

■ Precautions for Use

2. To satisfy functional performance requirements

According to the particular internal structure, the inside of the holder of a crystal unit is evacuated or filled with inert gas to maintain its characteristics.

2-1 Mounting of surface-mount type crystal unit

(1) Severe temperature change

Under prolonged and repeated severe temperature changes solder may crack; this is caused by expansion due to the different temperature coefficients of the print wire board material and surface-mount type crystal unit ceramic package.

If such conditions are anticipated and to avoid such problems, please contact us beforehand for temperature conditions, etc.

(2) Shock from automatic mounting

Please take note, during automatic mounting, such processes as adsorption, chucking, or mounting to the circuit board, may administer too great a mechanical shock to the crystal unit, and the electrical characteristics may change or deteriorate.

(3) Stress caused by bending the PC board

If after a crystal unit is soldered to the PC board, the board is bent, the mechanical stress may cause the soldered part to peel away or the crystal unit package to crack.

(4) Grounding terminal

If the crystal unit is provided with a grounding terminal, be sure to solder it to GND or to the power supply terminal. If it is not grounded, the correct frequency may not be obtained.

2-2 Soldering and ultrasonic cleaning

The soldering temperature conditions of a crystal unit are designed so as to allow the simultaneous processing of other electronic components, but depending upon the product type the conditions may be subject to restrictions. Confirm the conditions prior to use. Basically, the ultrasonic cleaning of flux is allowed, but in some cases, the resonance with the oscillation frequency of the ultrasonic wave cleaner might cause the characteristics of the crystal unit to deteriorate. Please check all conditions before cleaning.

2-3 Effect of corrosive materials

When a crystal unit contacts salt or corrosive materials or is exposed for long periods to certain substances in the atmosphere such as chloride or sulfide-based gases, this may cause a serious flaw such as the package losing its airtight seal due to corrosion.

Exercise great care when selecting an adhesive or potting agent to be used at the perimeter of a crystal unit.

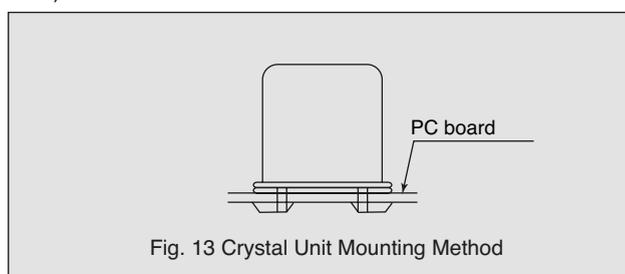
2-4 Mounting a lead-mount type crystal unit

(1) Mount a crystal unit on the PC board so that the height of the unit is lower than those of other parts; this will prevent the holder-base glass from breakage caused by shocks given from the upper side. Breakage of the glass may affect the airtight seal causing a deterioration of performance.

(2) When mounting a lead-mount type crystal unit in contact with a PC board, the distance between the holes on the PC board should equal the distance between the terminals of the crystal unit to be mounted.

The slightest error in pitch may cause cracks in the glass section of the crystal unit holder.

(3) When mounting a lead-mount type crystal unit, we recommend that the unit should make contact with the PC board and be soldered in such a way as to prevent fatigue and breakage of the leads due to mechanical resonance (see Fig. 13).



(4) After installation of a crystal unit on a PC board, moving the unit as shown in Fig. 14 causes the holder-base glass to crack resulting in the deterioration of characteristics. Do not move the crystal unit in this way.

