

规格书编号

SPEC NO :

# 产品规格书

# SPECIFICATION

CUSTOMER 客户: \_\_\_\_\_  
PRODUCT 产品: **SAW FILTER**  
MODEL NO 型号: **HDIF389A13Dc SIP5Dc**  
PREPARED 编制: \_\_\_\_\_ CHECKED 审核: \_\_\_\_\_  
APPROVED 批准: \_\_\_\_\_ D A T E 日期: 2008-11-24

|                         |             |         |
|-------------------------|-------------|---------|
| 客户确认 CUSTOMER RECEIVED: |             |         |
| 审核 CHECKED              | 批准 APPROVED | 日期 DATE |
|                         |             |         |

无锡市好达电子有限公司  
Shoulder Electronics Limited

## 更改历史记录 History Record

| 更改日期<br>Date | 规格书编号<br>Spec. No. | 产品型号<br>Part No. | 客户产品型号<br>Customer No. | 更改内容描述<br>Modify Content | 备注<br>Remark |
|--------------|--------------------|------------------|------------------------|--------------------------|--------------|
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**1.scope**

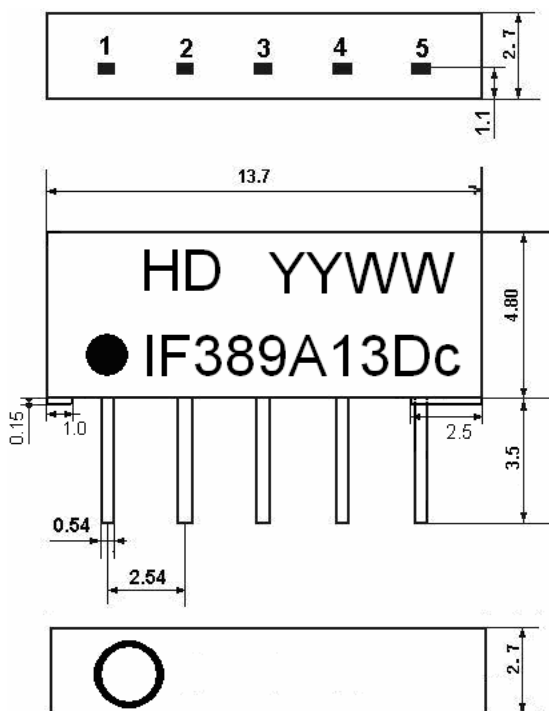
SHOULDER's SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

**2.Construction**

**2.1 Dimension and materials**

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

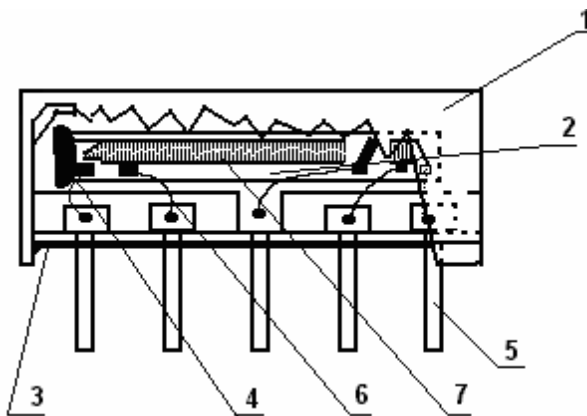
Type : IF389A13Dc



**Pin configuration**

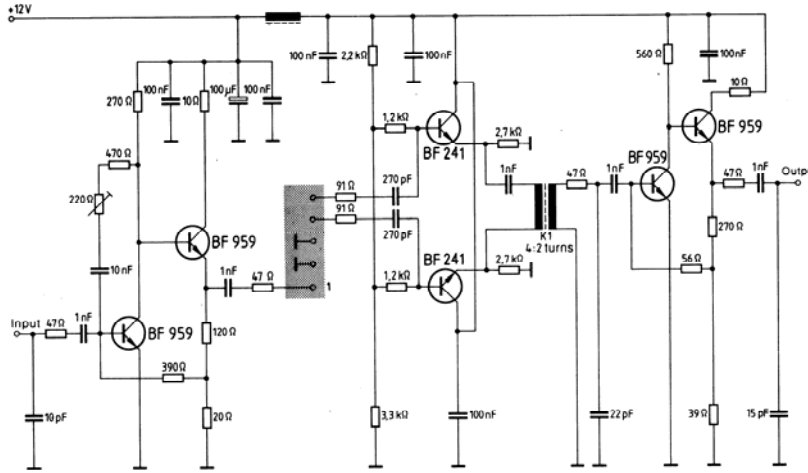
- 1.input
- 2.input-ground
- 3.Ground
- 4.Output
- 5.Output

YY:year  
WW:week



| 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 kΩ in parallel with 3 pF

**3.Characteristics**

| Items                           | Conditions  | Specifications            |
|---------------------------------|---|---------------------------|
| Standard atmospheric conditions | Unless otherwise specified , the standard rang of atmospheric conditions for making measurements and tests is as follows;<br>Ambient temperature : 15°C to 35°C<br>Relative humidity : 25% to 85%<br>Air pressure : 86kPa to 106kPa | There shall be no damage. |
| Operating temperature rang      | Operating temperature rang is the rang of ambient temperatures in which the filter can be operated continuously. -10°C ~ +60°C  |                           |
| Storage temperature rang        | Storage temperature rang is the rang of ambient temperatures at which the filter can be stored without damage.<br>Conditions are as specified elsewhere in these specifications. -40°C ~ +70°C                                      |                           |
| Reference temperature           | +25°C   |                           |

### 3.1 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> |

### 3.2 Electrical Characteristics

Source impedance

 $Z_s=50\ \Omega$ 

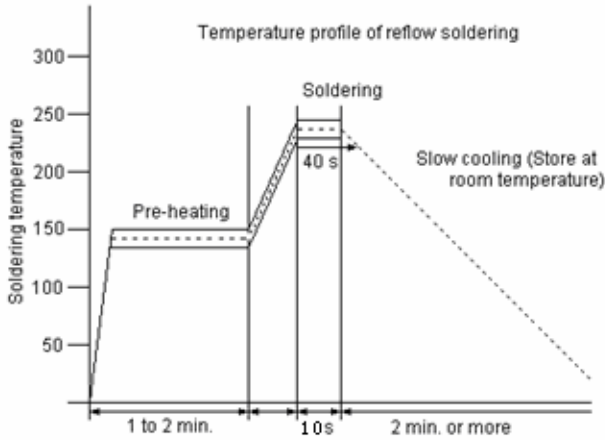
Load impedance

 $Z_L=2k\ \Omega //3pF$ 
 $T_A=25^\circ C$ 

| Items                                    | Freq           | Min  | typ  | max  |       |
|--|----------------|------|------|------|-------|
| Insertion attenuation<br>Reference level | 37.40MHz       | 14.2 | 16.2 | 18.2 | dB    |
| <b>Relative attenuation</b>              | 38.90MHz       | 4.7  | 6.2  | 7.7  | dB    |
|  | 34.47MHz       | 1.0  | 2.5  | 4.0  | dB    |
|  | 32.90MHz       | 18.3 | 20.3 | 22.3 | dB    |
|  | 30.90MHz       | 43.0 | 55.0 |      | dB    |
|  | 30.40MHz       | 43.0 | 57.0 |      | dB    |
|  | 31.40MHz       | 42.0 | 52.0 |      | dB    |
|  | 40.90MHz       | 41.0 | 50.0 |      | dB    |
| Sidelobe                                 | 25.00~30.90MHz | 38.0 | 48.0 |      | dB    |
|  | 40.90~45.00MHz | 35.0 | 42.0 |      | dB    |
| Temperature coefficient                  |                | -72  |      |      | Ppm/k |

### 3.3 Environmental Performance Characteristics

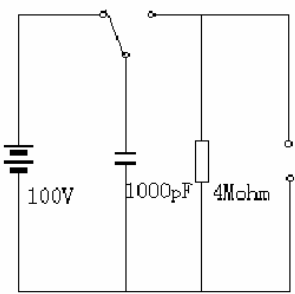
| Item             | Condition  | Specifications  |
|------------------|--|---|
| High temperature | The specimen shall be store at a temperature of $80\pm 2^\circ C$ for $96\pm 4h$ . Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.                                      | Mechanical characteristics and specifications in electrical characteristics shall be satisfied. There shall be no excessive change in appearance. |
| Low temperature  | The specimen shall be store at a temperature of $-20\pm 3^\circ C$ for $96\pm 4h$ . Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.                                     |   |
| Humidity         | The specimen shall be store at a temperature of $40\pm 2^\circ C$ with relative humidity of 90% to 96% for $96\pm 4h$ . Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h. |   |
| Thermal shock    | The specimen shall be subjected to 8 continuous cycles each as shown below. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.   |   |

|                              | Temperature  | Duration |   |
|------------------------------|--|----------|---|
|                              | +25 °C=>-40 °C   | 0.5h     |   |
|                              | -40 °C   | 4h       |   |
|                              | -40 °C=>+85 °C   | 2h       |   |
|                              | +85 °C   | 4h       |   |
|                              | +85 °C=>+25 °C   | 0.5h     |   |
|                              | +25 °C   | 1h       |   |
| Resistance to Soldering heat | <p>Reflow soldering method<br/>Peak: 255 ±5 °C, 220 ±5 °C, 40s<br/>At electrode temperature of the specimen.</p>  <p>The specimen shall be passed through the reflow furnace with the condition shown in the above profile for 1 time.<br/>The specimen shall be stored at standard atmospheric conditions for 1h, after which the measurement shall be made. Test board shall be 1.6 mm thick. Base material shall be glass fabric base epoxy resin.</p> |          |   |
| Solder ability               | Immerse the pins melt solder at 260°C+5/-0°C for 5 sec.  |          | More than 95% of total area of the pins should be covered with solder |

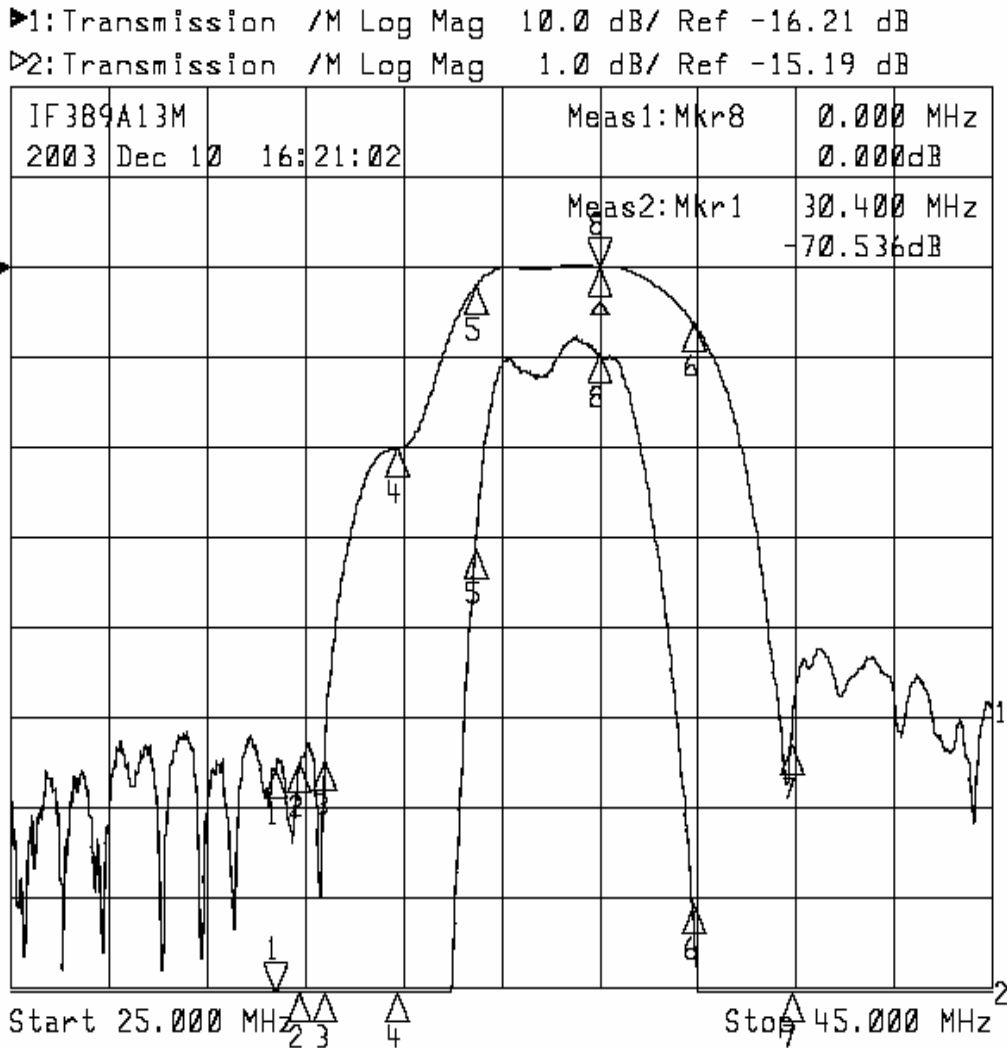
**3.4 Mechanical Test**

| Items     | Conditions   | Specifications            |
|-----------|--|---------------------------|
| Vibration | 600-3300rpm amplitude 1.5mm<br>3 directions 2 H each | There shall be no damage. |
| Drop      | On maple plate from 1 m high 3 times                 |                           |
| Lead pull | Pull with 1 kg force for 30 seconds                  |                           |
| Lead bend | 90° bending with 500g weigh 2 times                  |                           |

**3.5 Voltage Discharge Test**

| Item  | Condition   | Specifications           |
|-------|---|--------------------------|
| Surge | Between any two electrode<br> | There shall be no damage |

**3.6 Frequency response**



| 1: Mkr (MHz) | dB      | 2: Mkr (MHz) | dB         |         |         |
|--------------|---------|--------------|------------|---------|---------|
| 1:           | -6.6000 | -55.703      | 1> 30.4000 | -70.536 |         |
| 2:           | -6.1000 | -55.029      | 2:         | 30.9000 | -69.102 |
| 3:           | -5.6000 | -54.924      | 3:         | 31.4000 | -73.236 |
| 4:           | -4.1000 | -20.147      | 4:         | 32.9000 | -36.293 |
| 5:           | -2.5300 | -2.161       | 5:         | 34.4700 | -18.319 |
| 6:           | 1.9000  | -6.125       | 6:         | 38.9000 | -22.263 |
| 7:           | 3.9000  | -52.944      | 7:         | 40.9000 | -68.769 |
| 8>           | 0.0000  | 0.000        | 8:         | 37.0000 | -16.145 |