

## C Series



- Excellent shock resistance and environmental capability
- Low power consumption
- Suitable for time-keeping of clock and microcomputer

### PART NUMBER GUIDE

**C-306 - 32.768 - 20 - J - 125**

**PACKAGE TYPE**

**C-306** : SMD type - 8.0x3.8x2.4mm

**LOAD CAPACITANCE**

**125** : 12,5pF

**OPERATING TEMPERATURE**  
**TABLE 1**

**FREQUENCY**

**32.768KHz**

**FREQUENCY TOLERANCE AT 25°C**

**±20 ppm (STD)**

### ELECTRICAL SPECIFICATIONS

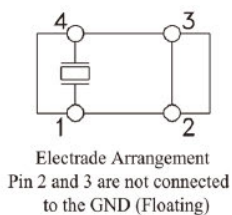
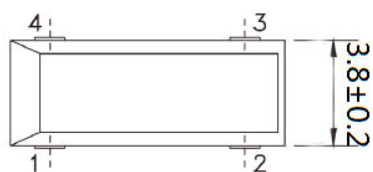
MODEL	C-306 serie
Nominal Frequency	32.768KHz
Frequency Tolerance (at 25°C)	±20ppm
Operating Temperature Range	-40°C to +85°C (STD)
Storage Temperature Range	-55°C to +125°C
Turnover Temperature	25°C ±5°C
Temperature Coefficient (frequency)	-0.04 ppm/°C <sup>2</sup> Max
Load Capacitance (CL)	12.5pF
Drive Level	1.0 μW Max
Series Resistance (ESR)	50kΩ Max
Motional Capacitance	2.10 pF
Shunt Capacitance (Co)	0.5 pF
Insulation Resistance	500 MΩ Min at DC100V ±15V
Aging (at 25°C)	± 3ppm/year Max

**TABLE 1**

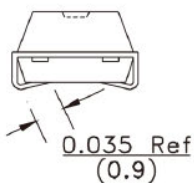
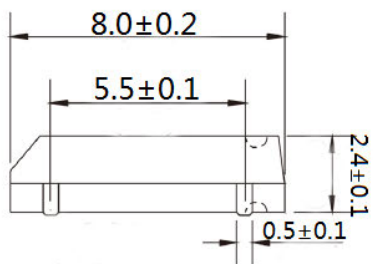
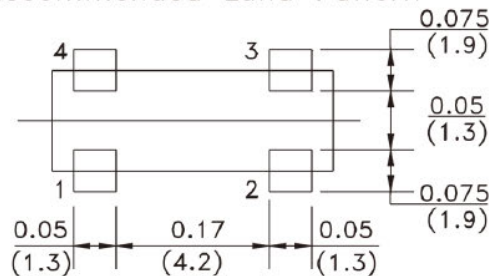
OPERATING TEMPERATURE RANGE	
-10~+60°C	<b>A</b>
-20~+60°C	<b>B</b>
0~+70°C	<b>C</b>
-10~+70°C	<b>D</b>
-20~+70°C	<b>E</b>
-30~+60°C	<b>F</b>
-20~+85°C	<b>G</b>
-30~+70°C	<b>H</b>
-30~+85°C	<b>I</b>
-40~+85°C	<b>J</b>
-40~+125°C	<b>K</b>

**MECHANICAL DIMENSION**

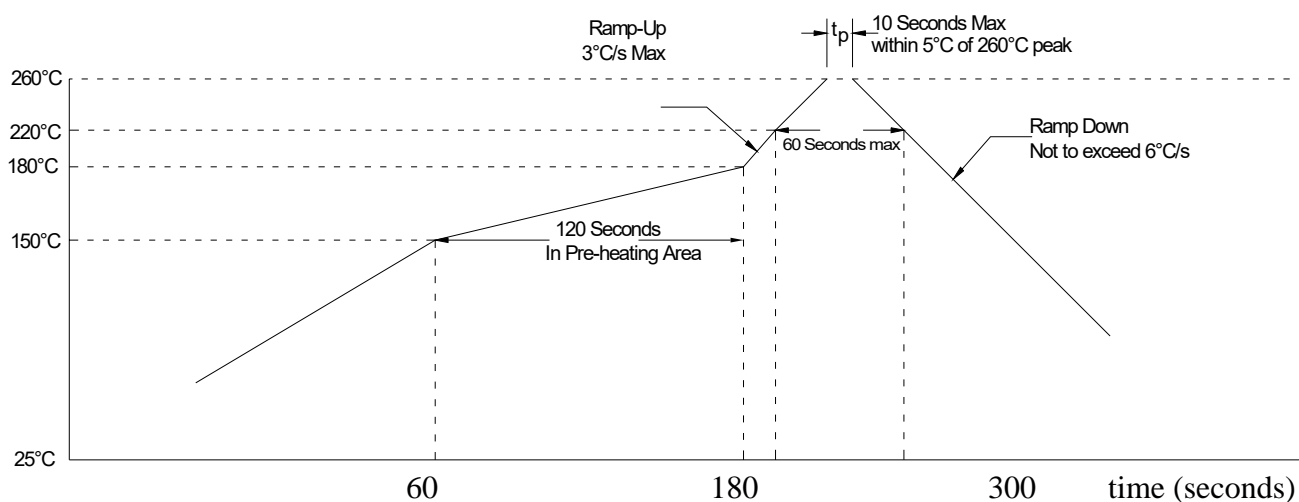
**C-306**



**Recommended Land Pattern**



## REFLOW SOLDERING



## RoHS and REACH Regulation

### Pb-free compliance

Component and Assembly Pb content shall be less than 0.1% by weight of the device (in accordance with IPC/EIA J-STD-006) and shall not be intentionally introduced.

### Product Information

For a product to be **RoHS** compliant, it must satisfy several conditions:

- Contain no more than the specified limits of the target hazardous substances set out in the RoHS Directive
- Able to withstand Pb-free 260°C solder reflow profile
- External packaging and terminations are Pb-free
- Internal PCB, components, solders, and terminations are Pb-free

ASK is committed to operate in full compliance with the European ROHS 3 Directive (EU) 2015/865, Restriction of use of certain Hazardous Substances, which has an effective of July 22, 2019.

9BJFCBA9BH5 @ #A97 &lt; 5 B 7 5 @GD97 = 7 5 HCBG

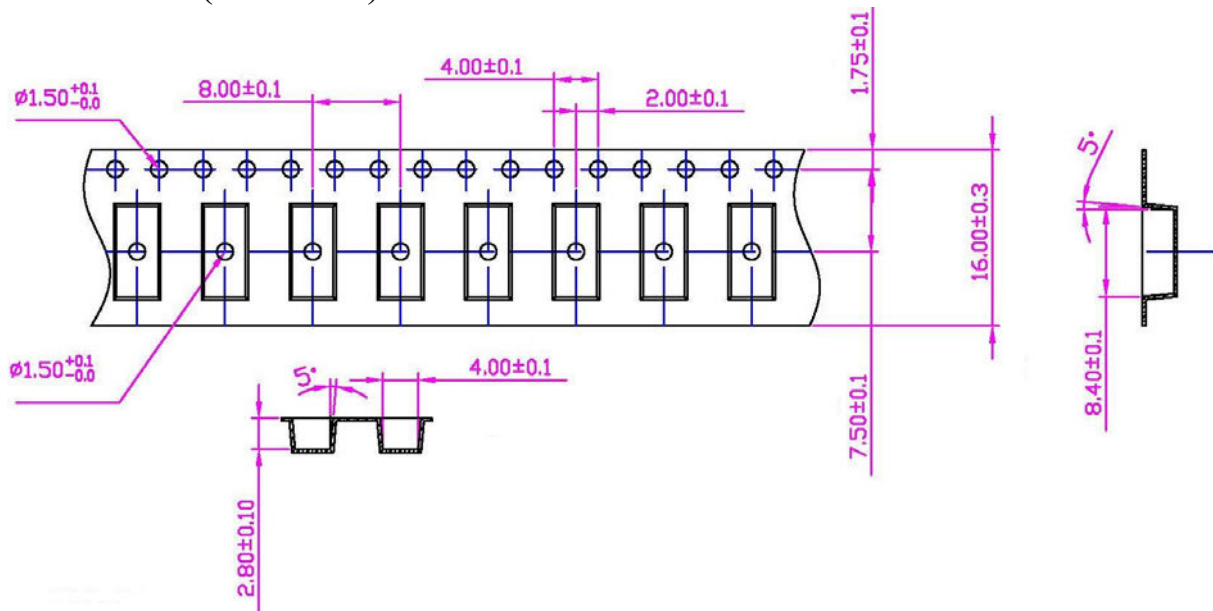
## RELIABILITY TEST SPECIFICATIONS

NO.	TEST	TEST METHOD AND CONDITION	REQUIREMENTS
1	VIBRATION	(1)VIBRATION FREQUENCY: 10 TO 60HZ (2)VIBRATION AMPLITUDE: 1.5MM (3)CYCLE TIME: 1~2MIN(10-55-10HZ) (4)DIRECTION: X.Y.Z (5)DURATION: 2H/EACH DIRECTION (6)G-FORCE: $\geq 5G$	FREQUENCY CHANGE: $\pm 10PPM$ MAX. RESISTANCE CHANGE: $\pm 15\%RRMAX$
2	SHOCK	3 TIMES FREE DROP FROM 75CM HEIGHT TO HARD WOODEN BOARD OF THICKNESS MORE THAN 30MM.	FREQUENCY CHANGE: $\pm 10PPM$ MAX. RESISTANCE CHANGE: $\pm 15\%RRMAX$ .
3	LEAKAGE	PUT CRYSTAL UNITS INTO A HERMETIC CONTAINER AND HELIUM FOR 0.5-0.6. MPA,AND KEEP IT FOR 1H;CHECK THE LEAKAGE BY A HELIUM LEAK DETECTOR.	LEAKAGE: $1 \times 10^{-8}$ MBAR.L/S MAX.
4	SOLDERABILITY	(1)DIP THE LEADS INTO FLUX(ROJIN METHANOL) FOR 3~5S. (2)DIP THE LEADS INTO $245 \pm 5^{\circ}C$ 99% SN DIPPING SOLUTION FOR 5S.	THE DIPPED PART OF THE LEADS SHOULD HAVE 95% SN COATING.
5	SOLDERING HEAT RESISTANCE TEST	(1)PERFORM ELECTRICAL CHARACTERISTICS TEST BEFORE STARTING THIS PROCEDURE. (2)DIP THE LEADS INTO FLUX(ROJIN METHANOL) $5 \pm 0.5S$ . (3)DIP THE LEADS INTO $260 \pm 5^{\circ}C$ 99% SN DIPPING SOLUTION FOR 5S. (4)TAKE THE UNIT OUT ,STORE AT ROOM TEMPER ATURE FOR 30S THEN MEASURE THE ELCTRICAL CHARACTERISTICS.	SHOULD PASS SEALING AND VISUAL TEST. FREQUENCY CHANGE: $\pm 10PPM$ MAX.
6	LEAK TEST	USE HELIUM LEAK DETECTOR. BOMBING PRESSURE: $5KG/CM^2$ BOMBING TIME: 2 HOURS LEAK SHOULD BE LESS THAN $1E-8$ ATM.CC/SEC.	GAS OR AIR SHOULD NOT BE DETECTED.
7	HIGH TEMPERATURE ENDURANCE	THE CRYSTAL UNITS SHALL BE PUT IN SOMEWHERE FOR 1000 HOURS AT TEMPERATURE OF $125^{\circ}C \pm 5^{\circ}C$ , THEN KEEP IT FOR 1 TO 2 HOURS UNDER ROOM TEMPERATURE.	FREQUENCY CHANGE: $\pm 10PPM$ MAX. RESISTANCE CHANGE: $\pm 15\%RRMAX$ .
8	LOW TEMPERATURE ENDURANCE	THE CRYSTAL UNITS SHALL BE PUT IN SOMEWHERE FOR 1000 HOURS AT TEMPERATURE OF $-40^{\circ}C$ , THEN KEEP IT FOR 1 TO 2 HOURS UNDER ROOM.	FREQUENCY CHANGE: $\pm 10PPM$ MAX. RESISTANCE CHANGE: $\pm 15\%RRMAX$
9	HUMIDITY ENDURANCE	SOMEWHERE AT $40^{\circ}C \pm 5^{\circ}C$ IN RELATIVE HUMIDITY OF 90%~95% FOR 72 HOURS, THEN KEEP IT FOR ONE OR TWO HOURS UNDER ROOM TEMPERATURE	FREQUENCY CHANGE: $\pm 10PPM$ MAX. RESISTANCE CHANGE: $\pm 15\%RRMAX$ .
10	TEMPERATURE CYCLE	TEMPERATURE SHIFT FROM LOW( $-40^{\circ}C$ ) TO HIGH( $100^{\circ}C$ ,KEEP 30 MINUTES),SATISFY HIGH( $100^{\circ}C$ ) TO LOW( $-40^{\circ}C$ ,KEEP 30 MINUTES),THEN GO UP TO ROOM TEMPERATURE FOR 10 CYCLES.	FREQUENCY CHANGE: $\pm 10PPM$ MAX. RESISTANCE CHANGE: $\pm 15\%RRMAX$ .

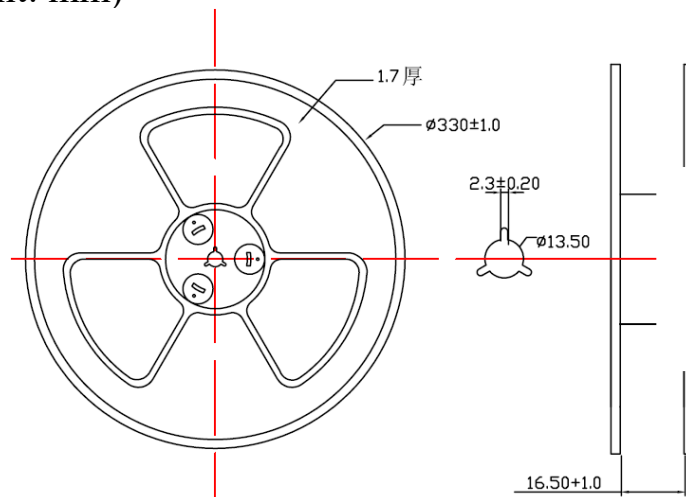
NO.	TEST	TEST METHOD AND CONDITION	REQUIREMENTS
13	LEAD BENDING	ATTACH 1LB OF WEIGHT TO EACH OF THE LEADS. BENDING ANGLE:90°(FROM THE NOMAL POSITION TO 45°OPPOSTTE DIRECTION) BENDING TIME:3S(EACH DIRECTION) NUMBER OF BENDING:2TIMES NUMBER OF BENDING:2TIMES	SHOULD PASS SEALING AND VISUAL TEST.
12	MARKING ERASE	SUBMERGE THE UNIT INTO IPA[ISOPROPYL ALCOHOL] SOLUTION FOR 10MINUTES AND BRUSH THE MARKING 10 TIMES WITH A TOOTH BRUSH.	MARKING SHOULD NOT BE ERASED.

**TAPE AND REEL SPECIFICATIONS**

**Taping** (Unit: mm)



**Reel** (Unit: mm)



Pieces per reel: 3000/reel