

# 規格承認書

PECIFICATION FOR APPROVAL

客 戶  
CUSTOMER : 立创  
項 目  
ITEM : 单指向驻极体电容咪头 (ECM)  
型 號  
TYPE : GMI4022U-2C50DB  
描述  
DESCRIPTION :  $\phi 4.0 \times H2.2 \text{ mm}$  焊点 1033 -50 dB 1.5V  $\leq 0.68K\Omega$  S/N:  $\geq 58 \text{ dBA}$   
客戶料號  
CUSTOMER NO. :  
規 格 書 號  
SPECIFICATION NO.:  
版 本  
EDITION NO. : V1.1  
日 期  
DATE : 2019-12-27

## 客戶承認

### CUSTOMER CONFIRM AND SIGN

| 檢 查<br>TESTED BY | 審 核<br>CHECKED BY | 承 認<br>APPROVED BY |
|------------------|-------------------|--------------------|
|                  |                   |                    |

## 東莞市贏海電子有限公司

### DONGUAN INGHAI ELECTRONICS CO.,LTD

| 製 作<br>ISSUED BY | 審 查<br>CHECKED BY | 確 認<br>APPROVED BY |
|------------------|-------------------|--------------------|
| 周明               | 刘承成               |                    |

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## A. SCOPE

This specification applies electret condenser microphone, GMI4022U-2C50DB

## B. SPECIFICATION

■ Test condition:  $RL=0.68K\Omega$   $VS=1.5V$   $TEMP=25^{\circ}C\pm 2^{\circ}C$  Related humidity= $65\pm 5\%$

| No. | Item                       | Symbol        | Unit       | Specification     | Condition                          |
|-----|----------------------------|---------------|------------|-------------------|------------------------------------|
| 1   | Directivity                |               |            | Uni-directional   |                                    |
| 2   | Sensitivity                | <b>S</b>      | dB         | -50±3             | f=1KHz, 1Pa<br>0dB=1V/Pa           |
| 3   | Standard operating voltage | <b>Vs</b>     | V          | 1.5               |                                    |
| 4   | Output impedance           | <b>Zout</b>   | K $\Omega$ | ≤0.68             | f=1KHz, 1Pa                        |
| 5   | Frequency                  |               | Hz         | 100-10,000        |                                    |
| 6   | Max operating voltage      |               | V .        | 10                |                                    |
| 7   | Sensitivity reduction      | $\Delta S-Vs$ | dB         | -3                | f=1KHz, 1Pa<br>Vs=3.0VDC to 1.5VDC |
| 8   | Max. current consumption   | <b>IDSS</b>   | mA         | ≤0.5              |                                    |
| 9   | Signal to noise ration     | <b>S/N</b>    | dBA        | ≥58               | f=1KHz, P in=1Pa                   |
| 10  | Max input sound level      | <b>SPL</b>    | dB         | 110               |                                    |
| 11  | Operation temp.            |               | °C         | -30 ~+70          |                                    |
| 12  | Storage temp.              |               | °C         | -40 ~+85          |                                    |
| 13  | Dimension                  |               | mm         | $\phi$ 4.0 x H2.2 | See appearance drawing             |
| 14  | Terminal                   |               |            | Terminal          | See appearance drawing             |

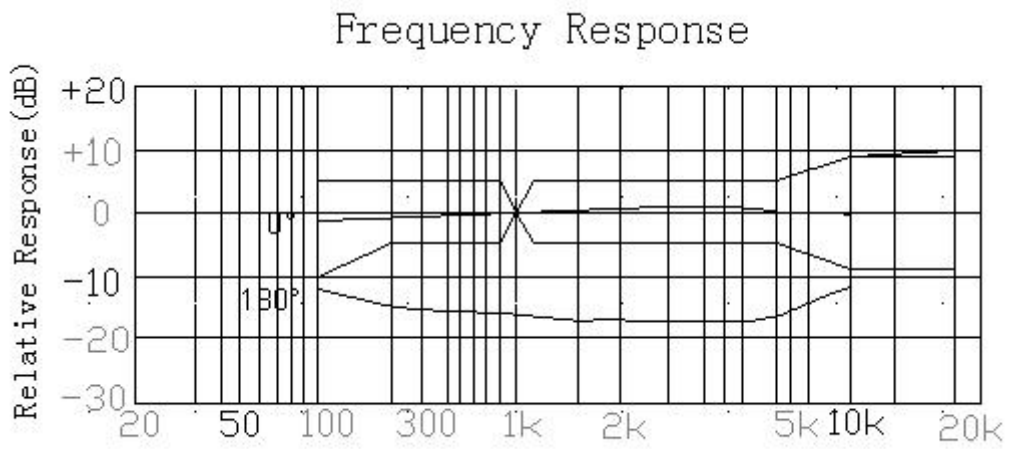
We use “Pascal(Pa)” indication of sensitivity as per the recommendation of I.E.C.(International Electro technical Commission)

The Sensitivity of “Pa” will increase 20dB comparing with “ubar” indication

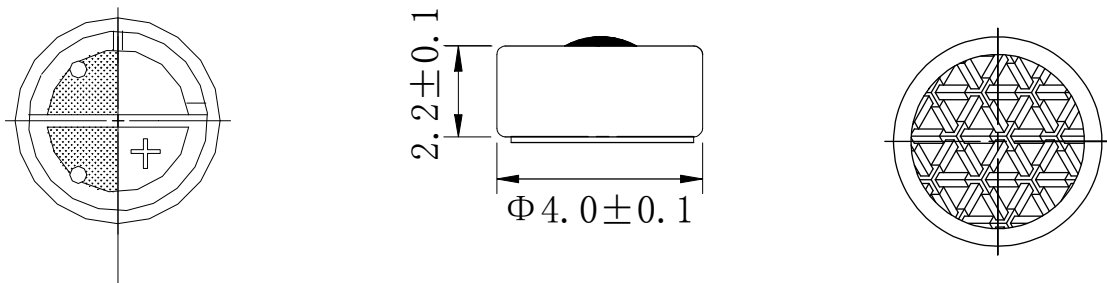
Example: -60dB(0dB=1V/ubar) =-40dB(1V/Pa)

### C. TYPICAL FREQUENCY RESPONSE CURVE

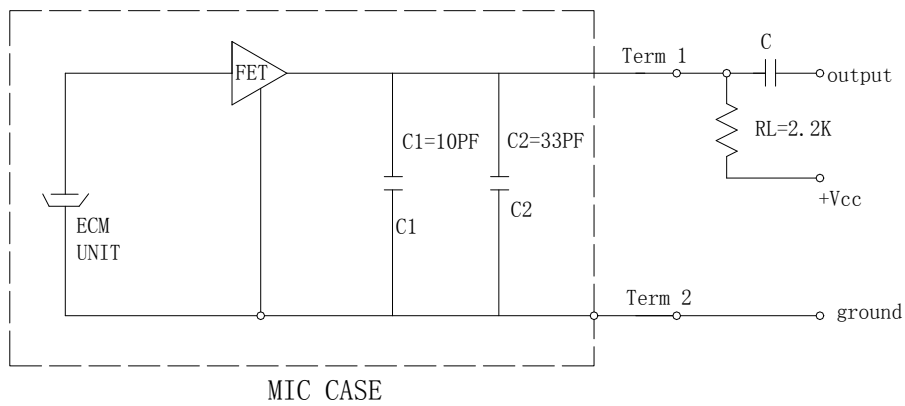
单指向



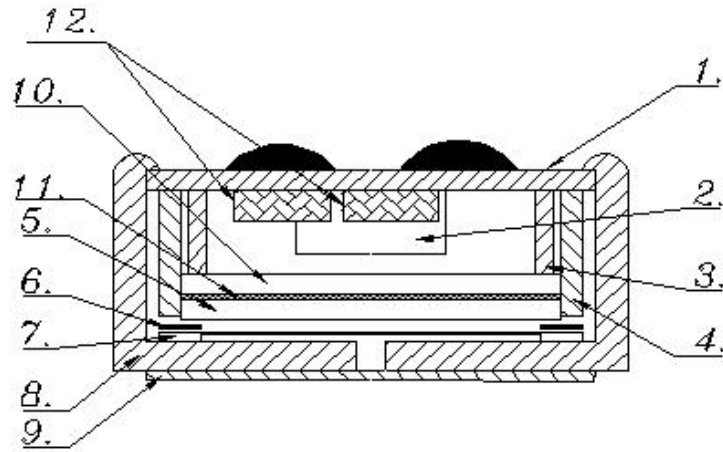
### D. APPEARANCE DRAWING



### E. MEASUREMENT CIRCUIT



## F. Explode Drawing



|   |      |    |     |
|---|------|----|-----|
| 1 | PCB  | 7  | 背极膜 |
| 2 | FET  | 8  | 外壳  |
| 3 | 金环   | 9  | 防水网 |
| 4 | 塑环腔体 | 10 | 极板  |
| 5 | 背极板  | 11 | 阻尼网 |
| 6 | 垫片   | 12 | 电容  |

| <b>G. 可靠性试验 Reliability Test</b>  |   |
|---|---|
| 经过以下所有试验在 20℃ 的条件下放置 3 小时后,麦克风的灵敏度与试验前比较变化在 3dB 以内<br>After any following tests, the sensitivity of the microphone to be within $\pm 3\text{dB}$ of initial sensitivity after 3hours of conditioning at 20℃ |   |
| 5-1 振动试验<br>Vibration   | 周波数 1/Frequency1:10Hz~55Hz<br>振幅/Amplitude:1.52mm<br>变化/Change of Frequency:1 octave/min<br>3 方向,各 2 小时/hours in each of 3 axes |
| 5-2 高温试验<br>Dry Heat  | +80 $\pm$ 5℃ for 96 hours   |
| 5-3 低温试验<br>Dry Cold  | -40 $\pm$ 5℃ for 96 hours   |
| 5-4 高温高湿试验<br>Damp Heat   | 90%~95%RH, +60 $\pm$ 5℃ for 96 hours  |
| 5-5 温度循环试验<br>Temperature cycles  | -20℃ $\longleftrightarrow$ 25℃ $\longleftrightarrow$ 70℃<br>(2h) (1h) (2h) (1h) (2h) $\times$ 10 cycles                         |
| 5-6 跌落试验<br>Packing drop test   | Height:1m<br>顺序:三个面各跌 10 次<br>Procedure:10 times from each of 3 axes  |
| 5-7 温度冲击试验<br>Temperature impact test   | -20℃ $\longleftrightarrow$ 70℃<br>30min 30s 30min $\times$ 10 cycles  |
| 5-8 静电冲击试验<br>Electrostatic shock test  | 4000V(contact), 10000V(air) $\times$ 10 axes  |
| 备注 Note   |   |
| 6-1 工作温度范围<br>Operation Temperature   | -30℃~70℃  |
| 6-2 储存温度范围<br>Storage Temperature   | -40℃~85℃  |
| <b>H. 焊接条件</b>  |   |
| <b>Soldering Condition</b>  |   |
| 7-1 焊接使用 90W 的烙铁。<br>The soldering copper of a type of 90W shall be applied   |   |
| 焊接条件<br>Soldering Condition.  |   |
| 7-2 电烙铁表面温度 320 $\pm$ 10℃<br>The temperature of the working surface of the soldering copper shall be 320 $\pm$ 10℃  |   |
| 7-3 焊接时把麦克风嵌入散热能力强的金属块内。  |   |

ECM shall be soldered fixed on the metal block(heat sink)which has the higher radiation effects said heat sink

Shall contact with of ECM.

7-4 焊接时间控制在 2~3 秒内。

time for each terminal shall be 2~3 sec.

7-5 焊接后不能出现针孔。

The pinhole after soldering shall be avoided.

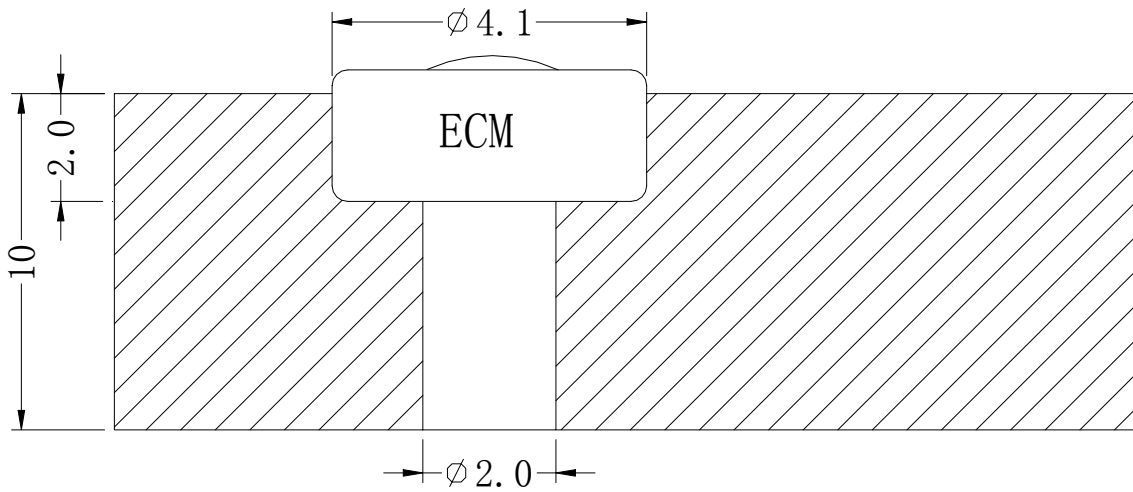
7-6 静电容易破坏麦克风必须采取措施避免（电烙铁接地，戴静电环等。）

ECM may easily destroyed by the static electricity and the countermeasure for eliminating the static electricity (the ground for soldering copper, for worktable and for human body) shall be executed.

7-7 散热板形状 Shape of heat sink



7-8 固定部孔形状 Shape of hole at fixed part



unit:mm

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