

1.SCOPE

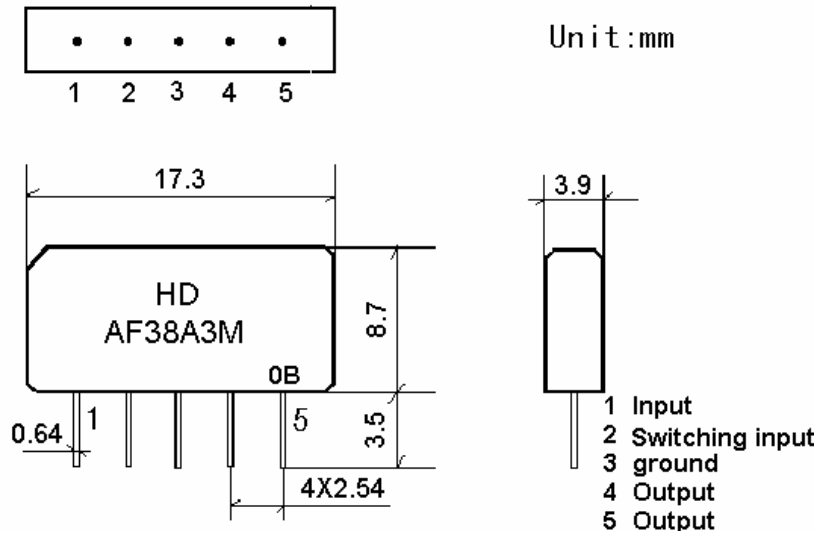
SHOULDER's SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

2.Construction

2.1 Dimension and materials

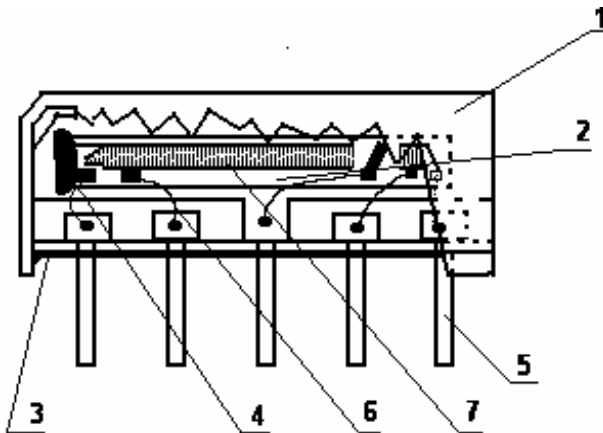
Manufacturer's name : SHOULDER ELECTRONICS Co. LTD(CHINA)

Type : AF38A3M



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

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

3.2 Electrical Characteristics

Source impedance

 $Z_s=50$

Load impedance

 $Z_L=2k // 3pF$ $T_A=25$

Item	Freq	min	typ	max	
Insertion attenuation Reference level	31.50MHz	10.5	12.0	13.5	dB
Relative attenuation	31.45MHz	-1.0	0.0	1.0	dB
	32.00MHz	-0.9	0.1	1.1	dB
	32.50MHz	0.1	1.1	2.1	dB
	38.00MHz	40.0	48.0	-	dB
	33.57MHz	30.0	37.0	-	dB
	30.00MHz	40.0	52.0	-	dB
	39.50MHz	42.0	58.0	-	dB
	40.00MHz	42.0	62.0	-	dB
	40.50MHz	42.0	60.0	-	dB
Sidelobe	25.00~30.00MHz	37.0	41.0	-	dB
	38.00~45.00MHz	40.0	45.0	-	dB
Temperature coefficient		-72			ppm/k

3.3 Environmental Performance Characteristics

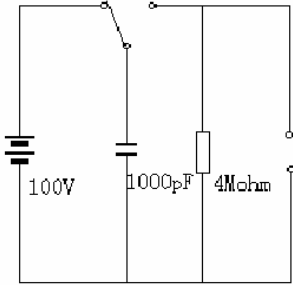
Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70 1000H	< 1.0
Low temperature test -40 1000H	< 1.0
Humidity test 40 90-95% 1000H	< 1.0
Thermal shock -20 ==25 ==80 20 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260 for 10 sec.	< 1.0
Soldering 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

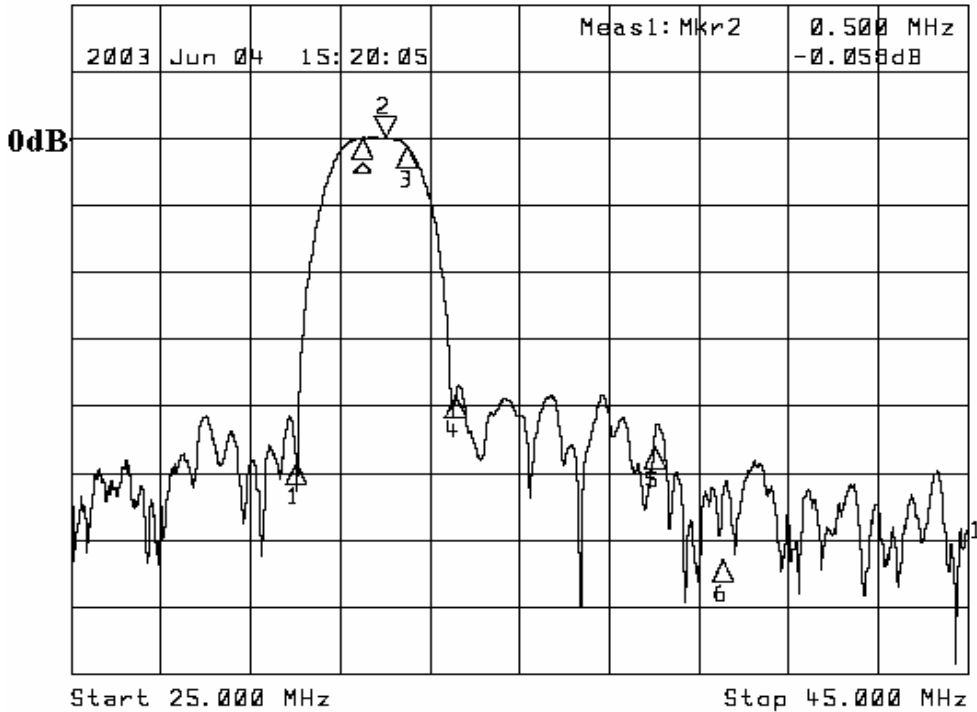
Lead pull test Pull with 1 kg force for 30 seconds	<1.0
Lead bend test 90° bending with 500g weigh 2 times	<1.0

3.5 Voltage Discharge Test

Item Test condition	Allowable change of absolute Level at center frequency(dB)
<p>Surge test Between any two electrode</p>  <p>The diagram shows a circuit for a surge test. It consists of a 100V DC voltage source connected in series with a switch. After the switch, the circuit splits into two parallel branches. The first branch contains a 1000pF capacitor. The second branch contains a 4Mohm resistor. Both branches rejoin at the bottom common rail.</p>	<1.0

3.6 Frequency response

►1: Transmission /M Log Mag 10.0 dB/



1: Mkr Δ (MHz)	dB	2: Mkr (MHz)	dB
1:	-1.5000	-48.713	
2>	0.5000	-0.058	
3:	1.0000	-1.273	
4:	2.0700	-38.804	
5:	6.5000	-46.201	
6:	8.0000	-63.179	

