



# Product Specification

**Ningbo East Electronics Limited**

NO. 88 East Jinhui Road, Yinzhou Ningbo 315100, P.R.China

<http://www.east-mingtao.com>

Product Name:	External -Driven Piezo Transducer
Part Number:	TFM-51F
Version:	1.02
Date:	2019-9-5
Note:	

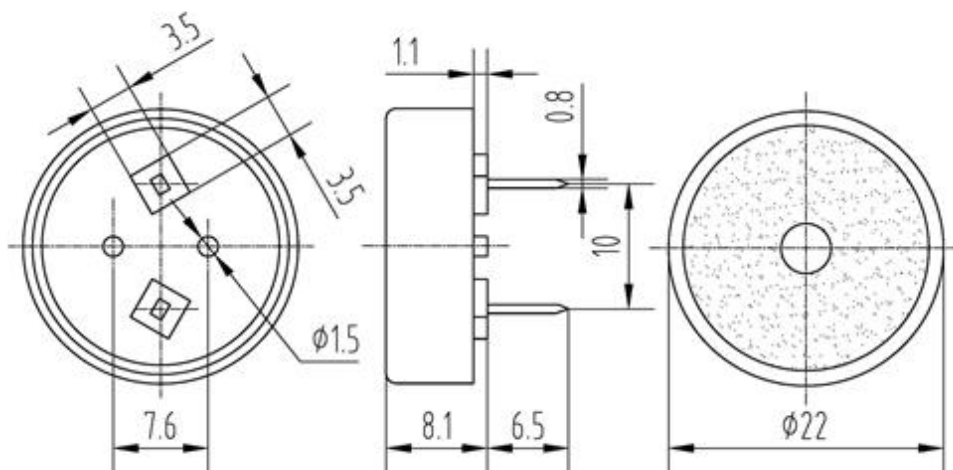
**East is an ISO 9001 , IATF16949 and ISO 14001 Certified Company**

## Revision History

Rev.	Description	Author/Date	Checked By	Approver
1.02	Quality management system revised	汤礼东 2019-9-5	吕文斌	王建成
1.01	Quality Certificate Symbol revised	刘宁 2015-2-12	汤礼东	王建成
1.0	Released	汤礼东 2011-8-3	张春雷	王建成

## 1. Part Number TFM-51F

## 2. Dimension Drawing (Unit: mm)



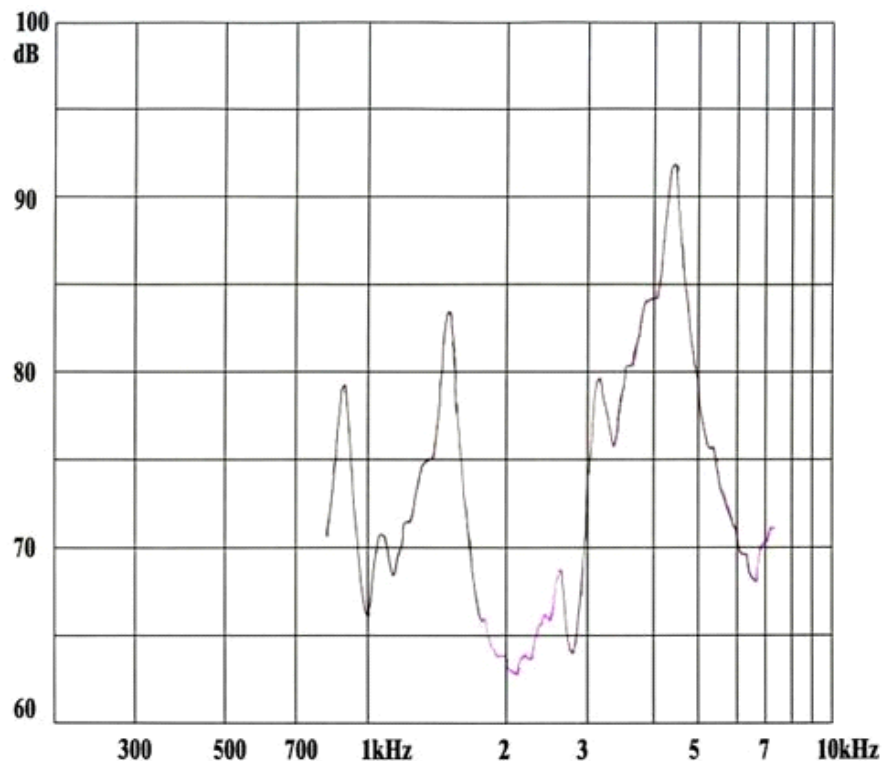
## 3.Specification

No.	Item	Specification
3-1	Min. Sound Pressure Level	75dB/4.0kHz/3Vp-p square wave /10cm
3-2	Allowed Input Voltage	30Vp-p
3-3	Capacitance	12±30% nF(At 1000Hz)
3-4	Max. Consumption	1mA/4.0kHz/3Vp-p square wave
3-5	Resonant Frequency	4.0± 0.5kHz
3-6	Operating Temperature	-40~+85°C
3-7	Case Material /Color	PA66(UL94-V0)/Black
3-8	Weight	2.5g
3-9	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



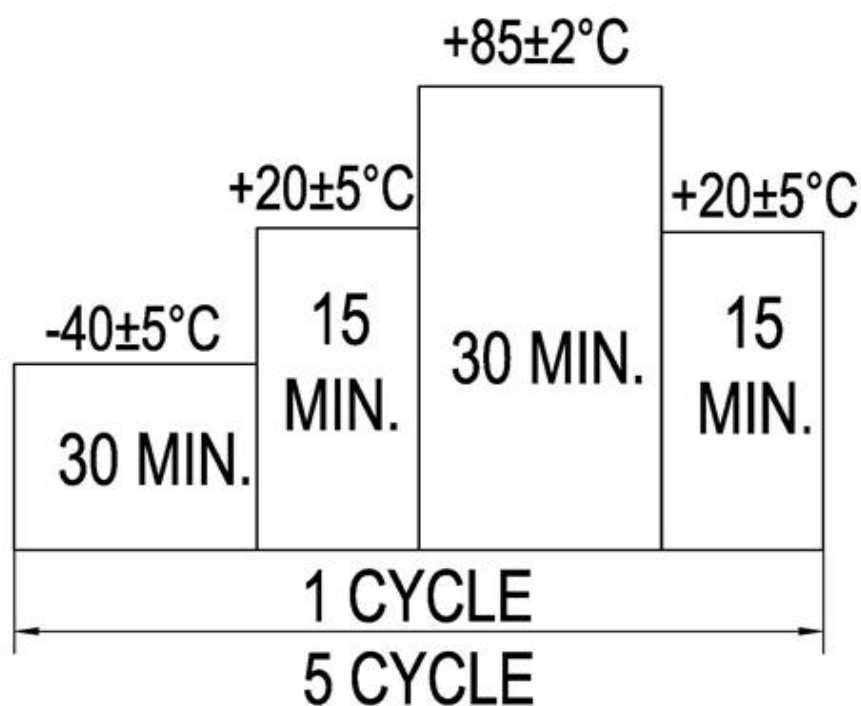
**Note:** Input Voltage 3Vp-p square wave  
Distance 10 cm

#### 5. Reliability Test

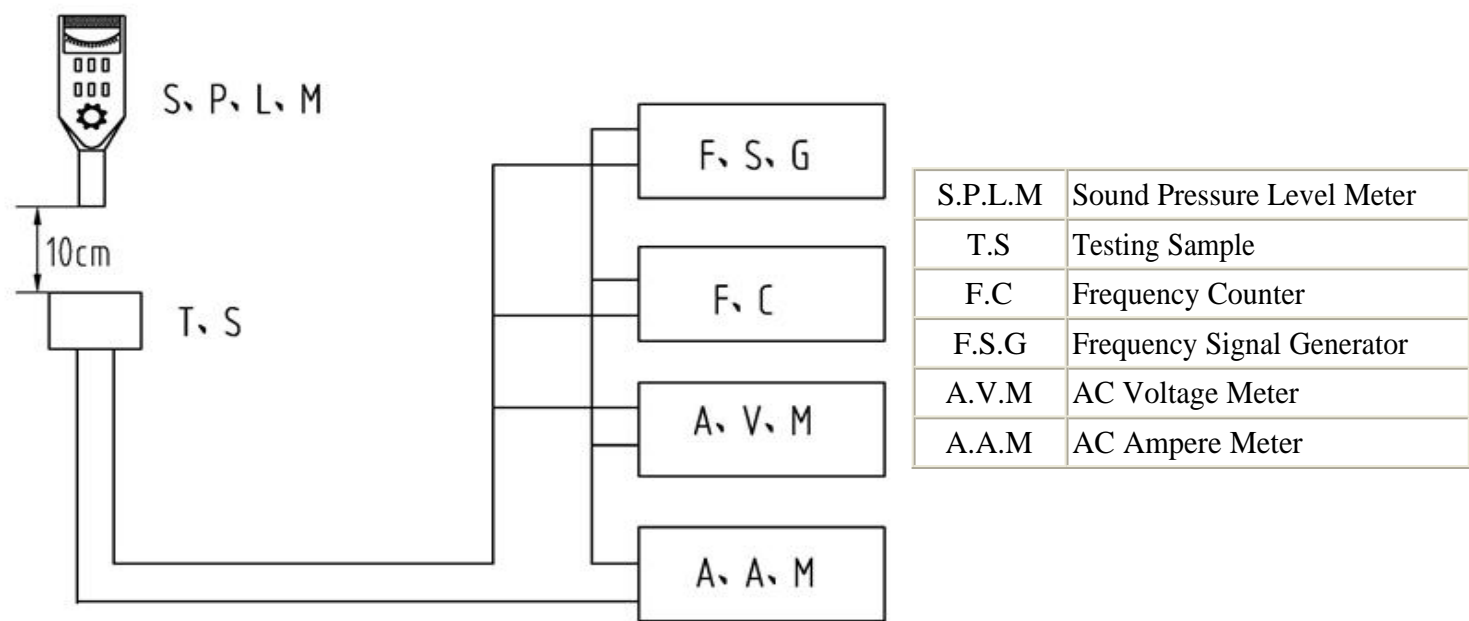
No.	Item	Method of Test	Tolerance after Testing
5-1	Operating Temperature	-40~+85°C	Sound pressure level initial value $\pm 10$ dB  Max. consumption value $\pm 20\%$  Capacitance value $\pm 20\%$
5-2	Storage in high temperature	Storage in +85°C test box 96 hours then exposed to the room temperature for 2 hours	
5-3	Storage in low temperature	Storage in -40°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±5°C for 10±1 seconds	
5-10	Test of soldering	Dip the connecting pins in soldering at 230±5°C for 3±0.5 seconds	Solder shall be attached around over 95% of the dipped portion
<b>NOTE:</b> The pins are allowed to deform after drop test.			

Figure 5-6



6. Electrical Testing Method



7. Packing Information

Packing: 2500 pcs per export carton  
Carton Size: 47× 30.5× 36 cm  
G. Weight: 9.2 kgs N. Weight: 7.0 kgs