



# Product Specification

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|               |              |
|---------------|--------------|
| Product Name: | Piezo Buzzer |
| Part Number:  | EFM-210      |
| Version:      | 1.01         |
| Date:         | 2015-1-31    |
| Note:         |              |

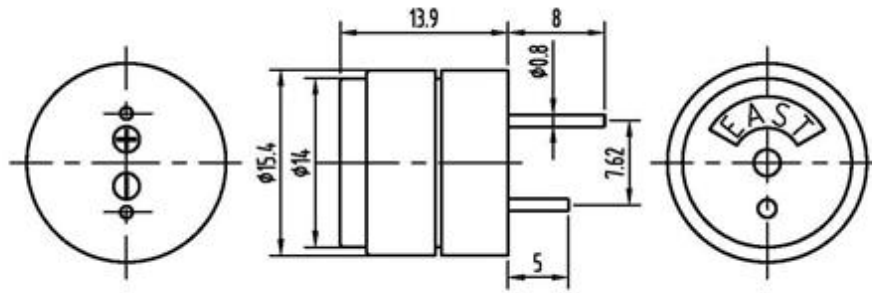
**Company passed ISO 9001 / ISO TS16949 / ISO 14001 Certifications**

## Revision History

| Rev. | Description                        | Author/Date      | Checked By | Approver |
|------|------------------------------------|------------------|------------|----------|
| 1.01 | Quality Certificate Symbol revised | 汤礼东<br>2015-1-31 | 李建华        | 王建成      |
| 1.0  | Released                           | 汤礼东<br>2011-12-9 | 张春雷        | 王建成      |

## 1. Part Number EFM-210

## 2. Dimension Drawing (Unit: mm)



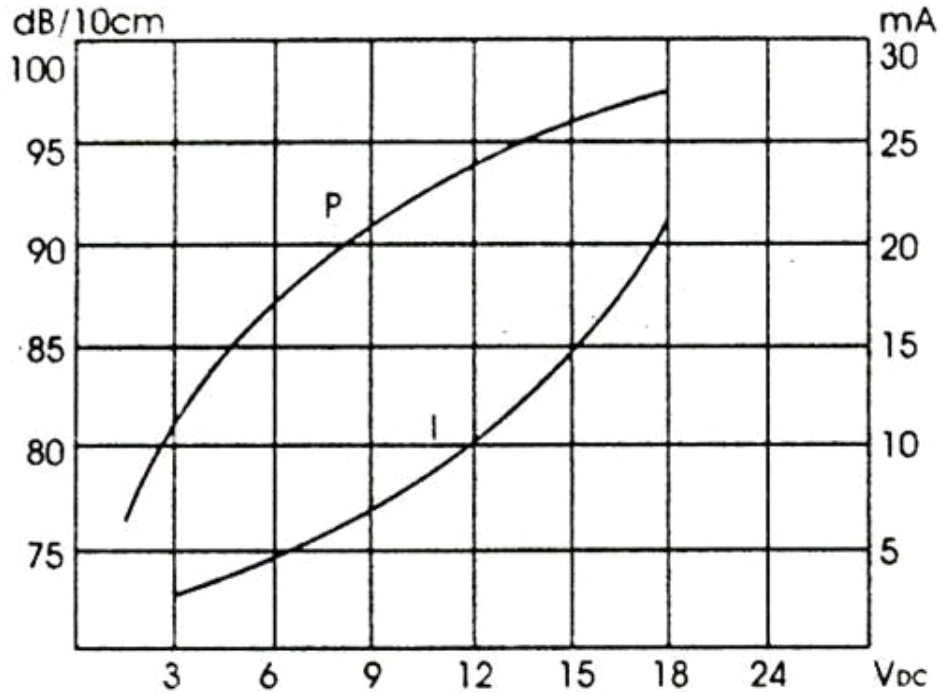
## 3. Specification

| No.  | Item                      | Specification                |
|------|---------------------------|------------------------------|
| 3-1  | Min. Sound Pressure Level | 85dB/12V <sub>DC</sub> /10cm |
| 3-2  | Rate Voltage              | 12V <sub>DC</sub>            |
| 3-3  | Operating Voltage         | 1~18V <sub>DC</sub>          |
| 3-4  | Max. Consumption          | 20mA/12V <sub>DC</sub>       |
| 3-5  | Oscillating Frequency     | 4.0± 0.5kHz                  |
| 3-6  | Tone Nature               | Continuous                   |
| 3-7  | Operating Temperature     | -25~+85°C                    |
| 3-8  | Storage Temperature       | -25~+85°C                    |
| 3-9  | Case Material /Color      | PC/Black                     |
| 3-10 | Weight                    | 2.4g                         |
| 3-11 | Pin Strength              | More than 10N                |

### NOTES:

Test should be made under the conditions of room temperature (20±10°C), normal humidity (60±20%) and normal atmospheric pressure. In this case, however, that the judgment is questionable, the test conditions are to be changed to room temperature 20±2°C, relative humidity 60~70% and normal atmospheric pressure

#### 4. Typical Frequency Response Curve



**Note:** Distance 10cm

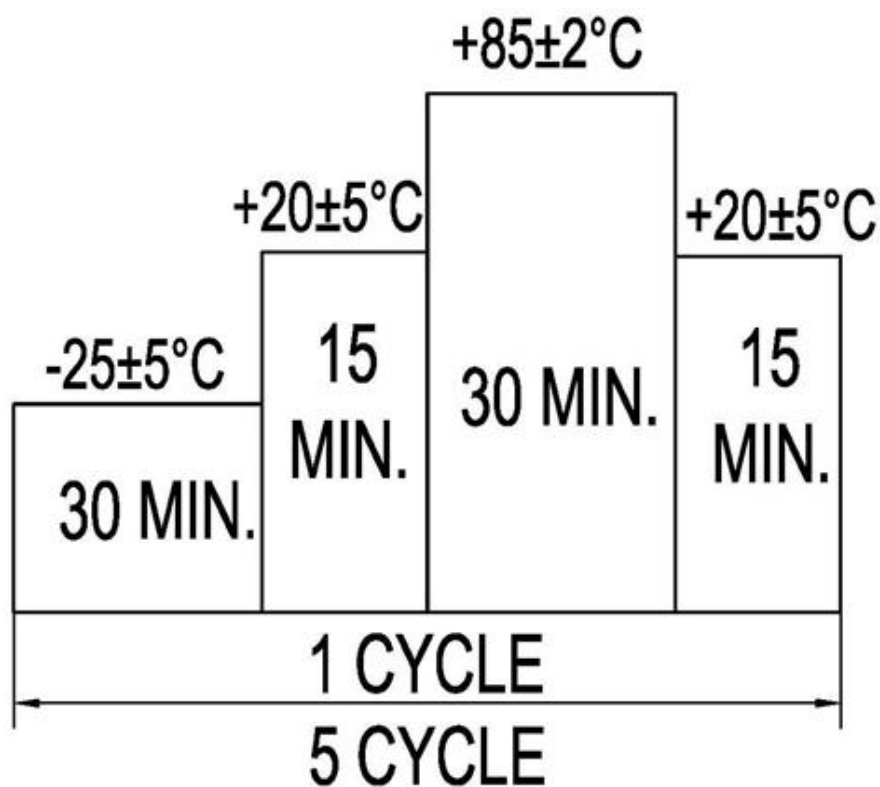
#### 5. Reliability Test

| No. | Item                                  | Method of Test   | Tolerance after Testing   |
|-----|---------------------------------------|--|---|
| 5-1 | Operating Temperature                 | -25~+85°C  | Sound pressure level initial value $\pm 10$ dB<br>Max. consumption value $\pm 20\%$<br>Oscillating Frequency $\pm 20\%$ |
| 5-2 | Storage in high temperature           | Storage in +85°C test box 96 hours then exposed to the room temperature for 2 hours  |   |
| 5-3 | Storage in low temperature            | Storage in -25°C test box 96 hours then exposed to the room temperature for 2 hours  |   |
| 5-4 | Life test in the room temperature     | Operate the product continuously 5 seconds on 5 seconds off 300 hours at rated voltage   |   |
| 5-5 | Temperature / humidity cycle test     | Storage in +40°C, 93 $\pm$ 3%RH test box 96 hours then exposed to the room temperature for 2 hours   |   |
| 5-6 | Temperature (high and low) cycle test | Conduct the test for 5 cycles without applying power then expose to the room temperature for 2 hours.(See Figure 5-6)  |   |
| 5-7 | Vibration test                        | Conduct the test for the directions of X Y and Z for 0.5 hour each (total 1.5 hours). To-and Fri sweep time(from 10 to 55Hz and then 55 to 10) under single amplitude of 0.75mm is 3 minute, then expose to the room temperature for 2 hours |   |

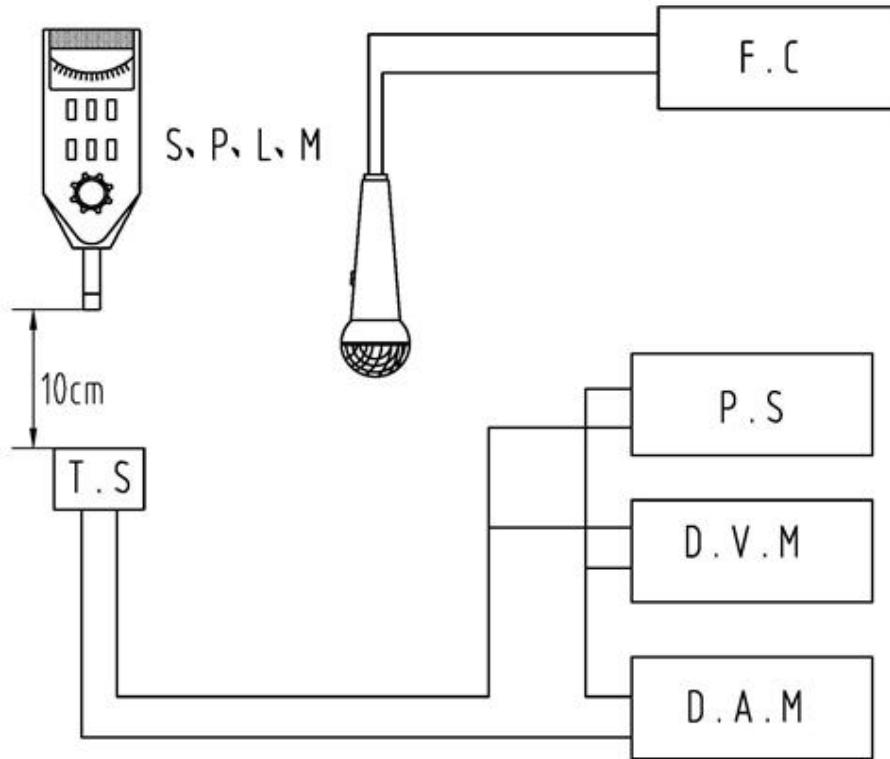
|      |                                |  |  |
|------|--------------------------------|--|--|
| 5-8  | Drop test                      | Drop a product naturally from the height of 700mm onto the surface of 100mm thick wooden board. Two directions: upper and side of the product are to be applied for this drop test once respectively |  |
| 5-9  | Soldering heat resistance test | Dip the connecting pins in soldering at $260\pm 5^{\circ}\text{C}$ for $10\pm 1$ seconds   |  |
| 5-10 | Test of soldering              | Dip the connecting pins in soldering at $230\pm 5^{\circ}\text{C}$ for $3\pm 0.5$ seconds  | Solder shall be attached around over 95% of the dipped portion |

**NOTE:** The pins are allowed to deform after drop test.

Figure 5-6



## 6. Electrical Testing Method



|         |                            |
|---------|----------------------------|
| S.P.L.M | Sound Pressure Level Meter |
| T.S     | Testing Sample             |
| F.C     | Frequency Counter          |
| P.S     | Power Supply               |
| D.V.M   | DC Voltage Meter           |
| D.A.M   | DC Ampere Meter            |

## 7. Packing Information

**Packing: 5000 pcs per export carton**

**Carton Size: 47× 30.5× 35 cm**

**G. Weight: 13.1 kgs N. Weight: 11 kgs**