

AUG. 4, 1995

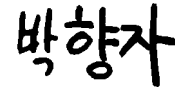
Approved by: JaeJo Kim



Checked by: SungIl Park



Issued by: HyangJa Park



# SPECIFICATION

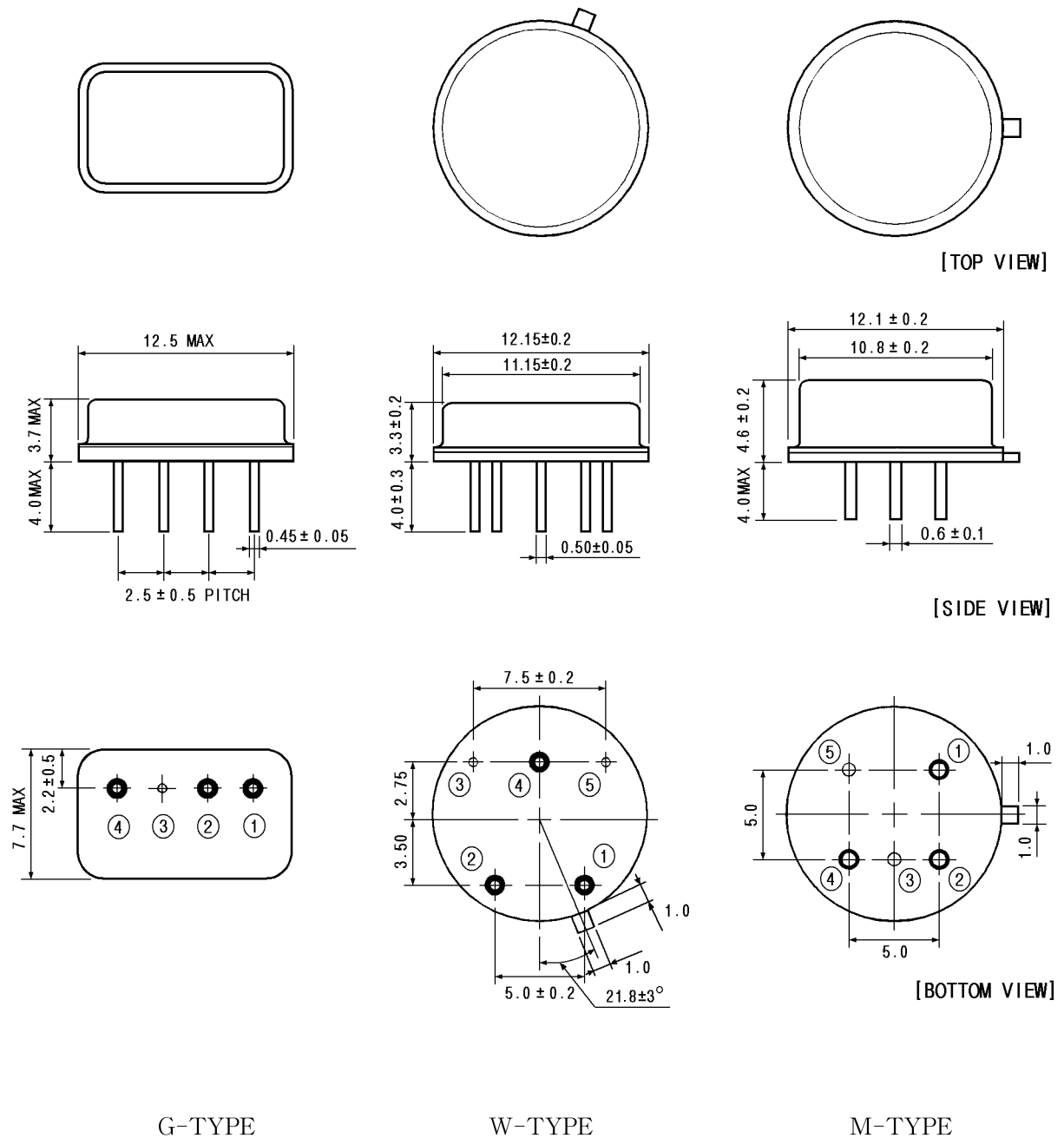
MODEL: 1457T□

## SURFACE ACOUSTIC WAVE FILTER

PRELIMINARY

SAMSUNG ELECTRO-MECHANICS CO., LTD.  
314. MAETAN3-DONG, PALDAL-KU,  
SUWON-SI, KYUNGKI-DO, KOREA, 442-743

## 1. OUTLINE DRAWING AND DIMENSION



**2. MARKING**

|               |               |               |
|---------------|---------------|---------------|
| <b>SF 505</b> | <b>SF</b>     | <b>SF</b>     |
| <b>1457TG</b> | <b>1457TW</b> | <b>1457TM</b> |
|               | <b>505</b>    | <b>505</b>    |

Color : Black or Red

Model No. : 1457TG (G-type Package)

1457TW (W-type Package)

1457TM (M-type Package)

Lot No. : 505

**3. PERFORMANCE****3-1. APPLICATION**

TV-IF FILTER M/N System

Video Frequency : 45.75MHz

**3-2. MAXIMUM RATING**

(Ta = 20℃)

| CHARACTERISTICS             |                 | RATING    | UNITS            |
|-----------------------------|-----------------|-----------|------------------|
| Input signal voltage        |                 | 5         | V <sub>p-p</sub> |
| DC voltage                  | between inputs  | 3         | V                |
|                             | between outputs |           |                  |
|                             | between others  | 15        |                  |
| AC voltage : 50~60 Hz       |                 | 10        | V <sub>p-p</sub> |
| Operating temperature range |                 | -20 ~ +70 | ℃                |
| Storage temperature range   |                 | -55 ~ +85 | ℃                |

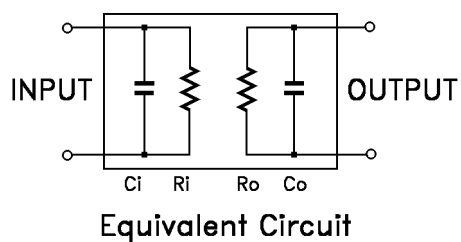
## 3-3. ELECTRICAL CHARACTERISTICS

3-3-1. TABLE

(Ta=20℃)

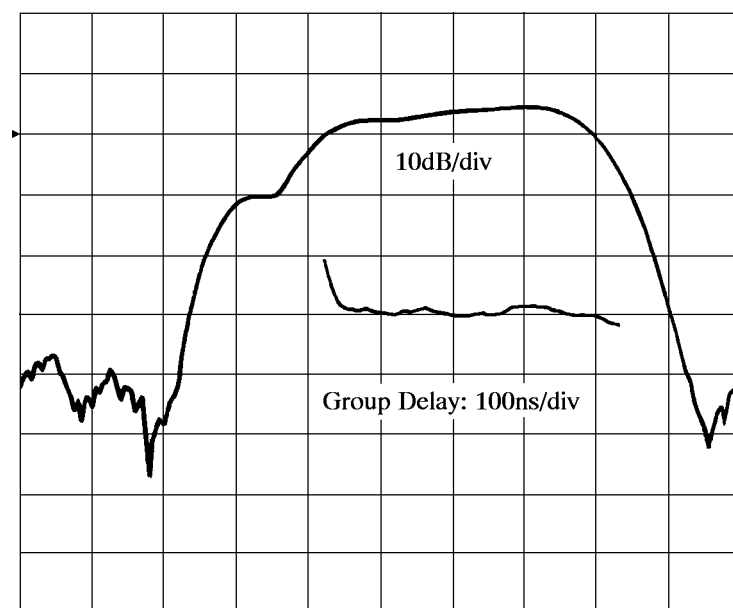
| CHARACTERISTICS                               |                                | Freq. (MHz)   | Specification |         |       |       | Test Fixture |
|-----------------------------------------------|--------------------------------|---------------|---------------|---------|-------|-------|--------------|
|                                               |                                |               | Upper         | Nominal | Lower | Units |              |
| Insertion Loss                                |                                | peak          | 37            | 35      |       | dB    | No. 2        |
| Relative Amplitude (Ref.:fp)                  | adj.picture                    | 39.75 fp-6    | -35           | -40     |       | dB    | No. 1        |
|                                               | sound                          | 41.25 fp-4.5  | -8.5          | -10.5   | -12.5 |       |              |
|                                               | color                          | 42.17 fp-3.58 | 2.0           | 1.0     | -1.0  |       |              |
|                                               | peak                           |               | 6.5           | 5.0     | 3.5   |       |              |
|                                               | picture                        | 45.75 fp      |               | 0       |       |       |              |
|                                               | adj.sound                      | 47.25 fp+1.5  | -39           | -45     |       |       |              |
| Spurious Level (Ref.:peak)                    |                                | 33.75 ~ 39.75 | -35           | -40     |       |       |              |
|                                               |                                | 53.75 ~ 63.75 | -35           | -40     |       |       |              |
| Bandpass Ripple                               |                                | 42.17 ~ 45.75 | 0.4           | 0.2     |       |       |              |
| Group Delay Ripple(p-p)                       |                                | 42.17 ~ 45.75 | 100           |         |       | nsec  |              |
| Temperature Coefficient of Frequency Response |                                | -20 ~ 70 ℃    |               | -18     | -25   | ppm/℃ | No. 2        |
| Impedance                                     | R <sub>i</sub> /C <sub>i</sub> | 44.0          |               | 2.5/14  |       | kΩ/pF |              |
|                                               | R <sub>o</sub> /C <sub>o</sub> | 44.0          |               | 5.0/10  |       | kΩ/pF |              |

Impedance equivalent circuit is shown below.



## 3-3-2. GRAPH

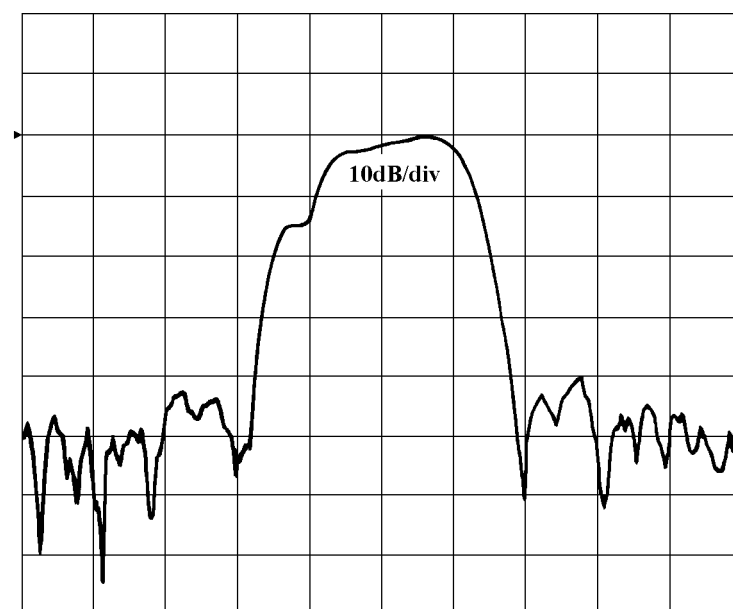
## Passband Characteristics



Start:fp-8MHz

Stop:fp+2MHz

## Spurious Characteristics

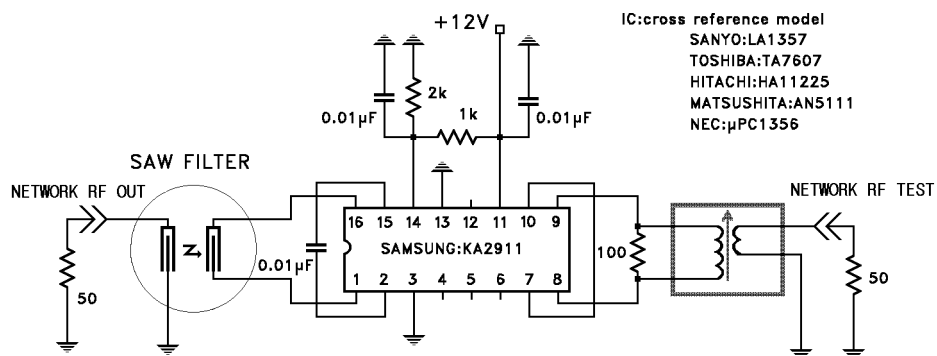


Start:33.75MHz

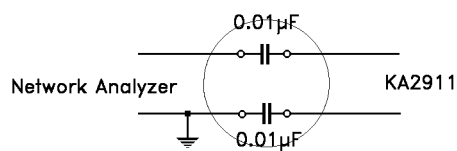
Stop:53.25MHz

## 3-3-3. TEST FIXTURE

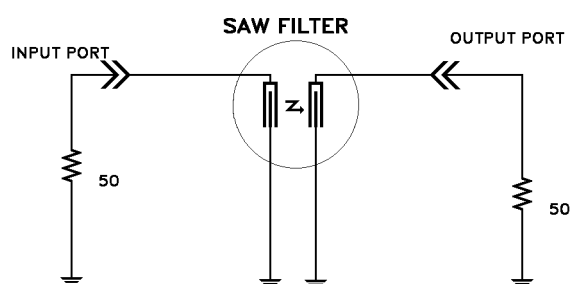
No. 1



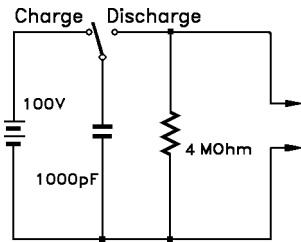
Measuring circuit for normalizing.



No. 2



**4. RELIABILITY**

| ITEM                             | TEST CONDITION                                                                                                               | LIMIT                                                                                                                                |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 4-1. LIFE TEST                   |                                                                                                                              |                                                                                                                                      |
| High Temperature Operation       | Ta=+70±2℃, 500h, DC 3V, Output ports load.                                                                                   | insertion loss :<br>initial ±1.5dB<br><br>amplitude response :<br>(fs,fc,peak)<br>initial ±1.0dB<br><br>(with test fixture on No. 1) |
| High Temperature Exposure        | Tstg=+85±2℃, 500h                                                                                                            |                                                                                                                                      |
| Low Temperature Exposure         | Ta=-40±2℃, 500h                                                                                                              |                                                                                                                                      |
| Moisture Resistance              | Ta=+40±2℃, RH 90~95%, 500h                                                                                                   |                                                                                                                                      |
| Salt Spray                       | After soldering, 5% salt solution, 24h                                                                                       |                                                                                                                                      |
| 4-2. HEAT CYCLE, SOLDERING TEST  |                                                                                                                              |                                                                                                                                      |
| Temperature Cycle                | (-20℃,30min→25℃,5min→80℃,30min→25℃,5min) 5 cycle.                                                                            | Same as 4-1.                                                                                                                         |
| Solderability                    | Immerse the pins in melt solder at 230±5℃ for 2+1-0 sec.                                                                     | More than 90% of total area of the pins should be covered with solder                                                                |
| Heat Resistivity for Melt Solder | Immerse the pins in melt solder at 260±5℃ for 10+2-0 sec.                                                                    | Same as 4-1.                                                                                                                         |
| 4-3. MECHANICAL TEST             |                                                                                                                              |                                                                                                                                      |
| Vibration                        | Amplitude=2mm, 20↔60Hz, sweep time 1 minute, 3 direction each 8h.                                                            | Same as 4-1.                                                                                                                         |
| Drop                             | On concrete plate from 1m high, 3 times.                                                                                     |                                                                                                                                      |
| Lead Bend                        | 90° bending with 450g weight, 2 times.                                                                                       | Should not be broken.                                                                                                                |
| Lead Pull                        | After bending lead parallel to header base, pull with 1kg force for 1 minute.                                                | Should not be lost or broken.                                                                                                        |
| 4-4. SURGE TEST                  |                                                                                                                              |                                                                                                                                      |
| Surge Test                       | 10 times between any leads<br><div></div> | Same as 4-1.                                                                                                                         |

**5. REVISION**

| Date | Page | Revision | Reason |
|------|------|----------|--------|
|      |      |          |        |



AUG. 4, 1995

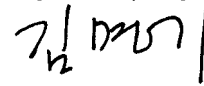
Approved by: JaeJo Kim



Checked by: SungIl Park



Issued by: Kim, MyeongKee



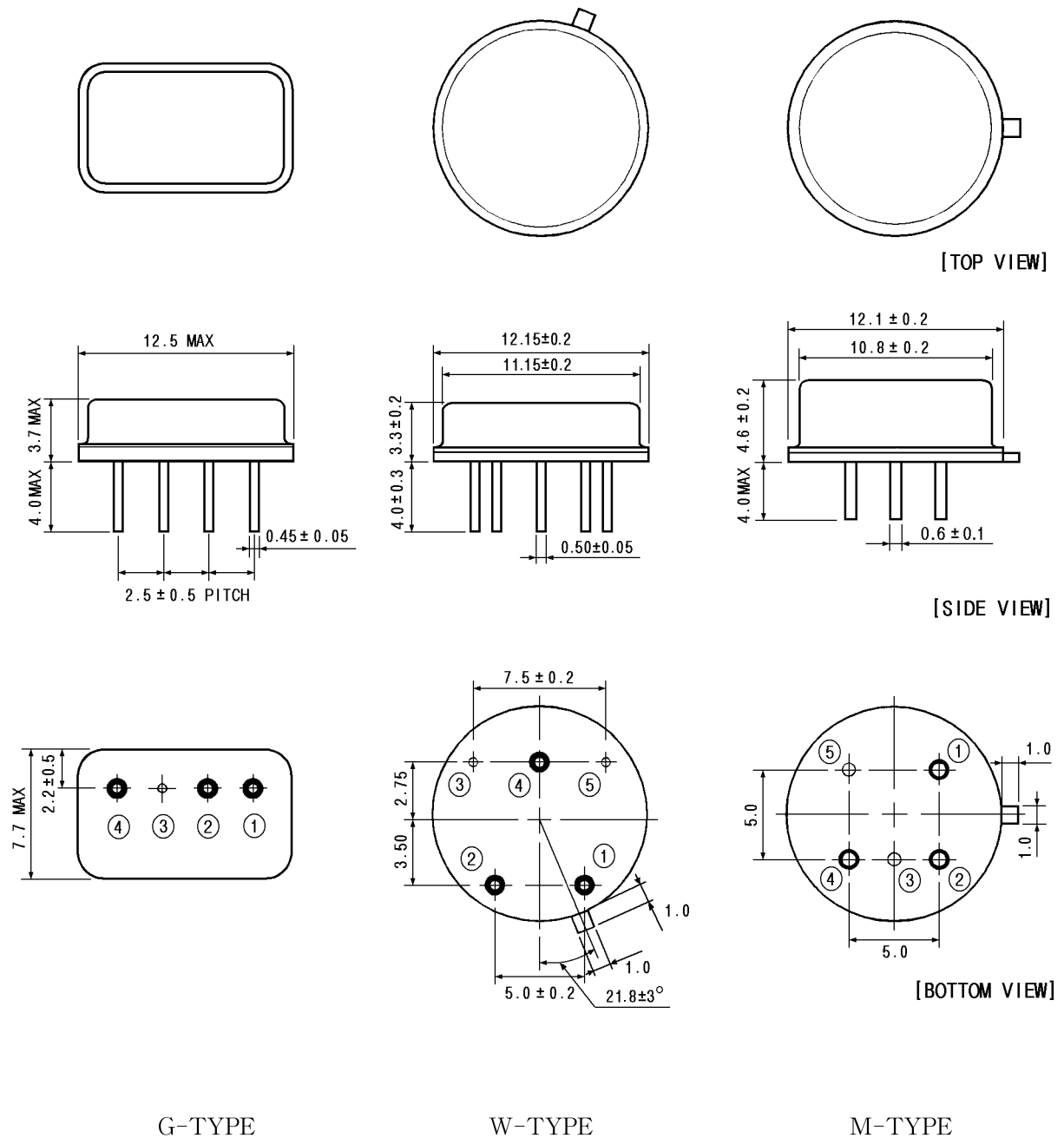
# SPECIFICATION

MODEL: 1587A□

## SURFACE ACOUSTIC WAVE FILTER

SAMSUNG ELECTRO-MECHANICS CO., LTD.  
314. MAETAN3-DONG, PALDAL-KU,  
SUWON-SI, KYUNGKI-DO, KOREA, 442-743

## 1. OUTLINE DRAWING AND DIMENSION



| PIN NO. | FUNCTION |
|---------|----------|
| ①       | OUTPUT   |
| ②       | OUTPUT   |
| ③       | GROUND   |
| ④       | INPUT    |
| ⑤       | GROUND   |

**2. MARKING**

|               |               |               |
|---------------|---------------|---------------|
| <b>SF 505</b> | <b>SF</b>     | <b>SF</b>     |
| <b>1587AG</b> | <b>1587AW</b> | <b>1587AM</b> |
|               | <b>505</b>    | <b>505</b>    |

Color : Black or Red

Model No. : 1587AG (G-type Package)

1587AW (W-type Package)

1587AM (M-type Package)

Lot No. : 505

**3. PERFORMANCE****3-1. APPLICATION**

NTSC M(Japan) System

Video Frequency : 58.75MHz

**3-2. MAXIMUM RATING**

(Ta = 20℃)

| CHARACTERISTICS             |                 | RATING    | UNITS            |
|-----------------------------|-----------------|-----------|------------------|
| Input signal voltage        |                 | 5         | V <sub>p-p</sub> |
| DC voltage                  | between inputs  | 3         | V                |
|                             | between outputs |           |                  |
|                             | between others  | 15        |                  |
| AC voltage : 50~60 Hz       |                 | 10        | V <sub>p-p</sub> |
| Operating temperature range |                 | -20 ~ +70 | ℃                |
| Storage temperature range   |                 | -55 ~ +85 | ℃                |

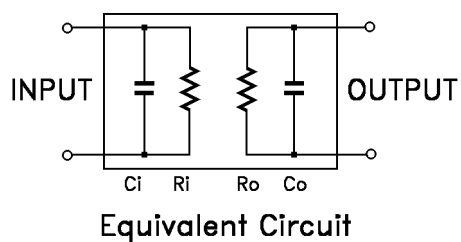
## 3-3. ELECTRICAL CHARACTERISTICS

3-3-1. TABLE

(Ta=20℃)

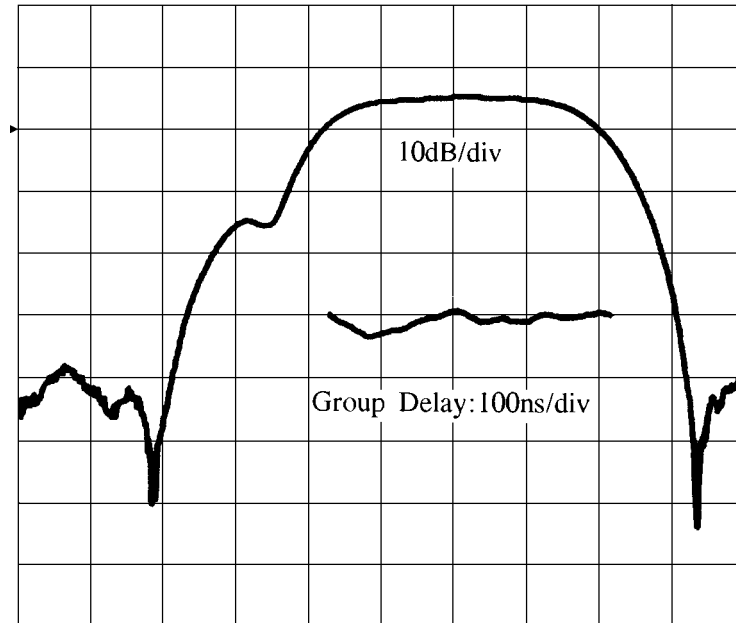
| CHARACTERISTICS                               |                                | Freq. (MHz)   | Specification |         |       |                | Test Fixture |
|-----------------------------------------------|--------------------------------|---------------|---------------|---------|-------|----------------|--------------|
|                                               |                                |               | Upper         | Nominal | Lower | Units          |              |
| Insertion Loss                                |                                | peak          | 30            | 27      |       | dB             | No. 2        |
| Relative Amplitude (Ref.:fp)                  | adj.picture                    | 52.75 fp-6    | -35           | -45     |       | dB             | No. 1        |
|                                               | sound                          | 54.25 fp-4.5  | -12           | -15     | -18   |                |              |
|                                               | color                          | 55.17 fp-3.58 | 4.0           | 2.5     | 1.0   |                |              |
|                                               | peak                           |               | 6.5           | 5.5     | 3.5   |                |              |
|                                               | picture                        | 58.75 fp      |               | 0       |       |                |              |
|                                               | adj.sound                      | 60.25 fp+1.5  | -35           | -45     |       |                |              |
| Spurious Level (Ref.:peak)                    |                                | 46.75 ~ 52.75 | -30           | -40     |       |                |              |
|                                               |                                | 60.25 ~ 66.25 | -30           | -40     |       |                |              |
| Bandpass Ripple                               |                                | 55.17 ~ 58.75 | 0.6           | 0.2     |       |                |              |
| Group Delay Ripple(p-p)                       |                                | 55.17 ~ 58.75 | 100           |         |       | nsec           |              |
| Temperature Coefficient of Frequency Response |                                | -20 ~ 70 ℃    |               | -25     | -30   | ppm/℃          | No. 2        |
| Impedance                                     | R <sub>i</sub> /C <sub>i</sub> | 56.5          |               | 0.6/20  |       | k $\Omega$ /pF |              |
|                                               | R <sub>o</sub> /C <sub>o</sub> | 56.5          |               | 0.7/17  |       | k $\Omega$ /pF |              |

Impedance equivalent circuit is shown below.



## 3-3-2. GRAPH

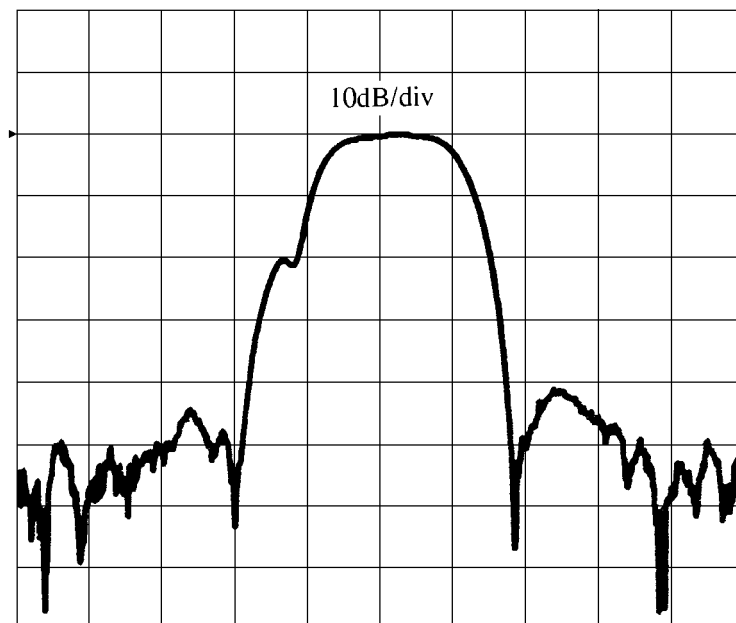
## Passband Characteristics



Start:fp-8MHz

Stop:fp+2MHz

## Spurious Characteristics

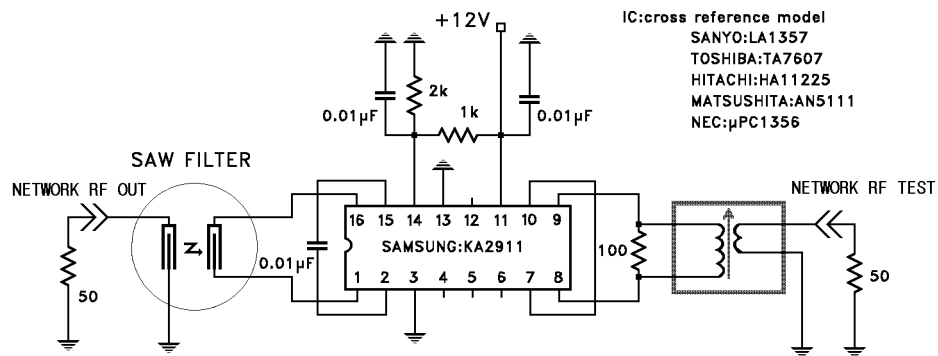


Start:46.75MHz

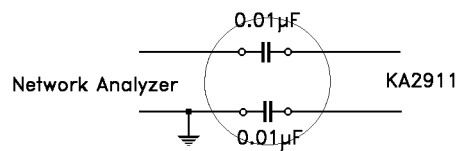
Stop:66.25MHz

## 3-3-3. TEST FIXTURE

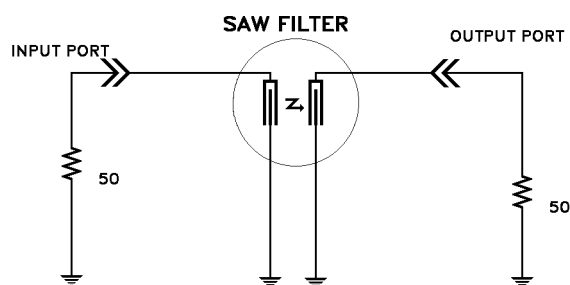
No. 1



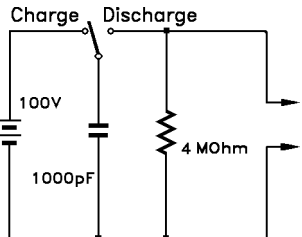
Measuring circuit for normalizing.



No. 2



## 4. RELIABILITY

| ITEM                             | TEST CONDITION                                                                                                                | LIMIT                                                                                                                                |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 4-1. LIFE TEST                   |                                                                                                                               |                                                                                                                                      |
| High Temperature Operation       | Ta=+70±2℃, 500h, DC 3V, Output ports load.                                                                                    | insertion loss :<br>initial ±1.5dB<br><br>amplitude response :<br>(fs,fc,peak)<br>initial ±1.0dB<br><br>(with test fixture on No. 1) |
| High Temperature Exposure        | Tstg=+85±2℃, 500h                                                                                                             |                                                                                                                                      |
| Low Temperature Exposure         | Ta=-40±2℃, 500h                                                                                                               |                                                                                                                                      |
| Moisture Resistance              | Ta=+40±2℃, RH 90~95%, 500h                                                                                                    |                                                                                                                                      |
| Salt Spray                       | After soldering, 5% salt solution, 24h                                                                                        |                                                                                                                                      |
| 4-2. HEAT CYCLE, SOLDERING TEST  |                                                                                                                               |                                                                                                                                      |
| Temperature Cycle                | (-20℃,30min→25℃,5min→80℃,30min→25℃,5min) 5 cycle.                                                                             | Same as 4-1.                                                                                                                         |
| Solderability                    | Immerse the pins in melt solder at 230±5℃ for 2+1-0 sec.                                                                      | More than 90% of total area of the pins should be covered with solder                                                                |
| Heat Resistivity for Melt Solder | Immerse the pins in melt solder at 260±5℃ for 10+2-0 sec.                                                                     | Same as 4-1.                                                                                                                         |
| 4-3. MECHANICAL TEST             |                                                                                                                               |                                                                                                                                      |
| Vibration                        | Amplitude=2mm, 20↔60Hz, sweep time 1 minute, 3 direction each 8h.                                                             | Same as 4-1.                                                                                                                         |
| Drop                             | On concrete plate from 1m high, 3 times.                                                                                      |                                                                                                                                      |
| Lead Bend                        | 90° bending with 450g weight, 2 times.                                                                                        | Should not be broken.                                                                                                                |
| Lead Pull                        | After bending lead parallel to header base, pull with 1kg force for 1 minute.                                                 | Should not be lost or broken.                                                                                                        |
| 4-4. SURGE TEST                  |                                                                                                                               |                                                                                                                                      |
| Surge Test                       | 10 times between any leads<br><div></div> | Same as 4-1.                                                                                                                         |

**5. REVISION**

| Date      | Page | Revision  | Reason      |
|-----------|------|-----------|-------------|
| JAN.12.96 | 3-3  | 308 → 505 | miss typing |