1.SCOPE

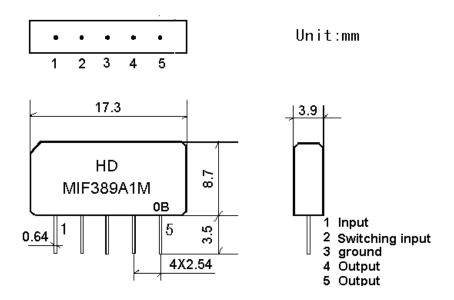
SHOULDER'S SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

2.Construction

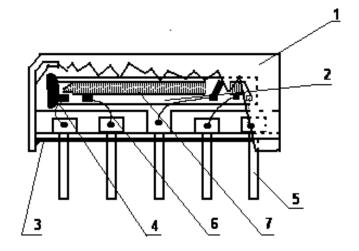
2.1 Dimension and materials

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

2.2. Circuit construction, measurement circuit

Test circuit for SIP-5 filter Input impedance of the symmetrical post-amplifier: 2 k Ω 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

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

Source impedance Zs=50

 $Load impedance \qquad \qquad Z_L \!\!=\!\! 2k \quad /\!/ 3pF \qquad \qquad T_A \!\!=\!\! 25$

Iten	1	Freq	min	typ	max	
Insertion att Reference		37.40MHz	14.5	16.5	18.5	dB
		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
Relative att	enuation	30.90MHz	42.0	55.0	-	dB
			42.0	56.0	-	dB
			42.0	54.0	-	dB
			35.0	47.0	-	dB
			40.0	50.0	-	dB
			40.0	50.0	-	dB
Sidalaha	Sidelobe 25.00~31.90N 40.40~45.00N		35.0	44.0		dB
Sidelobe			35.0	41.0		dB
Reflected wave signal suppression						
	1.2 us6.0 us after main pulse			50.0		dB
(test pulse 250 ns,			40.0	30.0		uБ
carrier frequency 37.40 MHz)						
Feedthrough signal suppression						
1.2 us6.0 us after main pulse			42.0	52.0		dB
(test pulse 250 ns,		12.0	22.0		L.D	
carrier frequency 37.40 MHz)						
Temperature coefficient			-72		ppm/k	

Characteristics in M/N mode (switching input pin 2 connected to input pin 1)

Source impedance Zs=50

 $Load impedance \qquad \qquad Z_L \!\!=\!\! 2k \quad /\!/ 3pF \qquad \qquad T_A \!\!=\!\! 25$

Iten	n	Freq	min	Тур	max	
	Insertion attenuation Reference level		14.5	16.5	18.5	dB
		38.90MHz	4.9	6.4	7.9	dB
		35.32MHz	1.1	2.6	4.1	dB
Relative att	Relative attenuation		22.0	35.0	-	dB
			35.0	42.0	-	dB
			40.0	47.0	-	dB
Sidalaha	Sidelobe 25.00~39.50~4		33.0	41.0		dB
Sidelobe			30.0	37.0		dB
Reflected wave signal suppression 1.2 us6.0 us after main pulse (test pulse 250 ns, carrier frequency 37.40 MHz)			40.0	50.0		dB
Feedthrough signal suppression 1.2 us6.0 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

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Soldering	More then 95% of total
Immerse the pins melt solder	area of the pins should
at 260 +5/-0 for 5 sec.	be covered with solder

3.4 Mechanical Test

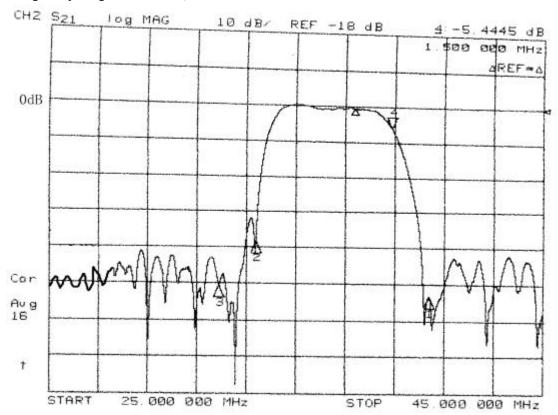
Item	Allowable change of absolute
Test condition	Level at center frequency(dB)
Vibration test	
600-3300rpm amplitude 1.5mm	<1.0
3 directions 2 H each	
Drop test	<1.0
On maple plate from 1 m high 3 times	<1.0
Lead pull test	<1.0
Pull with 1 kg force for 30 seconds	<1.0
Lead bend test	<1.0
90° bending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

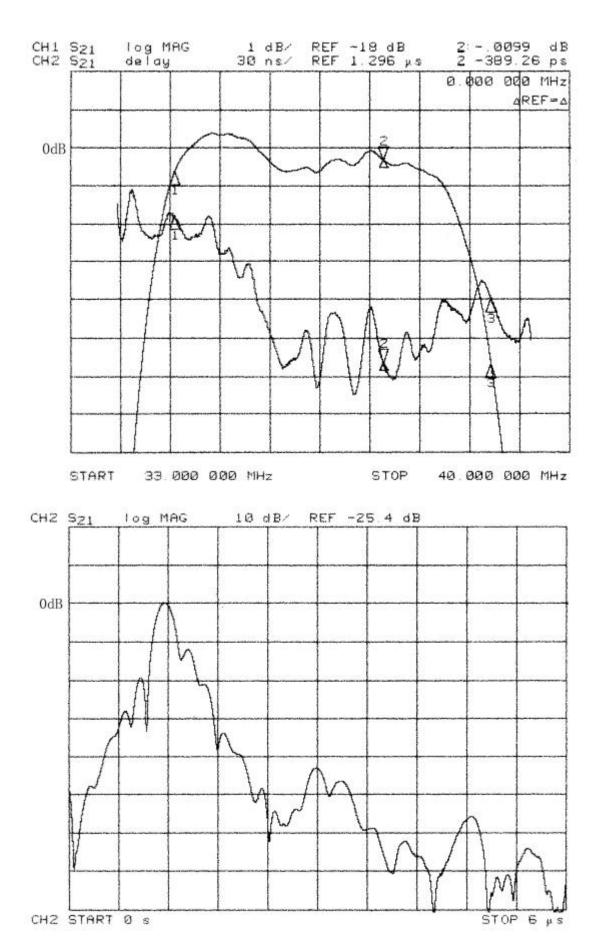
3.5 Voltage Discharge Test

3.5 Voltage Discharge Test	
Item	Allowable change of absolute
Test condition	Level at center frequency(dB)
Surge test	
Between any two electrode	
1000pF 4Mohm	<1.0

3.6 Frequency response

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





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

