

1.SCOPE

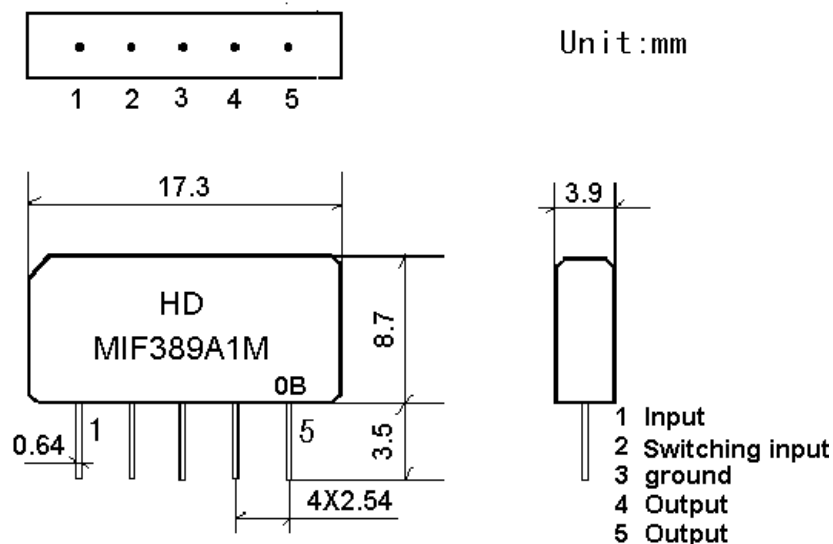
SHOULDER's SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

2.Construction

2.1 Dimension and materials

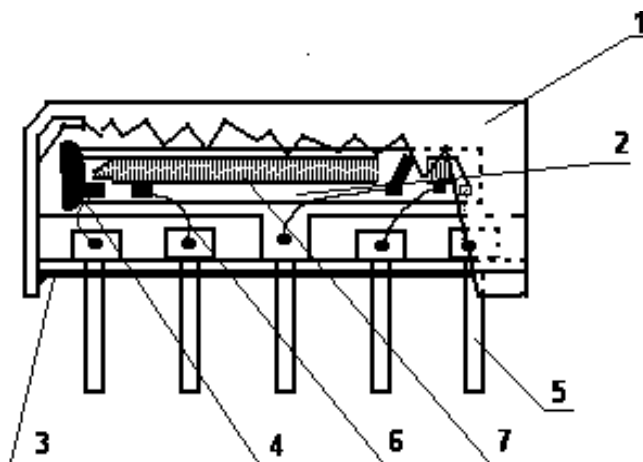
Manufacturer's name : SHOULDER ELECTRONICS Co. LTD(CHINA)

Type : MIF389A1M



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

Characteristics in B/G,L/L' mode (switching input pin 2 connected to ground pin 3)

Source impedance

$Z_s=50$

Load impedance

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

$T_A=25$

Item	Freq	min	typ	max	
Insertion attenuation Reference level	37.40MHz	14.5	16.5	18.5	dB
Relative attenuation	38.90MHz	4.5	6.0	7.5	dB
	33.90MHz	-	7.9	-	dB
	34.47MHz	-1.0	0.5	2.0	dB
	33.40MHz	28.0	40.0	-	dB
	33.05MHz	-	36.0	-	dB
	30.90MHz	42.0	55.0	-	dB
	31.90MHz	42.0	56.0	-	dB
	32.40MHz	42.0	54.0	-	dB
	40.15MHz	35.0	47.0	-	dB
	40.40MHz	40.0	50.0	-	dB
	41.40MHz	40.0	50.0	-	dB
Sidelobe	25.00~31.90MHz	35.0	44.0		dB
	40.40~45.00MHz	35.0	41.0		dB
Reflected wave signal suppression 1.2 us ...6.0 us after main pulse (test pulse 250 ns , carrier frequency 37.40 MHz)		40.0	50.0		dB
Feedthrough signal suppression 1.2 us ...6.0 us after main pulse (test pulse 250 ns , carrier frequency 37.40 MHz)		42.0	52.0		dB
Temperature coefficient		-72			ppm/k

Characteristics in M/N mode (switching input pin 2 connected to input pin 1)Source impedance $Z_s=50$ Load impedance $Z_L=2k \quad //3pF$ $T_A=25$

Item	Freq	min	Typ	max	
Insertion attenuation Reference level	37.40MHz	14.5	16.5	18.5	dB
Relative attenuation	38.90MHz	4.9	6.4	7.9	dB
	35.32MHz	1.1	2.6	4.1	dB
	34.40MHz	22.0	35.0	-	dB
	32.90MHz	35.0	42.0	-	dB
	40.40MHz	40.0	47.0	-	dB
Sidelobe	25.00~32.90MHz	33.0	41.0		dB
	39.50~45.00MHz	30.0	37.0		dB
Reflected wave signal suppression 1.2 us ...6.0 us after main pulse (test pulse 250 ns , carrier frequency 37.40 MHz)		40.0	50.0		dB
Feedthrough signal suppression 1.2 us ...6.0 us after main pulse (test pulse 250 ns , carrier frequency 37.40 MHz)		-	48.0		dB
Temperature coefficient		-72			ppm/k

3.3 Environmental Performance Characteristics

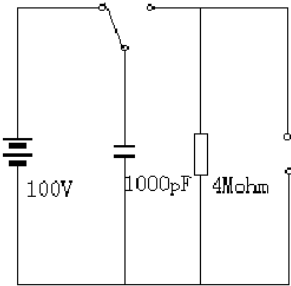
Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70 1000H	< 1.0
Low temperature test -40 1000H	< 1.0
Humidity test 40 90-95% 1000H	< 1.0
Thermal shock -20 ==25 ==80 20 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260 for 10 sec.	< 1.0

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
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3.4 Mechanical Test

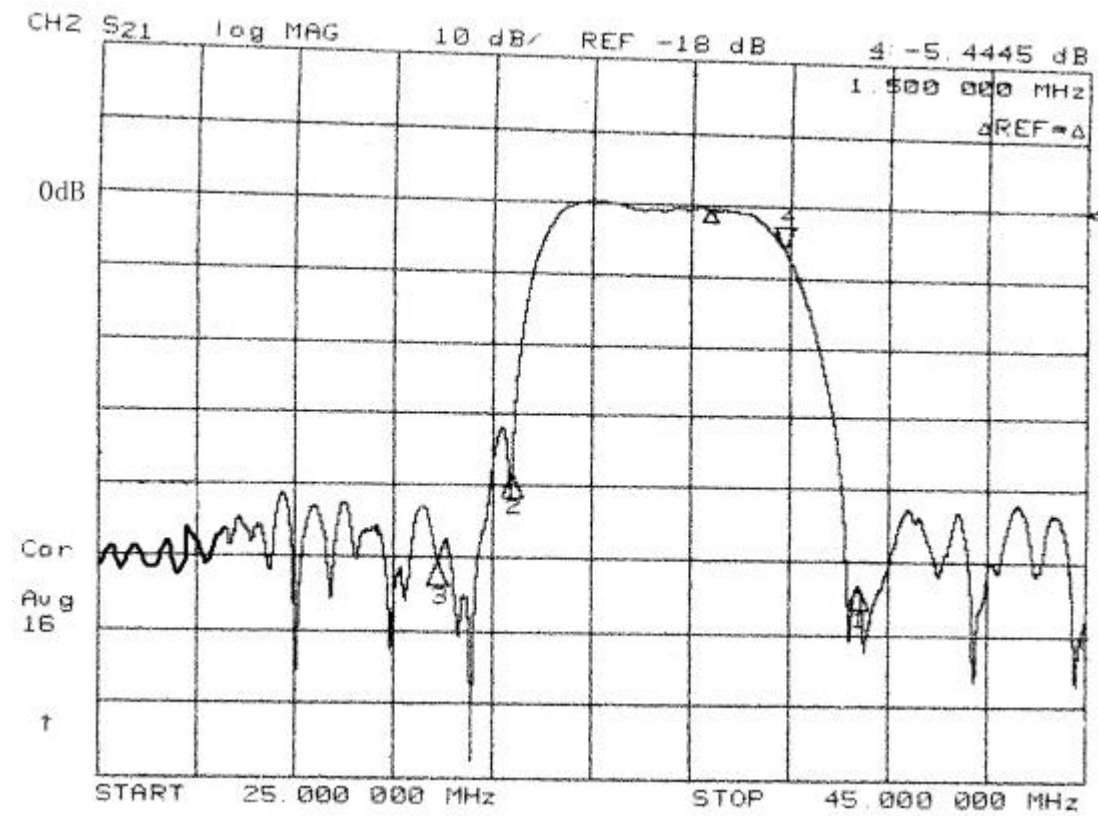
Item Test condition	Allowable change of absolute Level at center frequency(dB)
Vibration test 600-3300rpm amplitude 1.5mm 3 directions 2 H each	<1.0
Drop test On maple plate from 1 m high 3 times	<1.0
Lead pull test Pull with 1 kg force for 30 seconds	<1.0
Lead bend test 90° bending with 500g weigh 2 times	<1.0

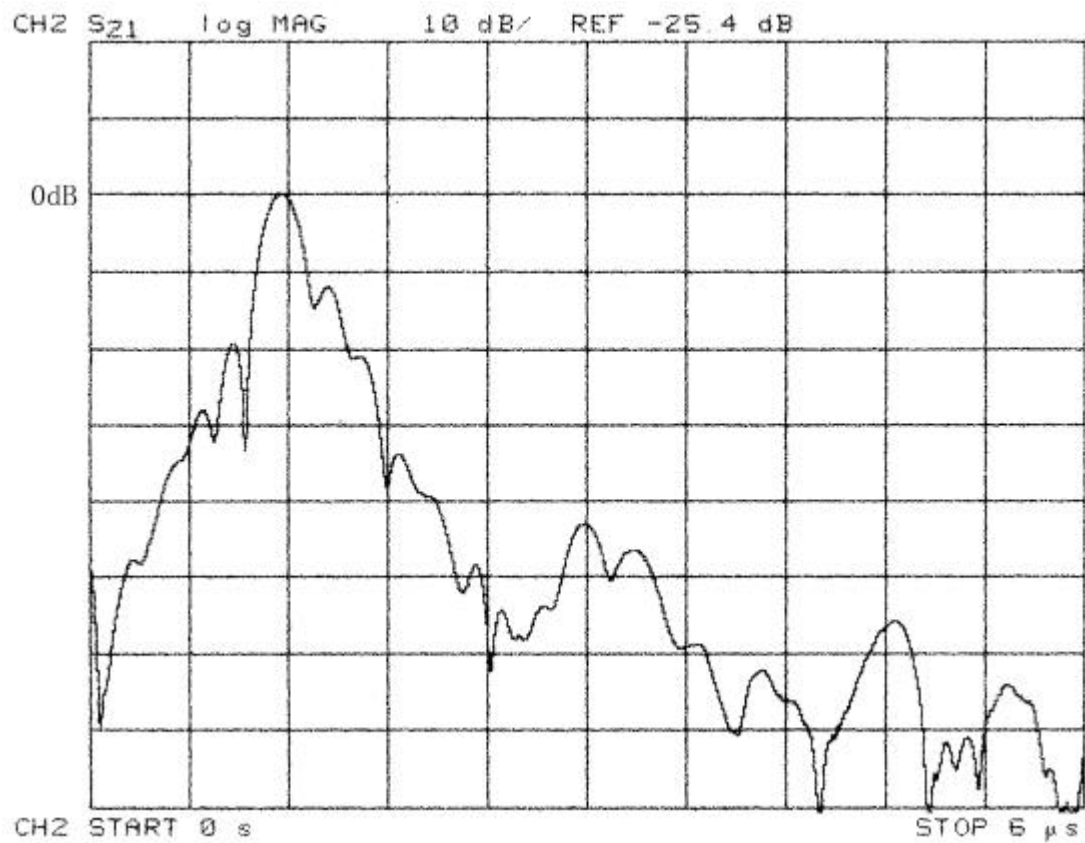
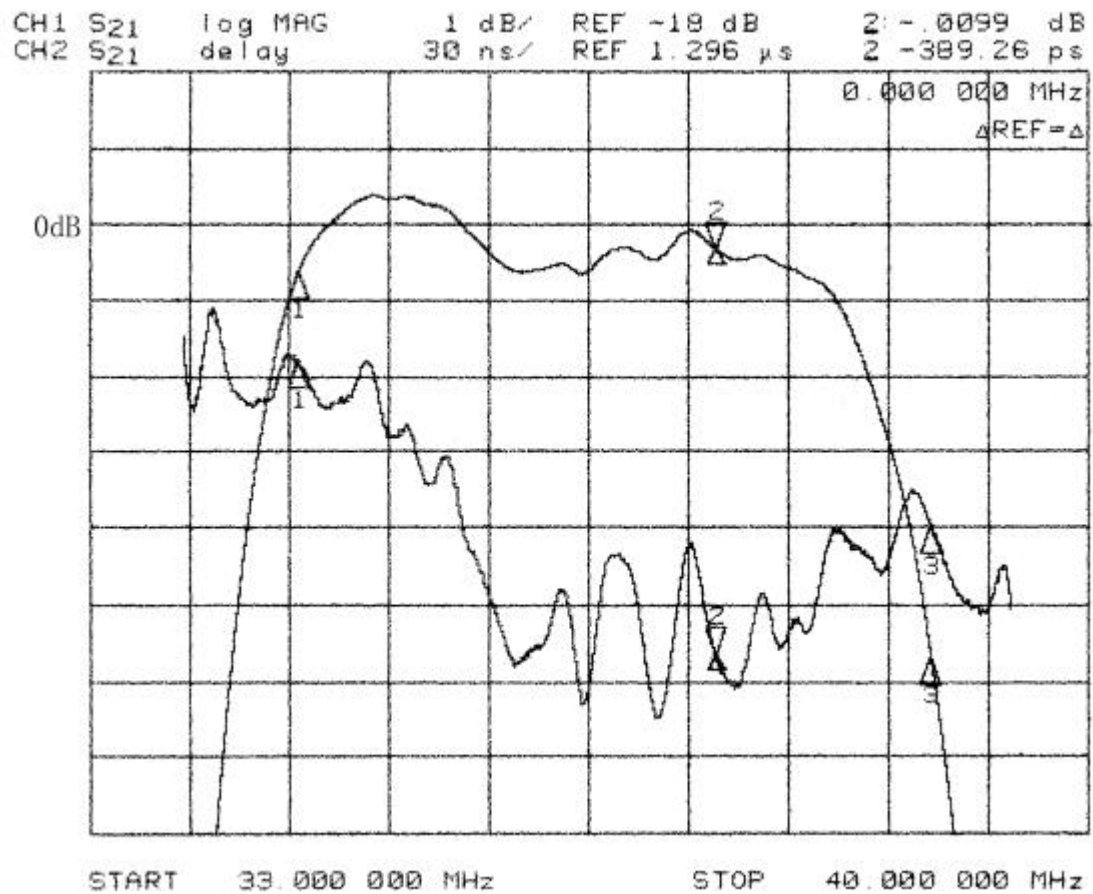
3.5 Voltage Discharge Test

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

3.6 Frequency response

Frequency response in B/G,L/L' mode





Frequency response in B/G,L/L' mode

