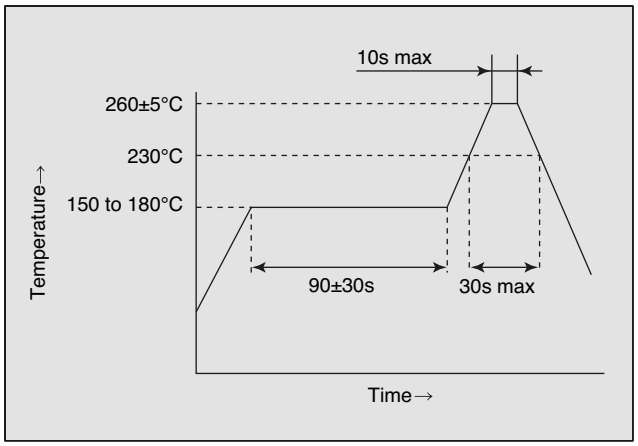
■ Precautions for Use

3. Reflow Soldering

The figure below shows the standards for reflow soldering temperature profiles of surface-mount type crystal units.

• Examples of soldering conditions



●Soldering conditions

Peak-temperature: 260±5 °C Max. 10 seconds

Heating conditions: Min 230 °C Max. 30 seconds

Warm-up rate: Max. 3 °C/second

Cool-down rate: Max. 6 °C/second

Preheating conditions: 150 to 180 °C 90 ±30 seconds

Precautions

Never use these products under any conditions that exceed the following limits; such use may cause the product' s characteristics to deteriorate or the product may break.

Heat Resistance of SMD Crystal Products

[Reflow Soldering Heat Resistance]

Peak-temperature: 265 °C, 10 sec.

Heating conditions: Min. 230 °C, 40 sec.

Warm-up rate: 3 °C/second

Cool-down rate: 6 °C/second

Preheating conditions: 150 to 180 °C, 120 seconds

Number of reflow passes: 2

[Manual Soldering Heat Resistance]

Use condition: Apply 400 °C soldering iron to product terminal electrode for 4 seconds.

Number of applications: 2

(1) Glass-sealed product

When using a soldering iron for soldering glass-sealed products, apply the iron tip below the sealed part to prevent the iron touching the sealed glass part

(if the iron tip touches the glass part, the glass may melt and the inner airtight seal may be destroyed).

(2) Au/Sn-sealed product

Do not touch the tip of a soldering iron to the sealed part of an Au/Sn-sealed product.

(The iron tip may melt the sealant and break the airtight seal.)

In addition, if possible, it is recommended that this product it to be mounted with reflow without using a soldering iron or an air-heater.

In purpose of reworking crystal unit, during removing from the board or module, or removing module from board, any excessive heat may melt the Au/Sn sealant, resulting in the deterioration of characteristics or the breaking of the airtight seal. Therefore, please handle this product with particular care to the above precautions. However, in case an air-heater is need to be used, do not exceed below heating conditions.

Air-heater temperature: 280 °C, time: 10 seconds

Heat Resistance of Crystal Products other than SMD

[Reflow Soldering Heat Resistance]

Soldering temperature: 265 °C, 10 sec.

Number of flow applications: 2

[Manual Soldering Heat Resistance]

Use conditions: Apply 400 °C soldering iron to product terminal electrode for 4 seconds.

Number of applications: 2

4. PC boards

When mounting SMD crystal devices on glass epoxy boards, FR-4 (JIS:GE) is recommended; it is hard to crack during soldering.