



Product Specification

Ningbo East Electronics Limited
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| | |
|---------------|-----------------------------------|
| Product Name: | External -Driven Piezo Transducer |
| Part Number: | TFM-19 |
| Version: | 1.01 |
| Date: | 2015-2-12 |
| Note: | |

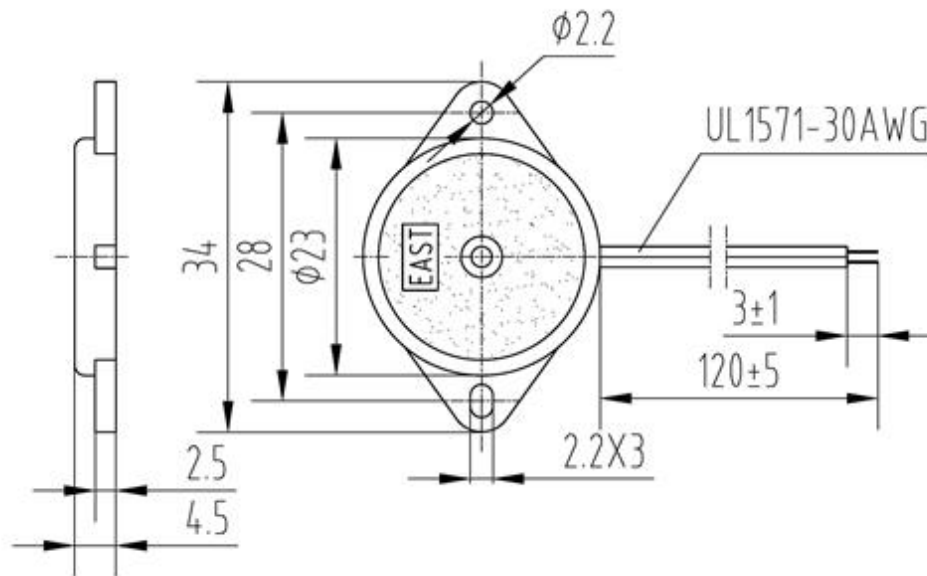
Company passed ISO 9001 / ISO TS16949 / ISO 14001 Certifications

Revision History

| Rev. | Description | Author/Date | Checked By | Approver |
|------|------------------------------------|-----------------|------------|----------|
| 1.01 | Quality Certificate Symbol revised | 刘宁 2015-2-12 | 汤礼东 | 王建成 |
| 1.0 | Released | 沈龙 2011-6-27 | 汤礼东 | 王建成 |

1. Part Number TFM-19

2. Dimension Drawing (Unit: mm)



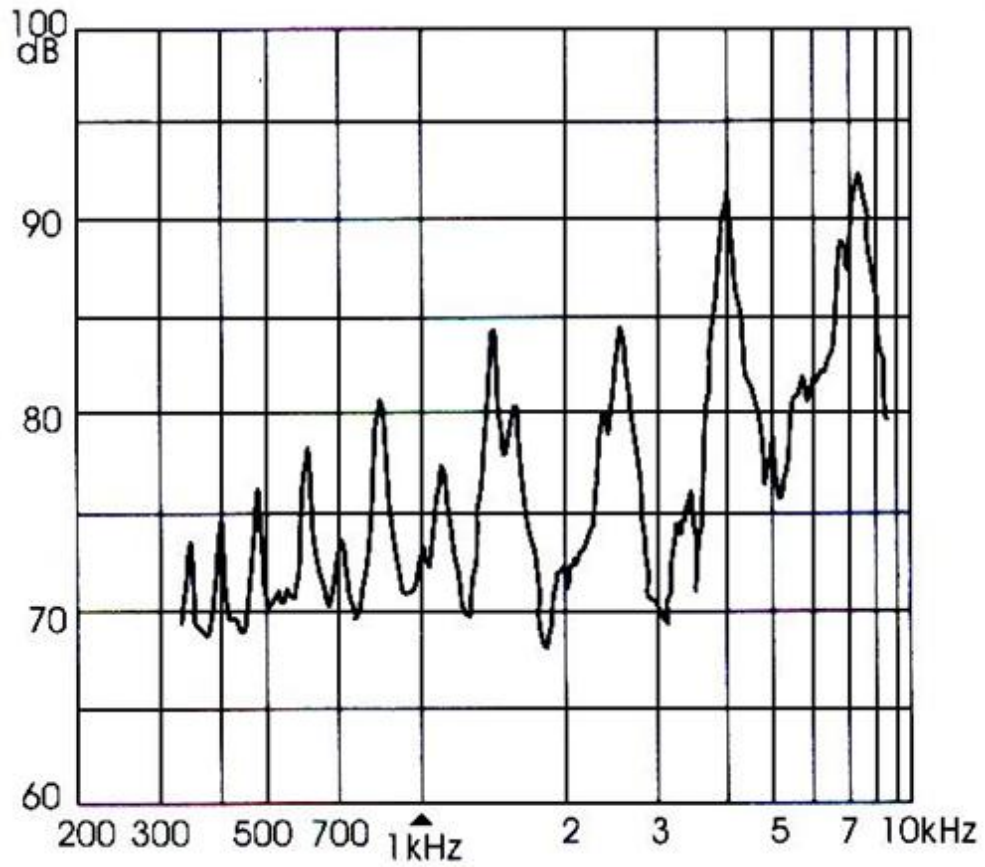
3. Specification

| No. | Item | Specification |
|-----|---------------------------|--------------------------------------|
| 3-1 | Min. Sound Pressure Level | 80dB/4.0kHz/12Vp-p square wave /30cm |
| 3-2 | Allowed Input Voltage | 40Vp-p |
| 3-3 | Capacitance | 24±30% nF (At 120Hz) |
| 3-4 | Max. Consumption | 5mA/4.0kHz/12Vp-p square wave |
| 3-5 | Resonant Frequency | 4.0± 0.5kHz |
| 3-6 | Operating Temperature | -20~+70°C |
| 3-7 | Case Material /Color | ABS/Black |
| 3-8 | Weight | 2g |
| 3-9 | Wire Standard | UL1571-30AWG |

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

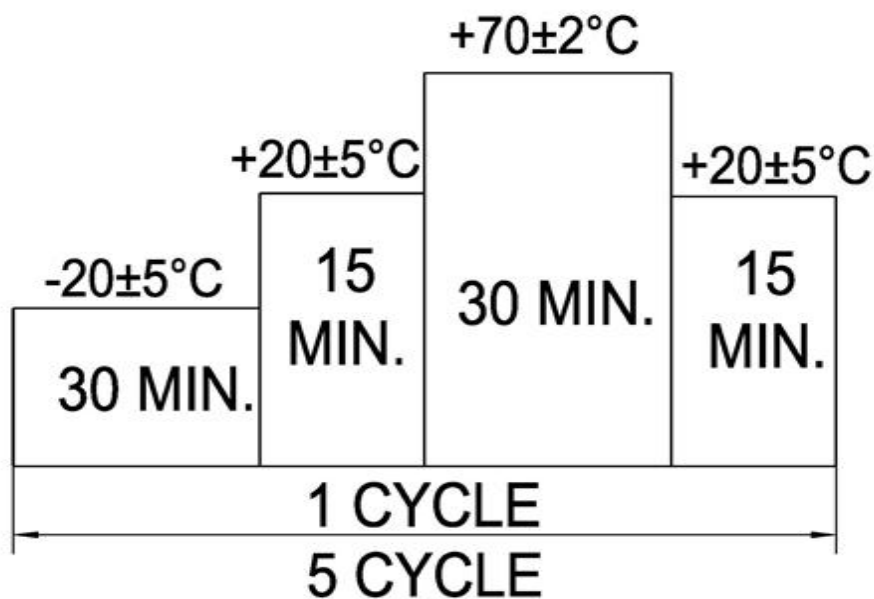


Note: Input Voltage 12Vp-p square wave
Distance 30 cm

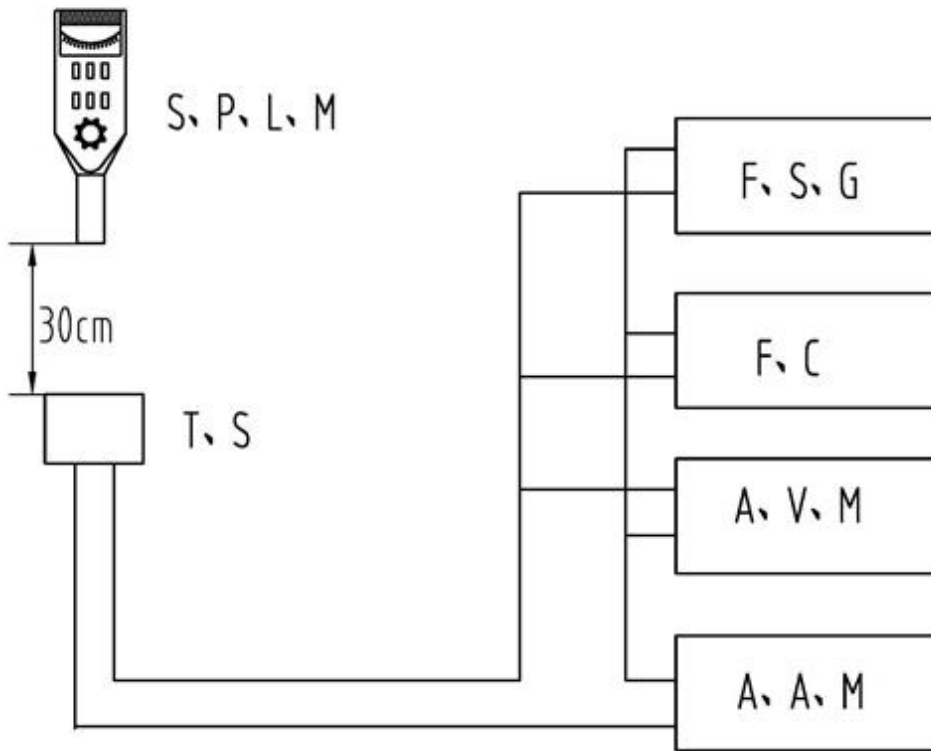
5. Reliability Test

| No. | Item | Method of Test | Tolerance after Testing |
|-----|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 5-1 | Operating Temperature | -20~+70°C | Sound pressure level initial value $\pm 10\text{dB}$ Max. consumption value $\pm 20\%$ Capacitance value $\pm 20\%$ |
| 5-2 | Storage in high temperature | Storage in +70°C test box 96 hours then exposed to the room temperature for 2 hours | |
| 5-3 | Storage in low temperature | Storage in -20°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 | |

Figure 5-6



6. Electrical Testing Method



| | |
|---------|----------------------------|
| S.P.L.M | Sound Pressure Level Meter |
| T.S | Testing Sample |
| F.C | Frequency Counter |
| F.S.G | Frequency Signal Generator |
| A.V.M | AC Voltage Meter |
| A.A.M | AC Ampere Meter |

7. Packing Information

Packing: 6800 pcs per export carton

Carton Size: 47× 30.5× 21 cm

G. Weight: 15.9 kgs N. Weight: 13.0 kgs