



承認書

SPECIFICATION FOR APPROVAL

客戶 (Customer):	
客戶料號 (Customer P/N):	
興華鑫型號 (Supplier P/N):	XHxDZ-4013管芯电容
產品名稱 (Description):	咪头(Microphone)
產品規格 (Specification):	蓝板 4*1.3MM

客戶承認欄 (Customer Authorization Signature)	深圳市興華鑫電子科技有限公司 承認欄 (Supplier Audit)		
	審核	檢查	制作
	唐国兴	唐玉来	吴银娟
	日期: 2022 年 04 月 19 日 版次: A		

声音让生活更精彩!

1. SCOPE 范围

This specificationshall be applied to electret condenser microphone (ECM)

本规格说明书适用于驻极体传声器麦克风

2. MODEL NO. 产品型号

BY4013BOT-CR-G

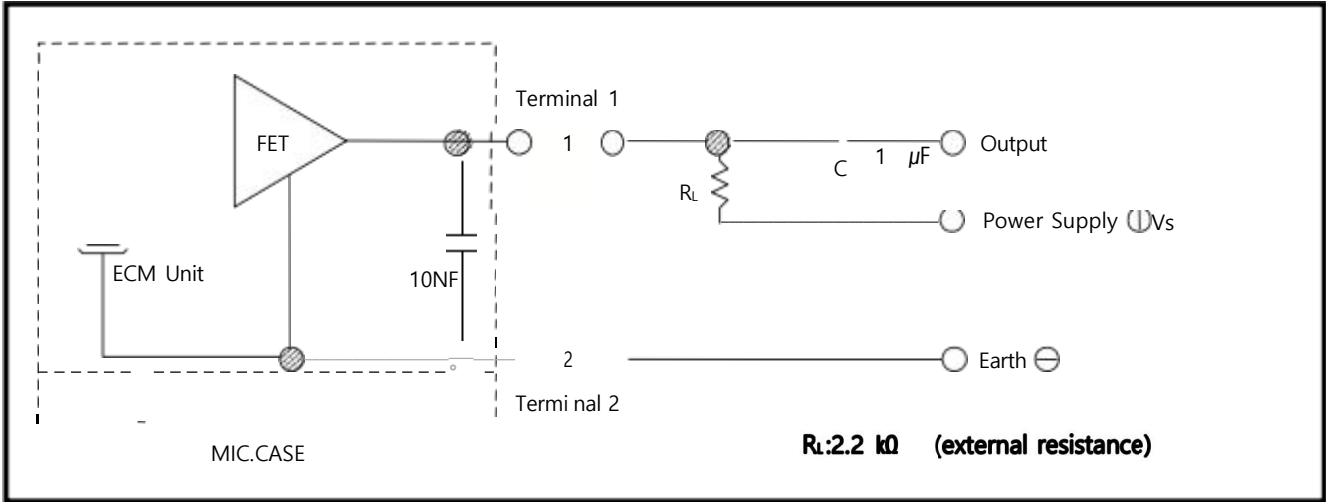
3. ELECTRICAL CHARACTERISTICS 电气特性

Temp. = 25 ± 3 °C
环境温度

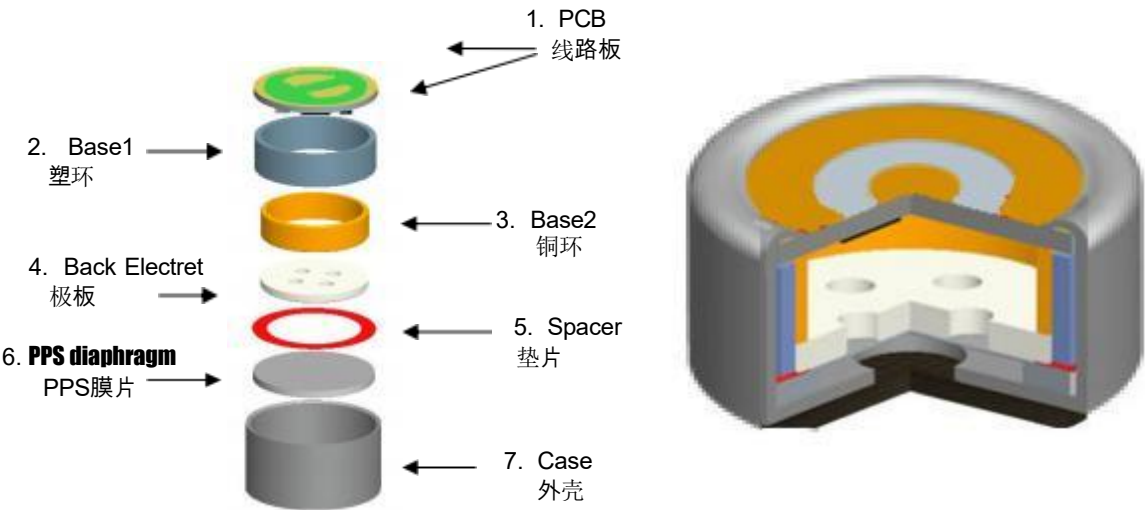
Room Humidity = 65 ± 5 %
相对湿度

NO. 序号	Parameter 参数	Symbol 符号	Condition 测试条件	Limits 范围			Unit (单位)
				Min. 最小值	Center 中心值	Max. 最大值	
1	Sensitivity 灵敏度	S	f=1 kHz, S.P.L =1Pa, 0dB=1V/Pa	-41	-38	-35	dB
2	Output impedance 输出阻抗	Z _{OUT}	f= 1kHz			2.2	kΩ
3	Current Consumption 消耗电流	I _{DSS}	V _{CC} =2.0V , R _L = 2.2kΩ	100		500	μA
4	Signal to Noise Ratio 信噪比	S/N	f=1kHz, S.P.L =1Pa (A-Weighted Curve)	60			dB
5	Decreasing Voltage 减电压特性	S-VS	V _{CC} =2.0V to 1.5V			-3	dB
6	Operating Voltage 工作电压			1.5	2	10	V
7	Maximum input S.P.L. 最大输入声压					110	dB

4. MEASUREMENT CIRCUIT 测试电路



5. STRUCTURE OF OMNI-DIRECTIONAL MICROPHONE(全指向性驻极体后极结构)



ITEM	PART NAME 部件名称	MATERIAL 材料	QTY 数量
1	P.C.B+FET+C+R	FR-4+RF1123+10NF	1
2	CHAMBER塑环	POM	1
3	RING铜环	BRASS	1
4	PLATE背极板	BRASS	1
5	SPACER垫片	POLYESTER	1
6	PPS diaphragm	POLYESTER+PPS	1
7	CASE外壳	ALUMINUM	1
8	FET场效应管	YD045	1
9	resistance 电阻		
10	CAPACITANCE电容	0201 10NF	1

6. TYPICAL FREQUENCY RESPONSE CURVE (FAR FIELD) 频响曲线

Far Field Measurement Condition 自由场测试条件

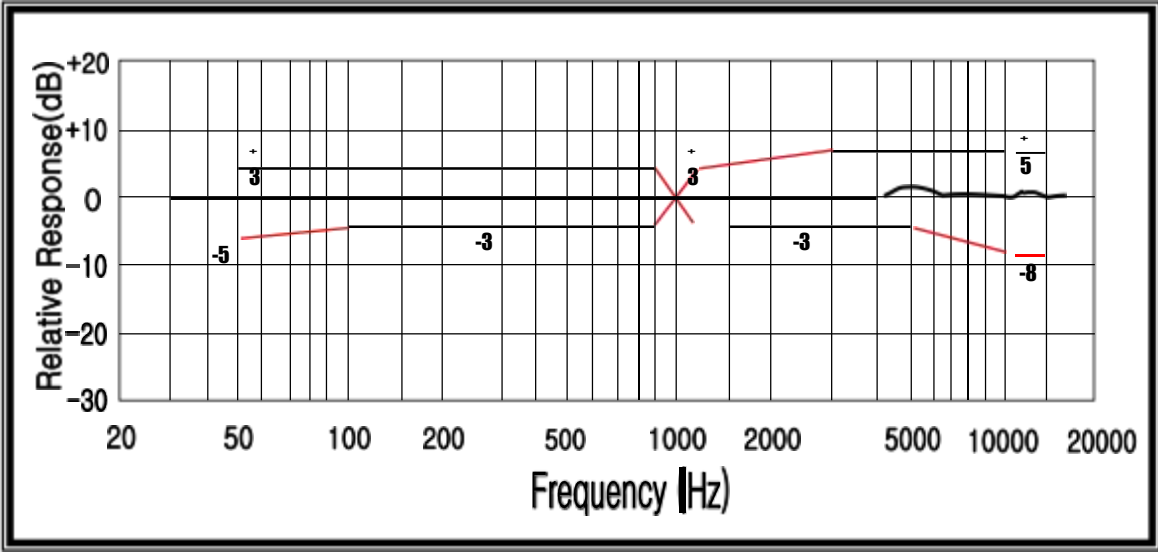
Temperature 温度： 25 ± 5 °C

Bias Voltage 基准电压： 2.0V (with 2.2 kΩ series resistor 2.2 kΩ电阻)

Acoustic stimulus: 1Pa (94 dB SPL at 1kHz) at 50 cm from the loud-speaker.

声音条件 The loud-speaker must be calibrated to make a flat frequency response input signal
距离扬声器50cm处产生1pa声压。扬声器必须先用标准输入信号事先校准。

Position: The frequency response of microphone unit measured at 50 cm from the loud-speaker
位置： 扬声器距离待测话筒50cm.



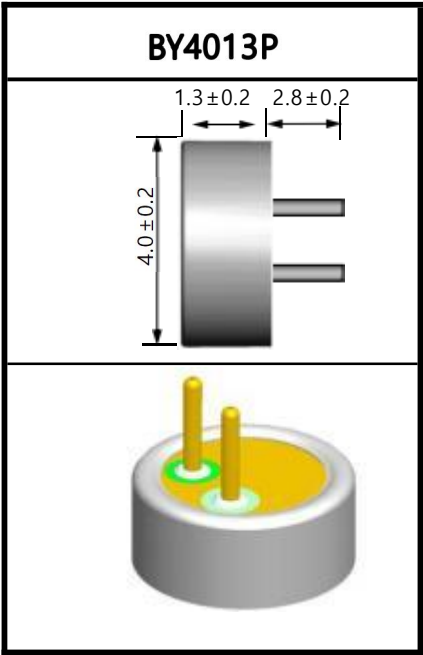
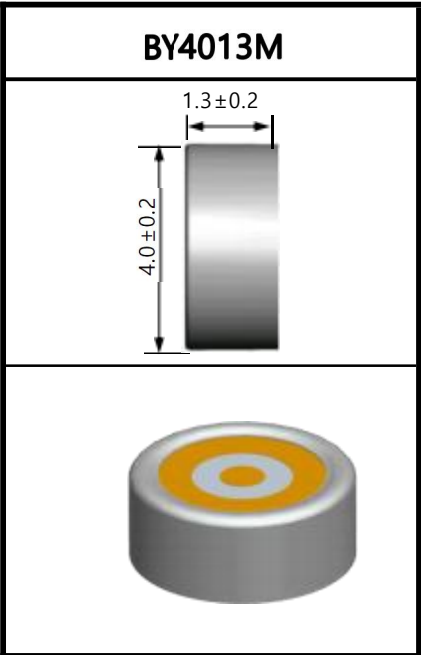
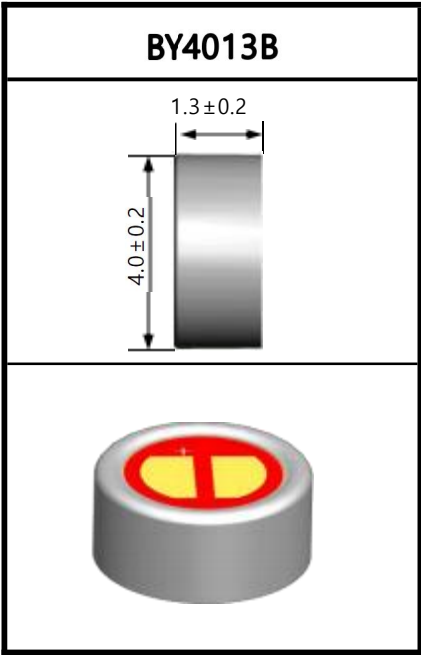
7. MECHANICAL CHARACTERISTICS 机械特性

※ PCB design & Pin size can be changed by model No. 线路板和插针尺寸可根据产品型号调整。

☐ Lead Wire Type 接线型

☒ Solderless Type 压接型

☐ Pin Type 插针型



8. RELIABILITY TEST 可靠性测试

8.1 VIBRATION TEST 振动测试
To be no interference in operation after vibrations. 10 Hz to 55 Hz for 1 minute full amplitude 1.52mm , for 2 hours at three axes
1分钟频率变化从10Hz到50Hz , 振幅在1.52mm,在三个方向测试振动2小时 , 产品应不受影响

8.2 DROP TEST 跌落测试
To be no interference in operation after dropped to concrete floor each one time from 1 meter height at three directions in state of packing
以正规包装的三个方向从1米高处自由落到混凝土地面时,产品应不受影响

8.3 High temp. test高温测试
After being placed in a chamber at +80 °C for 120 hours , sensitivity to be within ± 3 dB from initial sensitivity.
在80 °C环境中持续120小时 , 灵敏度偏离范围在±3dB .
[The measurement to be done after 2 hours of conditioning at room temperature
测试在室内温度下放2小时后进行]

8.4 Low temp. test低温测试
After being placed in a chamber at -40 °C for 120 hours , sensitivity to be within ± 3 dB from initial sensitivity.
在-40 °C环境中持续120小时 , 灵敏度偏离范围在±3dB .

8.5 HUMIDITY TEST 湿度测试
After exposure at 60 °C and 90 to 95% relative humidity for 120 hours, sensitivity to be within ± 3 dB from initial sensitivity.
在60°C温度和90-95%相对湿度的环境下持续120小时 , 灵敏度偏离范围在± 3 dB.

8.6 TEMPERATURE CYCLE TEST 温度交变测试
After exposure at -40 °C for 30 minutes, at 20 °C for 10 minutes, at 80 °C for 30 minutes, at 20 °C for 10 minutes. 5 cycles, sensitivity to be within ± 3 dB from initial sensitivity
在-40 °C下持续30分钟,在20°C下持续10分钟 , 在 80°C时持续30分钟 , 在 20°C时持续10分钟,以上过程循环5次 , 灵敏度偏离范围在± 3 dB.
[The measurement to be done after 2 hours of conditioning at room temperature]
测试在室内温度下放2小时后进行]

8.7 TEMPERATURE SHOCK 温度冲击
Temperature change from -40 °C to 80 °C for 30 minutes . (changing time : 20 sec.)
After 32 cycles, sensitivity to be within ± 3 dB from initial sensitivity
在20秒内温度从-40°C变化到 80°C,持续30分钟,灵敏度偏离范围在± 3 dB.
[The measurement to be done after 2 hours of conditioning at room temperature
测试在室内温度下放2小时后进行]

8.8 Salt Spray test 盐雾试验
At the concentration of test solution for 5% 24 hours, the product is not affected
在浓度为5%的试验液中24小时 , 产品不受影响

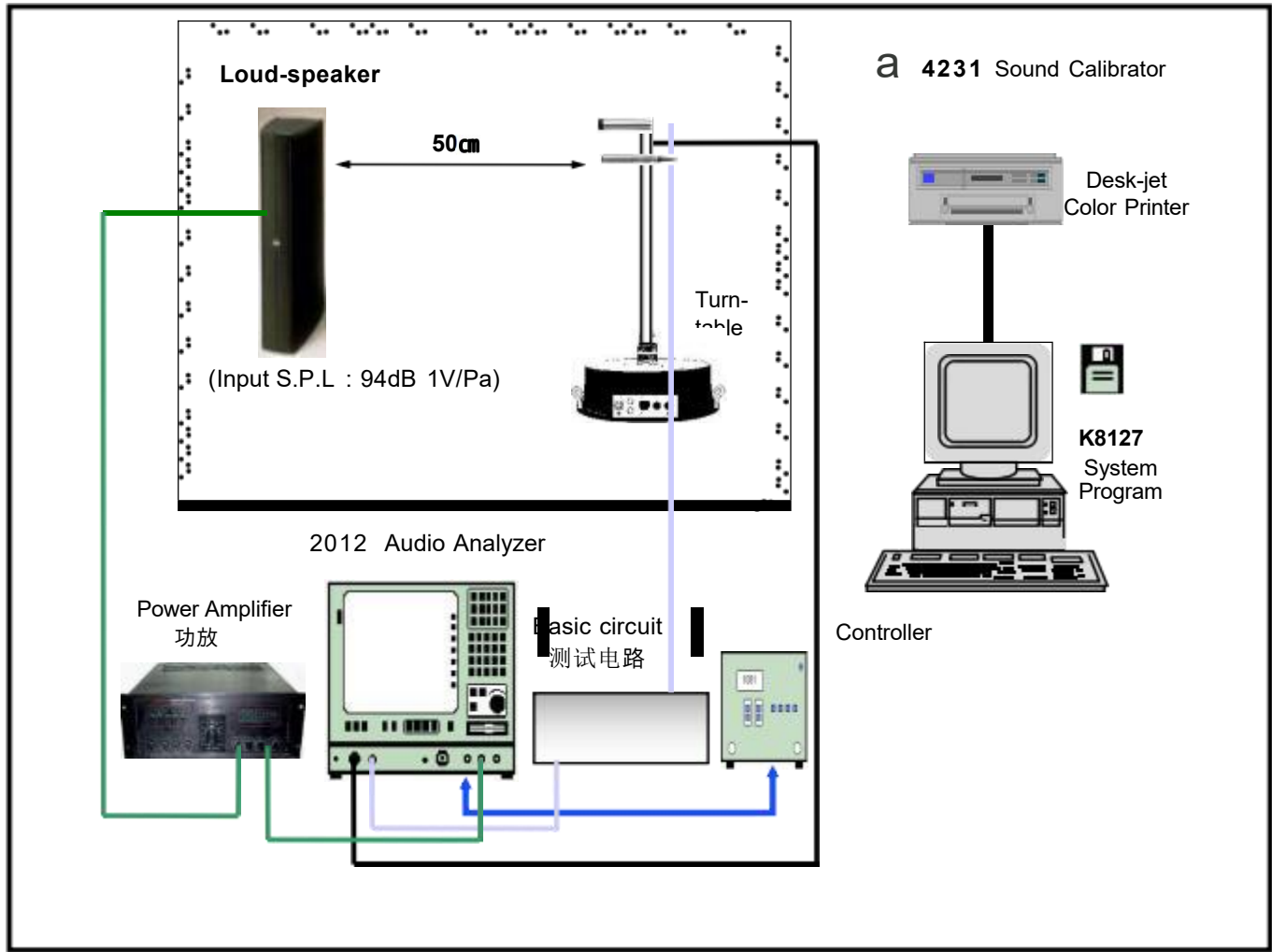
8.9 ANTI STATIC 抗静电
The mic under test must be discharged between each ESD exposure without ground (contact: ± 6KV, air: ± 8KV) There is no interference in operation after 10 times exposure 分别使用正负6千伏和8千伏电压持续10次 , 没有变化。

9 . TEMPERATURE CONDITIONS 温度条件

9.1 STORAGE TEMPERATURE 贮存温度: -40°C ~ +80 °C

9.2 OPERATING TEMPERATURE 操作温度: -25°C ~+70 °C

10. MEASUREMENT SYSTEM 测量系统



11. Reflow soldering operation回流焊操作

Reflow Process Condition

The soldering profile depends on various parameters necessitating a set up for each application. The data here is given only for guidance on solder re-flow. There are four zones:

Preheat Zone: This zone brings the temperature at a controlled rate, typically 1~2.5°C /s.

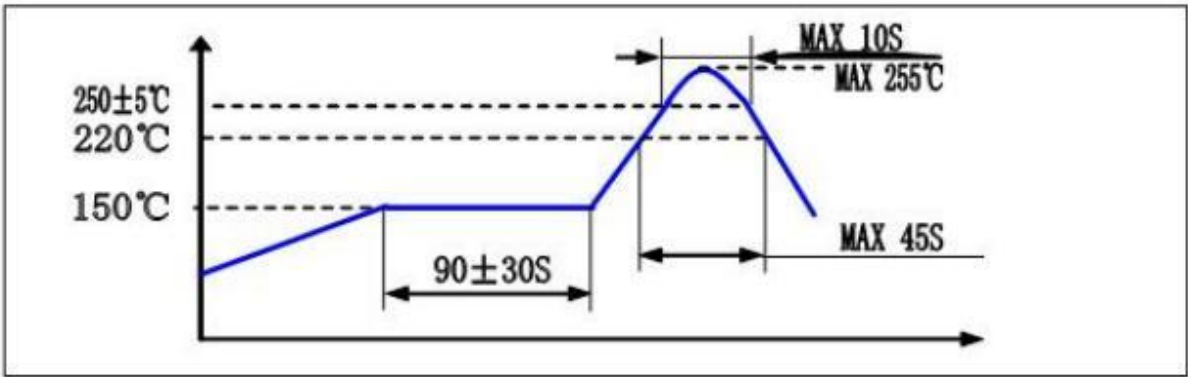
Equilibrium Zone: This zone brings the board to be a uniform temperature and also activates the flux. The duration in this zone (typically 2~3 minutes) will need to be adjusted to optimize the out gassing of the flux.

Re-flow Zone: The peak temperature should be high enough to achieve good wetting but not so high as to cause component discoloration or damage (255°C for maximum 10 seconds).

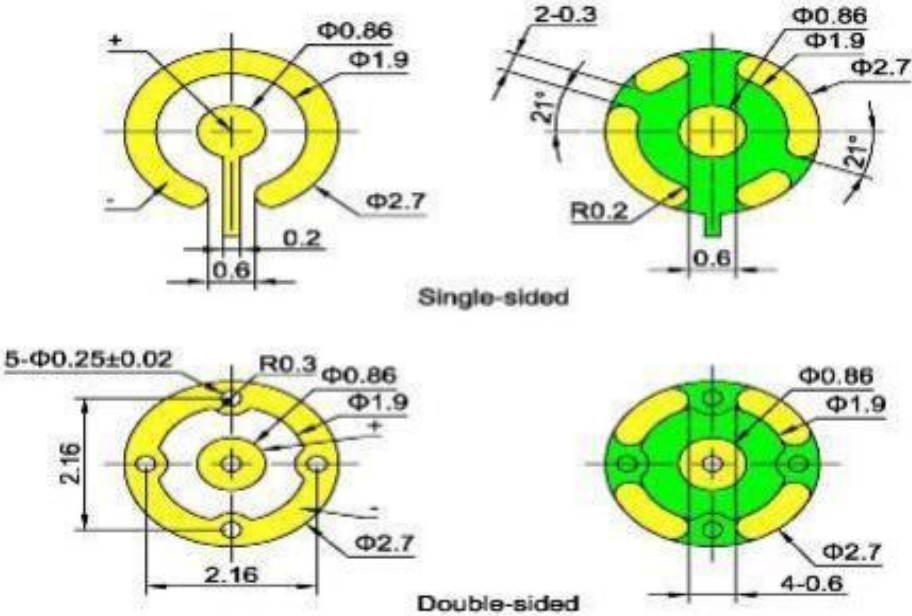
Excessive soldering time can lead to inter-metallic growth which can result in a brittle joint.

Cooling Zone: The cooling rate should be fast, to keep the solder grains small which will give a longer lasting joint. Typically will be 2~5°C /s.

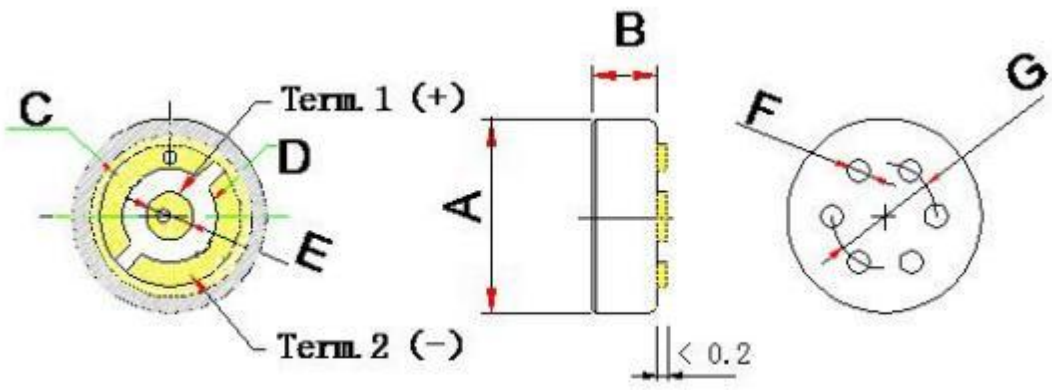
Sensitivity change should within ±3dB after re-flow process and at room temperature for 30 minutes at least.



Land



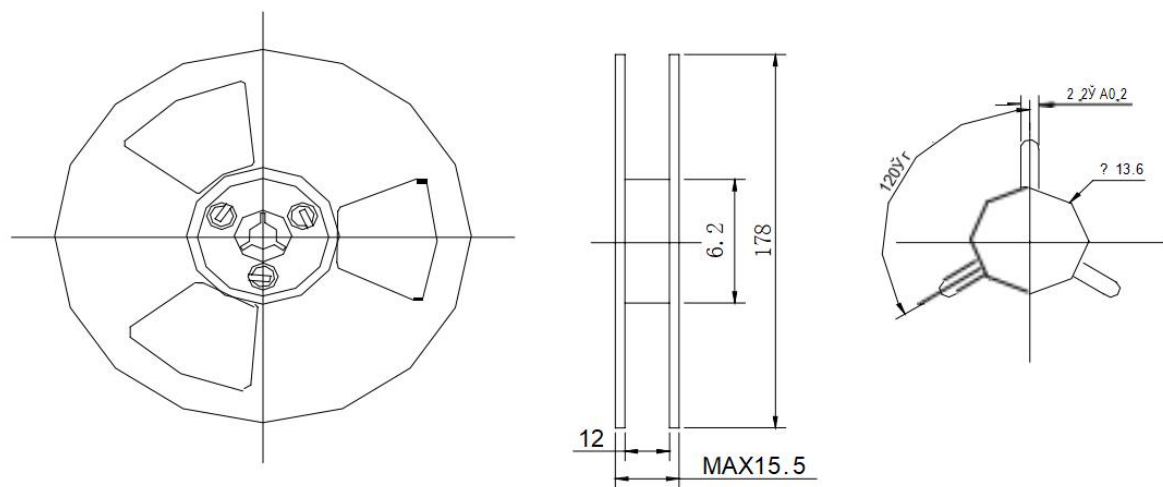
12. DIMENSIONAL DRAWING 外形图



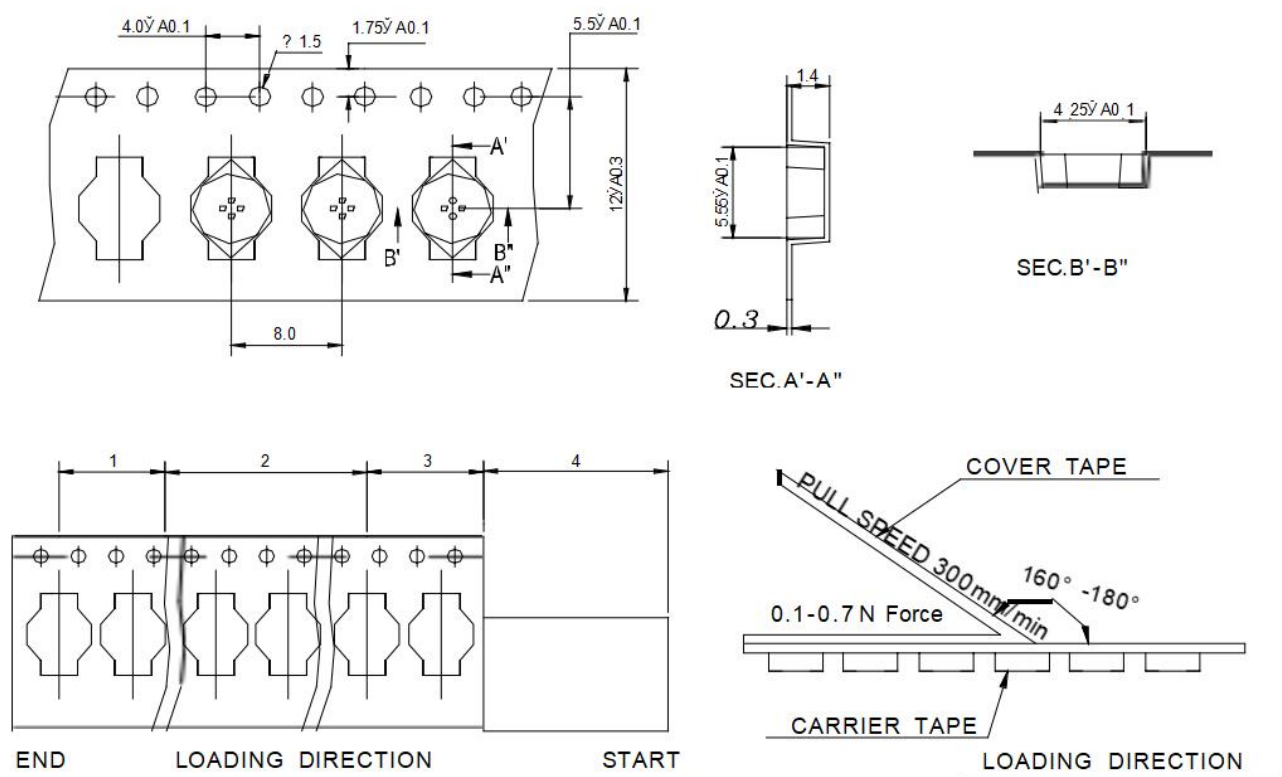
A: $\Phi 4.0 \pm 0.2 \text{mm}$
B: $1.3 \pm 0.2 \text{mm}$
C: $\Phi 2.7 \pm 0.1 \text{mm}$
D: $\Phi 1.8 \pm 0.1 \text{mm}$
E: $\Phi 0.7 \pm 0.1 \text{mm}$
F: $\Phi 0.3 \pm 0.05 \text{mm}$
G: $\Phi 1.8 \pm 0.1 \text{mm}$

13. PACKAGE 包装图

Packing



Carrier tape :



- 1.BARE EMBOSS AREA:200mm OVER(25PCS OVER)
- 2.CHIP MOUNT AREA:5015PCS
- 3.BARE EMBOSS AREA:200mm OVER(25PCS OVER)
- 4.LEADER AREA:100mm OVER