

# 产品规格书

# Product Specification

CUSTOMER 客户: \_\_\_\_\_

CUSTOMER PN 客户 PN: \_\_\_\_\_

HANG CRYSTAL P/N 杭晶物料编码: OS97H4-40.000-33LDTNL

MODEL 产品型号: OCXO 9.7x7.5mm, CMOS, 3.3V

NOMINAL FREQUENCY 频率: 40.000MHz

ISSUE DATE 日期: 2022 / 10 / 20

**CUSTOMER'S APPROVAL**

客户确认

(PLEASE RETURN A COPY WITH APPROVAL)  
(请将确认的复印件返回我司)

APPROVED

QA

MB.

J Jiang

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Revision	Description / ECN	Prepared	Approved	Date
1	Initial release	MB	James Jiang	2022-10-20
2	Not issued			
3	Not issued			
4	Not issued			

**1. NOMINAL AND MAXIMUM RATINGS, OPERATING AND STORAGE CONDITIONS**

	PARAMETER	SYMB.	MIN	TYP	MAX	Unit	Conditions / Remarks
1	Nominal frequency	F <sub>N</sub>	<b>40.000</b>			MHz	--
2	Operating supply voltage range	V <sub>CC</sub>	3.135	3.3	3.465	V <sub>DC</sub>	
3	Output load	R <sub>L</sub>		15		pF	CMOS Level
4	Operating temperature range	T <sub>OP</sub>	-40	+25	+85	°C	
5	Storage Temperature Range	T <sub>ST</sub>	-55		105	°C	--

Note 1: over the whole range, the unit stays within all relevant parameter limits as specified under point 2.

**2. ELECTRICAL PARAMETER LIMITS**

	PARAMETER	SYMB.	MIN	TYP	MAX	Unit	Conditions / Remarks
1	Initial Frequency Accuracy	$\Delta f/F_N$	-1.0		+1.0	ppm	Offset from nominal at +25°C
2	Frequency stability over T <sub>OP</sub>	$\Delta f/F_{OP}$	-20		+20	ppb	Over T <sub>OP</sub> Note 1
3	Short Term Stability ( in still air)				0.05	ppb/s	1S
4	Warm-up Time				3.0	min	Within $\pm 2$ ppm of final frequency with reference after 1 hour on@+25°C
5	Frequency VS voltage changes	$\Delta f/F_V$	-10		+10	ppb	V <sub>CC</sub> $\pm 5\%$ at +25°C
6	Frequency VS load changes	$\Delta f/F_L$	-10		+10	ppb	R <sub>L</sub> /C <sub>L</sub> $\pm 10\%$ at +25°C
7	Aging per day	$\Delta f/F_{Ad}$	-5		+5	ppb	Aging after 30 days of operation
8	Aging first year	$\Delta f/F_{A1}$	-1		+1	ppm	
9	Output voltage level HIGH	V <sub>OH</sub>	2.4			V <sub>DC</sub>	
10	Output voltage level LOW	V <sub>OL</sub>			0.4	V <sub>DC</sub>	
11	Output amplitude rise/fall time	t <sub>R/F</sub>			5	ns	At 20~80%V <sub>CC</sub> / +25°C
12	Output amplitude symmetry	DC	45		55	%	At 50%V <sub>CC</sub> / 15pF / +25°C
13	Phase noise	L <sub>RMS</sub>			-90	dBc/Hz	at 10Hz offset / at +25°C
					-120		at 100Hz offset / at +25°C
					-150		at 1kHz offset / at +25°C
					-155		at 10kHz offset / at +25°C
					-155		at 100kHz offset / at +25°C
14	Operating Current	I <sub>CC</sub>			400	mA	During warm up
					150		At steady state, @25°C

Note 1: Referenced to midpoint between minimum and maximum frequency over specified temperature range.

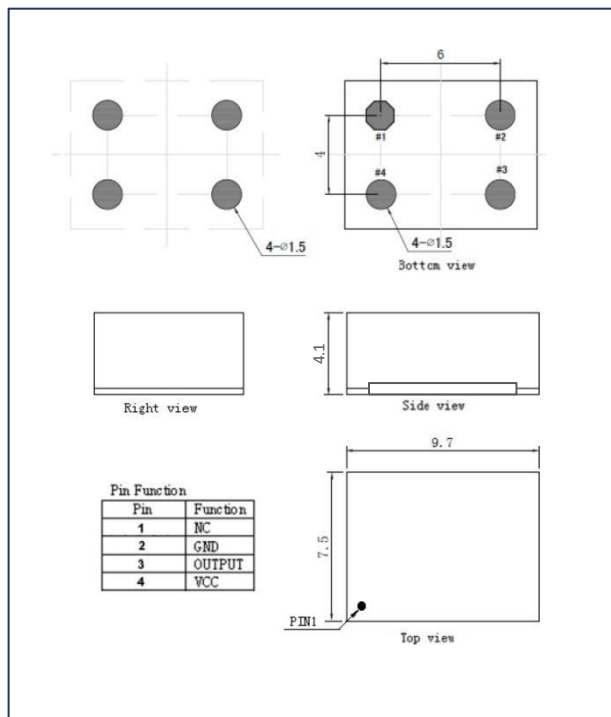
Note 2: Until frequency is within  $\pm 0.5$ ppm in reference to nominal frequency.

### 3. PRODUCT MARKING

To be defined.

### 4. OUTLINE DRAWING

	Package description	Package model	Remarks
1	9.7x7.5 with 4 pins	9.7x7.5 SMD	--



### 5. TEST CIRCUIT

