Caution - Precautions for use of piezoelectric buzzers

1. When mounting and handling

(1) To prevent malfunctions, install the piezoelectric buzzer or sounder so that it does not contact with other components on its side or top surface.

(2) Do not block the sound release hole of the piezoelectric buzzer or sounder. Maintain a distance of at least 10mm between the sound release hole and any surrounding object.

Also, do not cover the sound release hole with an adhesive tape or the like. If the sound hole is blocked or covered, the piezoelectric buzzer or sounder may exhibit abnormal oscillation or stop functioning.

(3) The sound pressure of the piezoelectric buzzer or sounder needs to be measured after, but not before, it is installed in the host equipment.

When determining the installation position, make sure that adverse acoustic impedance does not exist in the installation area. If acoustic impedance exists, the piezoelectric buzzer or sounder may exhibit abnormal oscillation or stop functioning.

(4) When screw down the piezoelectric buzzer or sounder, tighten the screws within the specified torque range.(Table 1) Use pan-headed screws and washers not to deform the casing. A deformed casing may cause the piezoelectric buzzer or sounder to exhibit abnormal oscillation or stop functioning.

(5) When stripping a lead wire, do not cut the conductive line inside the coating, thereby ensuring the sound will be properly generated. Use a stripper suitable for the diameter of the lead wire.

(6) Do not apply strong force to the pins before they are soldered. If the pins are bent or cut due to excessive force, the piezoelectric buzzer or sounder may not generate sound.

(7) Do not connect the piezoelectric buzzer or sounder improperly, otherwise the internal circuit may break down when electricity is applied.

(8) The piezoelectric buzzer or sounder is recommended to be used at rated power supply voltage. Operating voltage range that can be used will vary depending on the use conditions (temperature, humidity, mounting method, ringing pattern, etc.). Please verify the actual operating voltage under your specific conditions.

(9) Do not apply DC voltage to the piezoelectric sounder. Otherwise, silver migration may occur, which will lower the insulation resistance and cause the sounder to stop functioning.

(10) Use a low-impedance (not more than 100Ω) power supply for the piezoelectric buzzer; otherwise, the piezoelectric buzzer may exhibit abnormal oscillation or stop functioning.

(11) Do not interpose a resistance in series between the piezoelectric buzzer and the power supply, otherwise the piezoelectric buzzer may exhibit abnormal oscillation or stop functioning. If the interposition of a resistance (3kΩ Max.) is necessary to adjust the sound volume, insert a capacitor of approximately 1μF in parallel.

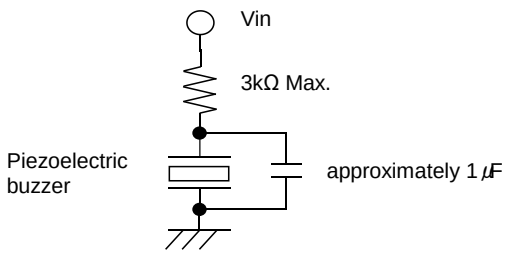

Fig. 1

(12) Do not use the piezoelectric buzzer or sounder where any corrosive gas, such as H_2S, etc. Otherwise, a normal sound may not be generated due to corrosion of the components and diaphragm.

(13) Do not wash the piezoelectric buzzer or sounder with solvent or allow solvent vapor to enter them while washing. Any solvent trapped inside the casing may damage the piezoelectric buzzer or sounder.

(14) Do not drop the piezoelectric buzzer or sounder. With a mechanical shock, the piezoelectric sounder may accumulate a high voltage inside its piezoelectric elements, resulting in an electric shock to anyone who touches it. In addition, if such sounder is connected to a circuit, it may damage transistors and/or other electronic components. Sounders which have accidentally gotten a mechanical shock can be made safe by shorting them between the poles. Then check the sound pressure, tone and appearance before use.

(15) Take special protective measures is required to prevent deterioration and malfunction, whenever the piezoelectric buzzers or sounders are stored in the following unfriendly areas.

① Dusty places
② Hot or frosty places
③ Areas exposed to sunlight
④ Places with leaking or infiltrating water
⑤ Humid places
⑥ Areas exposed to solvents or their vapor

(16) When operating the piezoelectric buzzer or sounder outdoors, protect it from moisture to ensure normal operation.

(17) Do not apply flow soldering and reflow soldering to piezoelectric diaphragms, buzzers and sounders. The piezoelectric diaphragms, buzzers and sounders need to be soldered manually after finishing flow soldering and reflow soldering process.

When soldering (lead free) on piezoelectric diaphragms, use a solder containing 4% silver and complete each soldering job within a total of 3 seconds at a soldering temperature of 320±10℃. If the solder does not contain silver, diaphragm performance may be adversely affected.

When soldering (lead free) on piezoelectric buzzers and sounders manually, complete each soldering job within a total of 3 seconds at a soldering temperature of 350±10℃ for lead pins or within a total of 5 seconds at a soldering temperature of 350±10℃ for lead wires.

(18) External mechanical shock may generate a reverse voltage of the piezoelectric sounder. Consider the circuit that protects the IC, if necessary. Fig. 2 shows an example using a Zener diode.

(19) In the case of turning on and off the piezoelectric buzzer with a transistor, etc. When turned off, a reverse voltage may occur at the terminals of the piezoelectric buzzer. Fig.3 shows an example using a Zener diode.

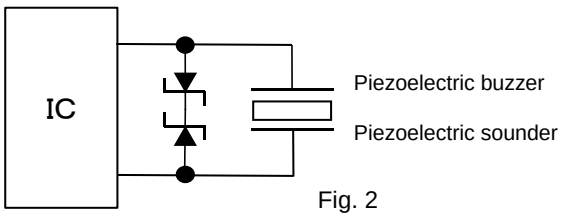

Fig. 2

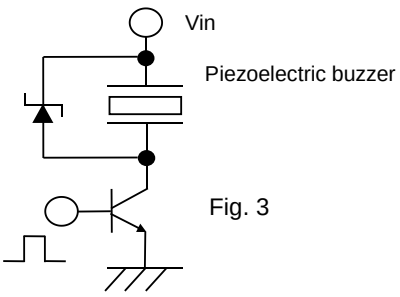

Fig. 3

2. When storing

To prevent deterioration and/or malfunction, do not store piezoelectric buzzers and sounders in the following places.

① Dusty places
② Hot or frosty places
③ Areas exposed to sunlight
④ Places with leaking or infiltrating water
⑤ Humid places
⑥ Areas exposed to solvents or their vapor
⑦ Areas exposed to corrosive gases, such as H_2S, etc.

3. Others

(1) To maintain the normal performance and safety do not disassemble, repair or modify the piezoelectric buzzer or sounder.

(2) Since these products contain the lead (lead is contained in "the main ingredients of piezoelectric ceramics", "the impurities in brass" and "the glass in a silver electrode"), which is excluded from the RoHS regulation. Please treat them as industrial waste in the case of disposal.

(3) Please obtain a catalog and technological material for the details about the product from the following URL and check them carefully.

The contents of a catalog and technological material are subject to change without prior notice as a result of product improvement or discontinuation of production.

Because the electrical specification described in the catalog is subject to standard measurement conditions, it is not guaranteed under the operation voltage and temperature.

(4) Treat piezoelectric diaphragms carefully as it is thin and damaged easily.

※ Please note that any defects that occur due to failure to observe the precautions described in this document are not covered by the warranty.