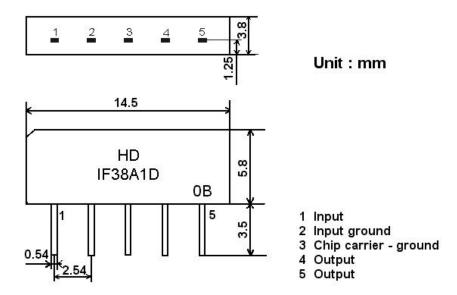
1.SCOPE

SHOULDER'S SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

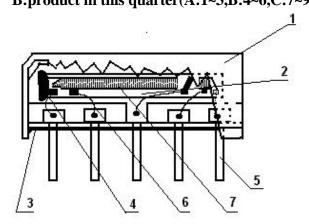
2.Construction

2.1 Dimension and materials

Type: IF38A1D



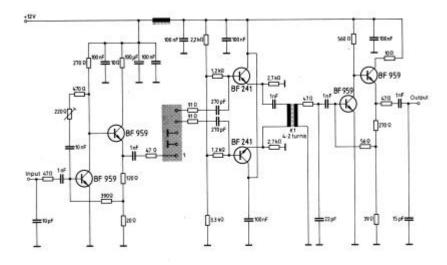
0:year(0,1,2,3,4,5,6,7,8,9) B:product in this quarter(A:1~3,B:4~6,C:7~9,D:10~12)



| Components | Materials |
|----------------|-------------------|
| 1.Outer casing | PPS |
| 2.Substrate | Lithium niobate |
| 3.Base | Epoxy resin |
| 4.Absorber | Epoxy resin |
| 5.Lead | Cu alloy+Au plate |
| 6.Bonding wire | AlSi alloy |
| 7.Electrode | Al |

2.2. Circuit construction, measurement circuit

1



Test circuit for SIP-5 filter Input impedance of the symmetrical post-amplifier: 2 k Ω in parallel with 3 pF

3. Characteristics

Standard atmospheric conditions

Unless otherwise specified, the standard rang of atmospheric conditions for making measurements and tests is as follows;

Ambient temperature : 15 to 35
Relative humidity : 25% to 85%
Air pressure : 86kPa to 106kPa

Operating temperature rang

Operating temperature rang is the rang of ambient temperatures in which the filter can be

operated continuously. -20 ~ +70

Storage temperature rang

Storage temperature rang is the rang of ambient temperatures at which the filter can be stored

without damage.

Conditions are as specified elsewhere in these specifications. $-40 \sim +70$

Reference temperature +25

3.1 Maximum Rating

| DC voltage | VDC | 12 | ${f V}$ | Between any terminals |
|------------|-----|----|---------|-----------------------|
| AC voltage | Vpp | 10 | V | Between any terminals |

3.2 Electrical Characteristics

| | | Freq | Min | typ | max | |
|--|--|----------|------|------|-------|----|
| Insertion at Reference | | 36.50MHz | 12.5 | 14.5 | 16.5 | dB |
| | | 38.00MHz | 4.6 | 6.1 | 7.6 | dB |
| | | | -0.4 | 1.1 | 2.6 | dB |
| Relative attenuation | | 33.50MHz | 18.3 | 20.3 | 22.3 | dB |
| | | 32.00MHz | 42.0 | 50.0 | - | dB |
| | | 39.50MHz | 42.0 | 50.0 | 1 | dB |
| Sidelobe | | 32.00MHz | 37.0 | 42.0 | - | dB |
| | | 45.00MHz | 35.0 | 40.0 | - | dB |
| Reflected wave signal suppression | | | | | | |
| 1.2 us6.0 us after main pulse | | 40.0 | 50.0 | - | dB | |
| (test pulse 250 ns, carrier frequency 36.50 MHz) | | | | | | |
| Feedthrough signal suppression | | 45.0 | 52.0 | - | dB | |
| 1.2 us6.0 us after main pulse | | | | | | |
| (test pulse 250 ns, | | | | | | |
| carrier frequency 36.50 MHz) | | | | | | |
| Temperature coefficient | | | -72 | | ppm/k | |

3.3 Environmental Performance Characteristics

| Item Test condition | Allowable change of absolute |
|------------------------------|-------------------------------|
| | Level at center frequency(dB) |
| High temperature test | < 1.0 |
| 70 1000H | < 1.0 |
| Low temperature test | 1.0 |
| -40 1000H | < 1.0 |
| Humidity test | .10 |
| 40 90-95% 1000H | < 1.0 |
| Thermal shock | |
| -20 ==25 ==80 20 cycle | < 1.0 |
| 30M 10M 30M | |
| Solder temperature test | .10 |
| Sold temp.260 for 10 sec. | < 1.0 |
| Soldering | More then 95% of total |
| Immerse the pins melt solder | area of the pins should |
| at 260 +5/-0 for 5 sec. | be covered with solder |

3.4 Mechanical Test

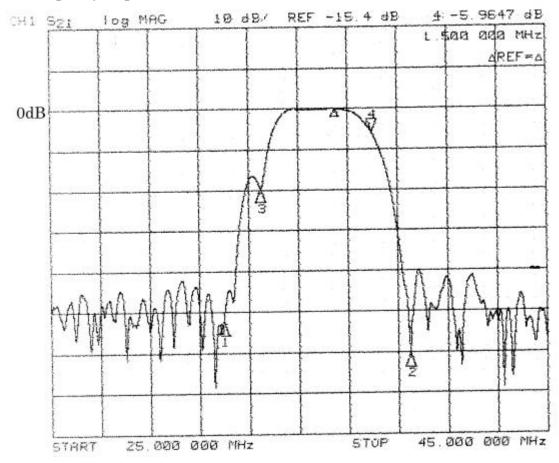
| Item | Allowable change of absolute |
|--|-------------------------------|
| Test condition | Level at center frequency(dB) |
| Vibration test 600-3300rpm amplitude 1.5mm 3 directions 2 H each | <1.0 |
| Drop test | <1.0 |

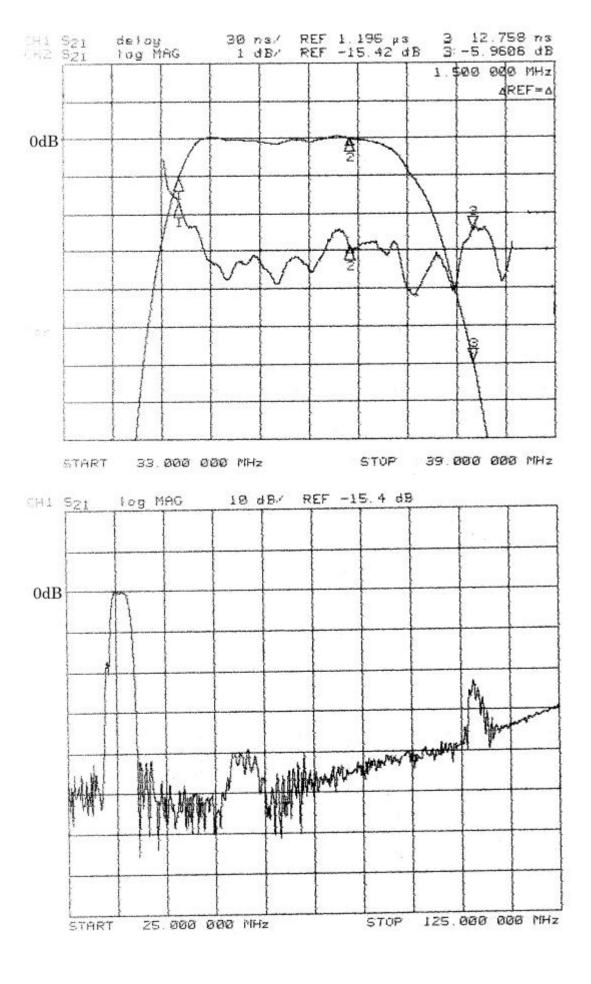
| On maple plate from 1 m high 3 times | |
|--|------|
| Lead pull test Pull with 1 kg force for 30 seconds | <1.0 |
| Lead bend test 90° bending with 500g weigh 2 times | <1.0 |

3.5 Voltage Discharge Test

| Item | Allowable change of absolute |
|---------------------------|-------------------------------|
| Test condition | Level at center frequency(dB) |
| Surge test | |
| Between any two electrode | |
| 100V 1000pF 4Moham | <1.0 |

3.6 Frequency response





Time domain response:

