

SPECIFICATIONS APPROVAL

EG-SPA103001

Customer Name : _____
Product Name : Ultrasonic Sensor with Φ14mm 58Khz Part No.: JYY-T/R14580500B
Date : _____ Samples Qty: _____

<div>Ultrasonic Sensor Specs</div> <div>1. 规格型号(Part No.) 2. 基本性能参数(Electronic Performance) 3. 外观尺寸图(Appearance and Dimensions) 4. 探测角度测试(Directivity test) 5. 模拟测试线路(Simulation Test Circuit) 6. 环境试验(Environmental Experiments) 7. 产品命名方法(Part No. Naming Method) 8. 产品批次标注方法(Product Lot No. Mark Method) 9. 产品的测试方法及仪器设备(Test Method and Equipment) 10. 产品包装方式(Package Method) 11. 注意事项(Notes) 12. 环保承诺(ROHS Commitment)</div>		
客户批准 Customer Approval	承认签字 (Approval signature)	承认盖章 (Approval Stamp)

批 准(Approval)	审 核(Audit)	制 作(Drawing)

Marks : 规格书编号 (File No.) : **EG-SPA103001**,
Please send back to us with your signature and stamp on it when it is approved.

Ultrasonic Sensor Specifications

(超声波传感器规格书)

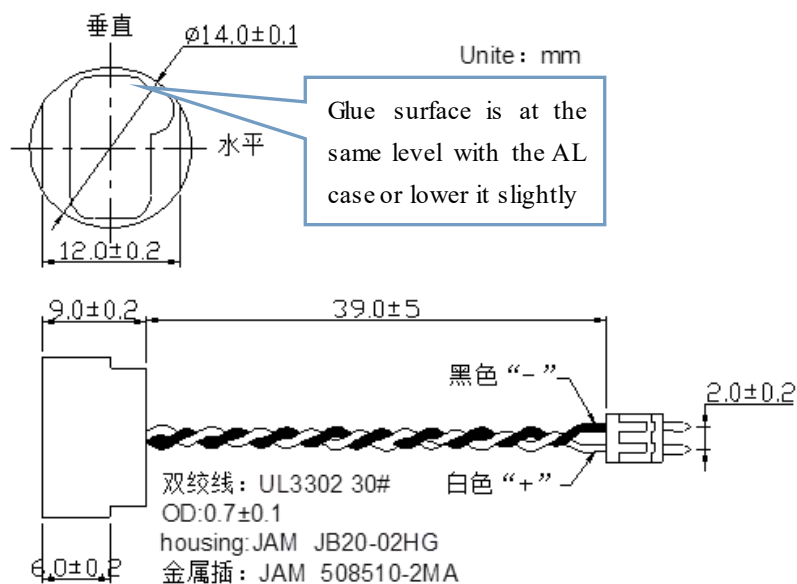
EG-SPA103001

1. 规格型号(Part No.): JYY-T/R14580500B

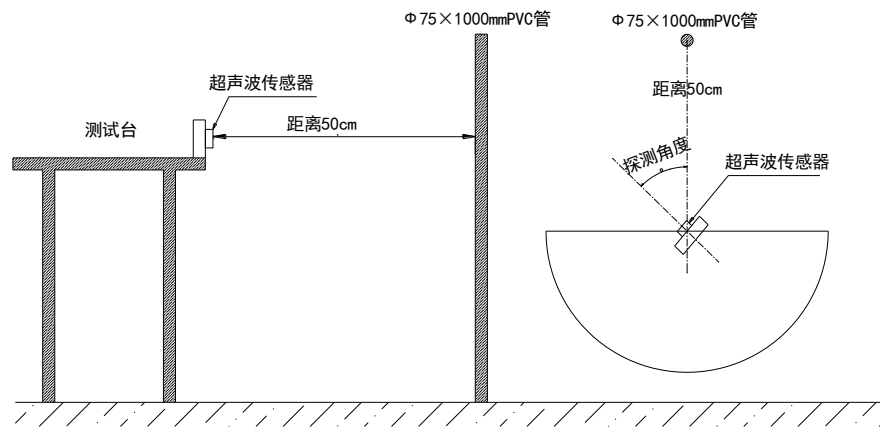
2. 基本性能参数(Electronic Performance)

Resonant Frequency(Khz)	58±1.5
Capacitance(pF)	2000±20% (At 1 Khz)
Decay time (ms)	≤1.8 (AST-58k Test Jig ,including the transmitted wave)
Sensitivity(v)	1.6±0.5 (AST-58k Tet Jig, 1.0mΦ75mm*1000mmPVC Tube)
Directivity(deg)	Horizontal Directivity:100±15 (Refer to Directivity test)
	Vertical Directivity:50±10 (Refer to Directivity test)
Operation Mode	T and R in single one
Allowable Max Input Voltage (Vp-p)	150(Working Fr:58Khz, Pulse Number:20, Interval 100ms)
Operating Temp. (°C)	-40~+85
Storage Temp. (°C)	-40~+95
Lead Wire Resistance	Vertical pulling force) ≥9.8N
Priming Paint Requirements	1. Color: Gray 2. Priming Paint thickness :25+/-10um

3. 外观及尺寸(Appearance and Dimensions)



4. 探测角度测试(Directivity test)



5. 模拟测试线路(Simulation Test Circuit)

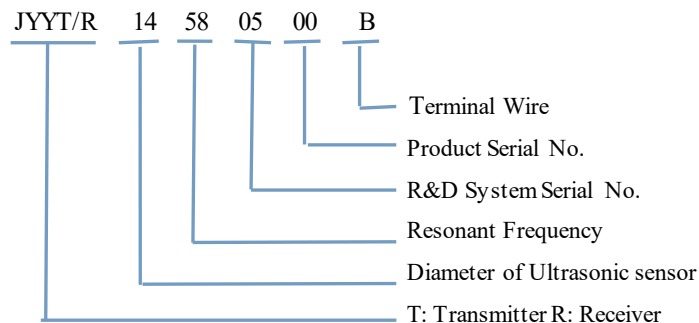
AST-58KHz 测试线路

6. 环境试验(Environmental Experiments)

No.	Item	Condition	Standard
1	High Temp Storage	Place sensor in the temp of $95\pm3^{\circ}\text{C}$ for 1000hours	Place sensors in the normal room temp for 4Hours after experiment, then test and compare the test data with the original data, the sensitivity change is not more than 30%, decay time $\leq 2.3\text{ms}$.
2	Low Temp Storage	Place sensor in the temp of $-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 1000hours	
3	Storage in High temp and high humidity	Place in $+85^{\circ}\text{C}$ and R.H $85\pm 5\%$ for 1000Hours	
4	Thermal shock	Resistance of $3.9\text{K}\Omega$ is connected with sensor in parallel, and place $-40\pm 3^{\circ}\text{C}$ for 0.5hour and increase to $85\pm 3^{\circ}\text{C}$ in 5 mins, keep it in this status in 0.5hours, this cycle repeats 500times	Place sensors in the normal room temp for 24hours after experiments, then test and compare the test data with the original data, the sensitivity change is not more than 30%, decay time $\leq 2.5\text{ms}$
5	Shocking experiments	Vibration Fr: 10—55HZ, Amplitude: 1.5mm Sweep rate:1oct/min X/Y/Z, three hours in each direction	Place sensors in the normal room temp for 4hours after experiments, then test and compare the test data with the original data, the sensitivity change is not more than 30%, decay time $\leq 2.3\text{ms}$
6	Single dropping experiments	Drop the sensor free-falling form $100\pm 10\text{CM}$ to the wood board which thickness is 50mm, the cycle is 15times	After experiments, test and compare the test data with the original data, the sensitivity change is not more than 30%, decay time $\leq 2.3\text{ms}$

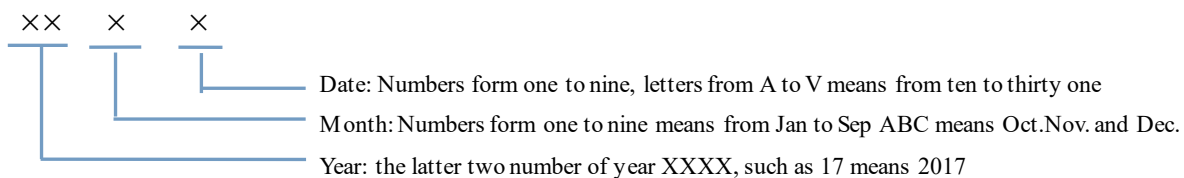
7	Lead Wire pulling force experiments	Exert the pulling force 9.8N between the sensor case and the terminal in 30mins.	The lead wire is not loose or off, the sensor can work normally and the wire undamaged.
8	IP Level	Place the sensor under the water of 15cm for 24hours	Take out of sensor from the water and assemble it into the mother board to test the distance. The sensor can work normally
9	High/Low Temp Special feature experiments	Place the sensor under the temp of -40°C for 2hours, then increase the temp to 25°C for 2hours, continue to increase the temp to 85°C for 2hurs	After experiment of each temp spot, test immediately in the normal room temp and compare the test data with the original data, the sensitivity change is not more than 30%, the decay time should be not more than 2.5ms within three temps.
10	Aging experiments (power on)	Working in the normal room temp, Fr: 58Khz, Voltage: 150Vpp Pulse Number: 20, interval: 20ms continuous working for 48hours	After experiments, place them in the normal room temp for 4hours and then test them, the sensitivity and the decay time are within the normal limits marked on the spec, sensor can work normally.
Marks: every experiment is separate one, sample qty is not less than 5pcs, Normal room Condition : T:25+/-3°C,H:45~65% R.H.			

7. 产品命名方法(Name method) :



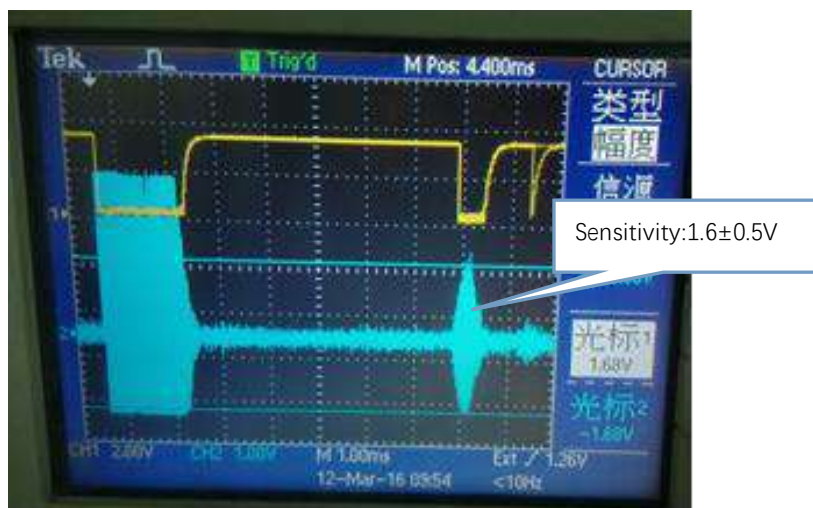
8. 产品批次标注方法(Product Lot No. Marks Method) :

In order to trace back the production, the production lot No. composed with four numbers is marked on the side of terminal as below:

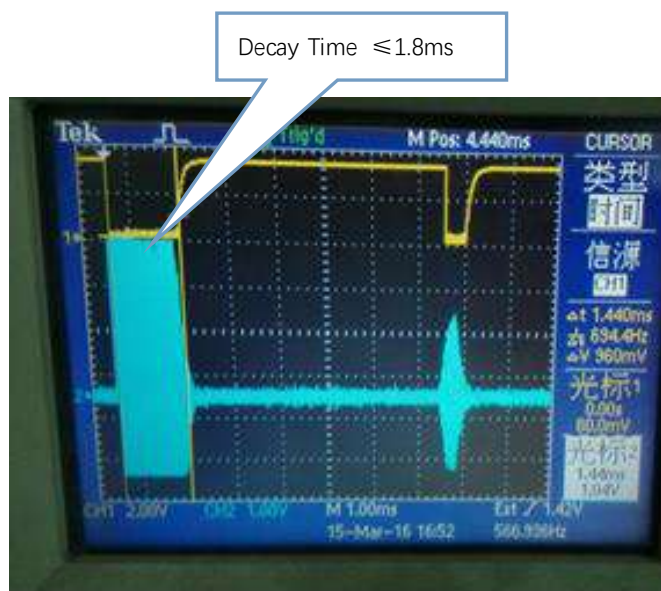


9. 产品的测试方法及仪器设备(Test Method and Equipment) :

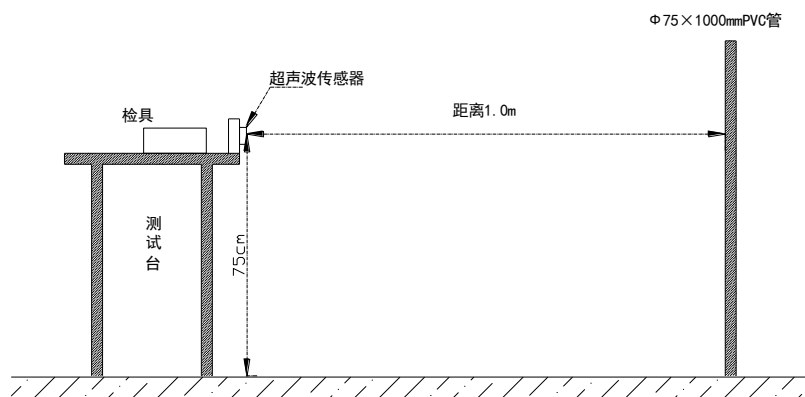
1. Capacitance test: LCR(or Digital Electric Bridge),
2. Frequency test: PV70(80) Impedance Analyzer
3. Echo Sensitivity: AST-58KHz Check Jig connected with Oscilloscope (OSC), Power Supply Voltage: 12VDC, Wave Form as below:



4. Decay Time Test: AST-58Khz Check Jig connected with Oscilloscope (OSC), Power Supply Voltage: 12VDC, Wave Form as below:



5、Test Sketch



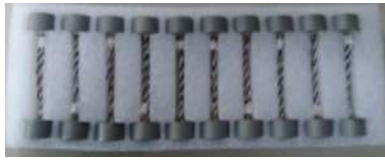
6、Test Environments

Normal Condition: T: $25 \pm 3^{\circ}C$, H: 45 ~ 65%R.H.

4. Package Method :

EPE Zhenzhu Mian+ Inner Box Carton

Qty : 1500pcs/Carton (20pcs*5 Layer/Inner box, 15Inner Boxes/Carton).



5. Notes :

1. In order to prevent the product failure, please consider to anti failure function during the design.
2. Please note that there should be the Silicon rubber between the ultrasonic sensor and Plastic case, which guarantees the ultrasonic sensor vibrate normally. At the same time, please keep the ultrasonic sensor working surface unobstructed
3. This product applies in the air , it can't be used in the environment of high temp and high humidity or corrosive gases for a long time, it can't be used in the water or organic solvent. It will be failure under the dust atmosphere.
4. Don't exceed the Max permissible input voltage.
5. The ultrasonic sensor's outer case is the Aluminum alloy, so it can't have the strong impact on the front of it, or else, which causes sensorcase distorted or sensor failed.
6. We suggest that painting thickness is about 60-100um, the baking temp is not more than 85°C in two hours; Repainting is not more than 2times, and after repainting, the product should be checked all parameters.
7. Improper use or rework of products cause them original status, which can't be returned & exchanged.

6. ROHS Commitment:

The Pb in ceramic is exempt, other ingredients are all ROHS compliant

Spec Version Control

Version	Date	History and Change Status	Drawing
A0	Oct.31,2017	First writing and providing to customer	Junmin Guo