



瑞声科技
AAC TECHNOLOGIES

**APPROVAL SHEET
FOR
DYNAMIC MINIATURE
SPEAKER**

CUSTOMER: _____

AAC P/N: SPS1217H-04-03

CUSTOMER P/N: _____

| CUSTOMER | APPROVER | CHECKER |
|----------|----------|---------|
| | | |

AAC ACOUSTIC TECHNOLOGIES HOLDINGS INC.

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REV: X2

AAC Confidential Information

Keywords: Dynamic Speaker, 8 Ohms, 12x17x2.45mm, Contact Pad, GP Compliant

NO. SP_S_1217_H-00002

Issue:

X2

Revision Date: May/04/2017

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| | | | |
|--------------|----------------|------------|-----------|
| ME | Li Xiaofang | Check/Apr. | Wu Shuwen |
| Package Eng. | Jiang Xiaojing | | |
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| Date | Issue | Detail changes |
|-------------|-------|------------------------|
| Mar/06/2017 | X1 | Preliminary Version |
| May/04/2017 | X2 | Change mechanical size |
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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

3.1.1 Rated Impedance (in 0.75cc box) $8 \pm 15\%$ ohms @2kHz, 2.83Vrms input

3.1.2 DC Resistance $7 \pm 10\%$ ohms

3.2 Rated Noise Power (in 0.75cc box) 1.0 Watts/2.83Vrms

3.3 Short Term Maximum Power (in 0.75cc box) 1.5 Watts/3.46Vrms

4. Acoustical Requirments

4.1 Sound Pressure Level $95 \pm 3\text{dB}$ at 2.83Vrms/10cm ,2kHz
in 0.75cc box /on baffle

4.2 Bass Resonance Frequency (in 0.75cc box)
Frequency Response $850 \pm 15\%$ Hz at 2.83Vrms input

4.3 Rated Frequency Range 500 - 20kHz
Frequency Response See Figure 1, Table 1

4.4 THD See Figure 2, Table 2

4.5 Rub & Buzz

A sine sweep among 200-3400Hz at 2.83V in 0.75cc will not result in any buzzing or extraneous sound, sweep 2-3 cycles, 1 sec for each cycle.

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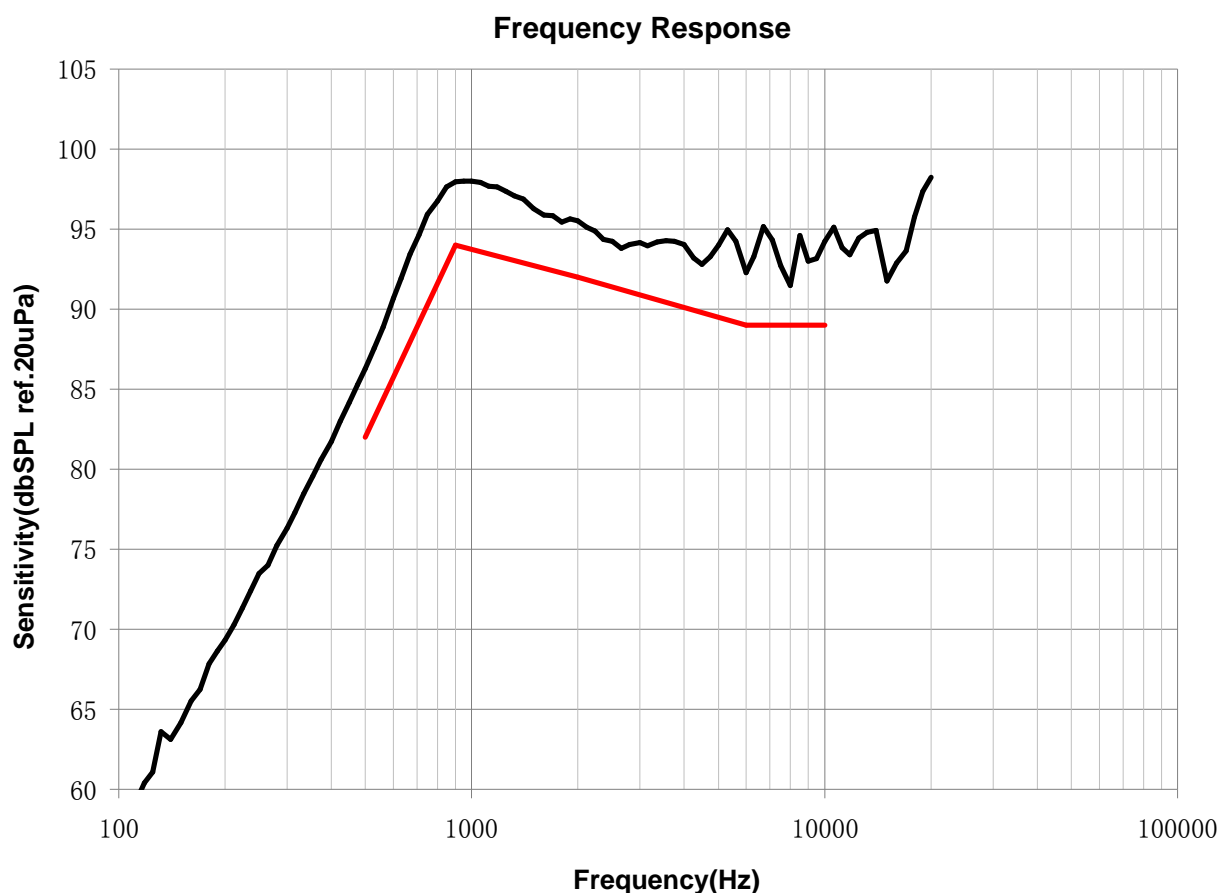
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Table 1 Limit Data for Frequency Response

| Freq. | Limit |
|-------|-------|
| 500 | 82 |
| 900 | 94 |
| 2000 | 92 |
| 6000 | 89 |
| 10000 | 89 |

Figure 1 Typical Frequency Response Curve



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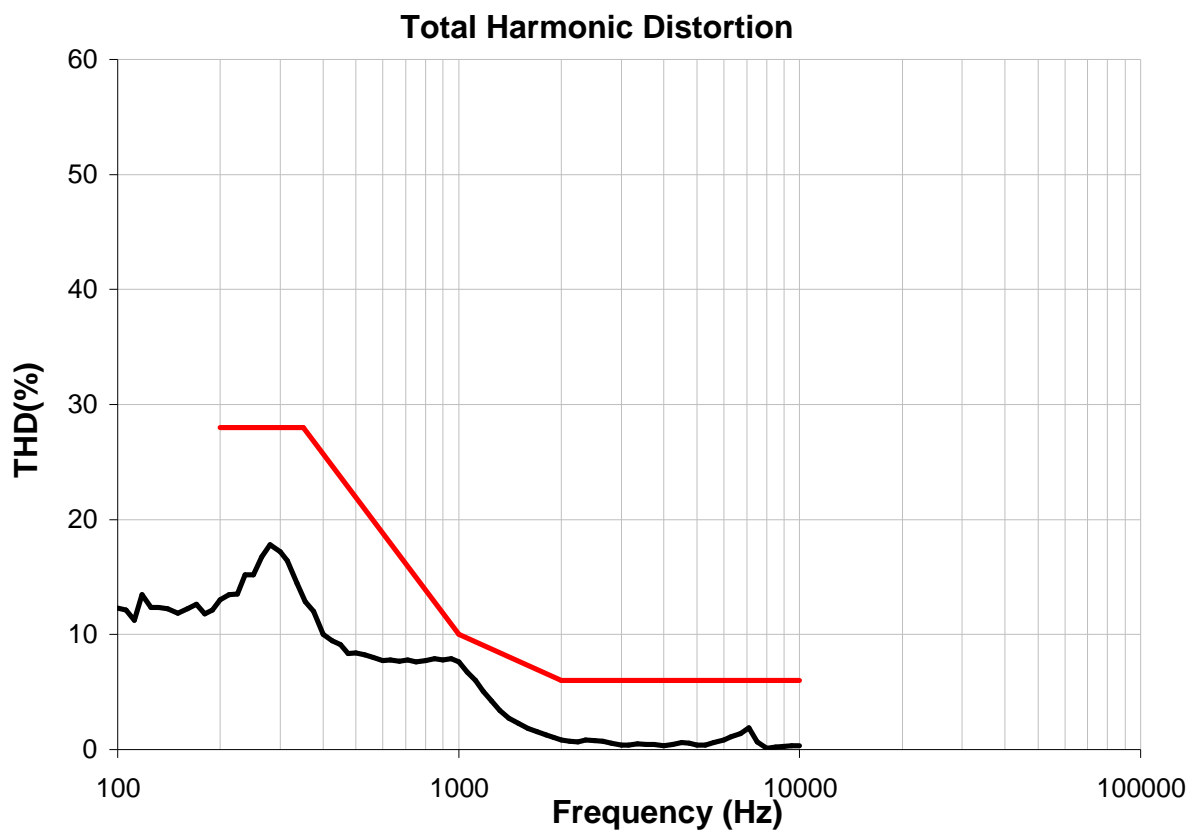
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Table 2 Limit Data for THD

| Freq. | Limit |
|-------|-------|
| 200 | 28 |
| 350 | 28 |
| 1000 | 10 |
| 2000 | 6 |
| 10000 | 6 |
| | |

Figure 2 Typical THD Curve



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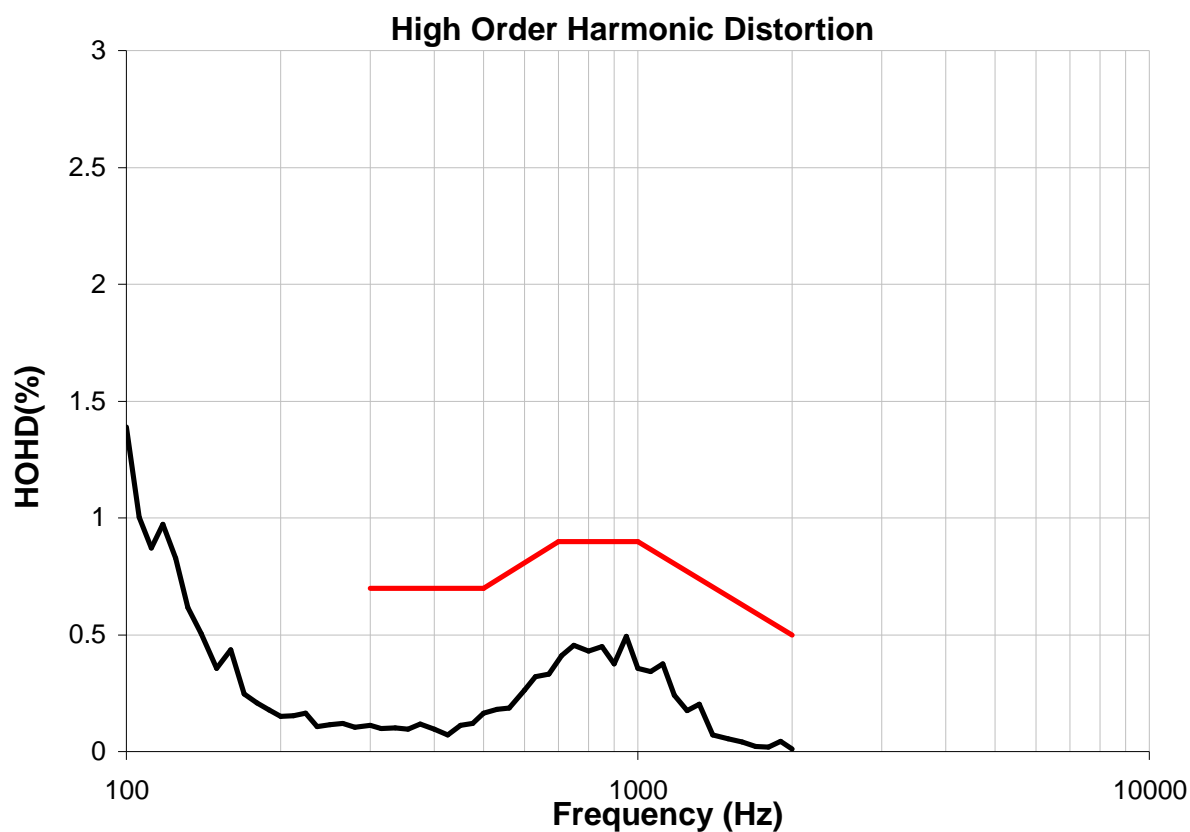
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Table 3 Limit Data for HOHD

| Freq. | Limit |
|-------|-------|
| 300 | 0.7 |
| 500 | 0.7 |
| 700 | 0.9 |
| 1000 | 0.9 |
| 2000 | 0.5 |
| | |

Figure 3 Typical HOHD Curve



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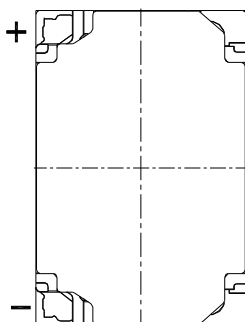
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5. Polarity Requirments

5.1 Polarity

When a DC source 's "+" polarity is attached to speaker's "+" polarity, "-" polarity is attached speaker's "-" polarity, the membrane will move forward.



5.2 Magnetic Polarity

Top of the magnet is the south pole.

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6. Test Climatic Condition

Ambient temperature: 21°C - 25°C, preferably at 23°C

Relative humidity: 25% to 75%

Air pressure : 86kPa - 106kPa

Refer to IEC 268-1

7. Test Method

7.1 SPL and Frequency Response Curve

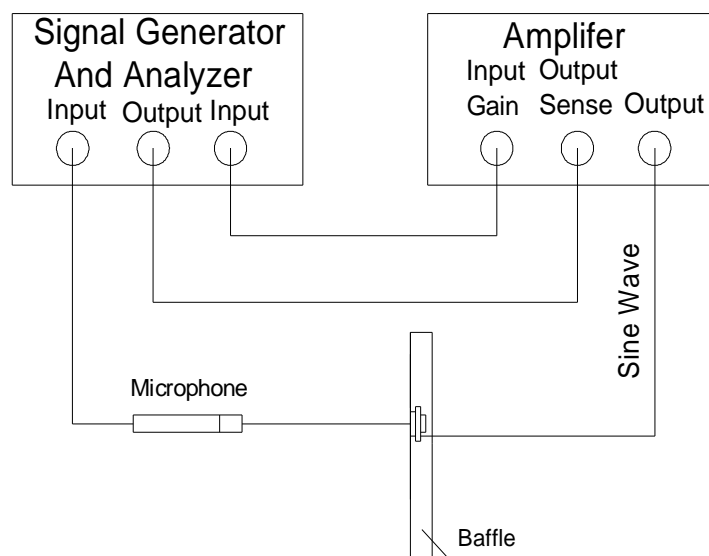
be free-field microphone and placed at specified distance from DUT, on axis. The drive power is rated power, and swept sine-wave range is 100Hz to 20kHz with a R40 of test sequence.

7.2 THD

Tested per Section 7.1 and driven at rated power , sweep at specified frequency range with R40 test sequence.

Figure 4 Test setup

Speaker Measurement Circuit



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8. General Requirements

8.1 Operating Temperature Range -20℃ to +70℃ without loss of function

8.2 Storage Temperature Range -40℃ to+ 85℃ without loss of function

9. General Reliability (in 0.75cc box)

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℃ / +85℃ 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 +60℃ with 90% relative humidity for continuous period of 96 hours.
Refer to IEC 68-2-67

9.3 Drop Test : 12 samples

DUTs shall be mounted in a 150g 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 7) for a continuous period of 100 hours at rated noise power. Input shall be pink noise signal (IEC 268-1) with a peak to r.m.s ratio of 1.8 to 2.2 in 20-20KHz.
Refer to IEC 268-5.

9.5 Short Term Maximum Power : 10samples

Specified climatic condition (per Section 7) for 1 hour under short term maximum power. Input shall be pink noise signal (IEC 268-1) with crest factor of 1.8 to 2.2 in 20-20KHz. And the signal will be 1 second on, 59 seconds off, total 60 cycles.
Refer to IEC 268-5.

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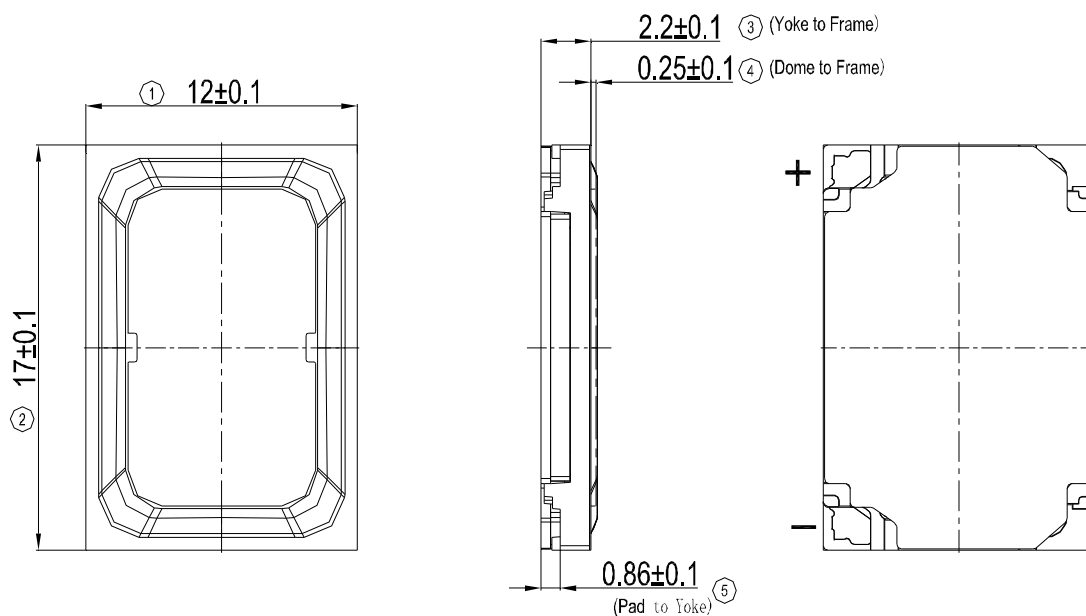
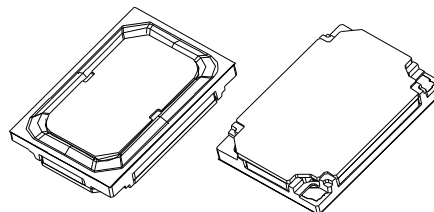
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10. Mechanical Layout and Dimensions

10.1 Mechanical Layout for Speaker Unit



1. Unit: mm

2. Tolerance general unless otherwise noted ±0.1mm

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| PART NO. | PART NAME | Material | Qty | TREATMENT | REMARK |
|----------|------------|-----------------------|-----|-----------|--------|
| 1 | Frame | Plastic | 1 | | |
| 2 | Diaphragm | POLYMER | 1 | | |
| 3 | Dome | Aluminium foil(white) | 1 | | |
| 4 | Yoke | Iron | 1 | | |
| 5 | Voice Coil | Copper | 1 | | |
| 6 | Magnet | NdFeB | 5 | | |
| | | | | | |
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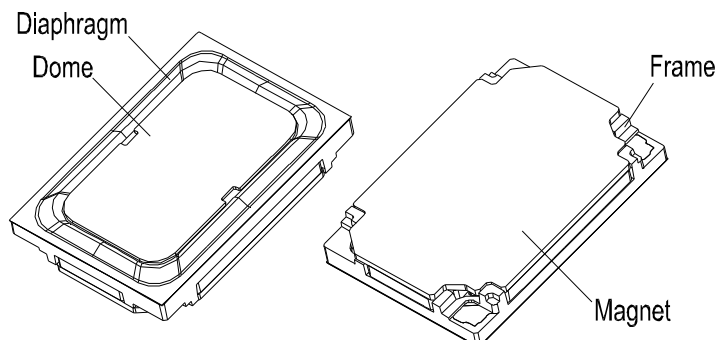
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10.3 Permitted Force to Speaker



| max.handling force | | |
|--------------------|----------------------|------|
| F1 | pull force on magnet | 15N |
| F2 | push force on magnet | 15 N |
| F3 | on diaphragm | 0 N |
| F4 | on dome | 0 N |
| | | |
| | | |

contact force in working position(to the surface of the yoke): $0.7N \leq F \leq 1.3N$

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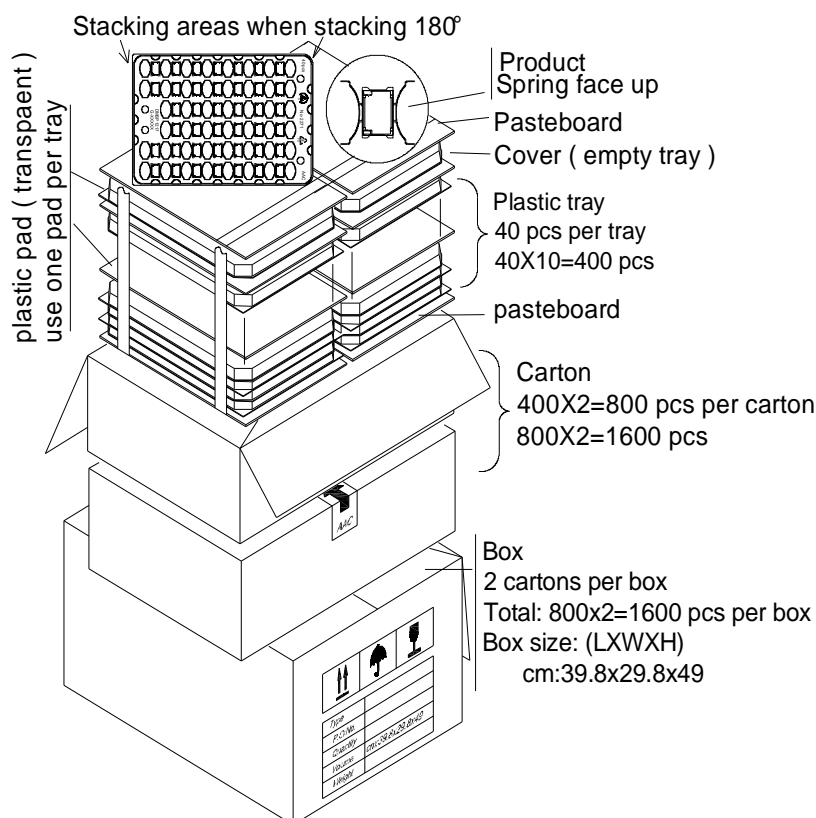
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11. Weight

2.0±0.3 g

12. Package



Transportation and storage:

1. Do not add heavy load on the package during shipping and storage.
(stacking height $\leq 2m$, stacking weight $\leq 70 Kg$)
2. Do not add strong shock during shipping and moving.
3. Keep the package in the room with stable temperature and humidity.
(T: +10~+30 ℃, H: 20~60 %)
4. The package shelf life is 12 month from the date of original purchase.
5. The package do not directly contact to ground and wall during storage.
(Distance to ground $\geq 10cm$, to wall $\geq 30cm$)
6. Keep the product on the tray and do not strong shock when moving ,
if not will damage to gasket 、 lead wire 、 spring 、 contact spring 、 pad.
- 7.Keep the product away from hazardous substances
(gas 、 dust 、 water 、 food).
8. Prohibit the vacuum packing of this product.

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