# 1.SCOPE

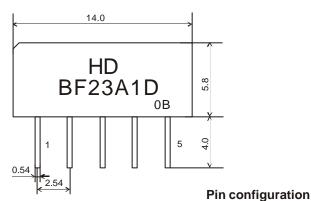
SHOULDER'S SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

# 2. Construction

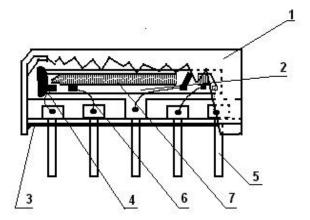
#### 2.1 Dimension and materials

Type: BF23A1D



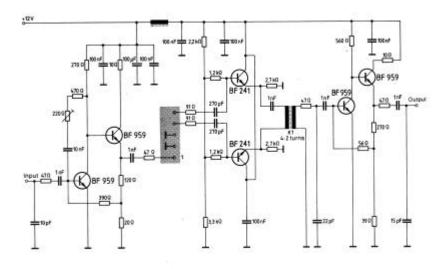


- . .
- 1 Input 2 Input-ground
- 3 Chip carrier-ground
- 4 Output
- 5 Output



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 : 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. -10 ~ +60

#### 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	V	Between any terminals
AC voltage	Vpp	10	V	Between any terminals

# 3.2 Electrical Characteristics

Source impedance Zs=50

Iten	1	Freq	min	typ	max	
Center frequency		Fo	-	23.4	-	MHz
Insertion attenuation Reference level		43.81MHz	9.8	11.8	13.8	dB
Pass bandwidth		$B_{3dB}$	-	1.8	-	MHz
		$B_{30dB}$	1	3.1	-	MHz
	15.06~	20.66MHz	36.0	42.0		dB
Sidelobe	20.06~	21.66MHz	34.0	40.0		dB
	25.26~26.26MHz		33.0	38.0		dB
	26.26~35.06MHz		36.0	42.0		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 70 500H	< 1.0
Low temperature test -40 500H	< 1.0
Humidity test 40 90-95% 500H	< 1.0
Thermal shock -20 ==25 ==80 5 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260 for 10 sec.	< 1.0
Soldering Immerse the pins melt solder at 260 +5/-0 for 5 sec.	More then 95% of total area of the pins should 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	<1.0
3 directions 2 H each	
Drop test	<1.0
On maple plate from 1 m high 3 times	<1.0
Lead pull test	<1.0
Pull with 1 kg force for 30 seconds	<1.0
Lead bend test	<1.0
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	
1000 1000pF 4Mohan	<1.0

# **3.6 Frequency response**

