

# APPROVAL SHEET



**FHD ELECTRONICS CORPORATION**

CUSTOMER NAME : \_\_\_\_\_

COMMODITY : PIEZO TRANSDUCER

FHD PART NO. : T121230-P4000E-S

CUSTOMER PART NO. : \_\_\_\_\_

REMARK : \_\_\_\_\_

Approved by	J.J.	Prepared by	HY Shen
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<b>Customer Approval</b>			
<b>Approved</b>		<b>Rejected</b>	

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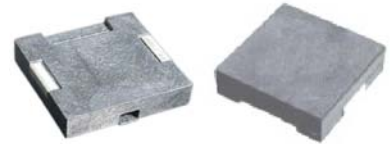


# FHD ELECTRONICS CORPORATION

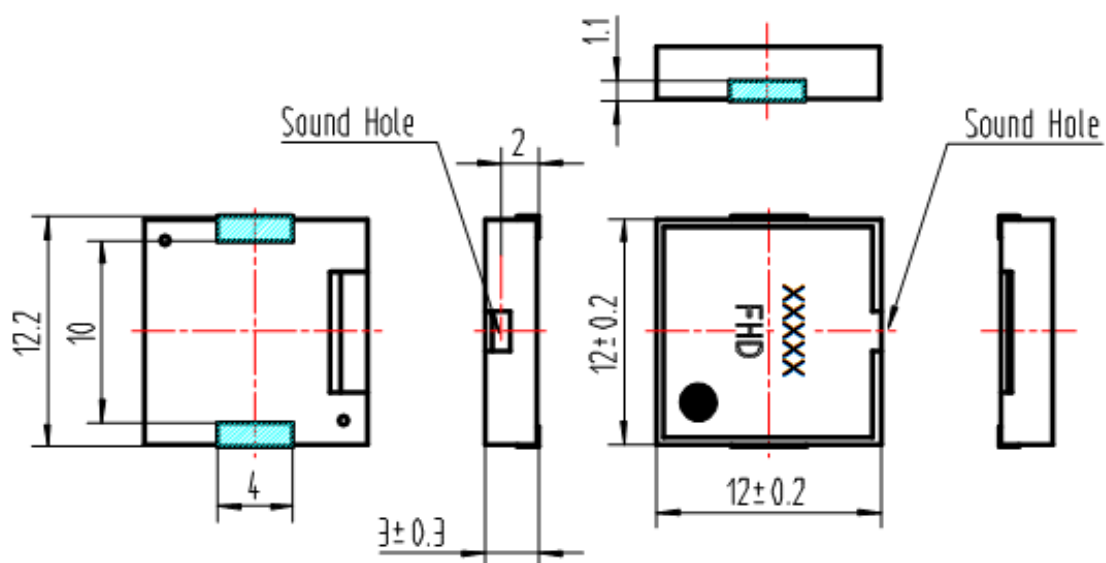
## REVISIONS

**PRODUCT PART NO. : T121230-P4000E-S**

DATE	REVISER	REV.	DESCRIPTION	REMARK
2013/8/26	HY SHEN	1	Initial edition	
2015/3/18	HY SHEN	2	Add company name and Lot number on the top of buzzer Change packing from 10Kpcs/ctn to 8Kpcs/ctn	

**A. PART NO.: T121230-P4000E-S****B. SPECIFICATION**

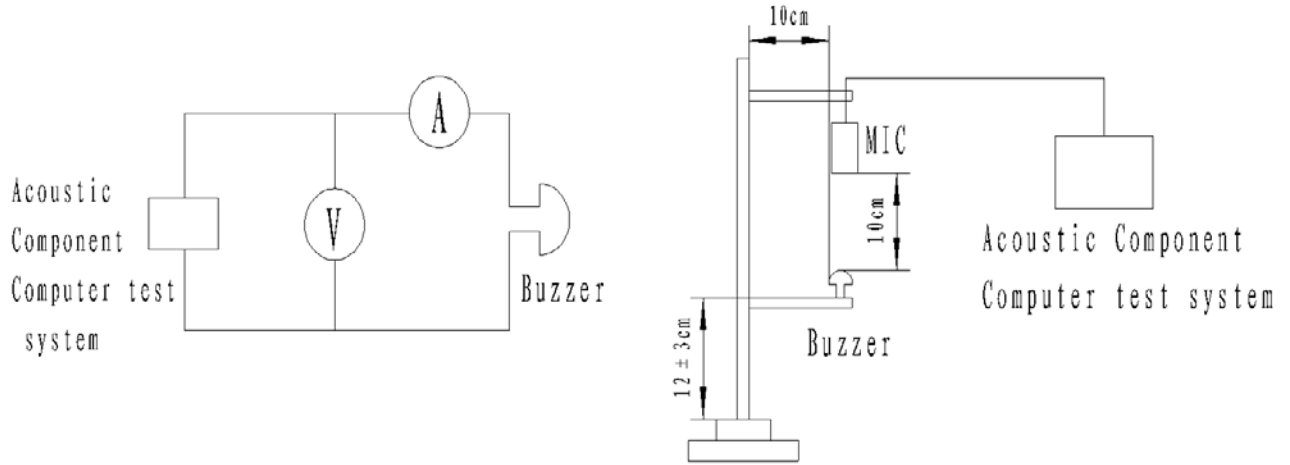
No.	Item	Unit	Specification	Condition
1	Oscillation Frequency	KHz	4.0±0.5	square wave
2	Max Input Voltage	Vp-p	25 max	
3	Rated Voltage	Vp-p	3	
4	Capacitance	pF	16000±20%	at 120Hz
5	Rated Current	mA	MAX. 3	
6	Sound Pressure Level	dB	MIN. 78	at 10cm 3Vp-p 4000Hz
7	Operating Temperature	°C	-20 ~ +85	
8	Storage Temperature	°C	-30 ~ +90	
9	Dimension	mm	12 x 12 x H3.0	See appearance drawing
10	Weight (MAX)	gram	0.3	
11	Housing Material		LCP( Black )	
12	Environmental Protection Regulation		RoHS	

**C. APPEARANCE DRAWING**

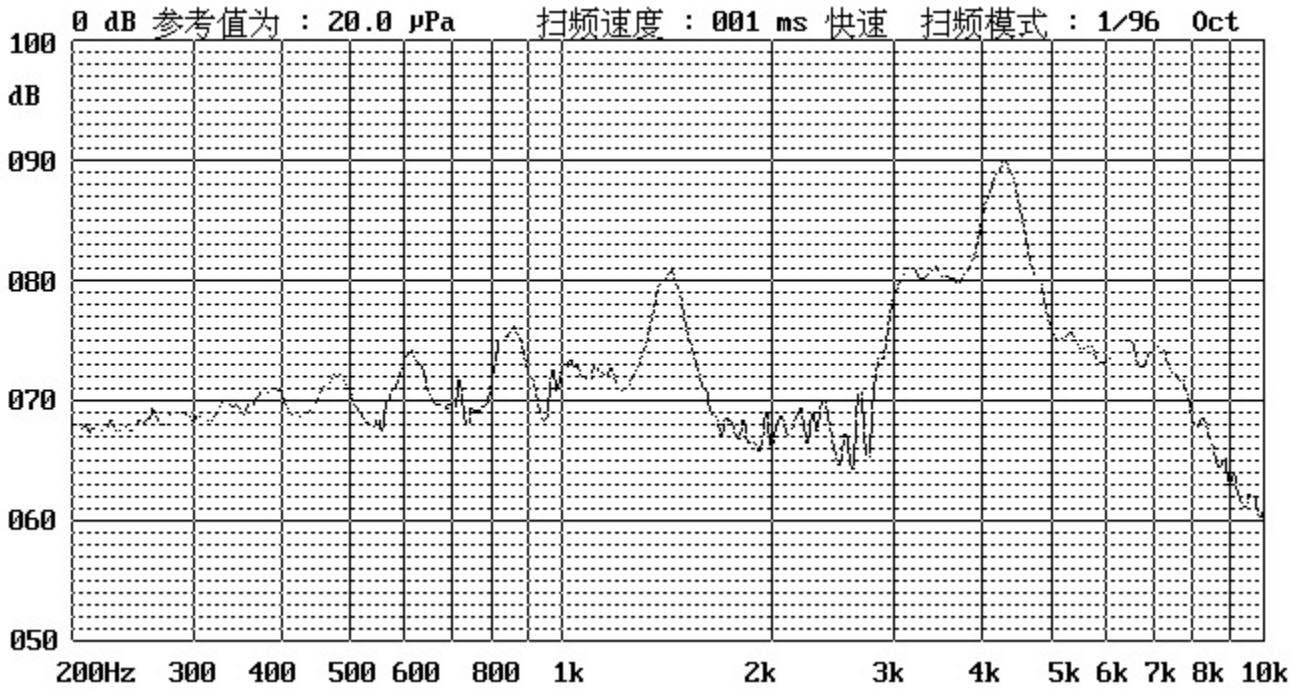
\*Unit: mm; Tolerance: ± 0.3mm Except Specified  
Terminal plate: 2 soldering pads, Tin plating brass

### D. TEST METHOD

Standard Measurement Conditions: Temperature:25±2°C Humidity:45-65%



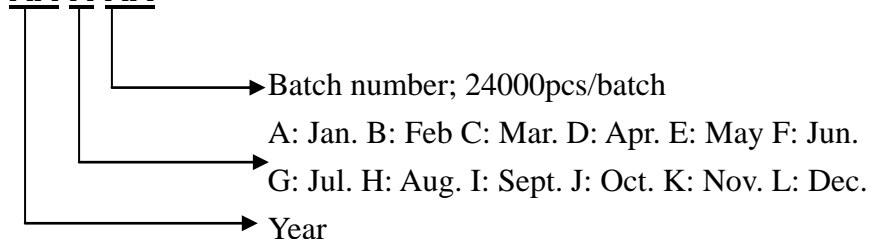
### E. TYPICAL FREQUENCY RESPONSE CURVE



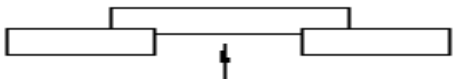
3Vp-p 50% duty Square wave,10cm

## F. LOT NUMBER NOMINATION

**XX X XX**



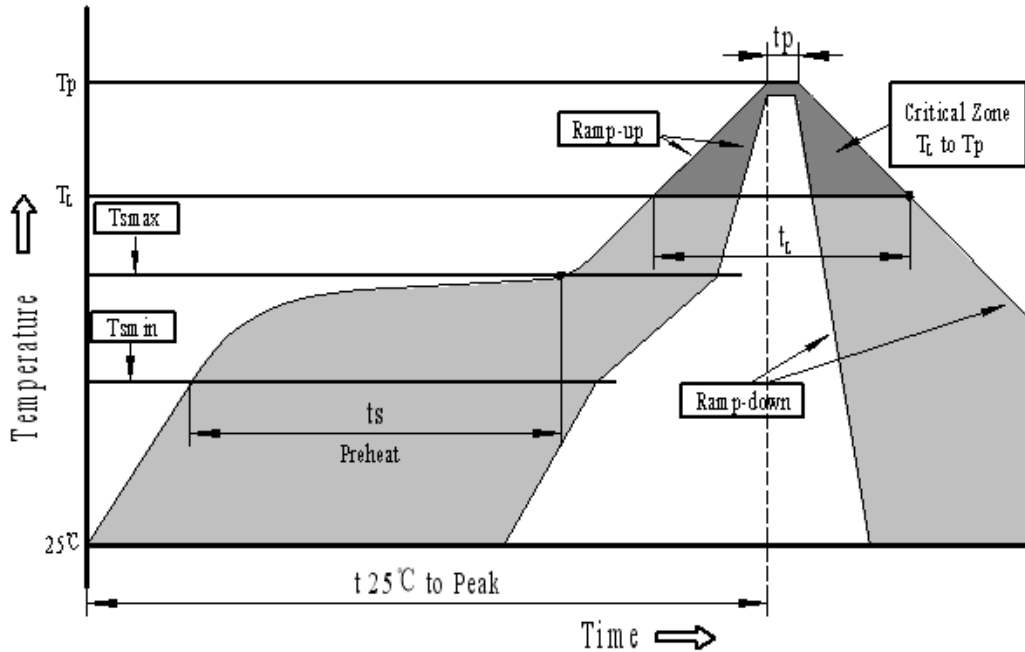
## G. RELIABILITY TEST

NO	ITEM	TESTING CONDITION	VARIANCE AFTER TEST
1	High Temperature Storage Life	The part shall be capable of withstanding a storage temperature is +80°C for 120 hours	All specifications must be satisfied after the test.
2	Low Temperature Storage Life	The part shall be capable of withstanding a storage temperature is -30°C for 120 hours	
3	Temperature Cycle	Total 5 cycles, 1 cycle consisting of -30±2°C, 30 minutes 20±5°C 15 minutes 80±2°C, 30 minutes 20±5°C 15 minutes	
4	Humidity Test	40±2°C, 90~95% RH, 120 hours	
5	Vibration Test	The part shall be subjected to a vibration cycle is 10Hz in a period of 1 minute. Total peak amplitude shall be 1.52mm (9.3g). The vibration test shall consist of 2 hours per plane in each three mutually perpendicular planes for a total time of 6 hours.	
6	Shock	Sounder shall be measured after being applied shock (980m/s <sup>2</sup> ) for each three mutually perpendicular directions to each of 3 times by half sine wave.	
7	Drop Test	Dropped naturally from 700mm height onto the surface of 10mm thick wooden board. 2 directions-upper and side of the part are to be applied.	
8	Lead pull	The part shall be pushed with a force of 9.8N for 10±1 seconds behind the part. 	After the test part shall meet specifications without any degradation in appearance and performance.
9	Recommended Temperature for Reflow Oven	Shown in Fig.1	

**Warranty:** For a period of one year from date of manufacture under normal operations.

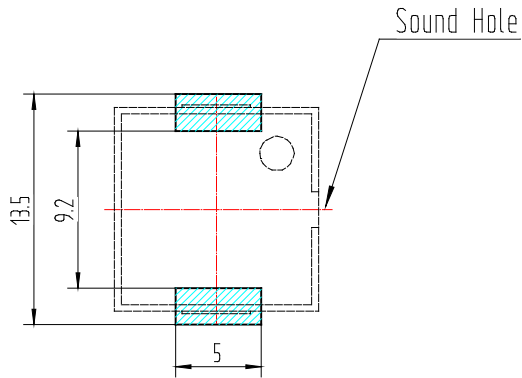
## G.RECOMMENDED TEMP. PROFILE FOR REFLOW OVEN (Fig.1)

### 1. Reflow soldering

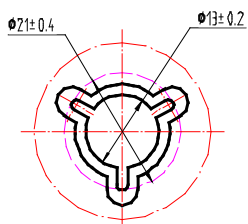
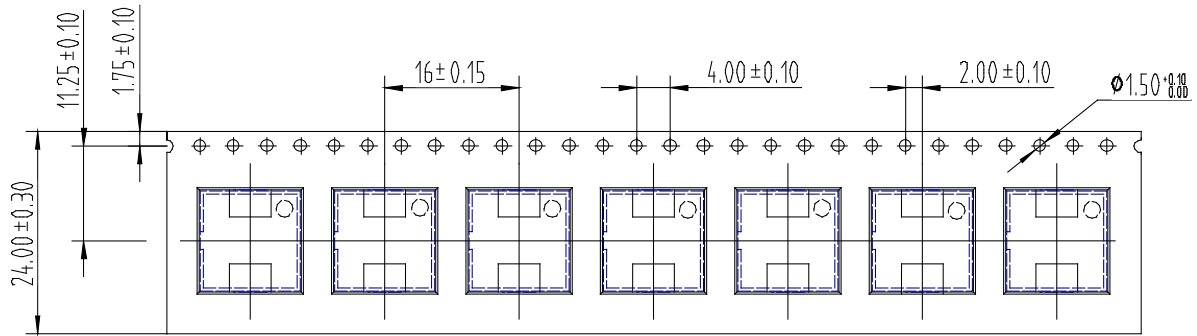


Profile Feature	Pb-Free Assembly
Average ramp-up rate( $T_L$ to $T_p$ )	3°C/second max.
Preheat	
-Temperature Min.( $T_{smin}$ )	150°C
-Temperature Min.( $T_{smax}$ )	200°C
-Temperature Min.( $t_s$ )	60~180 seconds
$T_{smax}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
- Temperature( $T_L$ )	217°C
-Time( $T_L$ )	60~150 seconds
Peak temperature( $T_p$ )	245°C+0/-5°C
Time within 5°C of actual Peak temperature ( $t_p$ )	6 seconds max.
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

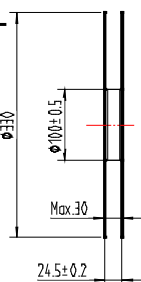
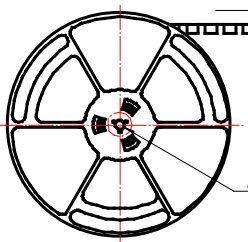
### 2. Solder Pattern



### H. PACKING INFORMATION



DETAIL: A  
SCALE: 8:1



Label 如客户指定按客户要求  
 P/N:  
 Model No.:  
 Qty.:  
 Lot No.: XXXXX

