



Approved by:
Checked by:
Issued by:

# SPECIFICATION

PRODUCT: SAW FILTER

MODEL: HF738901M (K7257M) SIP5K

**HOPE MICROELECTRONICS CO., LIMITED**



### 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

<b>DC voltage</b>	<b>VDC</b>	<b>12</b>	<b>V</b>	<b>Between any terminals</b>
<b>AC voltage</b>	<b>Vpp</b>	<b>10</b>	<b>V</b>	<b>Between any terminals</b>

## 2.2 Electrical Characteristics

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

Source impedance  $Z_s=50\ \Omega$

Load impedance  $Z_L=2k\ \Omega //3pF$   $T_A=25^{\circ}\text{C}$

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
<b>Reflected wave signal suppression</b> 1.2 us ... 6.0 us after main pulse (test pulse 250 ns , carrier frequency 37.40 MHz)		40.0	50.0		dB
<b>Feedthrough signal suppression</b> 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  $Z_S=50\ \Omega$   
 Load impedance  $Z_L=2k\ \Omega //3pF$   $T_A=25^\circ C$

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
<b>Reflected wave signal suppression</b> 1.2 us ... 6.0 us after main pulse (test pulse 250 ns , carrier frequency 37.40 MHz)		40.0	50.0		dB
<b>Feedthrough signal suppression</b> 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

**2.3 Environmental Performance Characteristics**

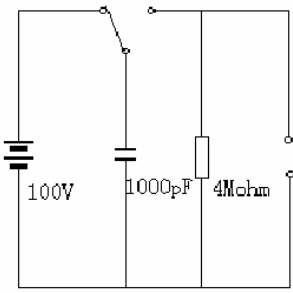
Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70°C 1000H	< 1.0
Low temperature test -40°C 1000H	< 1.0
Humidity test 40°C 90-95% 1000H	< 1.0
Thermal shock -20°C==25°C==80°C 20 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260°C for 10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

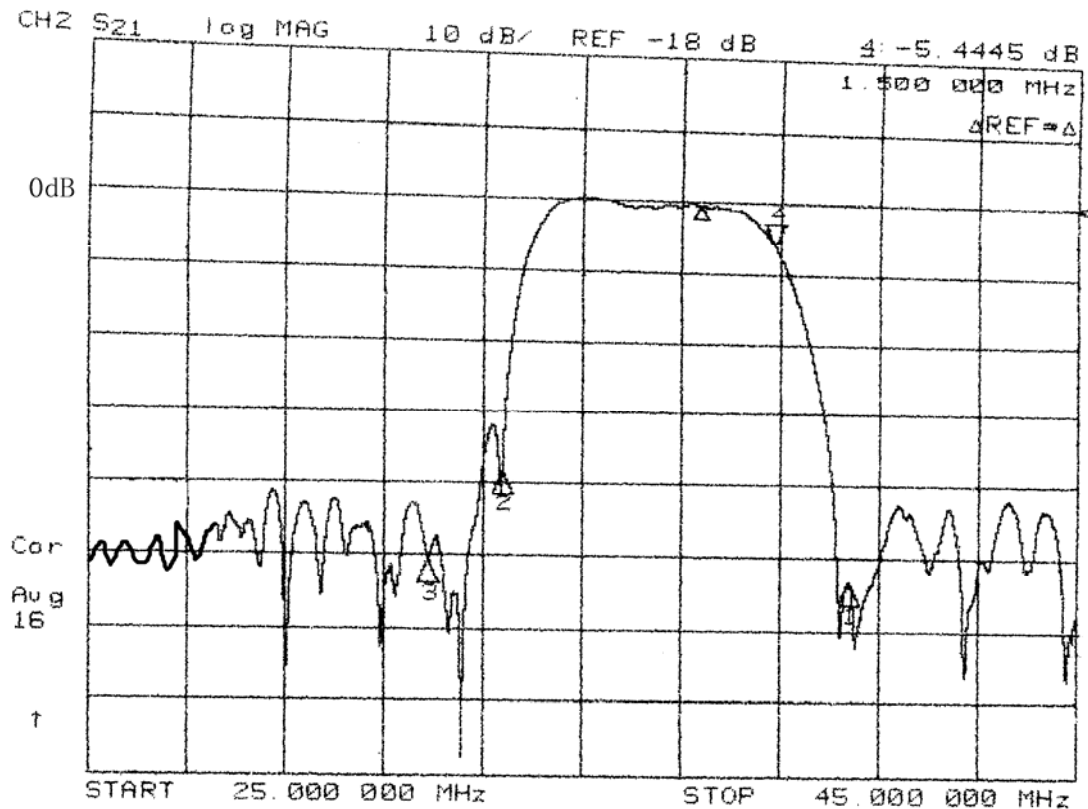
600-3300rpm amplitude 1.5mm 3 directions 2 H each	
Drop test On maple plate from 1 m high 3 times	<1.0
Lead pull test Pull with 1 kg force for 30 seconds	<1.0
Lead bend test 90° bending with 500g weigh 2 times	<1.0

### 2.5 Voltage Discharge Test

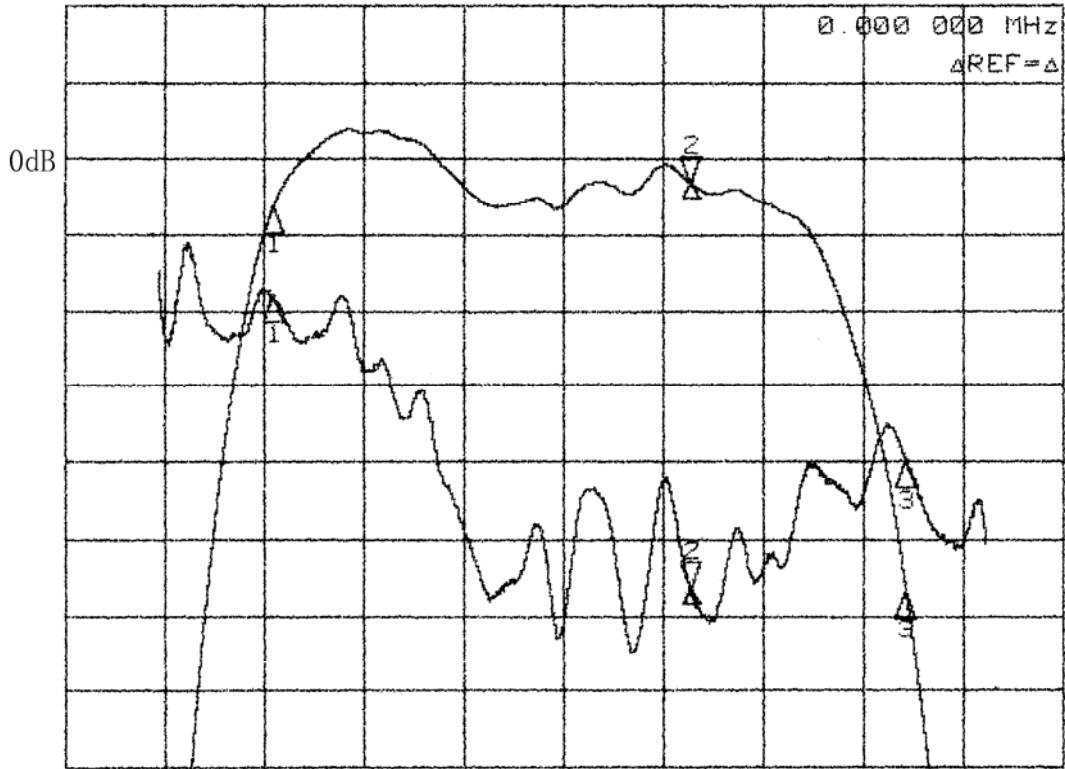
Item Test condition	Allowable change of absolute Level at center frequency(dB)
Surge test Between any two electrode  	<1.0

### 3.6 Frequency response

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

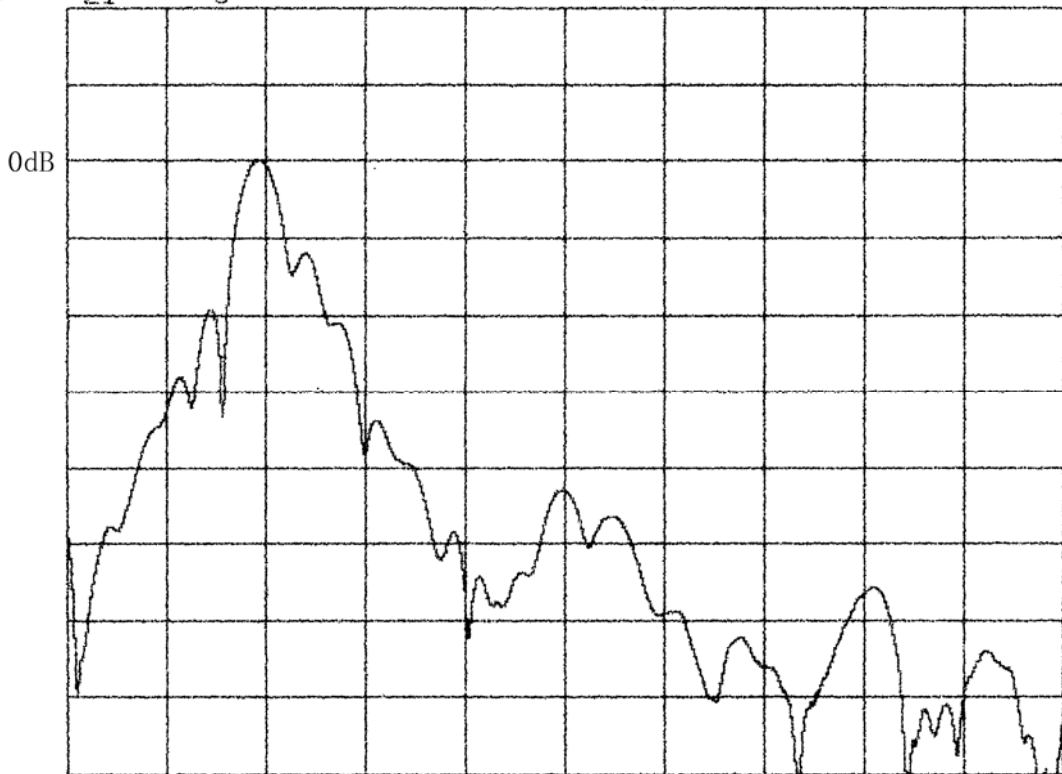


CH1 S21 log MAG 1 dB/ REF -19 dB 2: -.0099 dB  
 CH2 S21 delay 30 ns/ REF 1.296  $\mu$ s 2: -389.26 ps



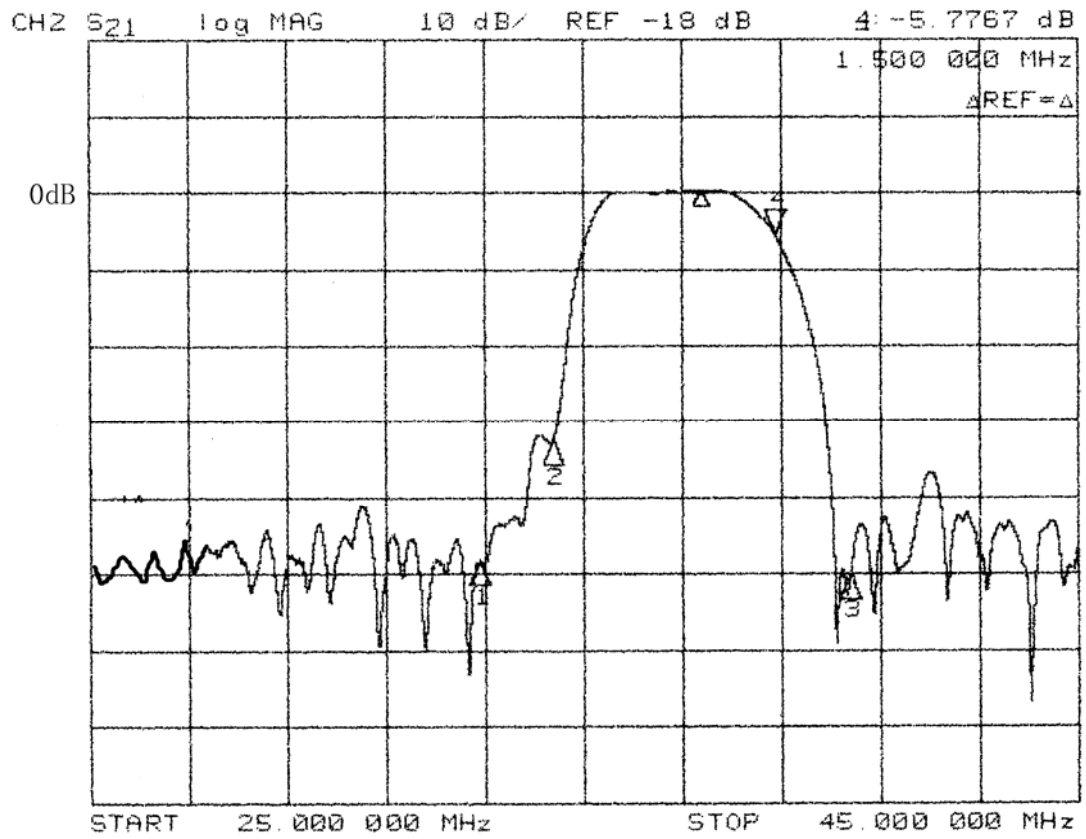
START 33.000 000 MHz STOP 40.000 000 MHz

CH2 S21 log MAG 10 dB/ REF -25.4 dB

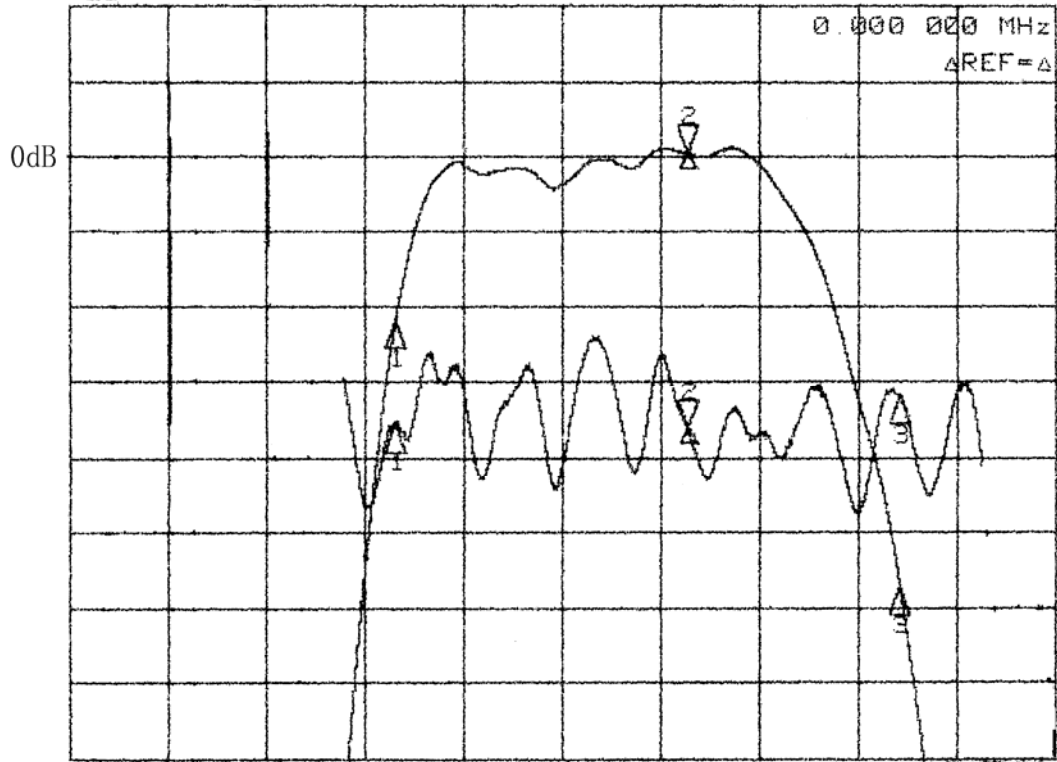


CH2 START 0 s STOP 6  $\mu$ s

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



CH1 S21 log MAG 1 dB/ REF -17.68 dB 2: .0054 dB  
CH2 S21 delay 30 ns/ REF 1.254  $\mu$ s 2 -140.06 ps



START 33.000 000 MHz STOP 40.000 000 MHz

CH2 S21 log MAG 10 dB/ REF -26.62 dB

