



Approved by:

Checked by:

Issued by:

SPECIFICATION

PRODUCT: SAW FILTER

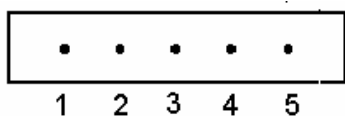
MODEL: HF4504M (M1967M) SIP5K

HOPE MICROELECTRONICS CO., LIMITED

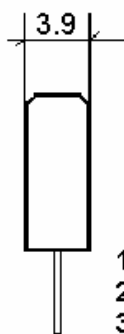
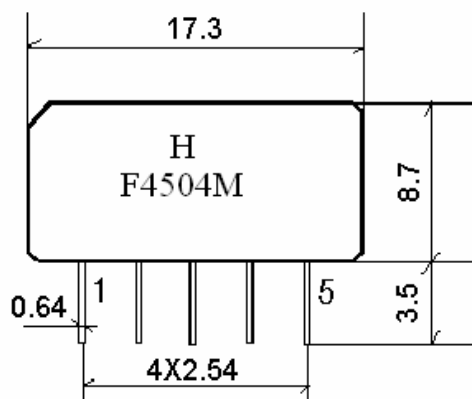
1. Construction

1.1 Dimension and materials

Type : F4504M

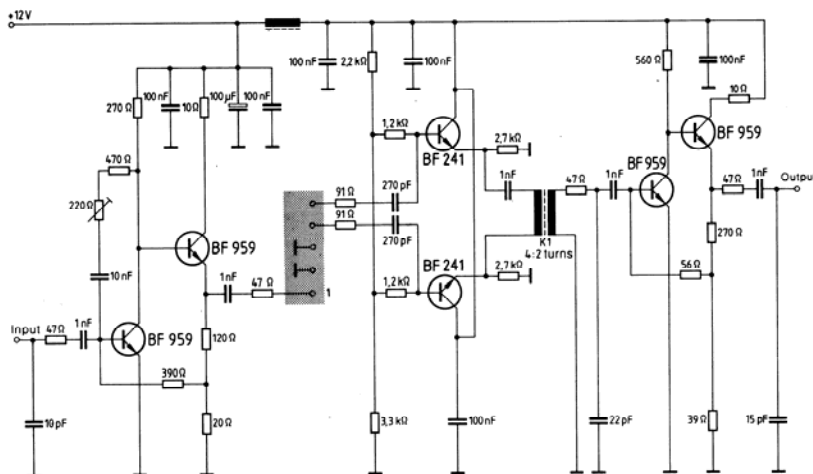


Unit : mm



- 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	10.7	12.7	14.7	dB
Relative attenuation	45.81MHz	4.5	6.0	7.5	dB
	42.23MHz	-0.5	1.0	2.5	dB
	41.98MHz	-	3.0	-	dB
	41.73MHz	-	7.4	-	dB
	41.31MHz	17.1	19.1	21.1	dB
	39.81MHz	42.0	50.0		dB
	47.31MHz	40.0	48.0		dB
Sidelobe	35.06~39.81MHz	35.0			dB
	47.31~55.06MHz	35.0			dB
Impedance at 44,06 MHz					
Input: $Z_{IN} = R_{IN} // C_{IN}$		-	0,9 14,9	-	k Ω pF
Output: $Z_{OUT} = R_{OUT} // C_{OUT}$		-	0,9 4,1	-	k Ω pF
Temperature coefficient		-72			ppm/k

2.3 Environmental Performance Characteristics

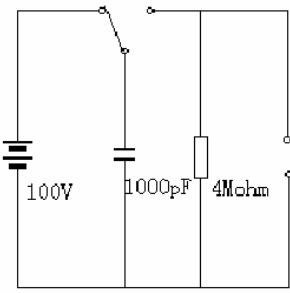
Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70°C 1000H	< 1.0
Low temperature test -40°C 1000H	< 1.0
Humidity test 40°C 90-95% 1000H	< 1.0

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:

