

# 华宇电子有限公司超声波传感器

Huayu Electronic Co.,Ltd

型号 (Type) : HY 40 A 16 R 12 - 1

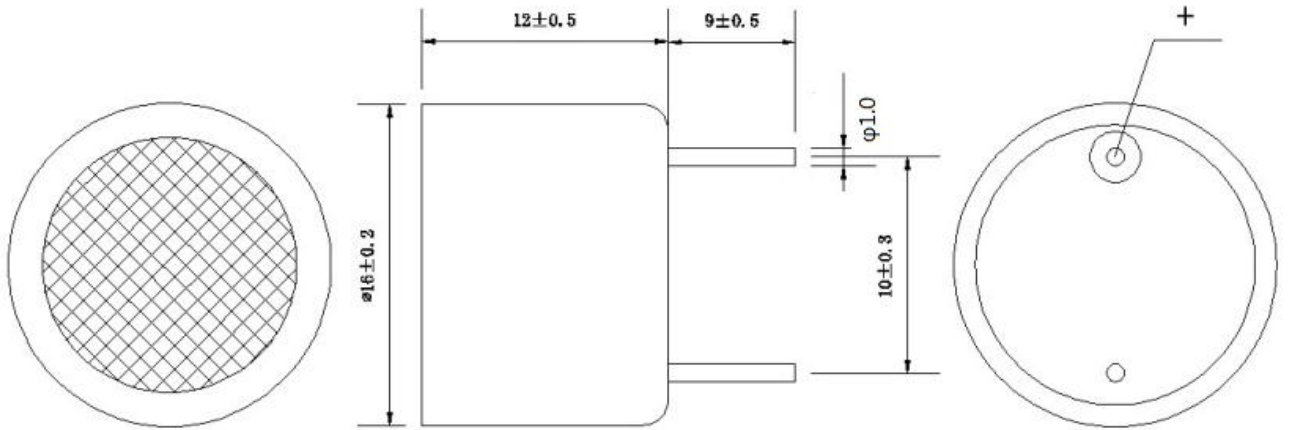
1 2 3 4 5 6 7

- |          |                          |
|----------|--------------------------|
| 1 华宇电子公司 | Huayu Electronic Co.,Ltd |
| 2 标称频率   | Center Frequency         |
| 3 外壳材质   | Housing Material         |
| 4 外壳直径   | Shell diameter           |
| 5 功能     | Function                 |
| 6 产品高度   | Product height           |
| 7 结构     | structure                |

## 电气规格 (ELECTRICAL SPECIFICATION)

- |  |  |
|--|--|
| 1. 功能 (Function) :                       | Transmit or receive (单用途)                  |
| 2. 结构 (structure) :                      | Open Structure (开放式)                       |
| 3. 外壳材质 (Housing Material) :             | Aluminum (铝)                               |
| 4. 中心频率 (Center Frequency) :             | $40 \pm 0.5$ KHz                           |
| 5. 静态电容 (Free Capacitance) :             | $2300 \pm 20\%$ Pf                         |
| 6. 声压 (Sound Pressure Level) :           | 116dB min. (0dB=0.02mPa)                   |
| 7. 发射角度 (-6 dB Directivity deg) :        | $70 \pm 5^\circ$                           |
| 8. 灵敏度 (Sensitivity) :                   | -62dB Min. (0dB=1v/ $\mu$ bar)             |
| 9. 余震: (Ringing) :                       | 1.5ms max                                  |
| 10. 使用温度 (Operating Temperature) :       | $-25^\circ\text{C} \sim +60^\circ\text{C}$ |
| 11. 最大允许电压 (Maximum allowable voltage) : | 140Vp-p                                    |
| 12. 储存温度 (Storage Temperature) :         | $-40^\circ\text{C} \sim +80^\circ\text{C}$ |
| 13. 重量 (Weight) :                        | 2.3g                                       |

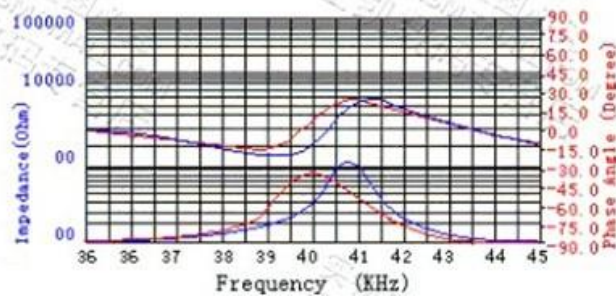
## 外观及尺寸 (Appearance and size)



## 性能参数 (graphics for performance parameters)

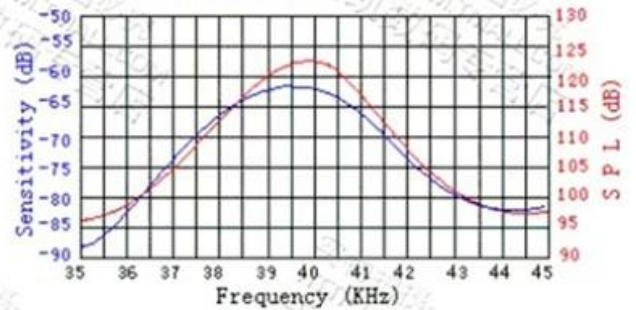
### Impedance/Phase Angle vs. Frequency

Tested under 1Vrms Oscillation Level

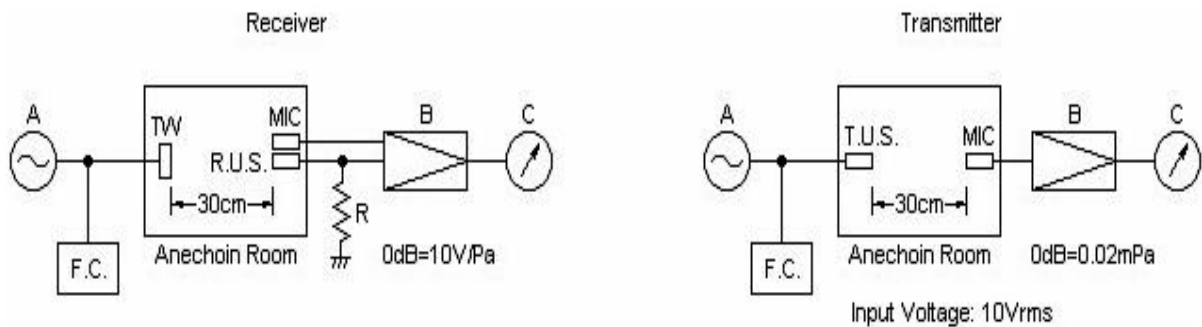


### Sensitivity/Sound Pressure Level

Tested under 10Vrms@30cm



## 测试电路 (Test circuit)



A: Oscillator B: Amplifier C: Voltmeter R: 3.9K MIC: Microphone TW: Tweeter  
R.U.S.: Receiver Ultrasonic Sensor T.U.S.: Transmitter Ultrasonic Sensor F.C.: Frequency Counter

## 可靠性试验 ( RELIABLILTY TEST )

### 1 High temp test

After being placed in a chamber at 120°C for 24 hours

### 2 Low temp test

After being placed in a chamber at -30°C for 96 hours

### 3 Humidity Test

After being placed in a chamber +50°C and 90±5% relative Humidity for 96 hours

### 4 Vibration

Sensor shall be measured after being applied vibration of Amplitude of 1.5mm with 10 to 55hz band of vibration frequency to each of 3 per-pendicuiar directions for 2 hours

### 5 Drop test

The part only shall be dropped from a height of 100cm onto a 10mm thick wooden board 3 times in 3 axes(X.Y.Z). (a total of 9 times).

### 6 Treminal Mechanical strength

The force 10 seconds of 9.8N(1.0Kg)is applied to each terminal in axial direction

No damage and cutting off

7 After the test the part shall meet specifications with-out any Degradation in appearance and performance except SPL after 4 hours at 25°C. The SPL should be in±10dB compared wit initial one.

### 1 高温试验

120 度放置 24 小时

### 2 低温试验

30 度放置 96 小时

### 3 湿度测试

50 度 90±5%，96 小时。

### 4 振动

10-55hz 1min 1.5mm 3 轴 (x.y.z) 2hours/direction

### 5 跌落试验

100CM 高下跌到 10mm 厚的木板上 3 次一个循环 (共做 9 次)。

### 6 接线的机械强度

用力 10 秒 9.8n (1.0kg) 施加到终端，在轴向方无损坏切断。

7 试验结束后，在 25°C4 小时后，传感器的外观和性能均应符合规定。声压级应在 ±10db 相比初始。

## 包装规范 ( Package Specification)

1 每只泡沫盒 50 只产品。

Each foam box has 50 products

2 每箱 50 只泡沫盒。

40 foam boxes in each case

3 每箱 2500 只产品。

2000 products per carton

4 包装箱尺寸 520X420X280 (mm)

Packing case size 520X420X280 mm

