SPECIFICATIONS APPROVAL

File No.: EG-SPA103003

Customer Name：_____

Product Name：Ultrasonic Sensor with Φ15mm 55Khz　Part No.: JYY-T/R15550201B

Date：_____　Samples Qty:_____

Ultrasonic Sensor Specs

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)
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5. 产品命名方法(Part No. Naming Method)
6. 产品批次标注方法(Product Lot No. Mark Method)
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9. 产品包装方式(Package Method)
10. 注意事项(Notes)
11. 说明(Remarks)
12. 环保承诺(ROHS Commitment)

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-SPA103003**,

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)

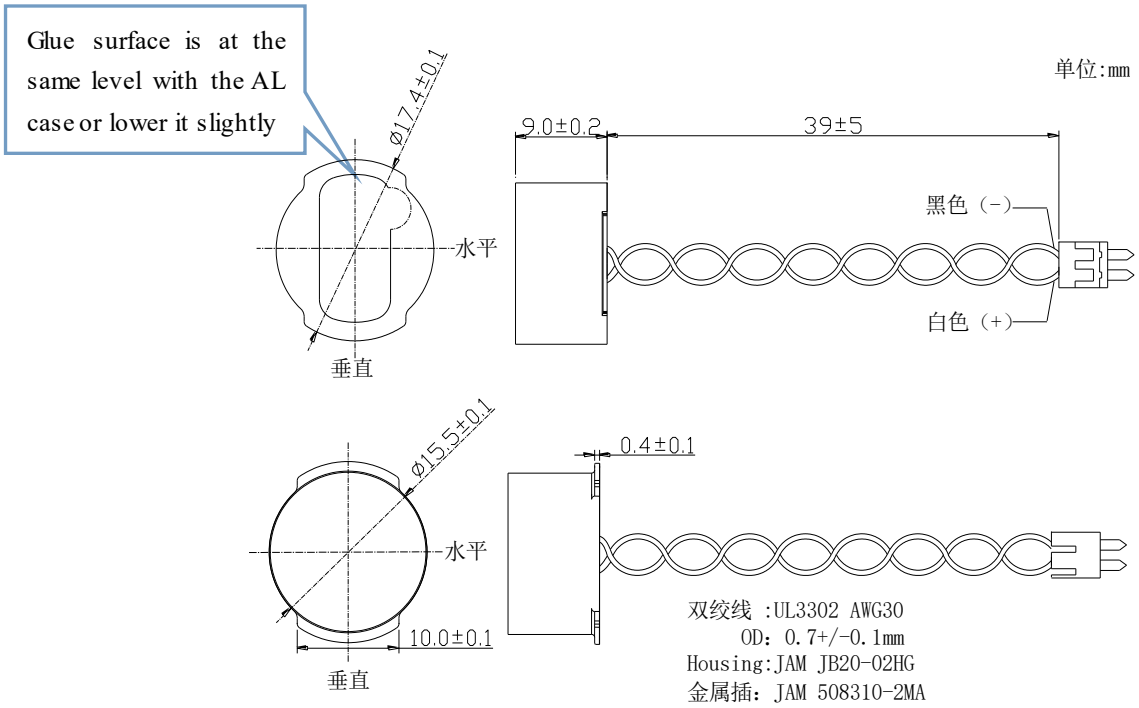
EG-SPA103003

1. 规格型号(Part No.): JYY-T/R15550201B

2. 基本性能参数(Electronic Performance)

Resonant Frequency(Khz)	55.5±1.5
Capacitance(pF)	1500±20% (At 1Khz)
Decay time (ms)	≤2.2 （AST-55.5k Test Board, including the transmitted wave）
Sensitivity(v)	480~1000 （AST-55.5k Test Board, 1.0mΦ75mm*1000mmPVC Tube）
Directivity(deg)	Horizontal Directivity:90±15 （AST Directivity test, damping Angel：-6dB）
	Vertical Directivity:40±10 （AST Directivity test, damping Angel：-6dB ）
Operation Mode	T and R in single one
Allowable Max Input Voltage (Vp-p)	150(Working Fr:55.5Khz, Pulse Number:20, Interval 100ms)
Operating Temp. (℃)	-40~+85
Storage Temp. (℃)	-40~+95
Lead Wire Resistance	Vertical pulling force) ≥9.8N
Priming Paint Requirements	1. Color: Gray 2. Priming Paint thickness :25+/-10um

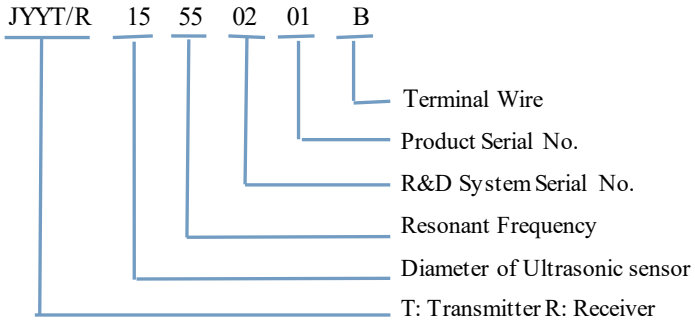
3. 外观及尺寸(Appearance and Dimensions)



4. 环境试验(Environmental Experiments)

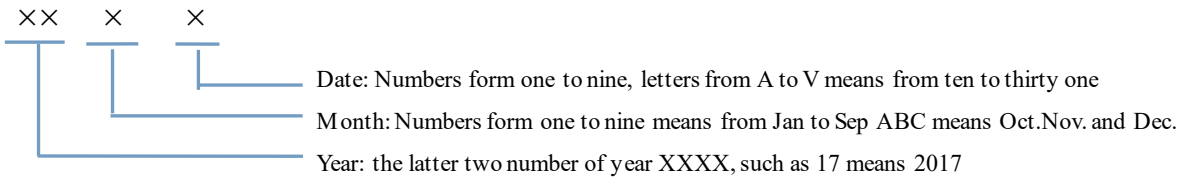
No.	Item	Condition	Standard
1	High Temp Storage	Place sensor in the temp of 95±3℃ for 1000hours	Place sensors in the normal room temp for 4Hours after experiment, then test and compare the test data with the original data, the sensitivity change is not more than 30%, decay time ≤2.4ms.
2	Low Temp Storage	Place sensor in the temp of -40℃±3℃ for 1000hours	
3	Storage in High temp and high humidity	Place sensor in +85℃ and R.H 85±5% for 1000Hours	
4	Thermal shock	Resistance of 3.9KΩ is connected with sensor in parallel, and place it -40±3℃ for 0.5hour and increase to 85±3℃ in 5 mins, keep it in this status in 0.5hours, this cycle repeats 500times （ Temp conversion is finished in 5mins ）	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 ≤2.5ms
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 ≤2.4ms
6	Single dropping experiments	Drop the sensor free-falling form 100±10CM 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 ≤2.4ms
7	Lead Wire pulling force experiments	Exert the pulling force 9.8N between the sensor case and the terminal in 30secs.	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℃ for 2hours, then increase the temp to 25℃ for 2hours, continue to increase the temp to 85℃ 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: 55.5Khz, 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℃, H:45～65%R.H.			

5. 产品命名方法(Name method)：



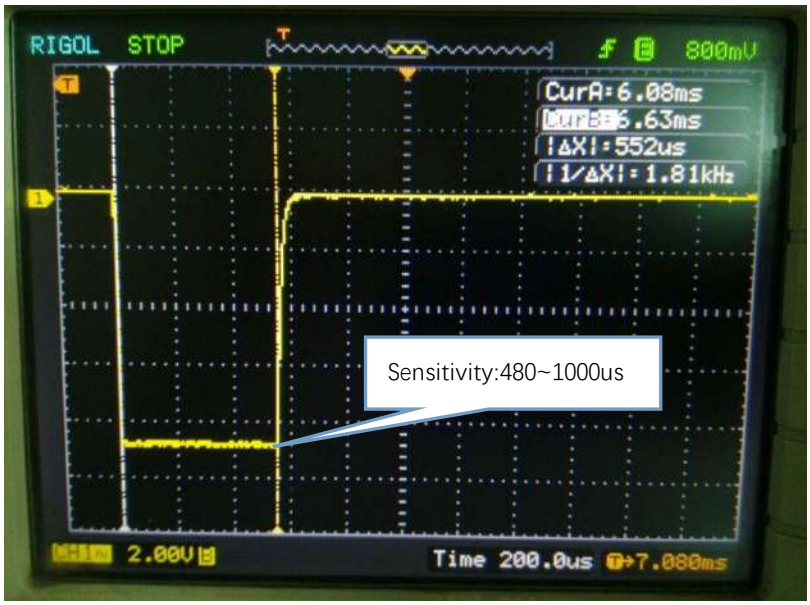
6. 产品批次标注方法(Product Lot No. Marks Method)：

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



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

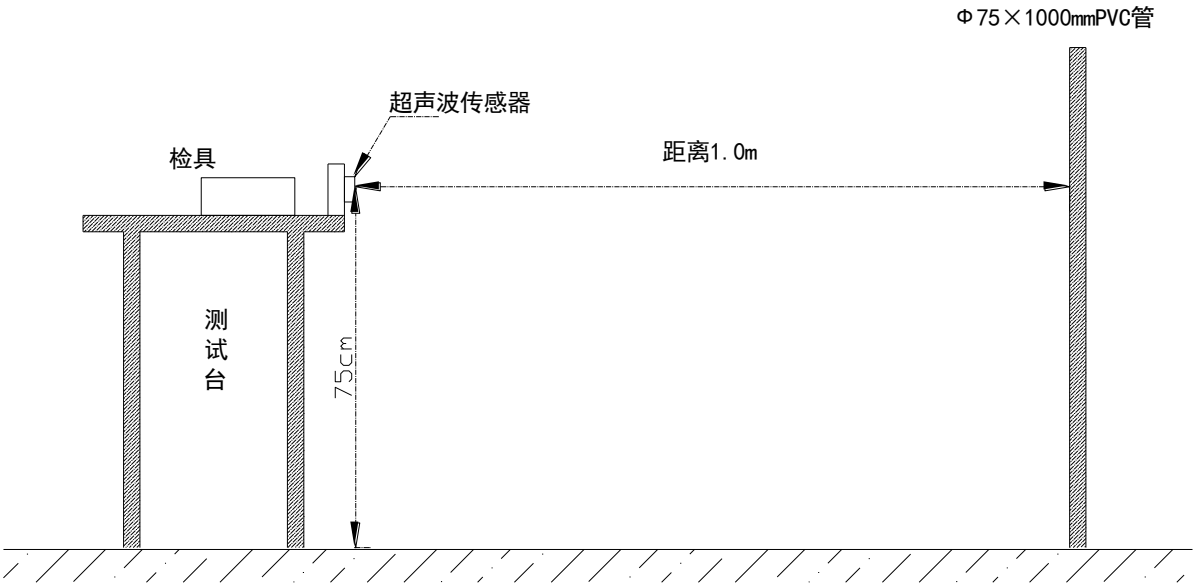
1) Capacitance test: LCR (or Digital Electric Bridge),
2) Frequency test: PV70(80) Impedance Analyzer
3) Echo Sensitivity: AST-JCT-UPA55K-20160704V1-48# iN connected with Oscilloscope (OSC), Power Supply Voltage:12VDC, Wave Form as below:



4) Decay Time Test: AST-JCT-UPA55K-20160704V1-48# Test Board connected with Oscilloscope (OSC), Power Supply Voltage:12VDC, Wave Form as below:

Decay Time ≤2.2ms

5）Test Sketch



6）Test Environments

Normal Condition: T:25+/-3°C, H:45 ~ 65%R.H.

8. 模拟测试线路 (Simulation Test Circuit)

AST-JCT-UPA55K-20160704V1-48#

9. Package Method：

EPE Zhenzhu Mian+ Inner Box Carton

Qty：150pcs/Carton (20pcs*5 Layer/Inner box, 15Inner Boxes/Carton).

10. 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 sensor case distorted or sensor failed.
6. We suggest that painting thickness is about 60-100um, the baking temp is not more than 85℃ 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.

11. Marks:

Referring to ELMOS design, this ultrasonic sensor can detect the distance from 3m to 5m.

12. ROHS Commitment:

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

Spec Version Control

Version	Date	History and Change Status	Drawing