



# Crystal Oscillators

SP-OCXO/7050/16pin SMD/ $\pm 100$ ppb/ $-40\sim+85^{\circ}\text{C}$   
 20.000MHz/3.3V/AS020000HA

## Description

AS020000HA is Oven Controlled Voltage Controlled Crystal Oscillator(OCXO) of the SMD  $7 \times 5$ mm package. OCXO Series can be output to 10-160MHz by Operating Voltage:3.3V(Oscillation) and 3.3V (Oven Heater:0.33w)in the heaterpower supply. As for the frequency stability level,  $\pm 100$ ppb is  $-40\sim+85^{\circ}\text{C}$  possible.

## Feature

- $7 \times 5 \times 1.85$ mm SMD 16pin PKG
- Frequency stability: $\pm 100$ ppb/ $-40\sim+85^{\circ}\text{C}/3.3\text{V} \pm 5\%$
- Frequency short term stability:Warm up/30sec
- Low Jitter: $\leq 1$ psec RMS
- Excellent aging characteristics: $\pm 500$ ppb/Y/30days
- Low power consumption:3mA/3.3V,90mA/3.3V(Heater)
- Operating temperature :  $-40\sim+85^{\circ}\text{C}$

## Applications

- Mobilephone Base station
- Measuring instrument
- Exchanger
- High-end router

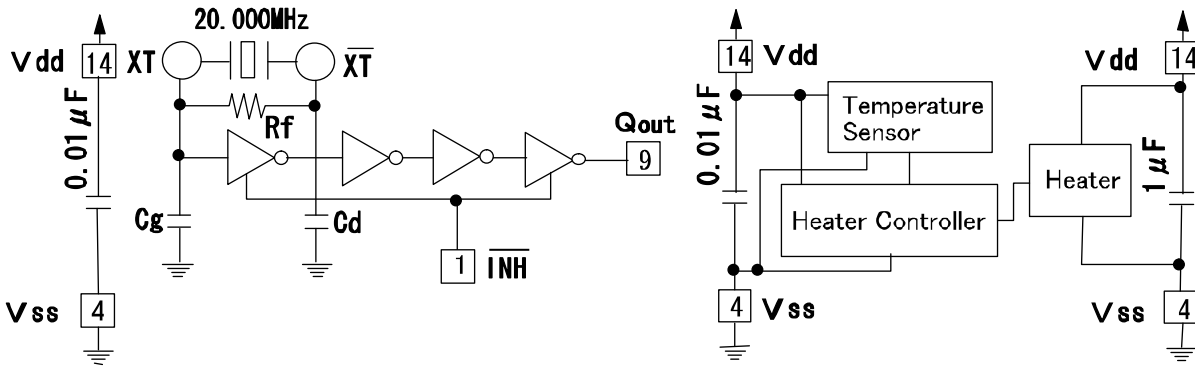
## Product Number: AS020000HA

AS	02000	O:Function Series	H:Package	A:Version
Compy Code	Frequency 20.000MHz (6~160MHz)	O:SMD OCVCXO	16Lead SMD: $7 \times 5 \times 1.85$ mm	A: $-40\sim+85^{\circ}\text{C} \pm 100$ ppb,3.3V (0.33W)

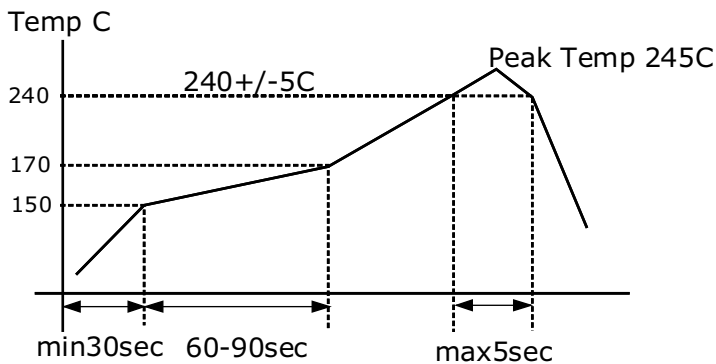
## Specifications

ITEMS	TYPE	AS020000HA
Output Frequency:		20.000000MHz
Frequency Stability		$\pm 100$ ppb: $-20$ to $+70^{\circ}\text{C}/\text{Vdd}=3.3\text{V} \pm 5\%$
Initial frequency tolerance		$\pm 500$ ppb: $\text{Vc}=1.65\text{V}/\text{shipment}$
Initial supply voltage tolerance		$\pm 10$ ppb: $\text{Vdd}=3.3\text{V} \pm 5\%$
Initial load change tolerance		$\pm 10$ ppb: $\text{Vload} \pm 5\%$
Initial aging tolerance/day		$\pm 5$ ppb: after 30 days of operation
Initial aging tolerance/year		$\pm 250$ ppb: after 30 days of operation
Warm-up time		30sec:to $\pm 100$ ppb final frequency/1 hour after/ $25^{\circ}\text{C}$
Operating Temperature Range		$-40$ to $+85^{\circ}\text{C}$
Storage Temperature Range		$-50$ to $+90^{\circ}\text{C}$
Power Supply Voltage/Oscillation		$3.3\text{V} \pm 5\%$
Power Supply Voltage/Oven heater		$3.3\text{V} \pm 5\%$
Power Consumption/Oscillation(No load)		Typ:3.0mA/3.3V,Max:5.0mA/3.3V
Power Consumption/Oven Heater		Typ:90mA/3.3V,Max:120mA/3.3V
Input Level		Min: $\text{Vih} : +0.9\text{Vdd}$ , Max: $\text{Vil} : +0.1\text{Vdd}$
Output Level/CMOS		Min: $\text{Voh} : +0.9\text{Vdd}$ , Max: $\text{Vol} : +0.1\text{Vdd}$
Output Load		15pF
Output Rise/Fall Time		5nsec max(0.3 to 3.0V)/5nsec max(3.0 to 0.3V)
Assembly Temperature Range		Peak Temperature $240^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 5 sec max.Maximum Temperature $245^{\circ}\text{C}$

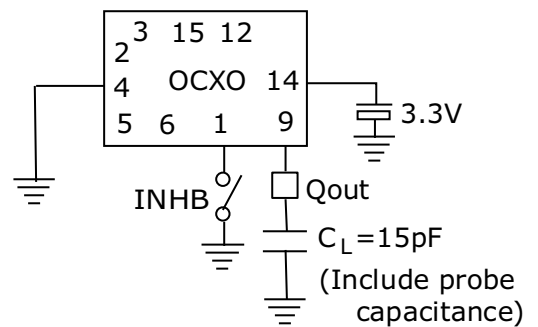
## Block Diagram



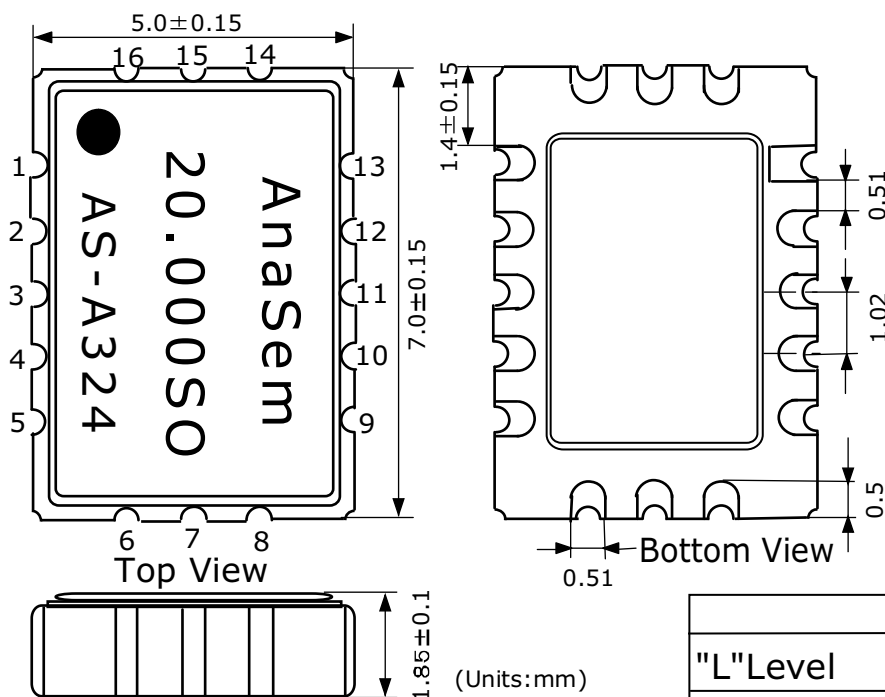
## Recommended Reflow Soldering Condition



## Measurement Circuit



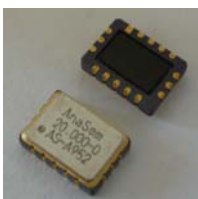
## Dimensions



## Pin Connections

1	INH B
2	NC
3	NC
4	Vss
5	NC
6	NC
7	NC
8	NC
9	Qout
10	NC
11	NC
12	NC
13	NC
14	Vdd
15	NC
16	NC

/INHIBIT	
"L"Level	Open or "H"Level
High Impedance	Enable:Output



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