

1.SCOPE

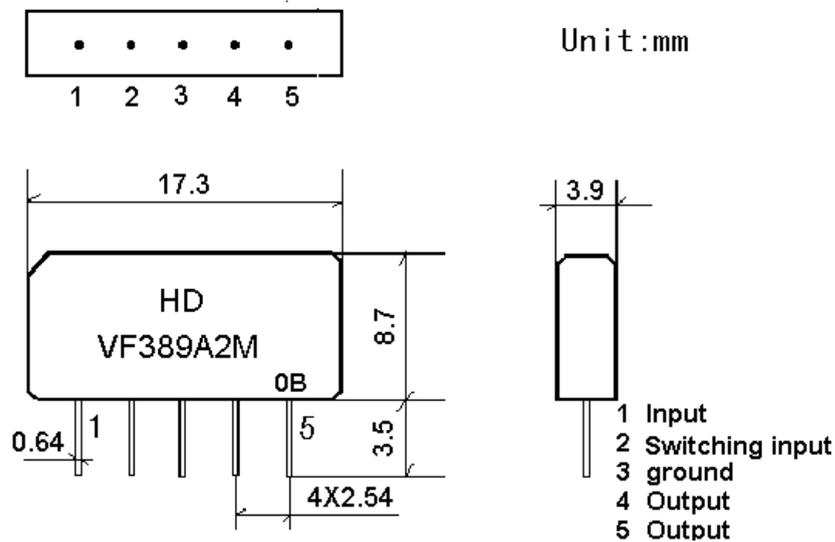
HAODA's SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

2.Construction

2.1 Dimension and materials

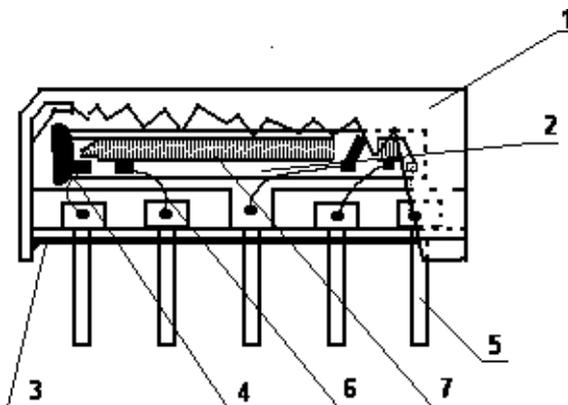
Manufacturer's name : HAODA ELECTRONICS Co. LTD(CHINA)

Type : VF389A2M



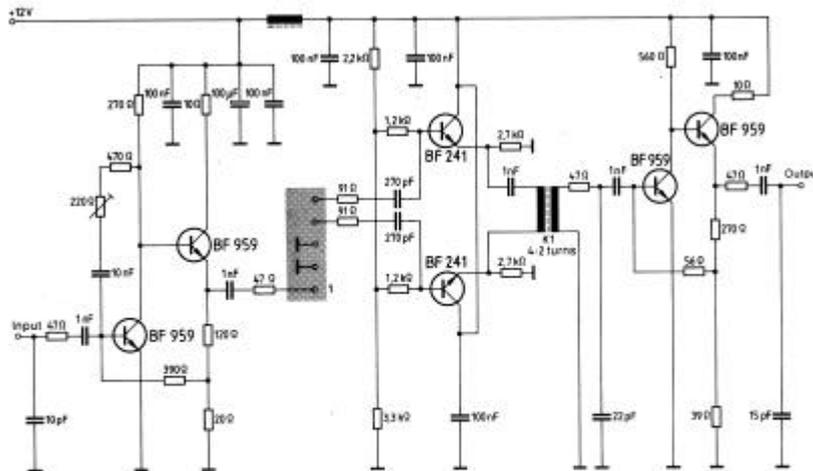
0: year(0,1,2,3,4,5,6,7,8,9)

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: $2\text{ k}\Omega$ 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. $-10 \sim +60$

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 of channel

Source impedance

$Z_s=50$

Load impedance

$Z_L=2k //3pF$

$T_A=25$

| Item | Freq | min | typ | max | |
|--|----------------|------|------|------|-------|
| Insertion attenuation Reference level | 37.40MHz | 11.8 | 13.8 | 15.8 | dB |
| Relative attenuation | 38.90MHz | 4.1 | 5.6 | 7.1 | dB |
| | 34.47MHz | 1.5 | 3.0 | 4.5 | dB |
| | 33.40MHz | 40.0 | 52.0 | - | dB |
| | 30.90MHz | 40.0 | 53.0 | - | dB |
| | 31.90MHz | 40.0 | 55.0 | - | dB |
| | 32.40MHz | 40.0 | 50.0 | - | dB |
| | 40.15MHz | 32.0 | 40.0 | - | dB |
| | 40.40MHz | 40.0 | 50.0 | - | dB |
| Sidelobe | 25.00~31.90MHz | 35.0 | 42.0 | - | dB |
| | 40.40~45.00MHz | 33.0 | 38.0 | - | dB |
| Temperature coefficient | | -72 | | | ppm/k |

3.3 Environmental Performance Characteristics

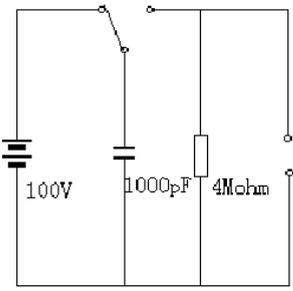
| Item Test condition | Allowable change of absolute Level at center frequency(dB) |
|--|---|
| High temperature test 70 1000H | < 1.0 |
| Low temperature test -40 1000H | < 1.0 |
| Humidity test 40 90-95% 1000H | < 1.0 |
| Thermal shock -20 ==25 ==80 20 cycle 30M 10M 30M | < 1.0 |
| Solder temperature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

3.4 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 |

3.5 Voltage Discharge Test

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