



**APPROVAL SHEET  
FOR  
CELLULAR PORTABLE  
PHONE SPEAKER**

**CUSTOMER** \_\_\_\_\_

**AAC P/N**                      **MTSR1318C-W10-02-FB-G**

\_\_\_\_\_

**CUSTOMER P/N:** \_\_\_\_\_

| CUSTOMER | APPROVER | CHECKER |
|----------|----------|---------|
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**X1**



**Keywords: Dynamic Speaker, 8 Ohms, 13x18x3.5mm, wire Contact, GP Compliant**

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|              |               |            |             |
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| 08/14/2007 | X1    | <b>Preliminary</b> |
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## Product Specification

P/N

MTSR1318C-W10-02-FB-G

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### 1. Scope

This document contains required environmental, electrical, acoustic, mechanical, package and reliability test requirements.

### 2. Environmental Requirement

The transducer including all components and solder joints must be free from lead (Pb) and other banned or restricted substances according to customer's requirements.

### 3. Electrical Requirments

|  |                               |
|--|-------------------------------|
| 3.1 Rated Impedance                        | 8±15% ohms @2kHz, 1Vrms input |
| 3.2 Rated Noise Power (in free air)        | 0.4 Watts                     |
| 3.3 Short Term Maximum Power (in free air) | 0.7 Watts                     |

### 4. Acoustical Requirments

#### 4.1 Speaker

|                                       |                               |
|---------------------------------------|-------------------------------|
| 4.11 Sound Pressure Level             | 89±3dB at 0.1W / 0.1m at 1KHz |
| 4.12 Bass Resonance Frequency         |                               |
| 4.2.1 Resonance frequency in free air | 800±15%Hz                     |
| 4.13 Rated Frequency Range            | 500 - 10kHz                   |
| Frequency Response                    | See Figure 1                  |
| 4.14 THD                              | <20% at 0.7W at 800-5KHz      |

#### 4.2 Receiver

|                           |  |
|---------------------------|--|
| 4.21 Sound Pressure Level | 121±3dB at 89mVrms at 1kHz<br>with IEC318 couple |
| 4.22 Frequency Response   | See Figure 2                                     |



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### 4.3 Rub & Buzz

The input power shall be set at rated noise power. Using an audio oscillator sweep from 300 to 3400Hz in free air. There shall be no buzzes,rattles, nor spurious noises.

### 5.1 Polarity

When a DC source' s "+" polarity is attached to the "Signal"— marked in "+"and the "-" polarity is attached the "GND",the membrane will move forward.

### 5.2 Magnetic Polarity

Top of the magnet is the north pole.



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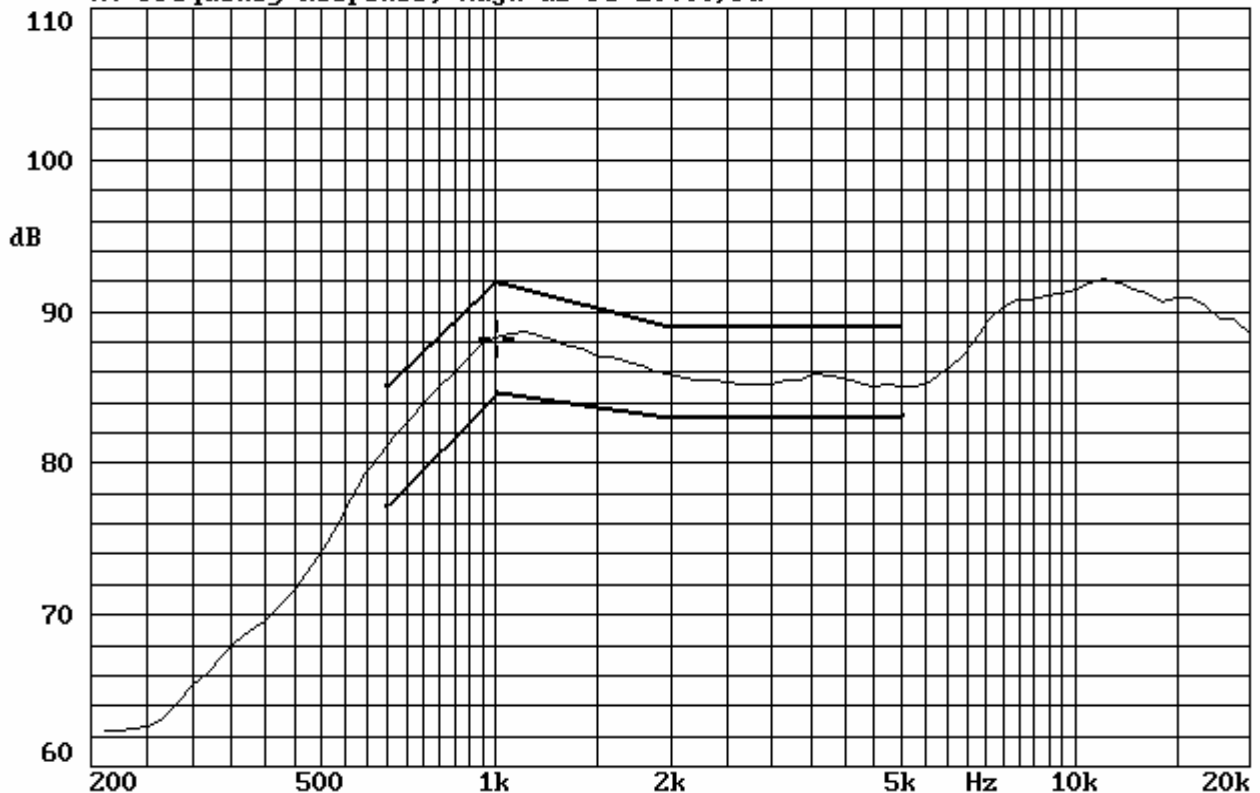
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Figure 1 Typical Speaker FR

X:1.0000kHz \*Y:88.33dB ZA:Live Curve SSR Fund.  
VBuf:

A: Frequency Response, Magn dB re 20.00µPa





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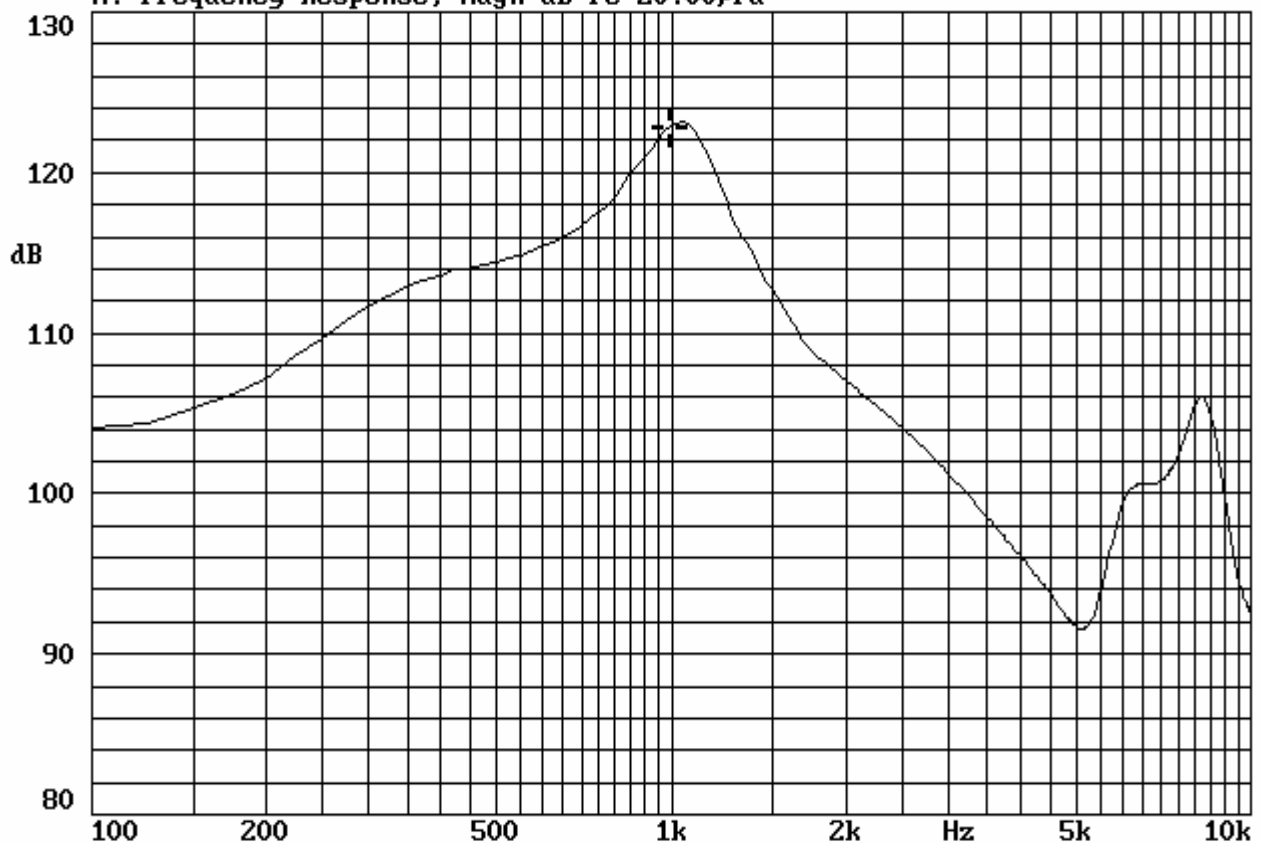
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Figure 2 Typical Receiver FR

X:992.97Hz Y:122.85dB ZA:Live Curve TSR fund.  
VBuf:

A: Frequency Response, Magn dB re 20.00 $\mu$ Pa



Mode: TSR





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## 6. Test Climatic condition

Ambient temperature: 15°C - 35°C, preferably at 20°C

Relative humidity: 25% to 75%

Air pressure : 86kPa - 106kPa

Refer to IEC 268-1

## 7. Test Method

### 7.1 Speaker mode:

#### 7.1.1 SPL and Frequency Response Curve

The loudspeaker shall be mounted in a baffle of dimensions 80cm x 100cm shown figure 3, the measuring free-field microphone shall be placed 10cm from DUT, on axis. The test voltage is 893mVrms (0.1 Watts), and swept sine-wave range is 200Hz to 20kHz with a R40 of test sequence.

#### 7.1.2 THD

Tested per Section 6 and driven at 0.7 Watts nominal , sweep from 800Hz to 5kHz with R40 test sequence.

Speaker Measurement Circuit

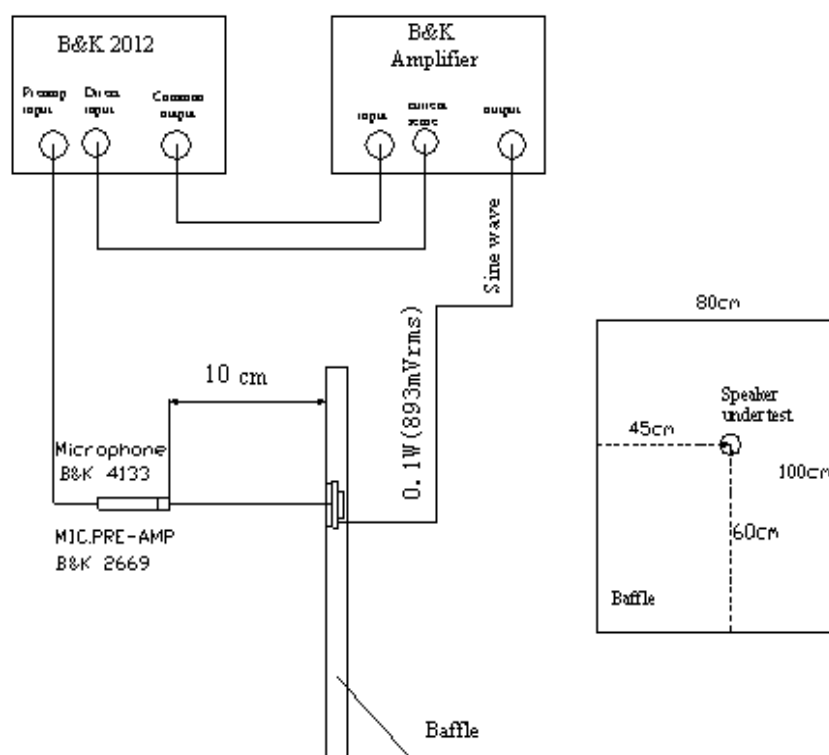


FIGURE 3



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## 7.2 Receiver mode:

The receiver shall be mounted in a fixture shown in Figure 4, Figure 5 and tested with an input level of 100mV, the drive level being chosen per supplier's preferred production test methods.

FIGURE 4

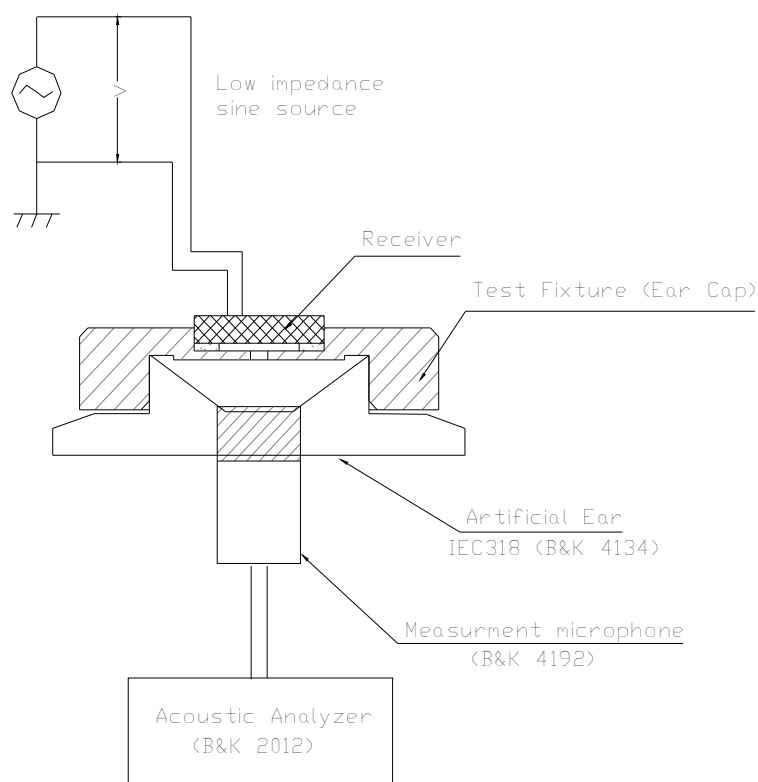
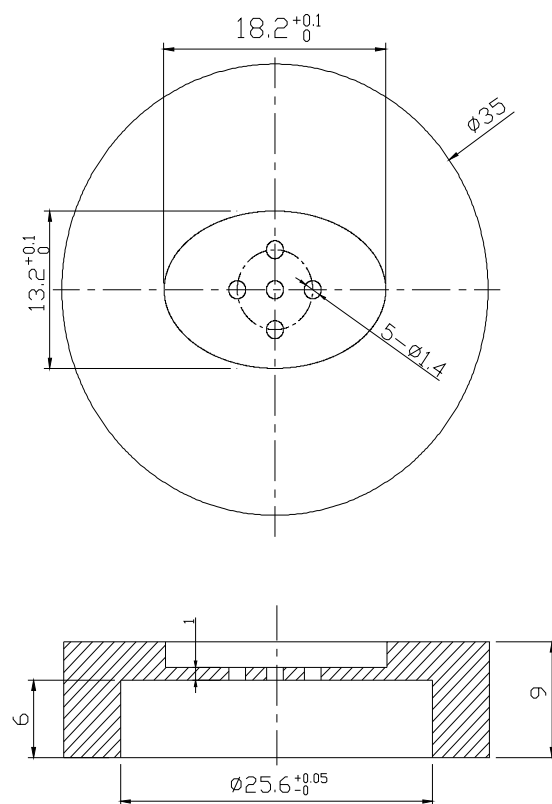


FIGURE 5







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## 8. General Requirements

8.1 Operating Temperature Range

-20°C to +70°C without loss of function.

8.2 Storage Temperature Range

-40°C to +85°C without loss of function.

## 9. General Reliability

Immediately after reliability test, the samples shall be stored under climatic conditions such as normally exist in ordinary rooms or laboratories. Unless otherwise noted, the recovery period shall be 4 hours at least before performance testing.

After reliability test, all samples must be meet the requirements specified in section 3 & 4.

9.1 Temperature Shock: 12 samples

-40°C / +85°C 10 cycles. 30 minutes at each temperature. 20 - 30 seconds transition time.

Refer to IEC 68-2-14

9.2 Static Humidity Test : 12 samples

Soak samples to +70°C with 95% relative humidity for 5 days.

Refer to IEC 68-2-3

9.3 Drop Test : 12 samples

DUTs shall be mounted in a 100g fixture, drop samples 1.5m three times in each direction, total 18 times.

9.4 Operating Life: 12 samples

DUTs shall be tested under each specified climatic condition (per section 6) for a continuous period of 100 hours at a rated noise power. Input shall be simulated program signal (IEC 268-1) with a peak to r.m.s ratio of 1.8 to 2.2 in rated frequency range.

Refer to IEC 268-5.

9.5 Short Term Maximum Power : 12 samples

Specified climatic condition (per Section 6) for 1 hours under short term maximum power.

Input shall be simulated program signal (per IEC 268-1) with crest factor of 1.8 to 2.2 in rated frequency response. And the signal will be 1 second on, 59 second off, total 60 cycles.

Refer to IEC 268-5.



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## 10. Mechanical Layout and Dimensions

### 10.1 Mechanical layout for Speaker Unit

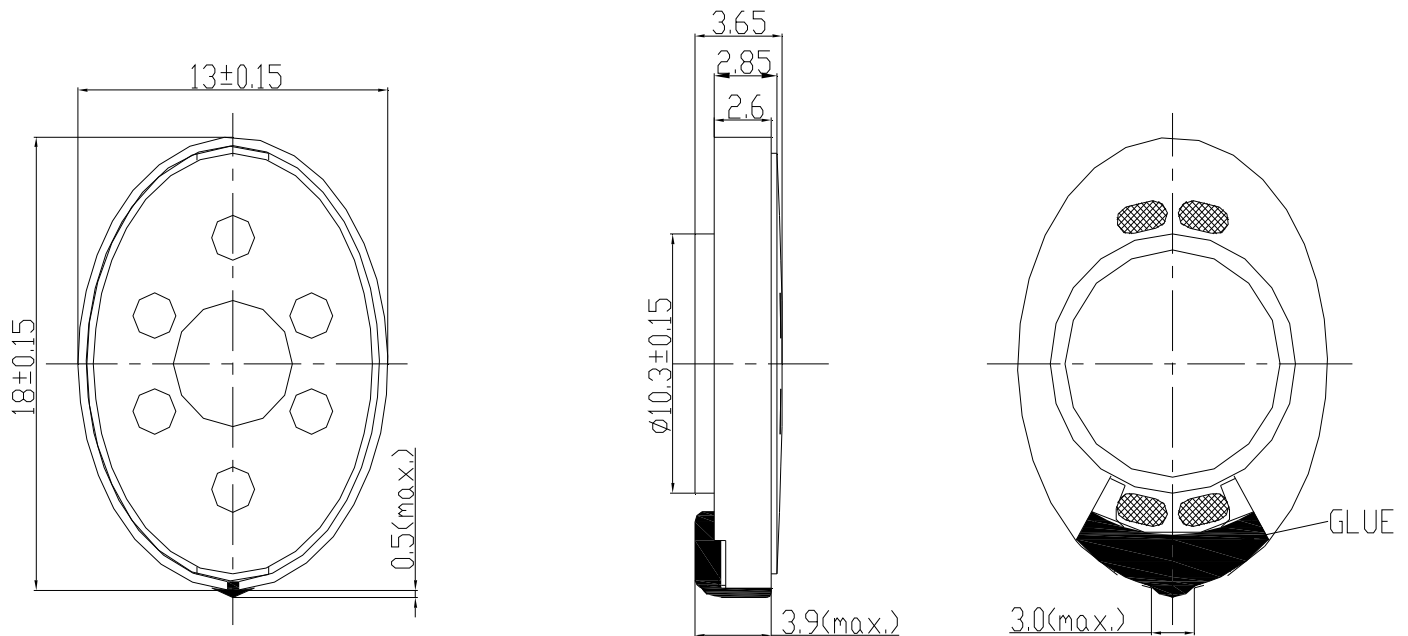


Figure 6 Speaker unit

1.unit:mm

2.Tolerance general unless otherwise noted : ±0.20mm



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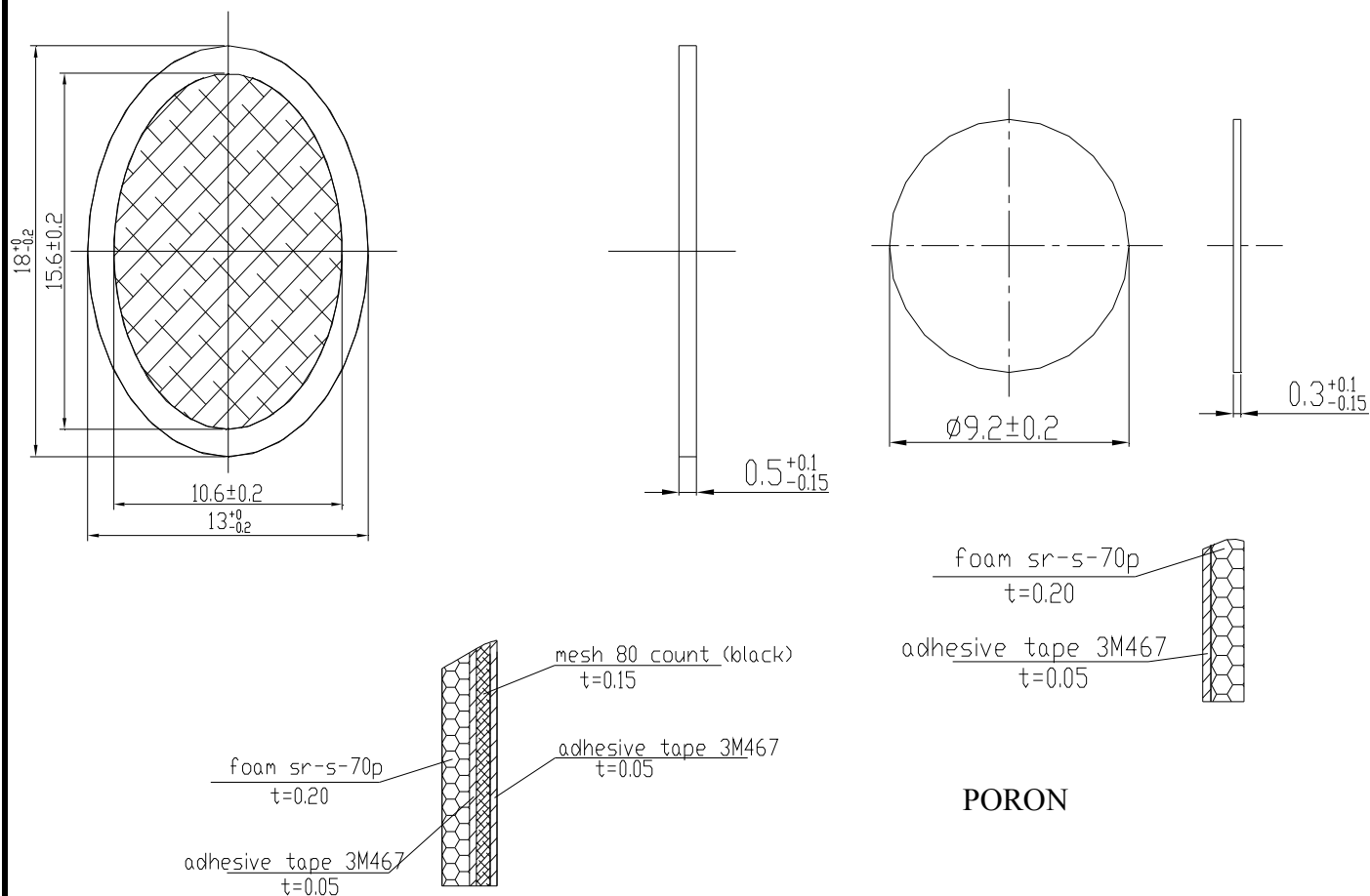
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## 10.2 Mechanical layout for Gasket and Poron



### GASKET

1.unit:mm

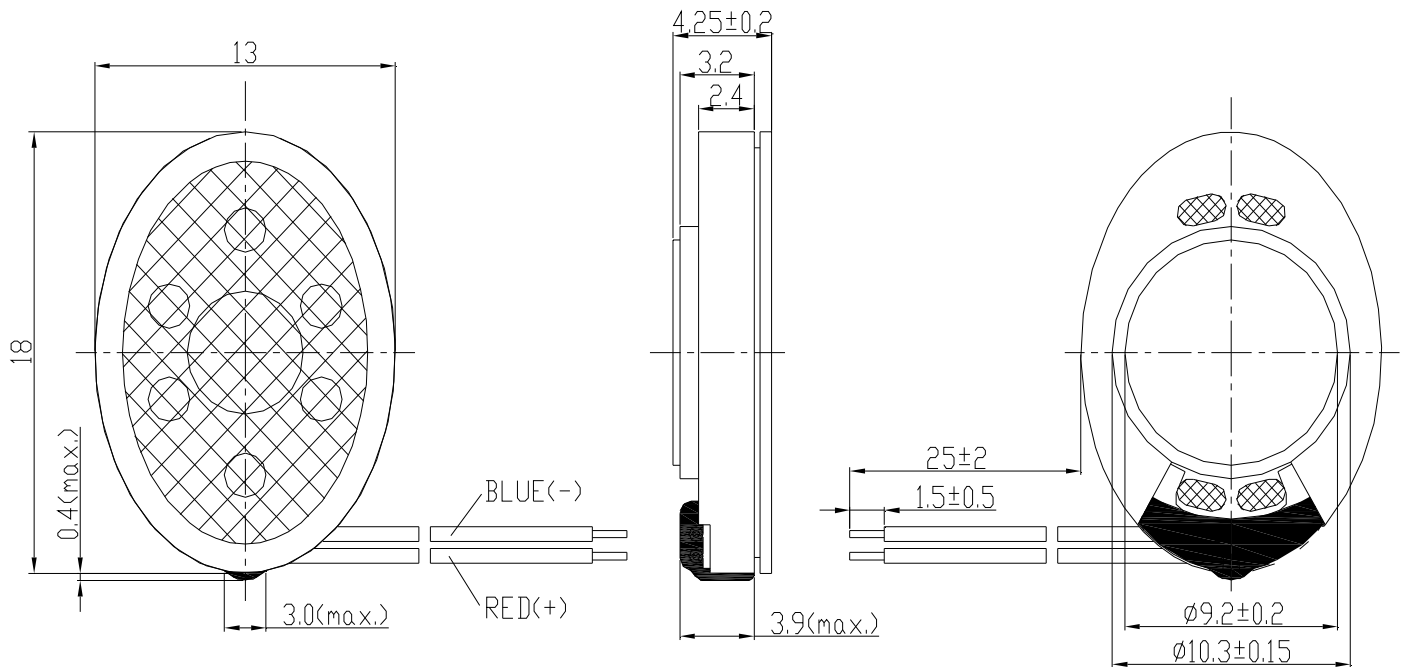
2.Tolerance general unless otherwise noted :  $\pm 0.20$ mm



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### 10.3 Mechanical layout for Speaker Assembly



1.unit:mm

2.Tolerance general unless otherwise noted :  $\pm 0.20\text{mm}$

3.When 1.7N force,the poron compression set:50% max

|          |                |          |        |
|----------|----------------|----------|--------|
| 8        | PORON          |          |        |
| 7        | Gasket         | Mesh     | 0.5mm  |
| 6        | Connector wire |          |        |
| 5        | Pcb            |          |        |
| 4        | Cover          | Metal    |        |
| 3        | Yoke           | Iron     |        |
| 2        | Magnet         | NdFeB    |        |
| 1        | Frame          | Plastic  |        |
| PART NO. | PART NAME      | MATERIAL | REMARK |



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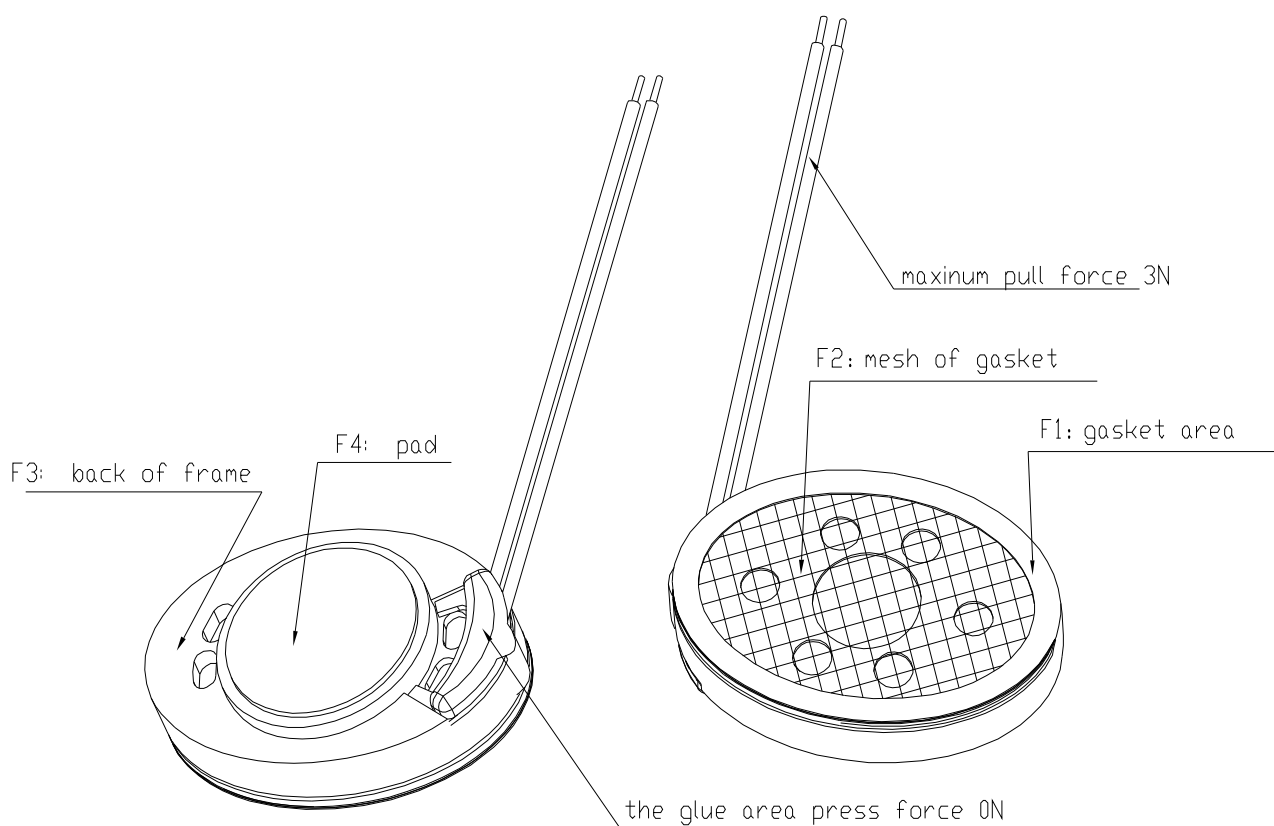
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## 10.4 Permitted Force to Speaker



| Max. Permitted compression forces: |      |    |           |
|------------------------------------|------|----|-----------|
| No.                                | from | to | max force |
| 1                                  | F1   | F3 | 8 N       |
| 2                                  | F2   | F3 | 0.5 N     |
| 3                                  | F4   | F1 | 8 N       |

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11. Weight

g

12. Package

