



# Product Specification

**Ningbo East Electronics Limited**  
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Product Name:	External -Driven Piezo Transducer
Part Number:	TFM-59DL
Version:	1.02
Date:	2019-9-5
Note:	

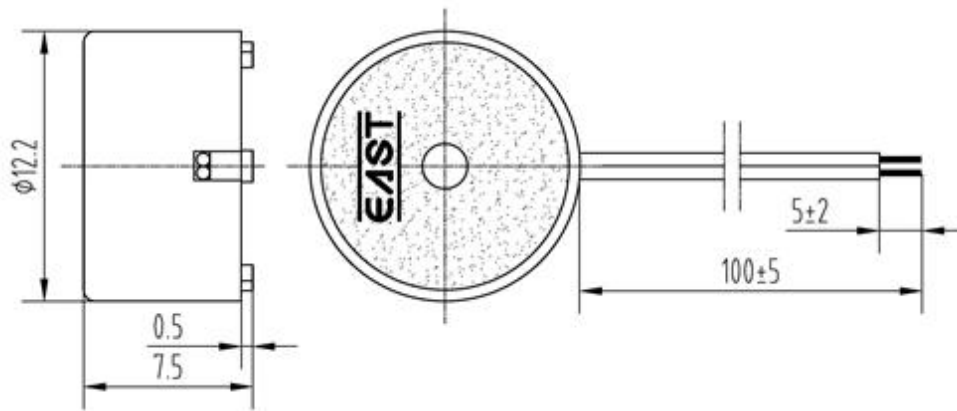
**East is an ISO 9001 , IATF16949 and ISO 14001 Certified Company**

## 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	刘进 2015-5-11	汤礼东	王建成
1.0	Released	汤礼东 2011-8-8	张春雷	王建成

## 1. Part Number TFM-59DL

## 2. Dimension Drawing (Unit: mm)



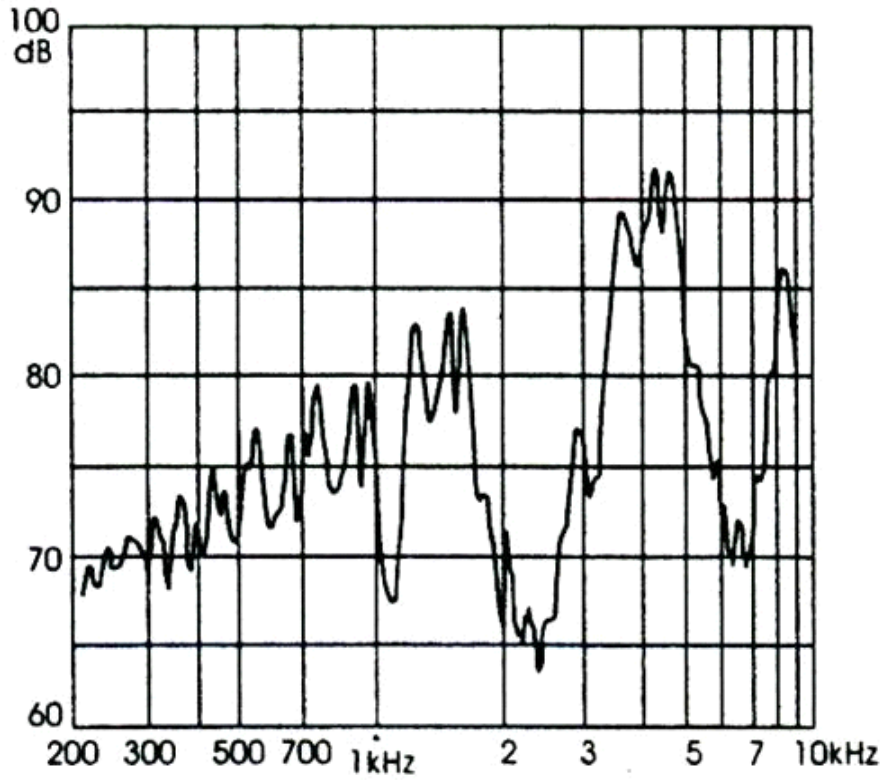
## 3. Specification

No.	Item	Specification
3-1	Min. Sound Pressure Level	80dB/4.0kHz/12Vp-p square wave /10cm
3-2	Allowed Input Voltage	25Vp-p
3-3	Capacitance	11±30% nF(At 1000Hz)
3-4	Max. Consumption	6mA/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	PC/Black
3-8	Weight	1.0g
3-9	Wire Standard	UL1571-30AWG

### NOTES:

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

#### 4. Typical Frequency Response Curve

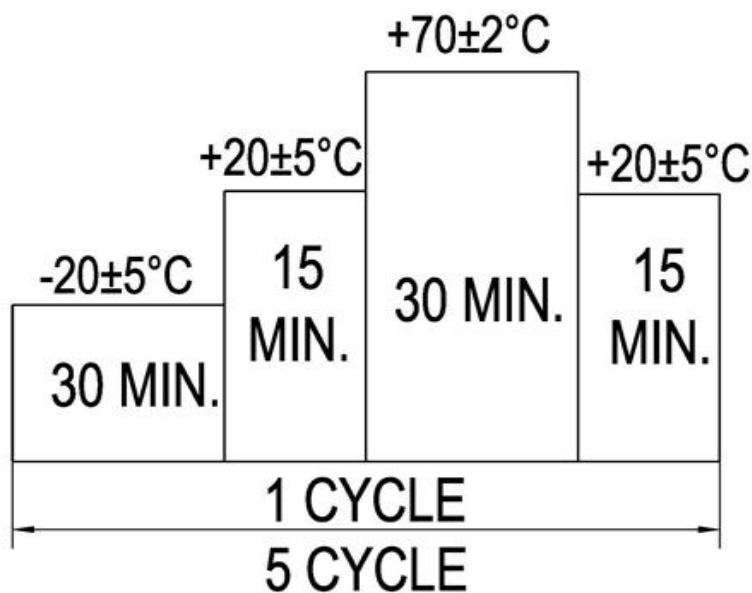


**Note:** Input Voltage 12Vp-p square wave  
Distance 10 cm

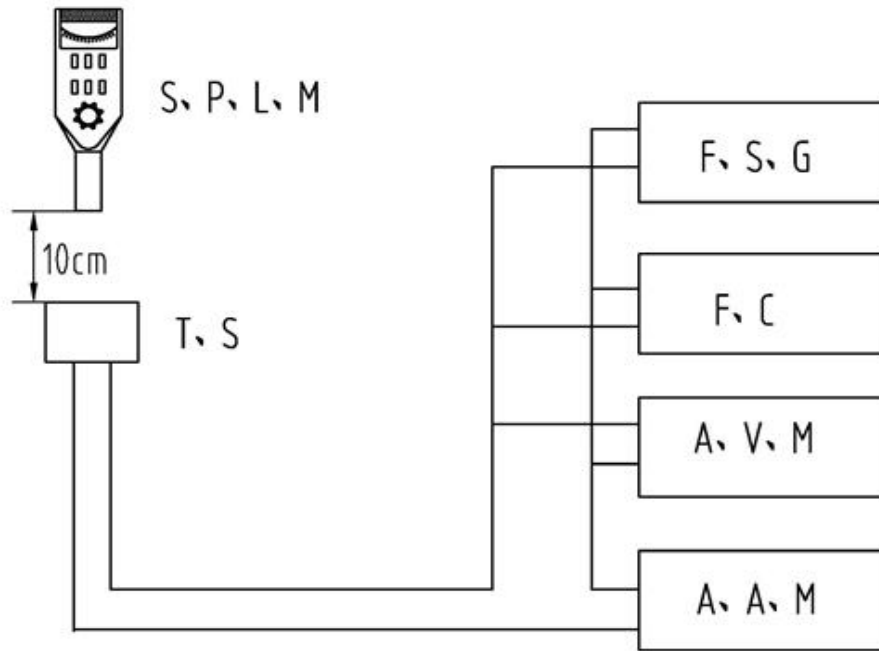
## 5. Reliability Test

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: 10000 pcs per export carton**

**Carton Size: 47× 30.5× 21 cm**

**G. Weight: 12.2 kgs N. Weight: 8.0 kgs**