

Customer : <u>Freewind</u>	Ver. No.	XA1-1102-712E(00)
	Date issued	16-May-14

SPECIFICATION FOR APPROVAL THE PIEZOELECTRIC SOUNDER

YOUR CONFIRMATION	
Date	

TYPE :PS1440P02E

Remark :

Please contact us with any question or sign back this SPEC within two weeks after it is issued, otherwise we will take it as an acceptance of this SPEC.



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APPROVED	CHECKED	REPORTED

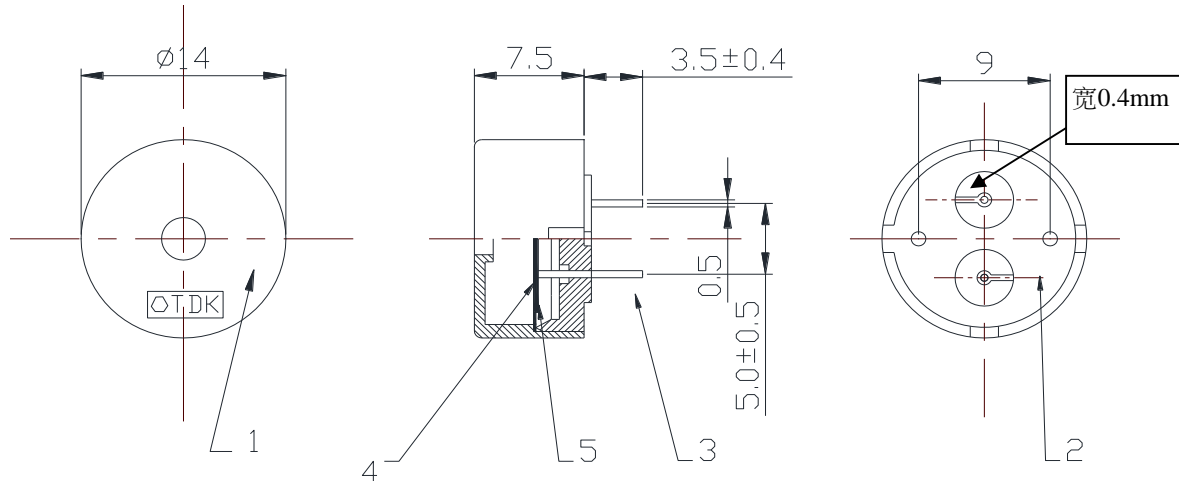
1. Scope

This specification is applicable to the Piezoelectric Sounder of TDK .

2. Product name

The nomenclature of the product specified by this specification shall be Piezoelectric Sounder PS1440P02E.

3. Structure and Dimensions



Unit : mm

General tolerance : ±0.3

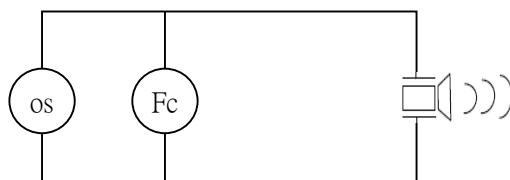
Part table		
NO.	Name	Material
1	Upper Casing	PBT (Black)
2	Lower Casing	PBT (Black)
3	Terminals	Phosphor Bronze
4	Vibrating sheet	Brass
5	Vibrator	Piezoelectric Ceramic

4. Inspection Circuit

4000±50Hz 3V_{o-p}



Output Impedance : 50Ω



5. Specifications of the Characteristics

Item	Specifications	
5-1. Appearance	Free from marked flaws,pollution and deformation,etc.	
5-2. Test Condition	5.2.1 Drive frequency	4.0KHz
	5.2.2 Drive voltage	3V _{o-p}
	5.2.3 Measuring distance	10cm
5-3. Sound Pressure	Higher than 78dB/10cm (condition : Temp.25±5°C , normal humidity)	
5-4. Max. input voltage	20V _{o-p} Max , but no DC bias	
5-5.Operating temperature	-20°C ~ +70°C	
5-6. Storage temperature	Stored in room temperature5~40°C , humidity20~70%RH for 6months	

6.Environmental Test

Item	Specifications
6-1. Exposure to high temp.	at +85°C for 240 hours
6-2. Exposure to low temp.	at -40°C for 240 hours
6-3. Thermal shock test	Submit to 5 cycles of the following sequence conditions in air : -40°C , 30min , +85°C , 30min
6-4. Humidity test	60°C ,at 90~95%RH for 240 hours.
6-5. Vibration	10~55Hz, total amplitude 1.52mm sweep in 1 minute. /1 cycles, X,Y,Z axis for two hours respectively.
6-6. Dropping	Dropped two times freely on a lawan plate from the height of 75mm.
6-7.Solderability	Solder (Sn-Ag-Cu)Temp.250±2°C , Soldering time: less than 3 seconds.Flux and a plate in 1.6mm thick are used for this test.
6-8.Resistance to soldering heat	Solder (Sn-Ag-Cu)Temp.260±2°C , Soldering time: 10seconds . Flux and a plate of 1.6mm thick are used for this test.
6-9. Continuous operation	Supply 50% duty square-wave 20Vo-p 4.0KHz for 240 hours.

- ◇ The specification described below shall be satisfied leaving for four hours min. at the room temperature after completing the tests mentioned above.

Item	Specifications
Sound pressure	initial spec.±10dBMax.

Futhermore the following conditions need to be satisfied:

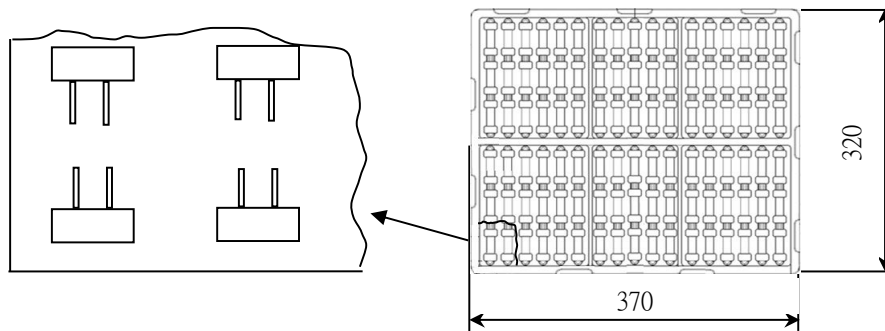
Dropping : No abnormity except terminals ◦

Solder wettability : Soldering time less than 3 seconds. (Sn-Ag-Cu Pb-free solder) ◦

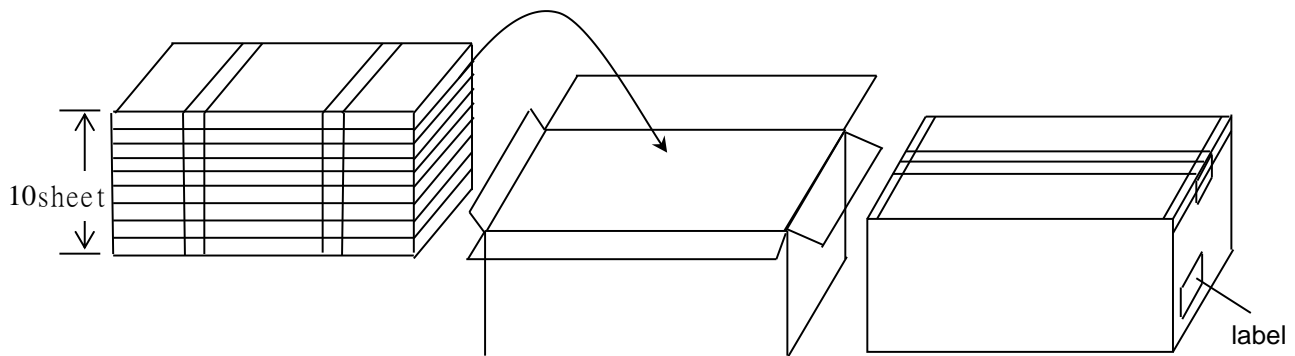
Resistance to soldering heat : No abnormity except terminals ◦

7. Specification of the Packing

7.1 Plastic plate 200 Pcs/Sheet



7.2 Out box : 10 Sheet /box (2000Pcs)



8. Others

8.1 If the event of discrepancies in the interpretations of the contents of this specification , an agreement shall be sought through consultations between the customer and the vendor.

8.2 In the event of changes in designing and processes, interruption of manufacture, notification shall be submitted in advance for approval.

8-3 Should not use the materials that destroy the ozonosphere ◦

8-4 Original Country: TDK XIAMEN CHINA ◦

8-5 This product meets with the RoHS directive.

RoHS directive : According to EU Directive 2002/95/EC requirement , except for some special usage, there should no Pb, Cd, Hg, Cr6+ and PBB , PBDE of Brominated flame retardants which are forbidden ◦

8-6. Cautions for use

- 8-6-1 Do not supply DC bias to the sounder or the unimorph, otherwise the insulation resistance may drop and they may no longer operate properly.
- 8-6-2 Do not supply voltage to the sounder or the unimorph in excess of the range of voltage specified.
- 8-6-3 The sounder and the unimorph have been designed for indoor use. So they must not be used outdoors or in bathroom. In particular, in the event of some water gets into the sounder, they will no longer operate properly. In the case that the sounder needs to be used under an environment with the possibility of some water getting into it.
- 8-6-4 The sounder and the unimorph need to be cleaned in such a way that no solvent or gas may enter them. In the event of some solvent entering the sounder through its sound outlet opening, the solvent will remain inside for many hours and cause the product's malfunction.
- 8-6-5 The sound generator provided in the sounder is composed of 100-micron piezo-electric ceramics. So it is essential that the sound generator should not be pushed with a power supply pin something that through the sound output opening, otherwise the ceramics may be damaged. Furthermore, it is important that the sounder is placed in boxes or containers with stacking them up properly.
- 8-6-6 When assemble the sounder to the plate board, take precaution to prevent the immersing of flux. The flux may cause it bad conduction.
- 8-6-7 The sounder and the unimorph body should never be exposed to mechanical stress, otherwise the casing may be deformed and they may fail to operate properly.
- 8-6-8 The performance of the sounder is changeable with the sound load, and therefore it is important that the sounder should be used in such a way that no other parts or cover is placed very close to the sound outlet opening.
- 8-6-9 Do not use the sounder and the unimorph for long time in a corrosive gas (such as H₂S), otherwise some parts of the sound generating element may be corroded, and they may no longer operate properly.
- 8-6-10 Do not use the sounder for parts of an automobile.
- 8-6-11 Do not touch the terminal with bare hands, otherwise they may be corroded.
- 8-6-12 Iron soldering : Less than 350°C , within 5 seconds ◦ (iron :less than 80W) ◦
- 8-6-13 Wave-soldering : Preheating at less than 120°C within 60 seconds and soldering at less than 260°C within 5 seconds ◦
- 8-6-14 This product is not fit for reflow soldering
- 8-6-15 The products described here is for the general electronic equipment in the general standard (AV equipment, communications equipment, home appliances, entertainment equipment, computer, individual apparatus, instruments, test equipment and industrial robot). And the general electronic equipment only suitable for ordinary operating methods. When used in the application which required a high safety and reliability, the failure, malfunction may cause the damage to man's life, body or property. If the products are used in the special application as follows, the specification and quality can't guaranteed. If the products will be used beyond the scope, conditions or used in the special application not described here, please contact us in advance.
- | | |
|--|---|
| 1). Aerospace equipment | 8). Public information processing equipment |
| 2). Transportation equipment (cars , trains , ships) | 9). Military use equipment |
| 3). Medical equipment | 10). Electric heating supplies, combustion equipment |
| 4). Power control equipment | 11). Disaster prevention, crimes prevention equipment |
| 5). Atomic equipment | 12). Security device |
| 6). Undersea device | 13). Others |
| 7). Transportation control equipment | |
- When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.