



Approved by:

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SPECIFICATION

PRODUCT: SAW FILTER

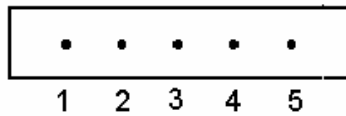
MODEL: HF4501M (M1862M) SIP5K

HOPE MICROELECTRONICS CO., LIMITED

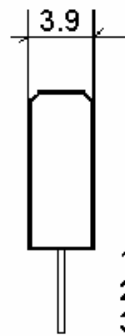
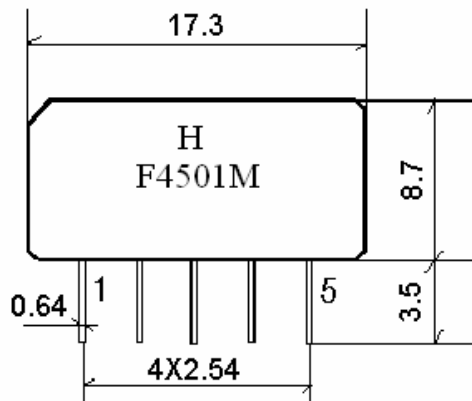
1. Construction

1.1 Dimension and materials

Type : F4501M

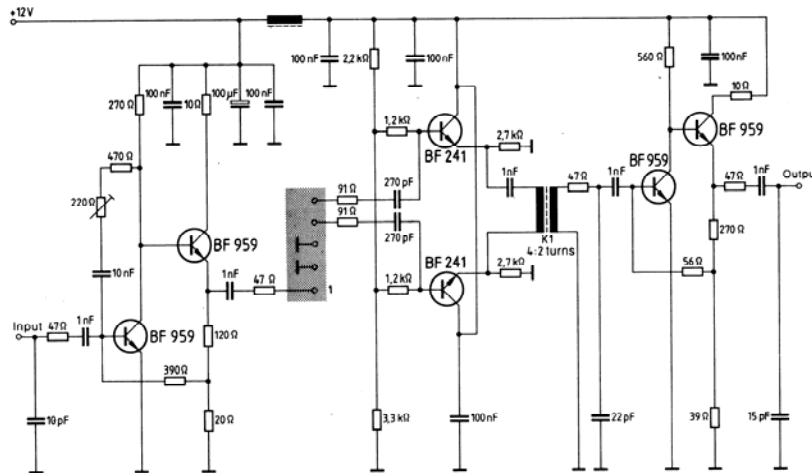


Unit : mm



- 1 Input
- 2 Input-ground
- 3 ground
- 4 Output
- 5 Output

1.2. Circuit construction, measurement circuit



Test circuit for SIP-5 filter
Input impedance of the symmetrical post-amplifier: 2 kΩ in parallel with 3 pF

2.Characteristics

Standard atmospheric conditions

Unless otherwise specified , the standard range of atmospheric conditions for making measurements and tests is as follows;

- Ambient temperature : 15°C to 35°C
- 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. $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$

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. $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$

Reference temperature $+25^{\circ}\text{C}$

2.1 Maximum Rating

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

2.2 Electrical Characteristics

Source impedance

$$Z_S=50\ \Omega$$

Load impedance

$$Z_L=2\text{k}\ \Omega // 3\text{pF}$$

$$T_A=25^{\circ}\text{C}$$

	Freq	Min	typ	max	
Insertion attenuation Reference level	44.06MHz	11.8	13.8	15.8	dB
Relative attenuation	45.75MHz	3.5	5.0	6.5	dB
	42.17MHz	0.1	1.6	3.1	dB
	41.25MHz	11.7	13.7	15.7	dB
	39.75MHz	42.0	52.0		dB
	47.25MHz	41.0	51.0		dB
Sidelobe	35.00~39.75MHz	35.0	42.0		dB
	47.25~55.00MHz	33.0	40.0		dB
Reflected wave signal suppression 1.6 us ... 6.0 us after main pulse (test pulse 250 ns , carrier frequency 44.00 MHz)		40.0	46.0		dB
Feedthrough signal suppression 0.9 us ... 0.8 us after main pulse (test pulse 250 ns , carrier frequency 44.00 MHz)		48.0	56.0		dB
Group delay ripple (p-p)		-	50	-	ns
Impedance at 44.00 MHz Input : $Z_{IN} = R_{IN} // C_{IN}$ Output : $Z_{OUT} = R_{OUT} // C_{OUT}$		-	1.6//10.6 1.3//3.2	-	k Ω //pF k Ω //pF
Temperature coefficient			-72		ppm/k

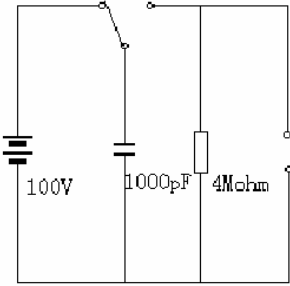
2.3 Environmental Performance Characteristics

Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70°C 1000H	< 1.0
Low temperature test -40°C 1000H	< 1.0
Humidity test 40°C 90-95% 1000H	< 1.0
Thermal shock -20°C==25°C==80°C 20 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260°C for 10 sec.	< 1.0
Soldering Immerse the pins melt solder at 260°C+5/-0°C for 5 sec.	More then 95% of total area of the pins should be covered with solder

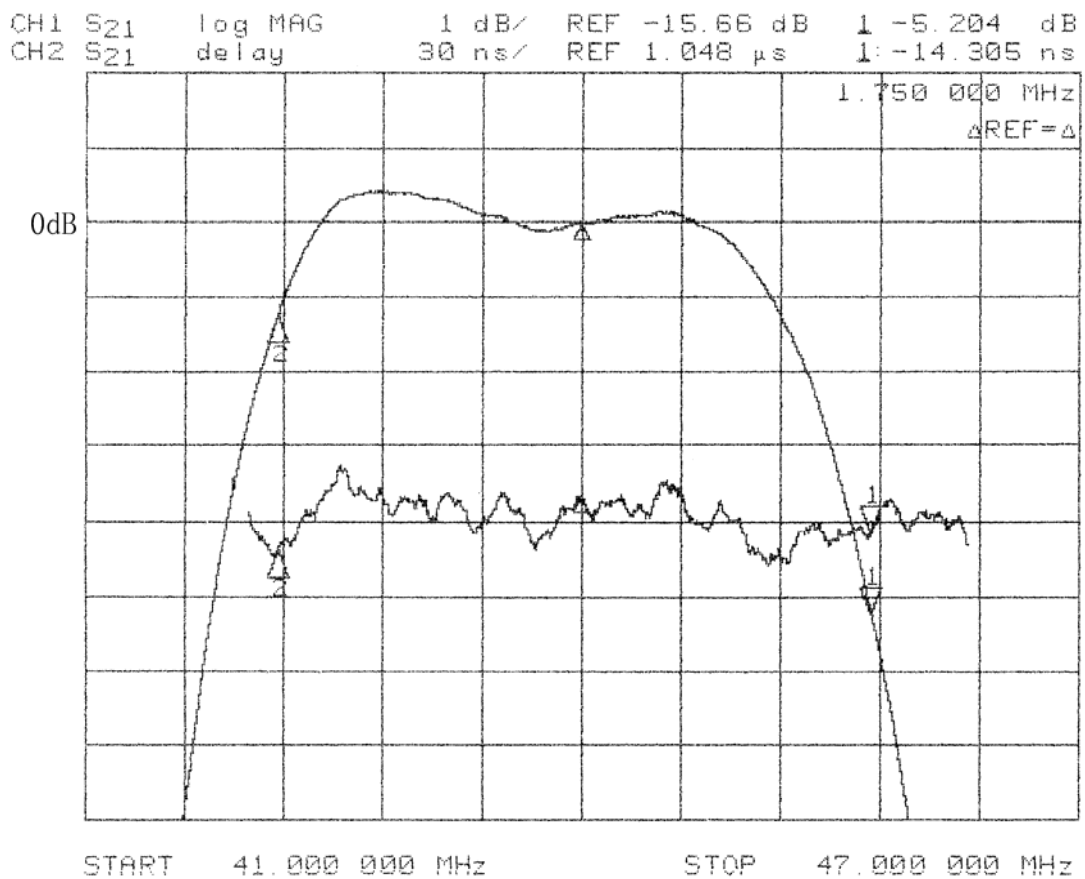
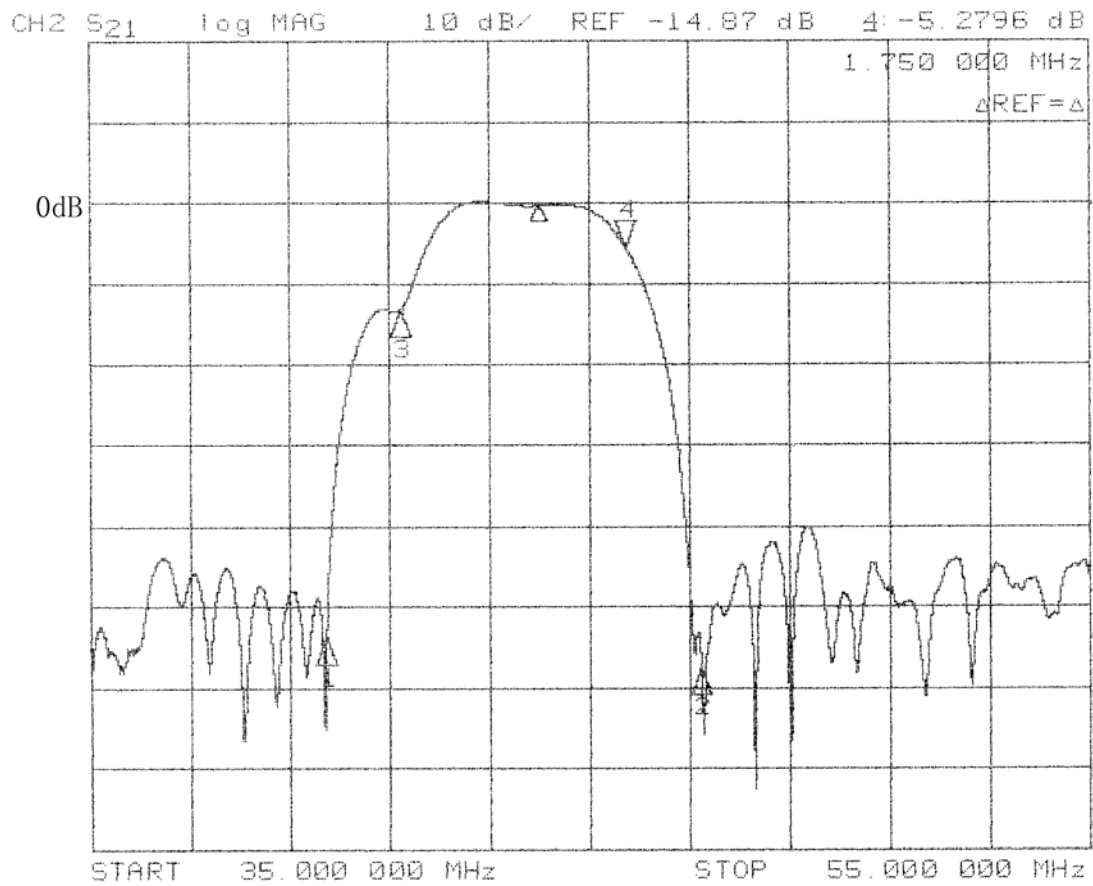
2.4 Mechanical Test

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

2.5 Voltage Discharge Test

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

2.6 Frequency response:



Time domain response:

