Piezoelectric Sound Components

RoHS

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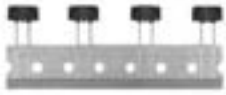
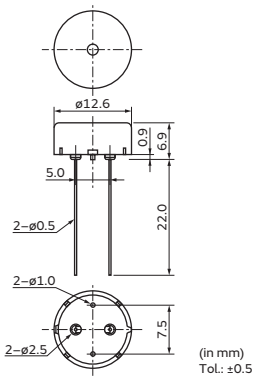
Piezoelectric Sounders Pin Type Taping

Taking advantage of extensive automatic insertion design technology and materials experience, Murata has developed standard taping type piezoelectric sounders.
This Murata technology supports labor and cost saving measures.





Features

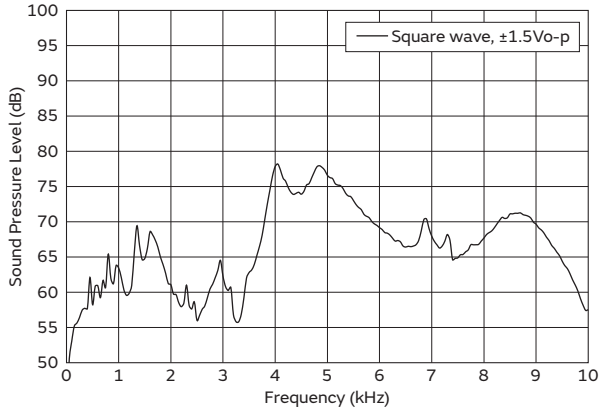
1. Lead dimension: Improved mounting reliability (cut & clinch) due to round terminal
2. High, stable mountability
3. Ammo packaging

Part Number	Sound Pressure Level (typ.)	Operating Voltage Range* (Vo-p)	Capacitance (nF)	Operating Temp. Range (°C)	Storage Temp. Range (°C)
PKM13EPYH4000-A0	78dB [±1.5Vo-p,4.0kHz,square wave,10cm]	±15.0max.	5.5 ±30%[1kHz]	-40 to +85	-40 to +85

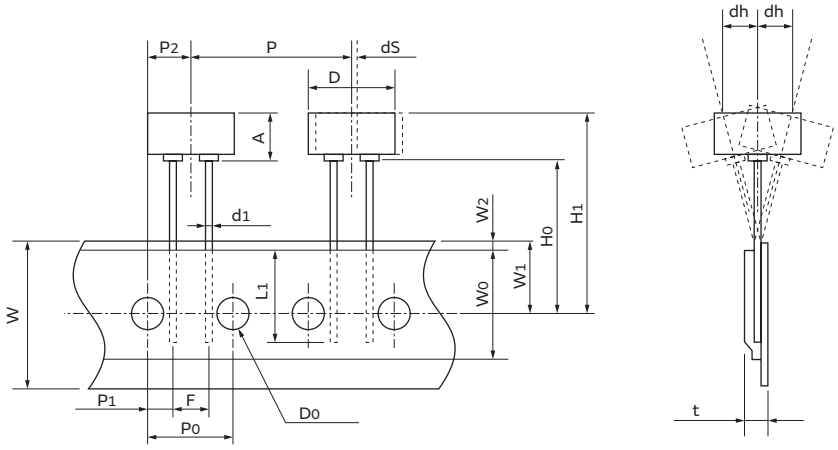
*Operating Voltage Range: Does not contain Direct Current bias.

Frequency Response

PKM13EPYH4000-A0
Conditions: 10cm, A-filter



Taping Dimension



Item	Code	Nominal Value	Tol.	Notes
Width of diameter	D	ø12.6	±0.5	
Height of component	A	6.9	±0.5	
Dimensions of terminal	d1	ø0.5	±0.1	
Lead length under the hold-down tape	L1	8.0 min.	—	
Pitch of component	P	25.4	±0.5	
Pitch of sprocket	P0	12.7	±0.2	Tolerance for Pitches 10xP0=127±2mm
Length from hole center to lead	P1	3.85	±0.7	
Length from hole center to component center	P2	6.35	±0.7	
Lead spacing	F	5.0	±0.5	
Slant forward or backward	dh	0	±1.0	360°: 1mm max.
Width of carrier tape	W	18.0	±0.5	
Width of hold-down tape	W0	12.5 min.	—	Hold-down tape does not exceed the carrier tape.
Position of sprocket hole	W1	9.0	±0.5	
Gap of hold-down tape and carrier tape	W2	2.0 max.	—	
Distance between the center of sprocket hole and lead stopper	H0	18.0	±0.5	
Total height of component	H1	26.0 max.	—	
Diameter of sprocket hole	D0	ø4.0	±0.2	
Total thickness of tape	t	0.6	±0.2	
Body tilt	dS	0	±1.0	

(in mm)

Drive Method

Fig. 1 shows examples of the circuit to which the external drive method is applied.

(i) Represents a circuit driven by output signals of the unstable multivibrator.

(ii) Represents a circuit using 2 NAND gates, which is oscillated or stopped by ON/OFF operations of the input signals.

(iii) Represents a circuit driven by output signals of CMOS LSI.

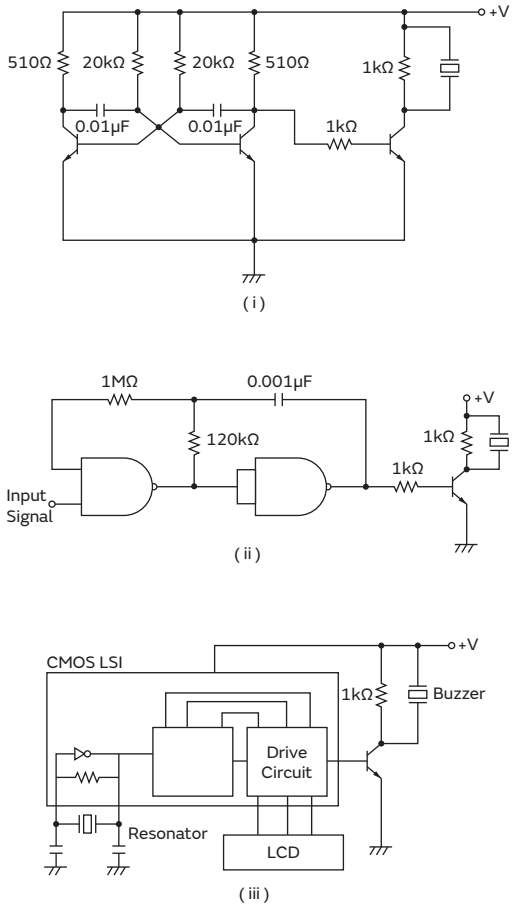


Fig. 1 Drive Circuit

⚠Caution · Notice

⚠Caution (Rating)

Do not use the product beyond the rated temperature range and the rated voltage range. If using it beyond this range, characteristics might degrade.

Notice (Storage and Operating Condition)

1. Product Storage Condition
   Please store the products in a room where the temperature/humidity is stable and avoid places where there are large temperature changes. Please store the products under the following conditions.
   Temperature: -10 to +40°C
   Humidity: 15 to 85%R.H.
2. Expiration Date on Storage
   Expiration date (shelf life) of the products is six months after delivery under the condition of a sealed and unopened package. Please use the products within six months after delivery. If you store the products for a long time (more than six months), use carefully because the products may be degraded in solderability due to storage under poor conditions.
   Please confirm solderability and characteristics for the products regularly.
3. Notice on Product Storage
   (1) Please do not store the products in a chemical atmosphere (Acids, Alkali, Bases, Organic gas, Sulfides and so on), because the characteristics may be reduced in quality, may be degraded in solderability due to storage in a chemical atmosphere.
   (2) Please do not store the products directly on the floor without anything under them to avoid damp places and/or dusty places.
   (3) Please do not store the product in places such as in a damp heated place or any place exposed to direct sunlight or excessive vibration.
   (4) Please use the products immediately after the package is opened, because the characteristics may be reduced in quality, and/or be degraded in solderability due to storage under poor conditions.
   (5) Please be sure to consult with our sales representative or engineer whenever the products are to be used in conditions not listed above.
4. Operating Environment
   This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure).
   Do not use the products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
   Characteristics might degrade by a chemical reaction with the material used in products.

Notice (Soldering and Mounting)

1. Mounting
   When mounting a pin terminal type of product to the printed circuit board, please insert the pin terminal along the hole of the board. If the product is pressed so that the terminal is not in the hole, the pin terminal would be pushed into the inside of the product and the sounds might become unstable.
2. Double-sided through-hole Board
   Please avoid using a double-sided through-hole board. If the melted solder touched the base of a pin terminal, a part of the plastic case would melt and the sounds might become unstable.
3. Soldering Conditions
   (1) Flow soldering conditions for pin terminal type
   · Temperature: within 260°C±5°C
   · Time: within 10±1 sec.
   · Soldering part is the lead terminals excluding 1.5mm from product body.
   (2) Soldering condition by soldering iron for pin terminal type
   · Temperature: within 350±5°C
   · Time: within 3.0±0.5 sec.
   · Soldering part is the lead terminals excluding 1.5mm from product body
   (3) Reflow soldering condition for surface mounting type
   · Temperature profile: Fig. 1
   · Number of times: Within 2 maximum

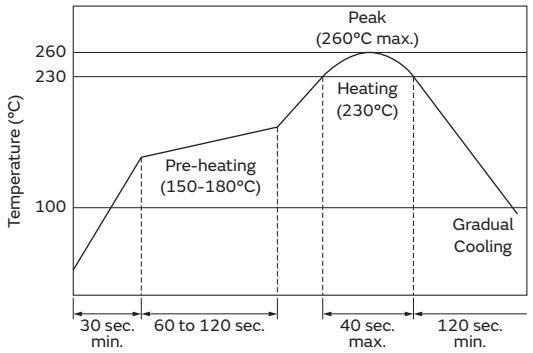


Fig. 1

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⚠Caution · Notice

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4. Washing
   Please avoid washing, since this product is not a sealed structure.
5. After Mounting the Product
   (1) If the product is floating from the printed circuit board, please do not push it. When pressing, the pin terminal is pushed inside the product and the sounds might become unstable.
   (2) Please do not apply force (shock) to the product. If force is applied, the case might come off.
   (3) If the case comes off, please do not reassemble. Even if it seems to have returned to the original, the sounds might become unstable.
   (4) Please do not blow air onto the product directly. Blown air applies force to the piezoelectric diaphragm through the sound emission hole; cracks could occur and then the sounds could become unstable. In addition, there is a possibility that the case could come off.
6. Flux or Coating Agent, etc., Various Solvents
   It is possible for a liquid solvent to penetrate inside the product, since this product is not a sealed structure. If a liquid penetrated inside and attached to the piezoelectric diaphragm, its vibration could be inhibited. If attaching to an electrical junction, the electric connection might fail. To prevent sound instability, please do not allow liquid to penetrate inside the product.

Notice (Handling)

1. Piezoelectric ceramic is used in this product. Please use care in handling, because ceramic is broken when excessive force is applied.
2. Please do not apply force to the piezoelectric diaphragm from the sound emission hole. If applying force, cracks occur and the sounds might become unstable.
3. Please do not drop the product or apply shock or temperature change to it. If so, the LSI might be destroyed by the charge (surge voltage) generated. Fig. 2 shows an example driving circuit using zener diode.

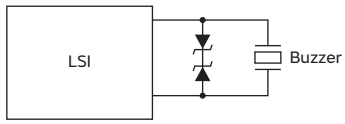

Fig. 2 Protect Circuit

Notice (Driving)

1. Ag migration might occur if DC voltage is applied to the product under a high humidity environment. Please avoid using it under high humidity and design the circuit not to apply DC voltage.
2. When driving the product by IC, please insert the resistance of 1 to 2kΩ in series. The purpose is to protect the IC and to obtain stable sound. (Please see Fig. 2a). Inserting a diode in parallel to the product has the same effect. (Please see Fig. 3b)

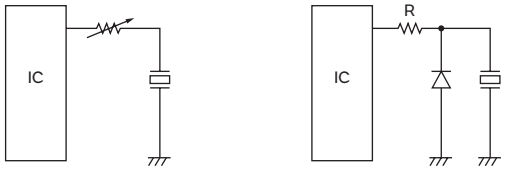

Fig. 3a

Fig. 3b