | dB | 23 | 28 | - |
| | 3000 ~ 6000 | dB | 25 | 33 | - |
| Termination Impedance | | Input: Unbalanced 50 Ohm Output: Balanced 100Ohm // 33nH | | | |

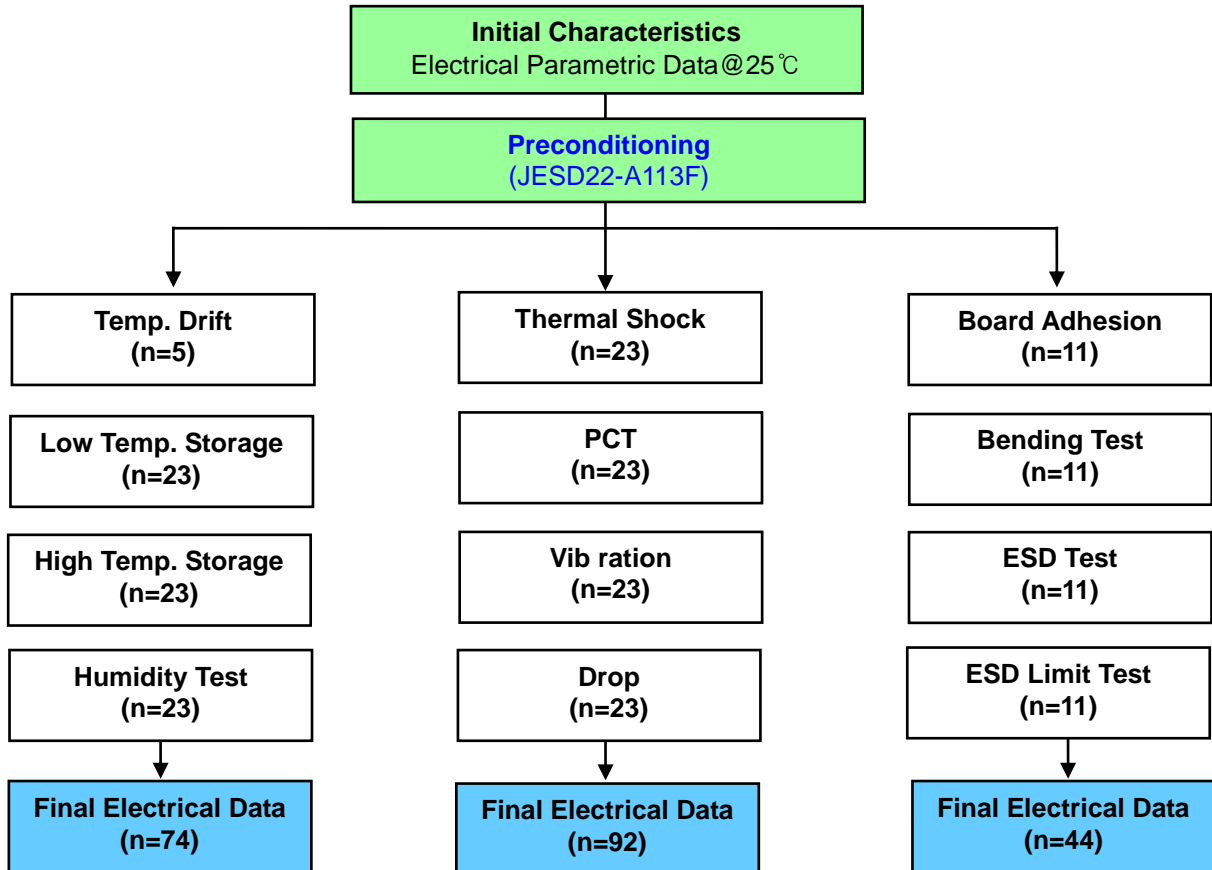
6-2-2. TEST FIXTURE

[X-Ray Top View]

6-2-3. GRAPH



7. RELIABILITY

7-1. ENGINEERING SAMPLE FLOW CHART



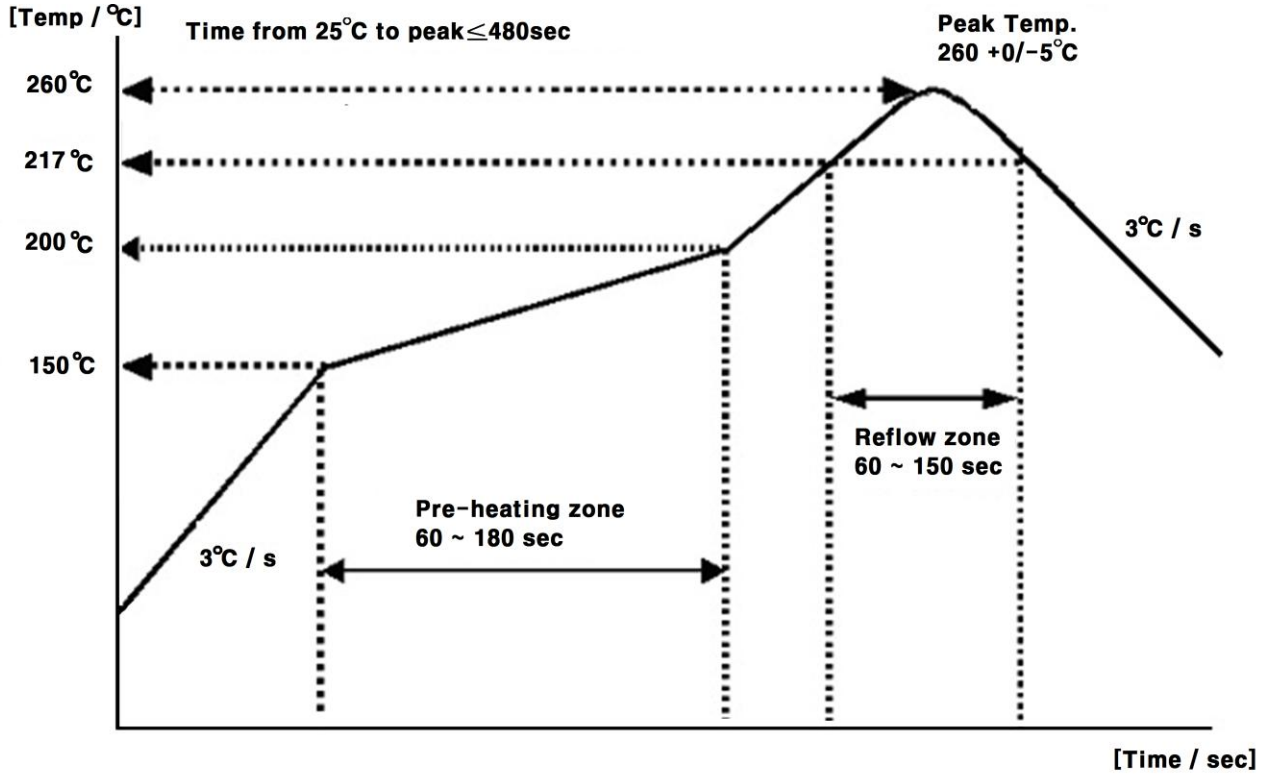
7-2. TEST ITEM & CONDITION

| CATEGORY | TEST ITEM | TEST CONDITION | REMARK |
|----------|-----------------|---|-------------|
| | Preconditioning | +125℃ 24hr Baking → +60℃ 60%RH 120hr → Reflow Test(3times) | JESD22A113F |

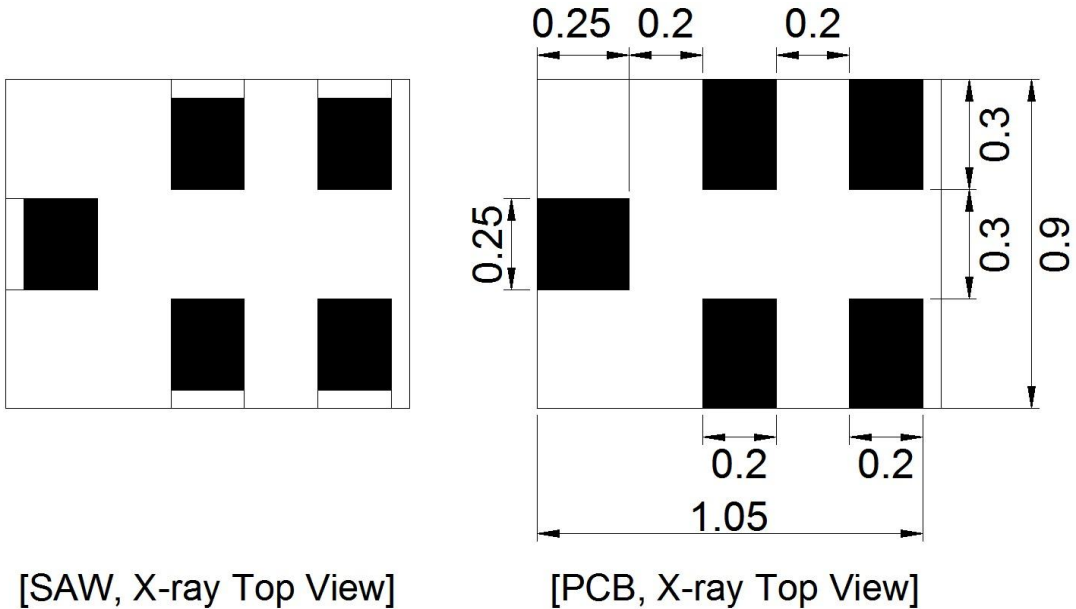


| | | | |
|------------------|----------------------------------|---|------------------|
| Environment Test | Temp. Drift | -30℃ → +25℃ → +85℃ | description |
| | High Temp. Storage | +85℃ 240hr | JESD22-A103C |
| | Low Temp. Storage | -40℃ 240hr | JESD22-A119 |
| | High Temp. High Humidity Storage | +85℃ 85%RH 240hr | JESD22-A106B |
| | Thermal Shock | -40℃/30min ⇔ +85℃/30min , 100cycle | JESD22-A106A |
| | High Temp. Operating | +121℃ 100%RH 96hr | JESD22-A102C |
| Mechanical Test | Vibration Test (Random) | 20 Hz~2000 Hz,0.053G ² /Hz or 8g's RMS,15min/plane | IEC 68-2-36 Fdb |
| | Drop Test | 152 cm 12times Steel floor JIG(110g~150g) | IEC 1178-1.4.8.9 |
| | Board Adhesion | 0.5 mm/sec 1point push | IEC 68-2-21 Ue3 |
| | Bending Test | 0.5 mm/sec 3times -PCB : FR4 , PCB SIZE : 100*40 mm | IEC 68-2-21 Ue3 |
| Physical Test | Solder Heat Resistance | ±250V,C=100pF,R=1.5 kΩ,1times | IEC 68-2-21 Ue3 |
| | static marginal test | C=100pF,R=1.5 kΩ,1times(demand of customer) | JESD22-A114F |

8. REFLOW CONDITION



9. RECOMMENDED PCB DIMENSIONS



10. CAUTION

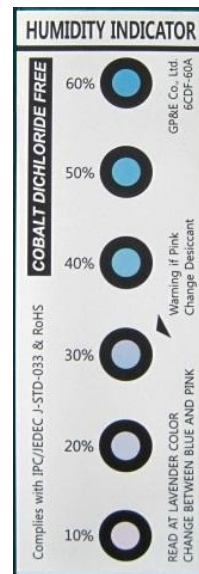
Moisture Sensitivity Device Caution (MSL LEVEL=2a)

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)



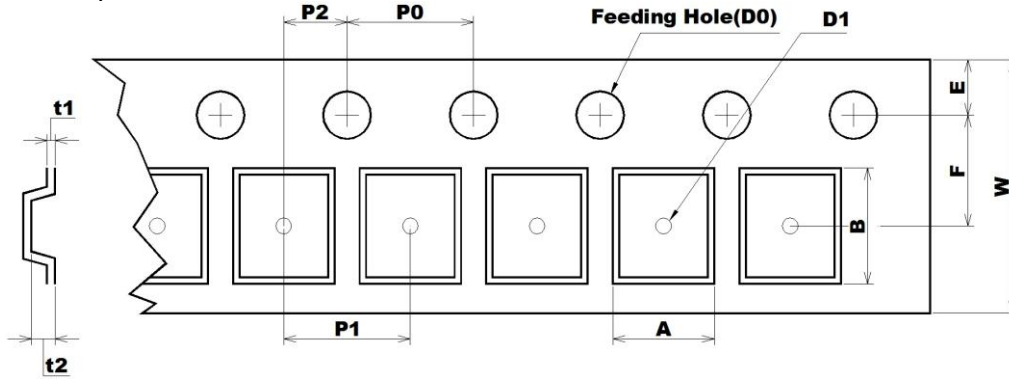
HIC(Humidity Indication Card)



10 to 60% RH

11. PACKING
11-1. DIMENSIONS

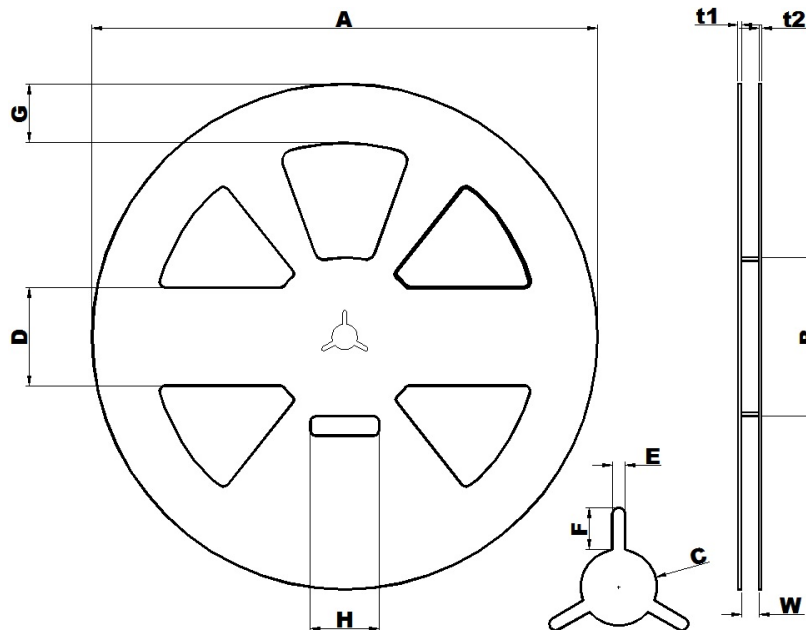
- Carrier Tape



[Unit: mm]

| A | B | D0 | D1 | E | F | P0 | P1 | P2 | t1 | t2 | W |
|------|------|-------|-------|------|------|------|------|------|------|------|-------|
| 1.1 | 1.35 | Ø1.50 | Ø0.50 | 1.75 | 3.5 | 4 | 4 | 2 | 0.25 | 0.7 | 8 |
| 0.05 | 0.05 | +0.10 | 0.05 | 0.10 | 0.05 | 0.10 | 0.10 | 0.05 | 0.02 | 0.07 | +0.30 |
| | | -0.00 | | | | | | | | | -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 | | | | | | | | | | -0.5 |

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

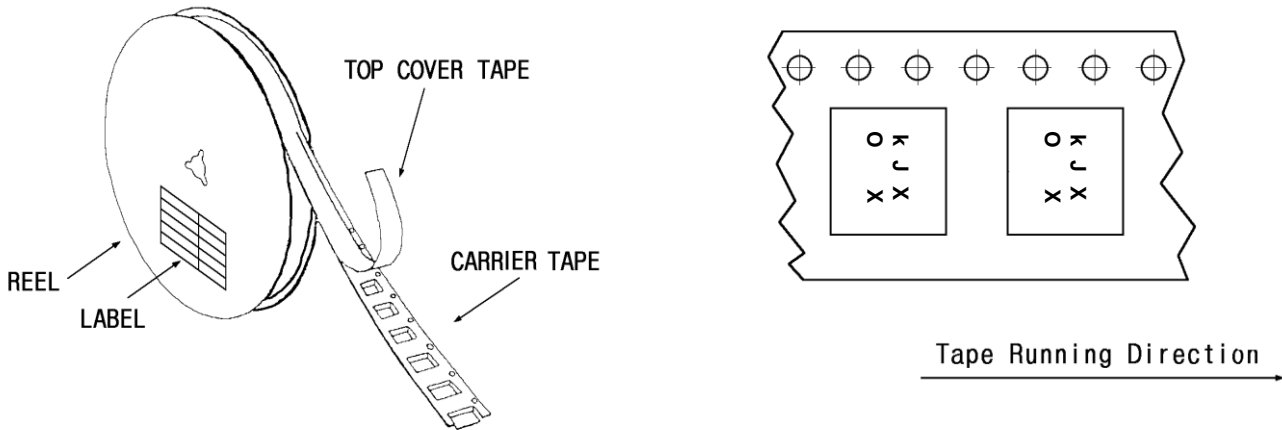
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11-2. REELING QUANTITY

10 inch reel : 10,000 pcs/reel

11-3. TAPING STRUCTURE

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



11-3-2. BAR CODE LABEL



①



MODEL NAME BARCODE

②

SFH836AQ101

Model Name

③

RLYC12563

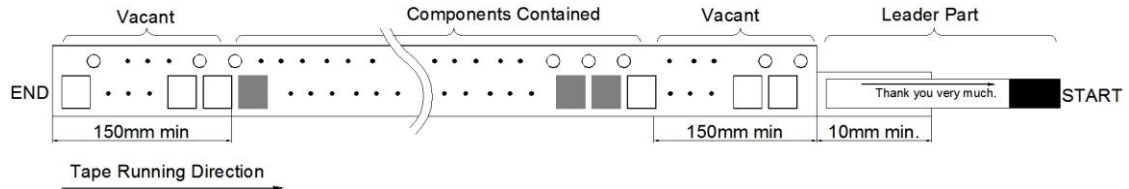
Reel number

④

8000 / qAFYU

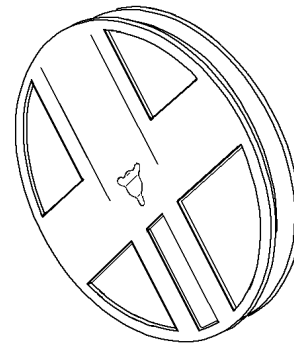
Quantity / Marking

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

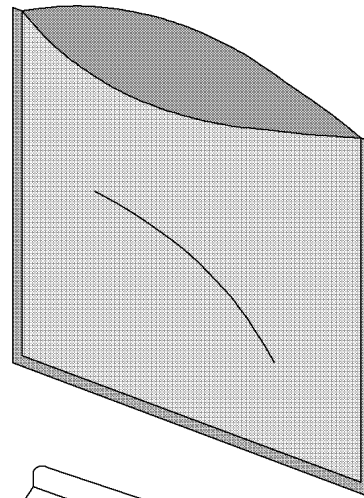


11-4. INNER BOX(Reel Packing) STRUCTURE

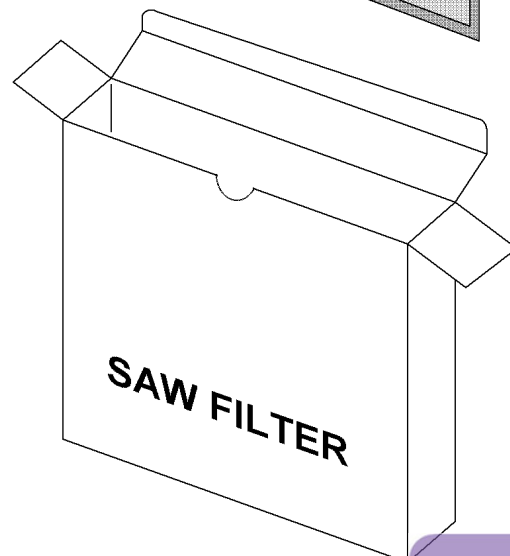
Material: Polycarbonate



Material: Polyethylene + Aluminium
Size: 310×370mm²



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

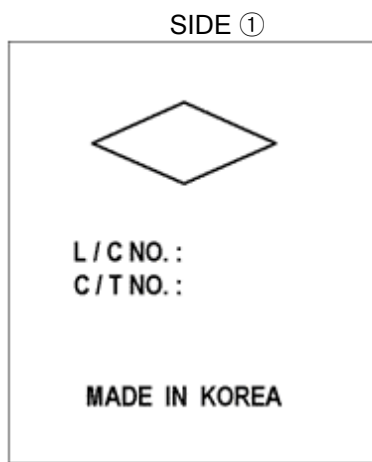
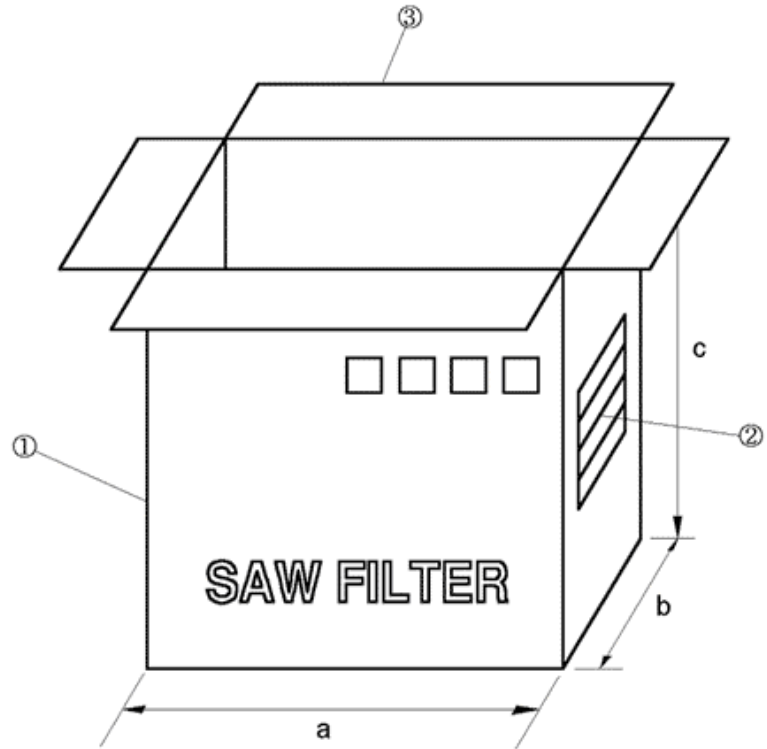


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11-5. OUTER BOX STRUCTURE

Material : Paper

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



SIDE ②

| | |
|-------|----|
| MODEL | |
| Q'TY | EA |
| USER | |
| DATE | |

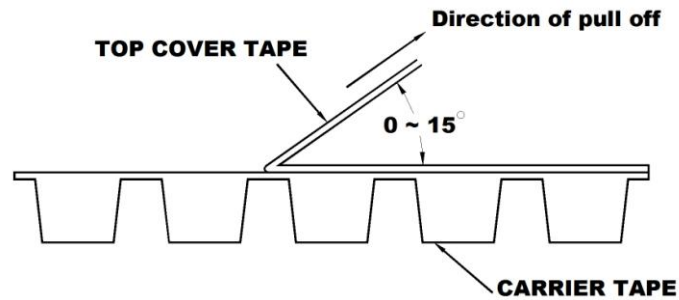
- SIDE is the same as front side.

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



13. RoHS DATA



Test Report No. F690101/LF-CTSAYAA11-28285

Issued Date: 2011. 09. 06 Page 1 of 2

To: **WISOL CO., LTD.**
373-7
Gajang-dong
Osan-si
Gyeonggi-do
Korea

The following merchandise was submitted and identified by the client as :

SGS File No. : AYAA11-28285
Product Name : SAW FILTER
Item No./Part No. : N/A
Received Date : 2011. 08. 31
Test Period : 2011. 09. 01 to 2011. 09. 06
Test Results : For further details, please refer to following page(s)
Test Performed : SGS Korea tested the sample(s) selected by applicant with following results.
Test Comments : By the applicant's specific request, the sampling and testing was performed only for the part indicated in the photo without disassembly.

SGS Korea Co. Ltd.



Jeff Jang / Chemical Lab Mgr

Timothy Jeon
Jinhee Kim
Cindy Park
Jerry Jung/ Testing Person

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F052 Version4

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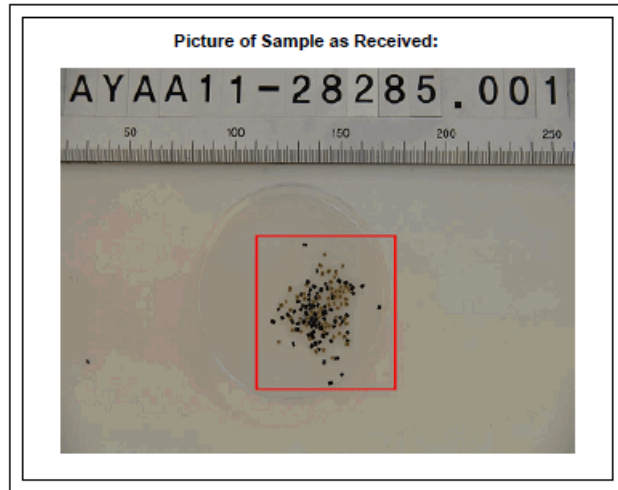
Test Report No. F690101/LF-CTSAYAA11-28285

Issued Date: 2011. 09. 06 Page 2 of 2

Sample No. : AYAA11-28285.001
Sample Description : SAW FILTER
Item No./Part No. : N/A
Materials : N/A

Heavy Metals

| Test Items | Unit | Test Method | MDL | Results |
|---------------|-------|---|-----|---------|
| Antimony (Sb) | mg/kg | With reference to EPA 3052(1996), US EPA 6010B(1996), ICP | 10 | N.D. |



*** End ***

- NOTE: (1) N.D. = Not detected (<MDL)
 (2) mg/kg = ppm
 (3) MDL = Method Detection Limit
 (4) - = No regulation
 (5) ** = Qualitative analysis (No Unit)
 (6) * = Boiling-water-extraction:
 Negative = Absence of CrVI coating
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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