

1.SCOPE

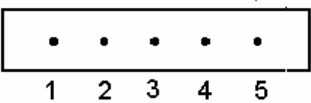
Shoulder's SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

2.Construction

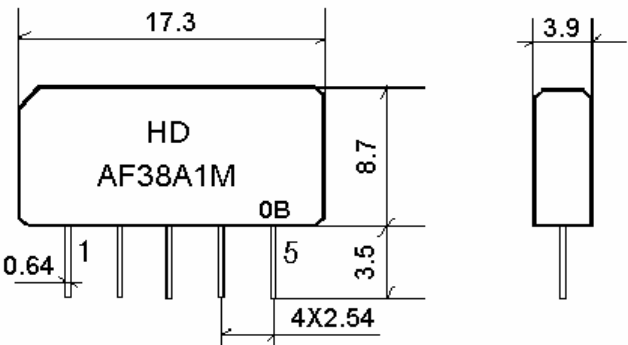
2.1 Dimension and materials

Manufacturer's name : HAODA ELECTRONICS Co. LTD(CHINA)

Type : AF38A1M



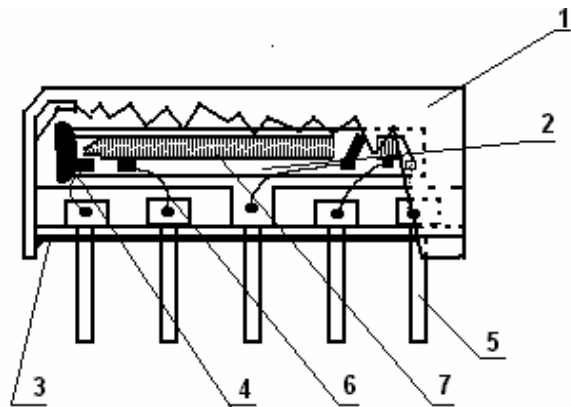
Unit :mm



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

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

Input impedance of the symmetrical post-amplifier: $2\text{ k}\Omega$ in parallel with 3 pF

Standard atmospheric conditions

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

Operating temperature rang is the rang of ambient temperatures in which the filter can be operated continuously. -10 ~ +60

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 ~ +70

3.1 Maximum Rating

DC voltage	VDC	12	V	Between any terminals
AC voltage	Vpp	10	V	Between any terminals

3.2 Electrical Characteristics

Characteristics of channel 1

Source impedance

$Z_s=50\ \Omega$

Load impedance

$Z_L=2k\ \Omega//3pF$

$T_A=25$

Item	Freq	min	typ	max	
Insertion attenuation Reference level	32.50MHz	12.6	14.6	16.6	dB
Relative attenuation	31.45MHz	-2.3	-0.8	0.7	dB
	31.50MHz	-2.3	-0.8	0.7	dB
	32.00MHz	-1.7	-0.2	1.3	dB
	38.00MHz	40.0	50.0	-	dB
	33.57MHz	28.0	42.0	-	dB
	30.00MHz	40.0	52.0	-	dB
	39.50MHz	40.0	50.0	-	dB
	40.00MHz	38.0	44.0	-	dB
	40.50MHz	37.0	42.0	-	dB
Sidelobe	25.00~30.00MHz	34.0	40.0	-	dB
	38.00~45.00MHz	35.0	42.0	-	dB
Temperature coefficient		-72			ppm/k

Characteristics of channel 2

Source impedance

$Z_s=50\ \Omega$

Load impedance

$Z_L=2k\ \Omega//3pF$

$T_A=25$

Item	Freq	min	typ	max	
Insertion attenuation Reference level	33.50MHz	12.6	14.6	16.6	dB
Relative attenuation	38.00MHz	40.0	52.0	-	dB
	34.42MHz	25.0	38.0	-	dB
	32.00MHz	38.0	50.0	1.4	dB
	39.50MHz	40.0	50.0	-	dB
Sidelobe	25.00~32.00MHz	24.0	28.0	-	dB
	38.00~45.00MHz	34.0	40.0	-	dB
Temperature coefficient		-72			ppm/k

3.3 Environmental Performance Characteristics

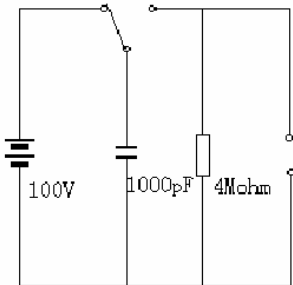
Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70 1000H	< 1.0
Low temperature test -40 1000H	< 1.0
Humidity test 40 90-95% 1000H	< 1.0
Thermal shock -20 ==25 ==80 20 cycle 30M 10M 30M	< 1.0

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