

## Crystal Oscillator (XO )

## HG - 2150CA

Preliminary

- Reflowable and high density mounting type SMD. ( 5×7 mm )
- Using the heat-resisting type AT cut quartz crystal.  
allows almost the same temperature soldering as universal SMD IC.
- Using C-MOS IC allows low current consumption.
- Operating supply voltage : 3.3 V 5V.
- Output enable function(OE) can be used for low current consumption applications.

## ■ Specifications

### 1. Absolute Maximum Ratings

Item	Symbol	C (3.3 V)	H (5.0 V)	Condition
Supply voltage	$V_{DD}$	-0.5 V to 7.0 V		$V_{DD}$ -GND
Control voltage	$V_{IN}$	-0.5 V to $V_{DD}+0.3$ V		OE
Storage temperature	$T_{STG}$	-40 °C to +125 °C		
Soldering condition	$T_{SOL}$	Under +240°C within 10 s × 2 times		

### 2. Operating Condition

Item	Symbol	C	H	Condition
Supply voltage	$V_{DD}$	3.3 V ~ 3.6 V	4.5 V ~ 5.5 V	$V_{DD}$ -GND
Operating temperature	$T_{OPT}$	-20 °C to +70 °C		V
		-40 °C to +85 °C		X
Output load	CL	15 pF Max.		C-MOS level

### 3. Frequency Characteristics

Item	Symbol	C	H	Condition
Output Frequency	$f_o$	1.0000MHz ~ 80.000MHz		
Frequency stability[×10 <sup>-6</sup> ]	$\Delta f/f_o$	±15 Max.		S
		±25 Max.		B
Aging[×10 <sup>-6</sup> ]	$f_A$	±10 Max.		$T_a=+25$ °C, 10 year

Note : Frequency stability is including calibration tolerance, reflow soldering drift, operating temperature range ( $T_{OPT}$ ), operating voltage range and load change (CL).

### 4. Electrical Characteristic

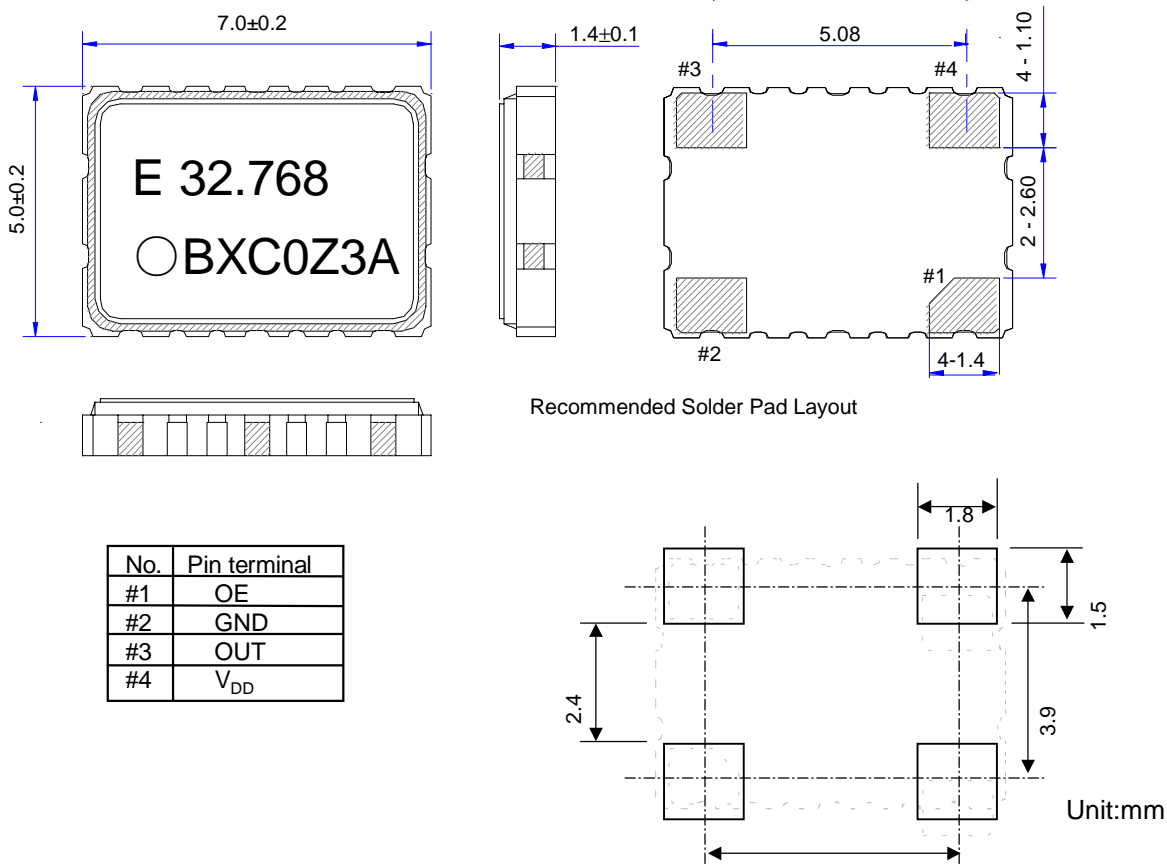
Item	Symbol	C	H	Condition
Supply current	$I_{DD}$	25 mA Max.	40 mA Max.	No load
Output disable current	$I_{OE}$	15 mA Max.	30 mA Max.	OE=GND
Start-up time	$t_{OSC}$	10 ms Max.		90 % $V_{DD}$ to be 0 s

### 5. Output Characteristics

Item	Symbol	C	H	Condition
OE input voltage	$V_{IH}$	70 % $V_{DD}$ Min.		OE termination
	$V_{IL}$	30 % $V_{DD}$ Max.		
Duty	$t_W/t$	40 % ~ 60 %		1/2 $V_{DD}$ level
High output voltage	$V_{OH}$	$V_{DD}-0.4$ V Min.		$I_{OH}=-8$ mA
Low output voltage	$V_{OL}$	0.4 V Max.		$I_{OL}=8$ mA
Output rise time	$t_{TLH}$	4.0 ns Max.		20 % 80 % $V_{DD}$
Output fall time	$t_{THL}$	4.0 ns Max.		80 % 20 % $V_{DD}$

Note : We recommend placing a 0.1 $\mu$ F capacitor between  $V_{DD}$  and GND to obtain stable operation and protect against power line ripple.

## External Dimensions



## Numbering Information

E 32.768      1.Symbol      2.Output Frequency (MHz)      5.08  
 1   2  
BXC 0Z3A      3.Design Code      4.Product number  
 3   4

## Design Code

Code	Frequency stability	Operating temperae
SVC / SVH	$\pm 15 \times 10^{-6}$	-20 °C ~ +70 °C
BXC / BXH	$\pm 25 \times 10^{-6}$	-40 °C ~ +85 °C

--C (3.3 V), --H (5.0V)