SHIN KOLN CORPORATION.

CRYSTAL UNITS SPECIFICATION

Product Type	:	AT - 308
Model	:	4.000MHZ
Description	:	DIP/3x9/4.000MHz/20pF/30ppm
SKC P/N	:	CCHA04000M020
SPEC No.	:	1 – 211209– CCHA04000M020

DATE	:	9-Dec-21
Designer	:	Aaron Lee
Checked By	:	Tom
Approved By	:	Sam

REVISION HISTORY

Rev	Revise Page	Revise Contents	Date	Ref. No.	Reviser
A	N/A	Initial Release	9-Dec-21	N/A	Aaron Lee

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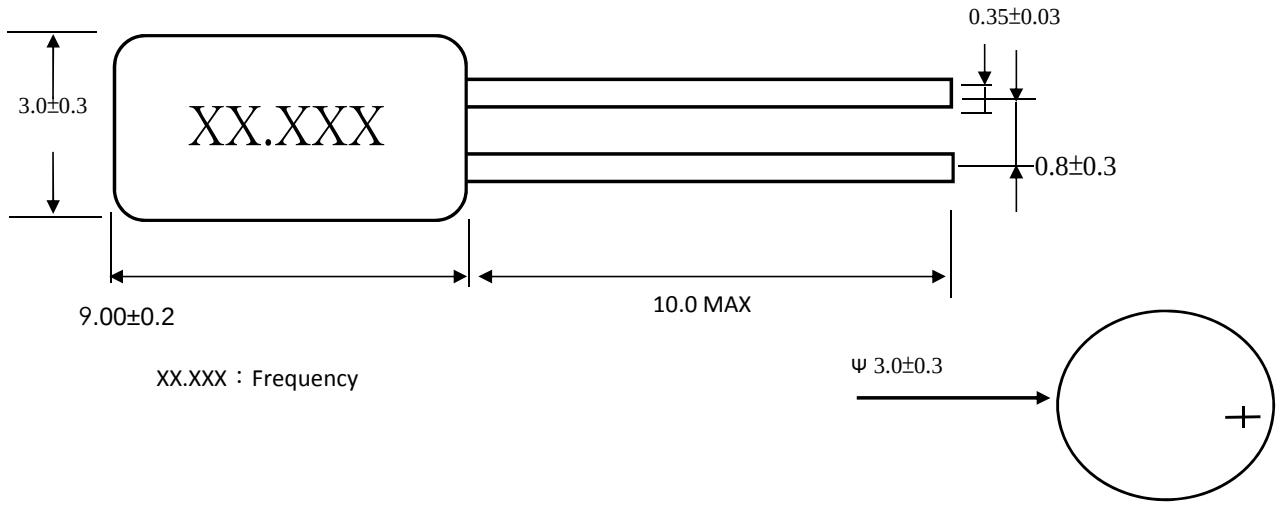
■ ELECTRICAL CHARACTERISTICS

1	Holder type		AT - 308
2	Oscillation mode		■ Fundamental □ 3rd Overtone □ 5th Overtone
3	Crystal cutting type		AT CUT
4	Nominal frequency	FL	4.000MHz
5	Frequency stability	Tol	± 30 ppm (ref at 25℃)
6	Operating temperature range	TOPR	-10℃ to +60℃
7	Storage temperature range		-20℃ to +70℃
8	Load capacitance	CL	20 PF ± 0.2PF
9	Equivalent series resistance	ESR	200 Ohms max.
10	Drive level	DL	100 uW MAX
11	Shunt capacitance	C0	7.0 PF max.
12	Motional capacitance		Less than ±5ppm / year
13	Insulation resistance		500M Ohms min. at DC 100V ± 10V
14	Aging rate per year		Measured in S&A 250B / 350B

■ DIMENSIONS

(Unit:mm)



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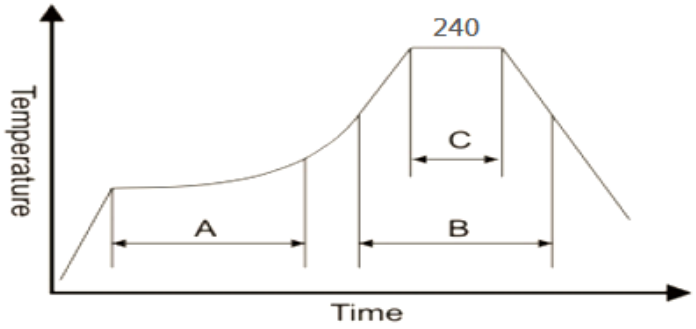
■ Notice

The following instructions and information are provided for the purpose of having the user understand the proper way to process our crystal products to prevent problems prior to use and enhance the reliability of the equipment to which they are applied.

1	When dropped by mistake	The crystal units are designed and manufactured to resist physical shocks. However, when the crystal units are subjected to excessive impact such as being dropped onto the floor or giving shocks during processing, need to make sure its satisfactory performance before using it.
2	Soldering	A. Lead wires should be soldered within 3 seconds with the soldering iron heated to a temperature no higher than 300℃. B. In solder-dip processing, the leads should be soldered within 10 seconds with a temperature no higher than 260℃. Mounting in upright is recommendable to prevent the heat conduction directly to the body of the crystal unit.
	Suggested reflow profile	
3	To bend the lead	A. When the lead of cylinder type crystal units need to be bent, leave more than 1.5mm (3.0mm is recommendable) of lead from the case in order to prevent from any cracks of the hermetic sealing glass at the root of the lead, and use a jig to bend if possible. B. When bending the lead of cylinder type crystal units, do not scrape off the soldering plating from the lead surface.



Note:

	Stage	Temperature	Time
A	Preheat	100-160°C	60~120 Sec
B	Primary Heat	200°C	30 Sec
C	Peak	240°C±5°C	10 Sec

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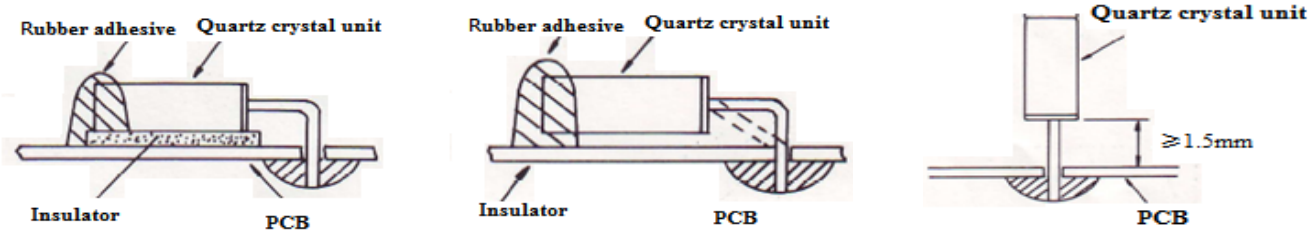
4	Mounting A. Soldering the body of the cylinder type crystal units with PCB must be avoided due to deteriorate the characteristics or damage the products. Rubber adhesive is recommended.  B. When the lead needs to be bent by hand, please follow the instruction as below: Hold the body of the cylinder type crystal unit in fingers; pick at the part with tweezers, which you want to bend. There should be more than 1.5mm(3.0mm is recommended) from the body case; Bend the lead 90° by tweezers without pulling the lead strongly. If pulling the lead strongly may cause any cracks of hermetic sealing glass at the root of the lead and may cause the leakage and the characteristics to deteriorate.	
5	Cleaning	A. Crystal units may be affected and destroyed at worst by supersonic cleaning or supersonic welding. Please be sure to check if your cleaning and welding process affects any damage to crystal units before using. B. Some kinds of cleaning fluid may cause any damage to crystal units. Please be sure to check suitability of the cleaning fluid in advance.
6	Storage	Storage of crystal units under higher temperature or high humidity for a long term may affects frequency stability or solder ability. Please store the crystal units under the normal temperature and humidity without exposing to direct sunlight and dew condensation, and avoid the storage of crystal units for more than 6 months, and mount them as soon as possible after unpacking.