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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**MODEL:** SP-1511S-5  
**PRODUCT:** Dynamic Speaker  
**EDITION:** A/2016

Soberton Inc.

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**THIS SPECIFICATION COVERS OUR PRODUCT OF DYNAMIC SPEAKER UNIT FOR MOBILE TELEPHONE USE**

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**SPEAKER ELECTROACOUSTIC CHARACTERISTICS**

|                          |  |
|--------------------------|--|
| ac impedance             | 8±15%Ω(@2KHz 1V) without baffle  |
| sound pressure level     | 82±3dB SPL @0.7,0.8 ,1.0,1.5and2.0KHz in average (0dB SPL=20μPa)   |
| measuring condition      | 0.1W (Sine wave) 10cm measured with baffle shown in Fig.2.1  |
|                          | 90±3dB SPL @0.7,0.8 ,1.0,1.5and2.0KHz in average (0dB SPL=20μPa)   |
| measuring condition      | 0.6W (Sine wave) 10cm measured with baffle shown in Fig. 2.2   |
| frequency response curve | As shown in Fig. 2.1 and 2.2   |
| response frequency       | 650±20%Hz @ 1V in free air<br>900±20%Hz @ 1V in 1cc box  |
| rated noise power        | 0.5W   |
| short term max power     | 0.8W (in 1cc box)  |
| operation test           | Must be free of audible noise (buzzes and rattles)<br>(300~5KHz frequency range, input level up to 2.0Vrms in 1cc box) |
| distortion               | Less than 10% @1KHz,0.1M,0.1W frequency range ,input level up to 0.1W)   |
| dimension                | 15 x 11 x 4.8 mm   |

**GENERAL SPECIFICATIONS**

|                             |              |
|-----------------------------|--------------|
| operating temperature range | -20°C ~+60°C |
| standard test conditions    |              |
| temperature                 | 17°C ~25°C   |
| relative humidity           | 45%~80%(RH)  |

**RELIABILITY TESTS**

The sound pressure as specified shall neither deviate more than ±3dB form the initial value, nor have any significant damage after any of following testing.

**HIGH TEMPERATURE TEST**

|                  |          |
|------------------|----------|
| high temperature | +60±2°C  |
| duration         | 96 hours |

**LOW TEMPERATURE TEST**

|                 |          |
|-----------------|----------|
| low temperature | -20±2°C  |
| duration        | 96 hours |

**HEAT SHOCK TEST**

|                  |             |
|------------------|-------------|
| high temperature | +60±2°C     |
| low temperature  | -20±2°C     |
| changeover time  | <30 seconds |
| duration         | 1 hour      |
| cycle            | 100         |



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**RELIABILITY TESTS** (Continued)

**HUMIDITY TEST**

|                   |          |
|-------------------|----------|
| temperature       | + 40±2°C |
| relative humidity | 90%~95%  |
| duration          | 96 hours |

**TEMPERATURE CYCLE TEST**

|                      |                     |
|----------------------|---------------------|
| temperature          | -20°C +60°C         |
| duration             | 45minutes 45minutes |
| temperature gradient | 1~3°C/min           |
| cycle                | 25                  |

**DROP TEST**

|                             |   |
|-----------------------------|---|
| mounted with dummy set mass | 100 g                                   |
| height                      | 1.5 m                                   |
| cycle                       | 6(1 each plain) Onto the concrete board |

**LOAD TEST**

|              |  |
|--------------|--|
| Speaker mode | white noise(EIA filter)for 1 hour@0.5W(in 1CC box) input power |
|--------------|--|

**MEASURING METHOD (SPEAKER MODE)**

**STANDARD**

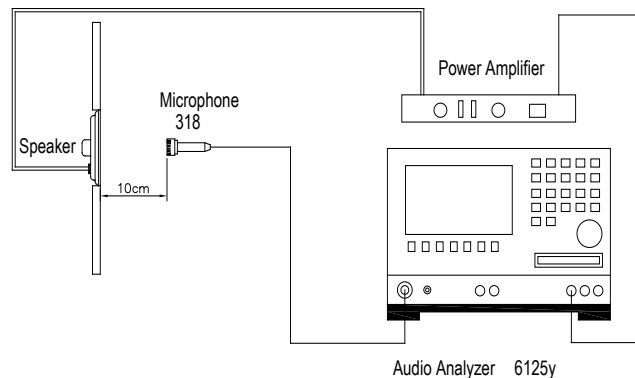
**TEST CONDITION**

|                      |                     |
|----------------------|---------------------|
| temperature          | 15 ~ 35°C           |
| relative humidity    | 45% ~ 85%           |
| atmospheric pressure | 860mbar to 1060mbar |

**STANDARD TEST FIXTURE**

|                     |             |
|---------------------|-------------|
| input power         | 0.1W(0.89V) |
| zero level          | -dB         |
| mode                | TSR         |
| potentiometer range | 50dB        |
| sweep time          | 0.5sec      |

Standard test condition of speaker

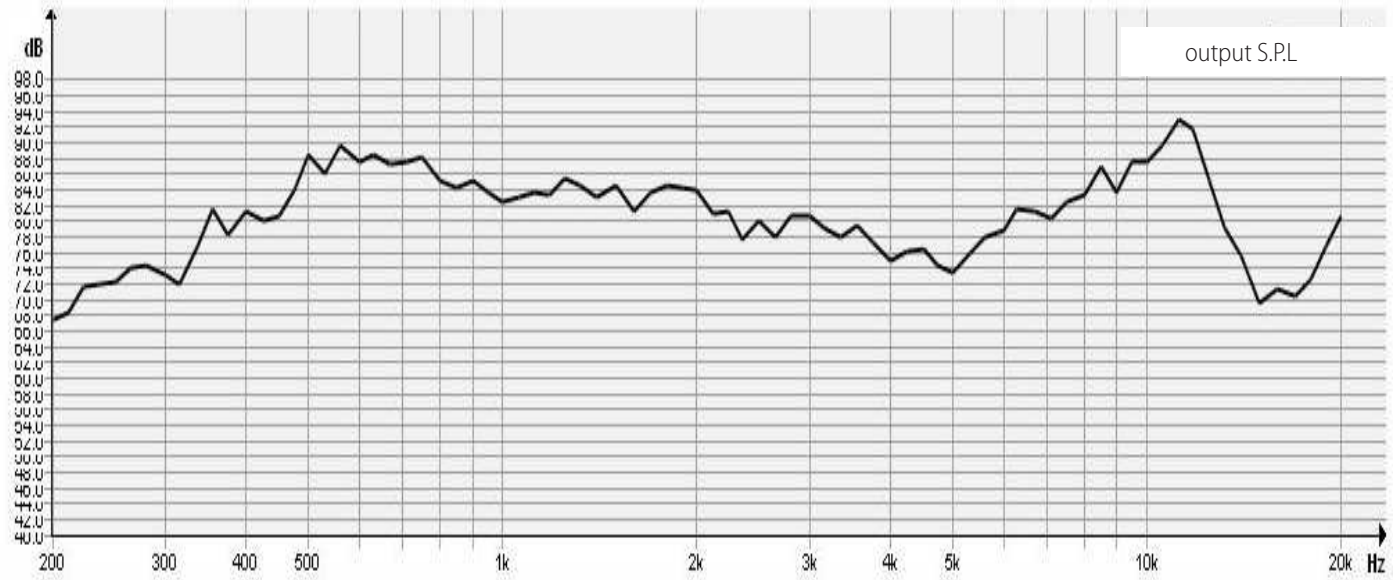




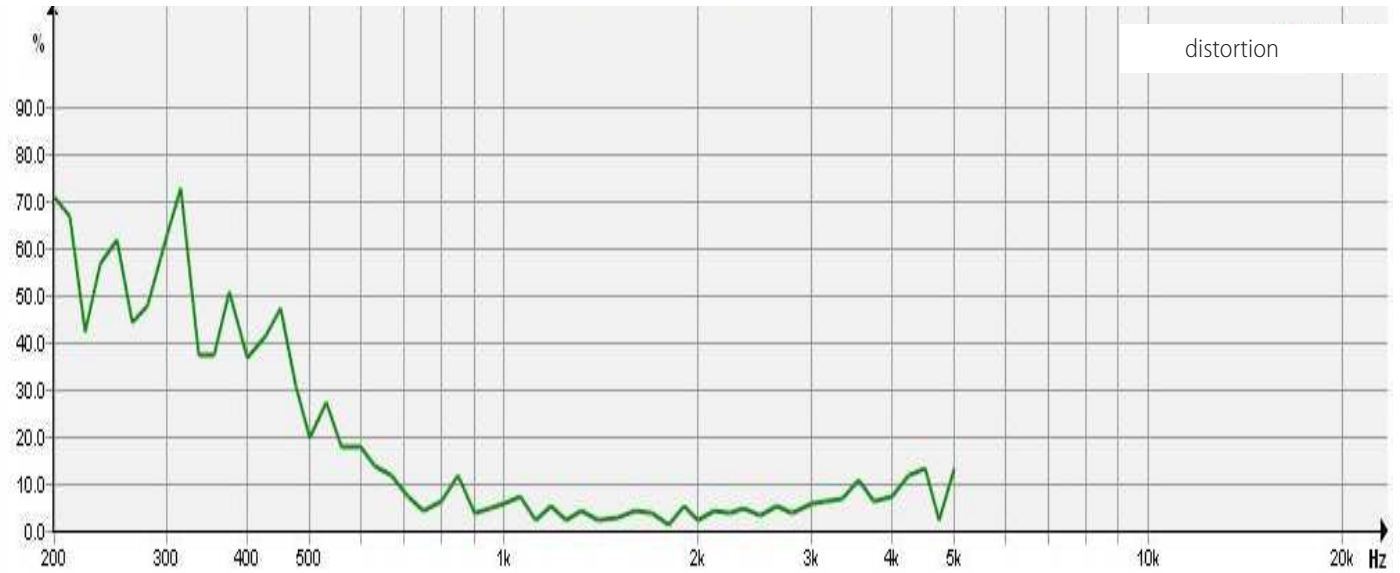
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### FREQUENCY RESPONSE CURVE (Fig. 2.1)

0.1W/10cm, in free air



32  $\Omega$  dynamic speaker test

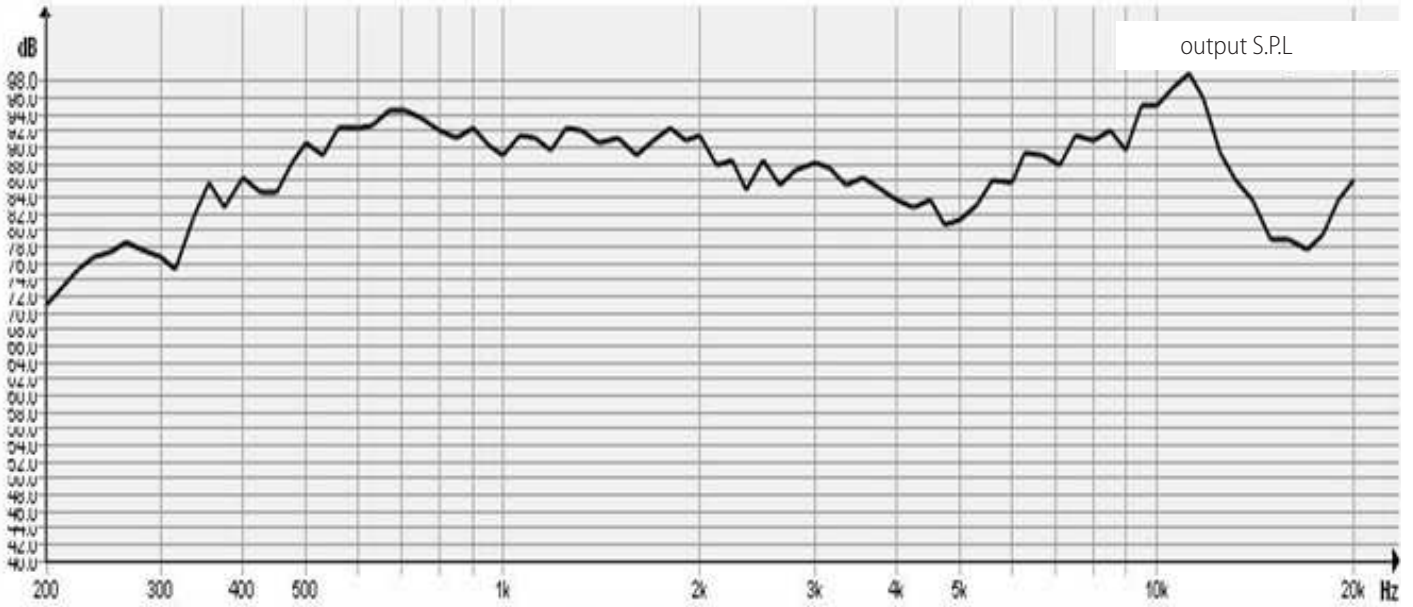




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**FREQUENCY RESPONSE CURVE** (Fig. 2.2)

0.5W/10cm, in free air



32  $\Omega$  dynamic speaker test

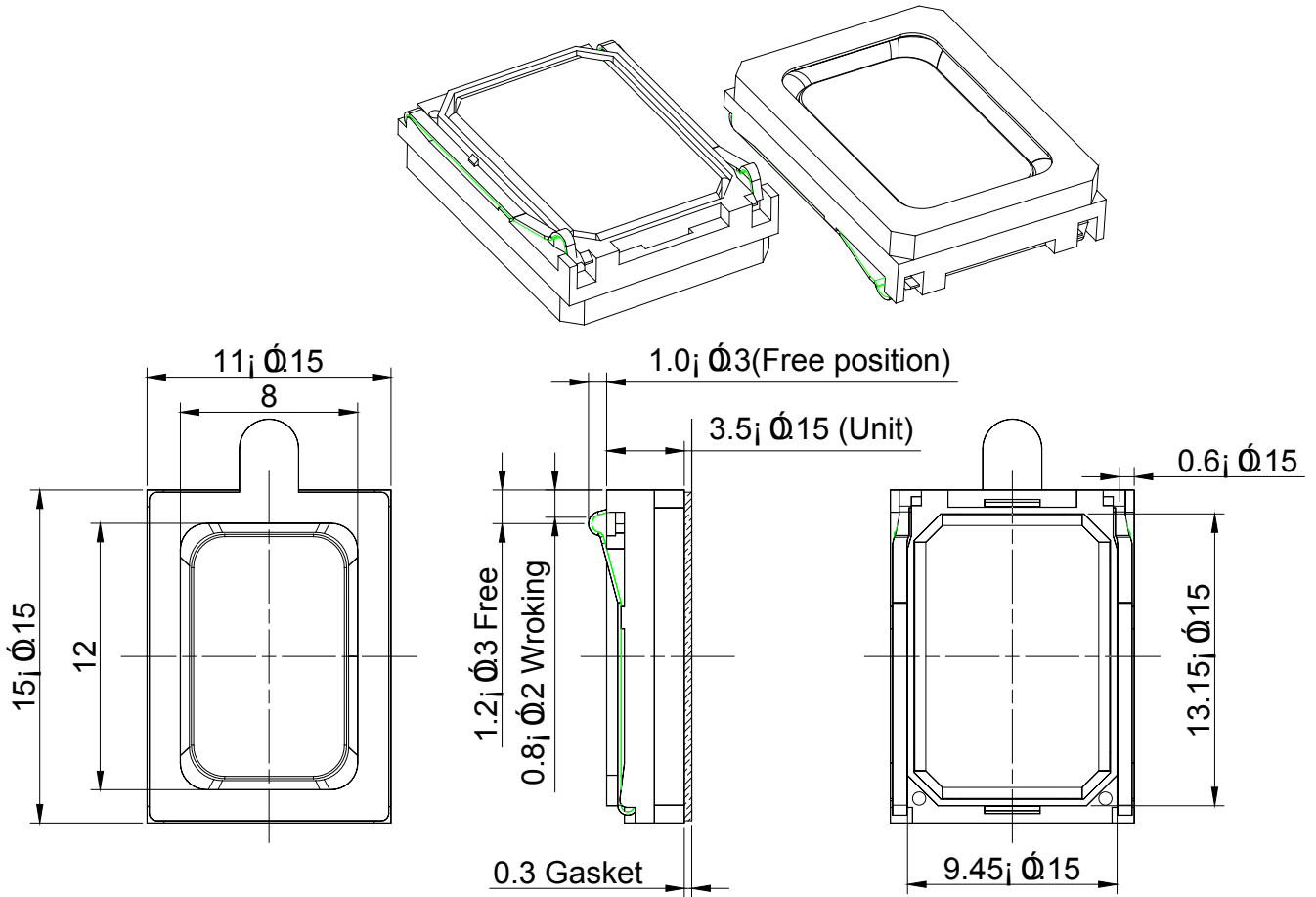




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**DIMENSIONS**

Tolerance: ±0.5 (unit: mm)



| no. | part name  | material                                 | quantity |
|-----|------------|--|----------|
| 1   | Cap        | Scotch ABS                               | 1        |
| 2   | Diaphragm  | PEEK                                     | 1        |
| 3   | Magnet     | Nd Fe B10.6*6.6*1.1                      | 1        |
| 4   | Plate3     | SPCC 10.65*6.65*0.3                      | 1        |
| 5   | Voice Coil | Polyurethane enamel wire 10.95*6.95*1.05 | 1        |
| 6   | Frame      | BLACK PBT                                | 1        |
| 7   | Gasket     | Adhesive 0.3                             | 1        |



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## PACKING

