

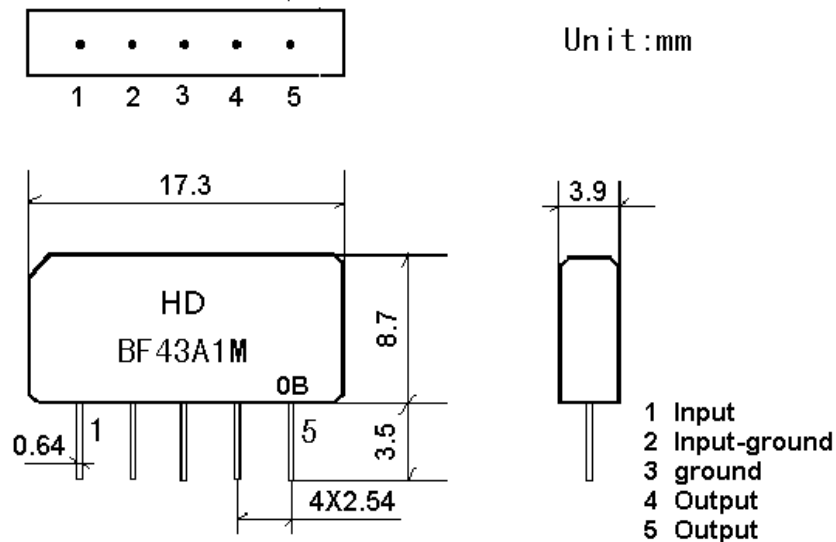
## 1. SCOPE

The 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

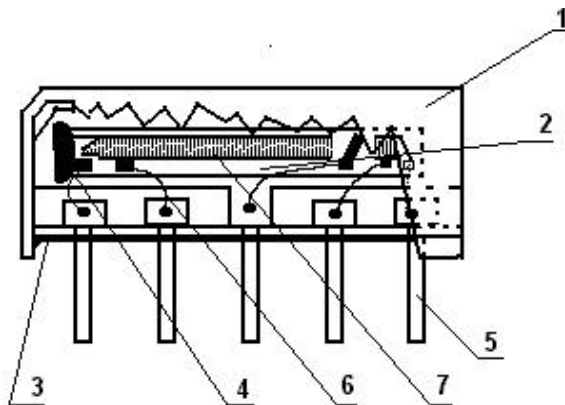
### 2.1 Dimension and materials

Type: BF43A1M



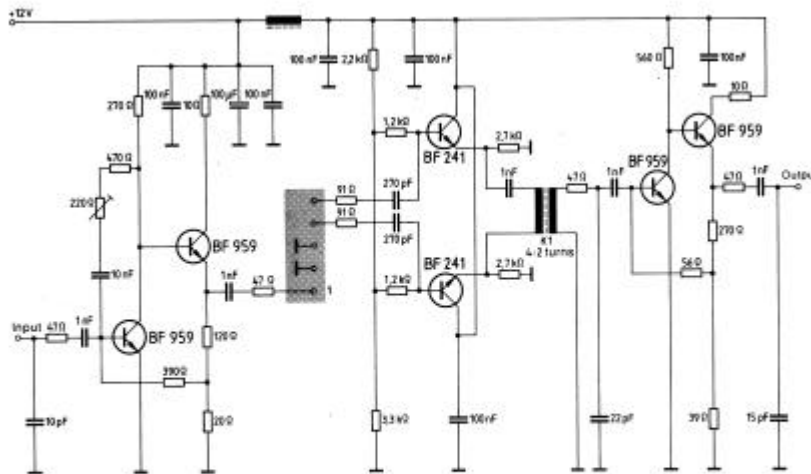
0: year(0,1,2,3,4,5,6,7,8,9)

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



Test circuit for SIP-5 filter  
Input impedance of the symmetrical post-amplifier: 2 k $\Omega$  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 : 15C to 35C
- 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. -10C ~ +60C

### 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. -40C ~ +70C

### Reference temperature +25C

### 3.1 Maximum Rating

<b>DC voltage</b>	<b>VDC</b>	<b>12</b>	<b>V</b>	<b>Between any terminals</b>
<b>AC voltage</b>	<b>Vpp</b>	<b>10</b>	<b>V</b>	<b>Between any terminals</b>

### 3.2 Electrical Characteristics

Source impedance

$Z_s=50$  ohm

Load impedance

$Z_L=2k$  ohm//3pF

$T_A=25C$

Item	Freq	min	typ	max	
Center frequency	Fo	-	43.75	-	MHz
Insertion attenuation Reference level	43.81MHz	13.0	15.0	17.0	dB
Pass bandwidth	B3dB	-	6.0	-	MHz
	B30dB	-	7.6	-	MHz
Relative attenuation	41.28MHz	-1.3	0.2	1.7	dB
	46.34MHz	-1.2	0.3	1.8	dB
	40.81MHz	1.0	2.5	4.0	dB
	46.81MHz	1.3	2.8	4.3	dB
	40.31MHz	8.0	12.0	-	dB
	47.31MHz	8.0	13.0	-	dB
	39.81MHz	36.0	45	-	dB
Sidelobe	35.06~39.81MHz	33.0	40		dB
	47.81~55.06MHz	33.0	38		dB
Temperature coefficient		-72			ppm/k

### 3.3 Environmental Performance Characteristics

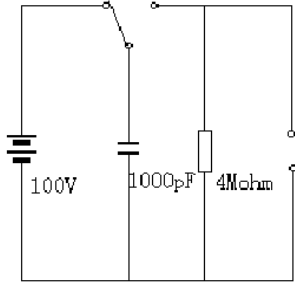
Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70C 1000H	< 1.0
Low temperature test -40C 1000H	< 1.0
Humidity test 40C 90-95% 1000H	< 1.0
Thermal shock -20C==25C==80C 20 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260C for 10 sec.	<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

### 3.4 Mechanical Test

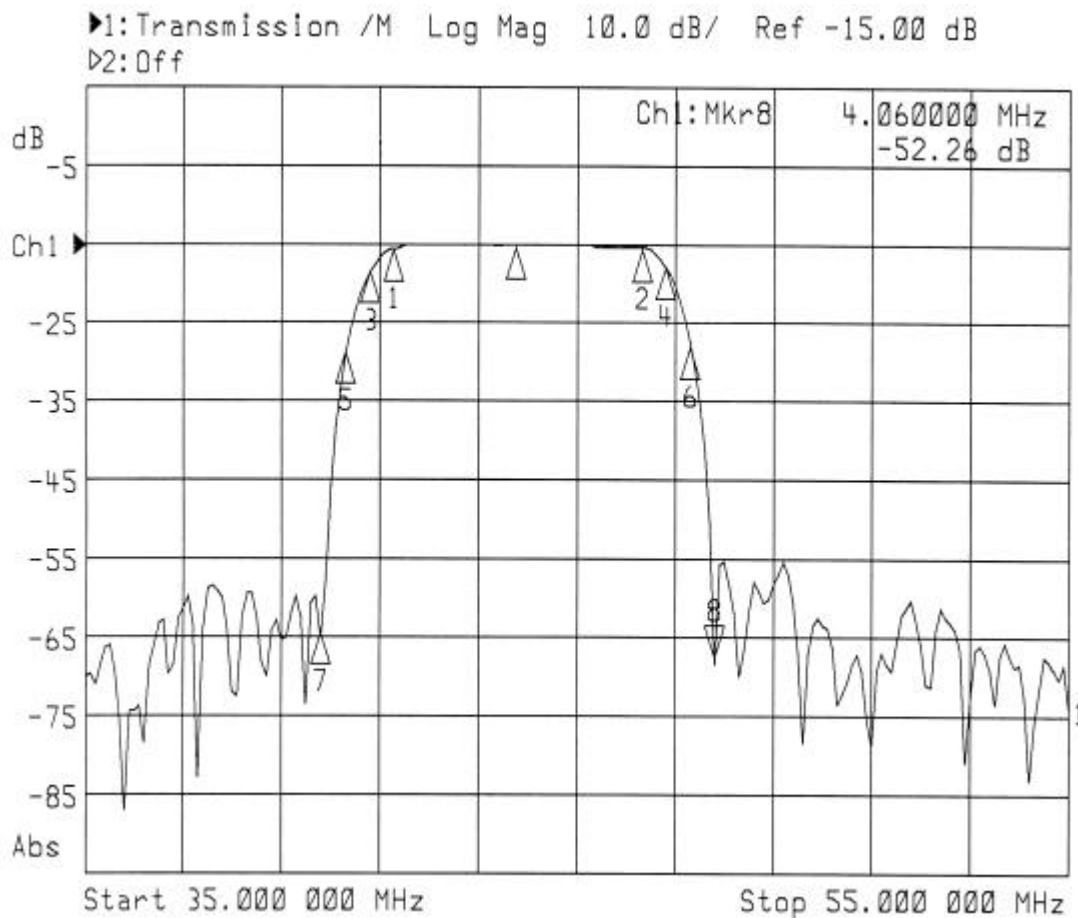
Item Test condition	Allowable change of absolute Level at center frequency (dB)
Vibration test 600-3300rpm amplitude 1.5mm	<1.0

3 directions 2 H each	
Drop test On maple plate from 1 m high 3 times	<1.0
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

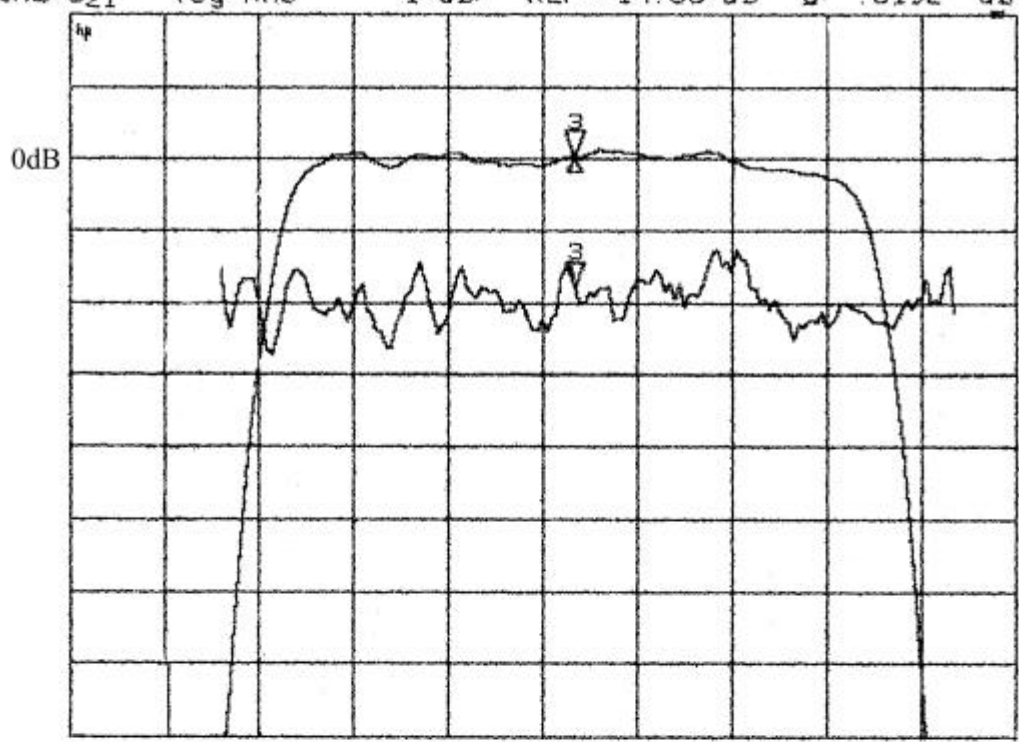
### 3.5 Voltage Discharge Test

Item Test condition	Allowable change of absolute Level at center frequency(dB)
Surge test Between any two electrode	
	<1.0

### 3.6 Frequency response

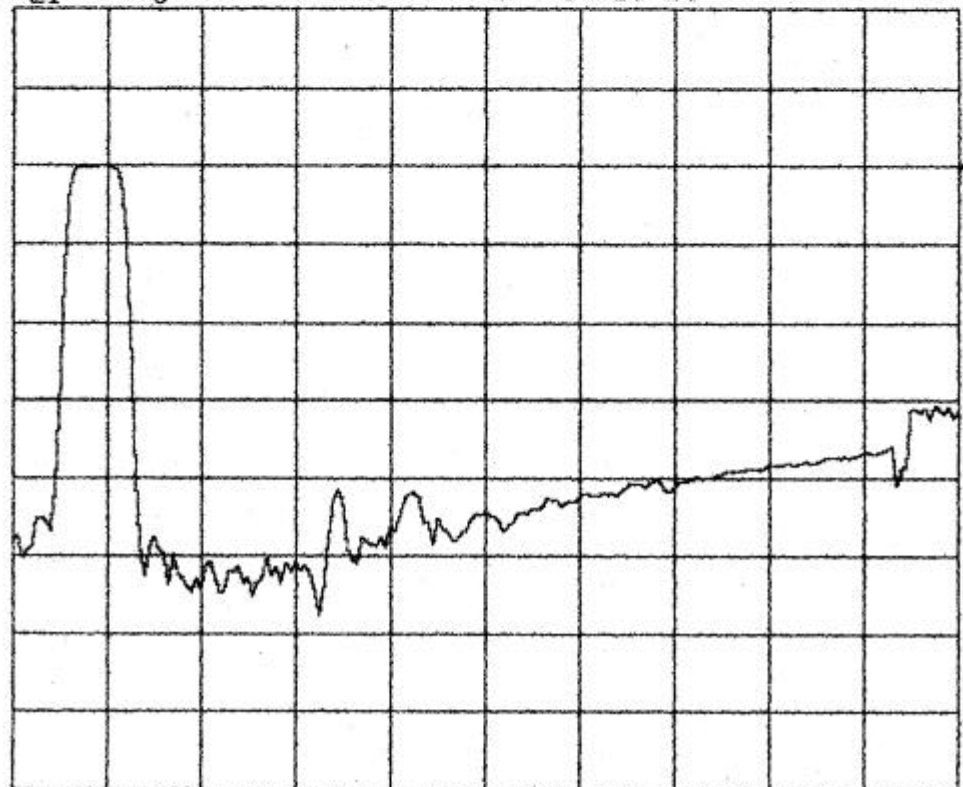


CH1 S21 delay 30 ns/ REF 1.183  $\mu$ s 3 1.2189  $\mu$ s  
CH2 S21 log MAG 1 dB/ REF -14.88 dB 3: .0192 dB



START<sup>1</sup> 39.000 000 MHz STOP 40.000 000 MHz

CH2 S21 log MAG 10 dB/ REF -16.23 dB



START 35.000 000 MHz STOP 135.000 000 MHz

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