



Approved by:

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# SPECIFICATION

PRODUCT: SAW FILTER

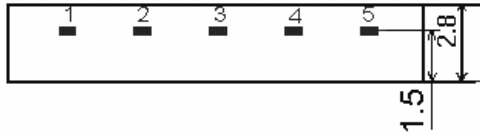
MODEL: HB3614N (X6874D) SIP5D

**HOPE MICROELECTRONICS CO., LIMITED**

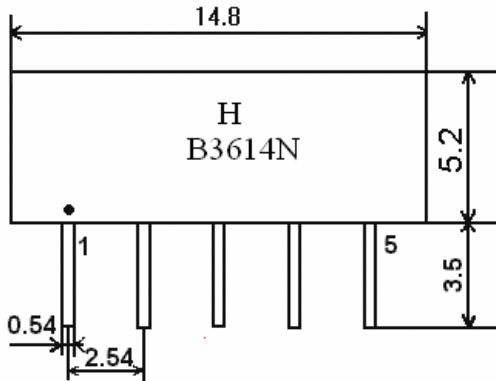
# 1. Construction

## 1.1 Dimension and materials

Type : B3614N

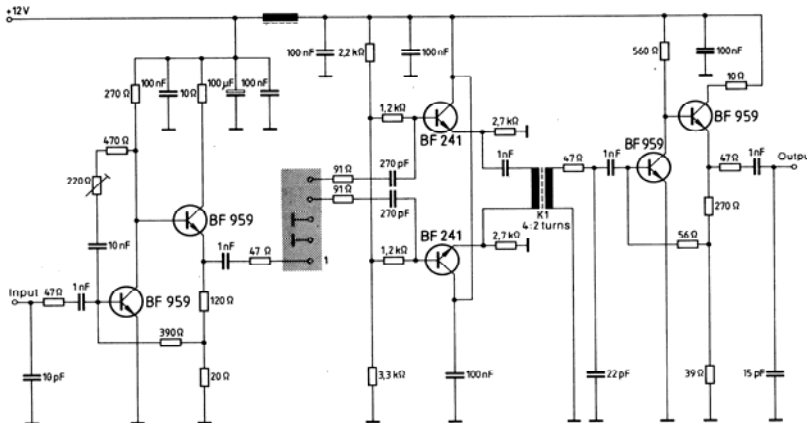


Unit : mm



- 1 Input
- 2 Input ground
- 3 Chip carrier - 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 rang 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**

<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**

Source impedance  $Z_S=50\ \Omega$

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

Item	Freq	min	typ	max	
<b>Center frequency</b>	Fo	36.05	36.125	36.20	MHz
<b>Insertion attenuation</b> Reference level	36.13MHz	19.7	21.7	23.7	dB
<b>Pass bandwidth</b>	B <sub>1dB</sub>	-	7.5	-	MHz
	B <sub>3dB</sub>	-	8.0	-	MHz
	B <sub>30dB</sub>	-	9.5	-	MHz
<b>Relative attenuation</b>	32.32MHz	-	1.2	-	dB
	39.93MHz	0.2	1.4	2.6	dB
	32.13MHz	1.7	3.2	4.7	dB
	40.13MHz	1.7	3.2	4.7	dB
	31.25MHz	32.0	45.0	-	dB
	47.25MHz	40.0	52.0	-	dB
<b>Sidelobe</b>	25.00~29.50MHz	35.0	42.0	-	dB
	29.50~31.25MHz	32.0	38.0	-	dB
	41.00~44.00MHz	31.0	37.0	-	dB
	44.00~50.00MHz	35.0	42.0	-	dB
<b>Reflected wave signal suppression</b> 1.2 us ... 6.0 us after main pulse (test pulse 250 ns , carrier frequency 36.125 MHz)		42.0	52.0		dB
<b>Feedthrough signal suppression</b> 1.3 us ... 1.2 us before main pulse (test pulse 250 ns , carrier frequency 36.125 MHz)		45.0	54.0		dB
<b>Group delay ripple (p-p)</b> 32.13 ~ 40.13 Mhz		-	50	-	ns
<b>Impedance at 36.125 Mhz</b>		-	-	-	-
Input: $Z_{in} = R_{in} // C_{in}$		-	3.6//13.0	-	k $\Omega$ //pF
Output: $Z_{in} = R_{in} // C_{in}$		-	2.9//3.9	-	k $\Omega$ //pF
<b>Temperature coefficient of frequency</b>		-72			ppm/k

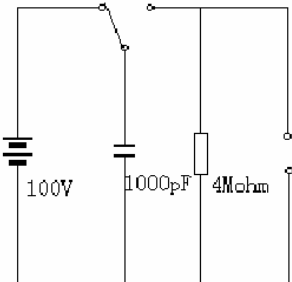
### 2.3 Environmental Performance Characteristics

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

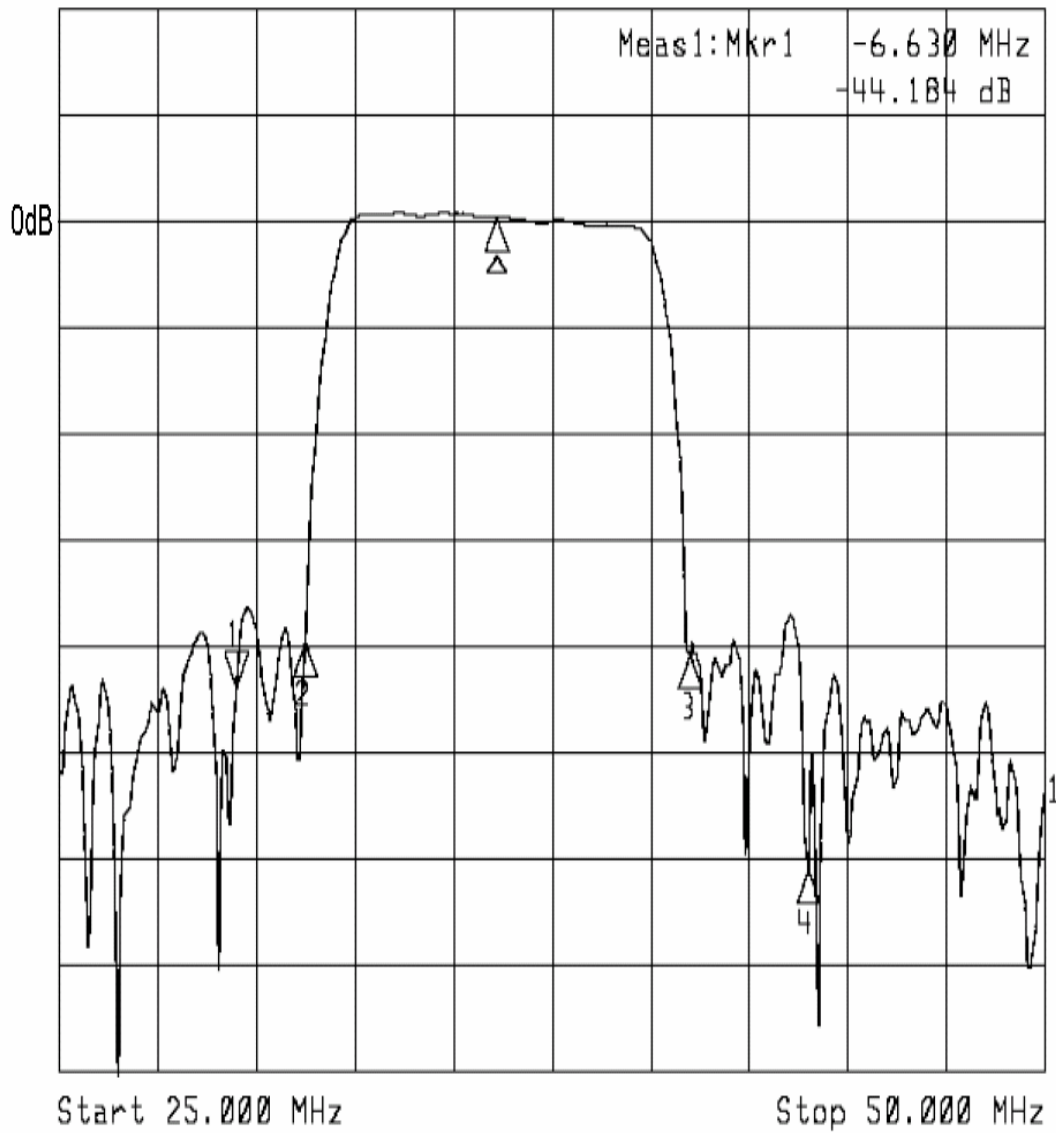
### 2.5 Voltage Discharge Test

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

## 2.6 Frequency response:

►1: Transmission Log Mag 10.0 dB/

▷2: Off



1: Mkr Δ (MHz)	dB	2: Mkr (MHz)	dB
1>	-6.63	-44.184	
2:	-4.88	-39.939	
3:	4.87	-41.324	
4:	7.87	-61.503	

