

# 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: 5220H5-10.000Z33DTNOL

MODEL 产品型号: OCXO 20x20mm, CMOS, 3.3V

NOMINAL FREQUENCY 频率: 10.000MHz

ISSUE DATE 日期: 2023 / 06 / 16

## 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	2023-06-16
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	$F_N$	<b>10.000</b>			MHz	--
2	Operating supply voltage range	$V_{CC}$	3.135	3.3	3.465	$V_{DC}$	
3	Output load	$R_L$		15		pF	CMOS Level
4	Operating temperature range	$T_{OP}$	-55	+25	+80	°C	
5	Storage Temperature Range	$T_{ST}$	-55		+90	°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	$\Delta f/F_N$	-100		+100	ppb	Offset from nominal at +25°C
2	Frequency stability over $T_{OP}$	$\Delta f/F_{OP}$	-1		+1	ppb	Over $T_{OP}$ Note 1
3	Short Term Stability ( in still air)				0.01	ppb/s	1S
4	Warm-up Time				3.0	min	Within $\pm 20$ ppb of final frequency with reference after 1 hour on@+25°C
5	Frequency VS voltage changes	$\Delta f/F_V$	-1.0		+1.0	ppb	$V_{CC} \pm 5\%$ at +25°C
6	Frequency VS load changes	$\Delta f/F_L$	-1.0		+1.0	ppb	$R_L/CL \pm 10\%$ at +25°C
7	Aging per day	$\Delta f/F_{Ad}$	-0.3		+0.3	ppb	Aging after 30 days of operation
8	Aging first year	$\Delta f/F_{A1}$	-50		+50	ppb	
9	Aging 10 years	$\Delta f/F_{A10}$	-0.3		+0.3	ppm	
10	Output voltage level HIGH	$V_{OH}$	2.4			$V_{DC}$	
11	Output voltage level LOW	$V_{OL}$			0.4	$V_{DC}$	
12	Output amplitude rise/fall time	$t_{R/F}$			5	ns	At 20~80% $V_{CC}$ / +25°C
13	Output amplitude symmetry	DC	45		55	%	At 50% $V_{CC}$ / 15pF / +25°C
14	Phase noise	$L_{RMS}$			-120	dBc/Hz	at 10Hz offset / at +25°C
					-140		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
15	Operating Current	$I_{CC}$			1000	mA	During warm up
					300		At steady state,@25°C
16	Control Voltage Range	$V_C$				$V_{DC}$	NA
17	Frequency tuning range	$F_{PULL}$				ppm	NA
18	Linearity					%	NA

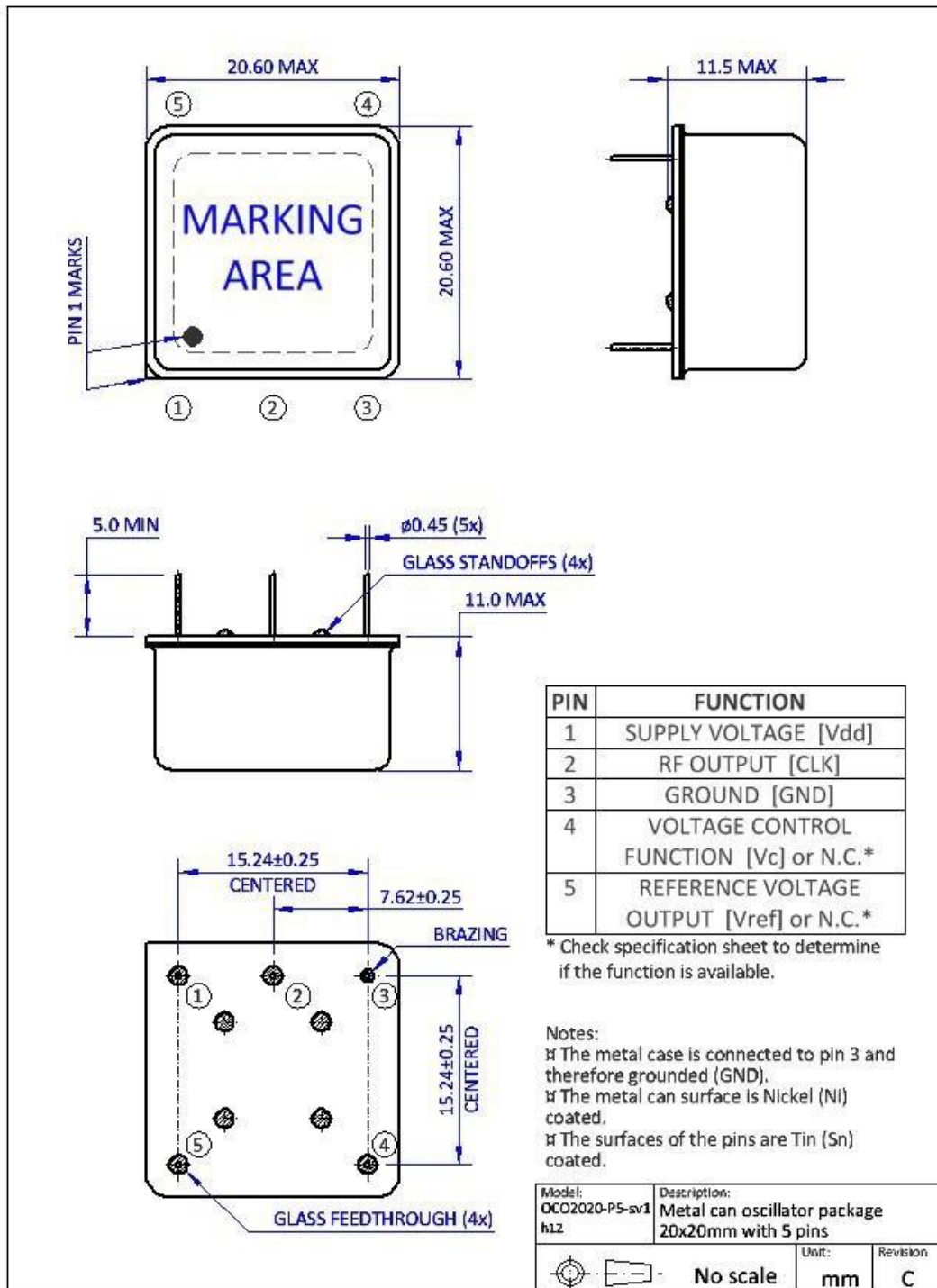
Note 1: Referenced to midpoint between minimum and maximum frequency over specified temperature range.

3. PRODUCT MARKING

To be defined.

4. OUTLINE DRAWING

	Package description	Package model	Remarks
1	20x20 with 5 pins	20x20 TH	Pin 4 & 5 NC



5. TEST CIRCUIT

