

Customer Code : _____

DATASHEET

DAPU P/N: **O22S-O319-20.00MHz-A**

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DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2022.08.03			

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1. Electrical Parameters

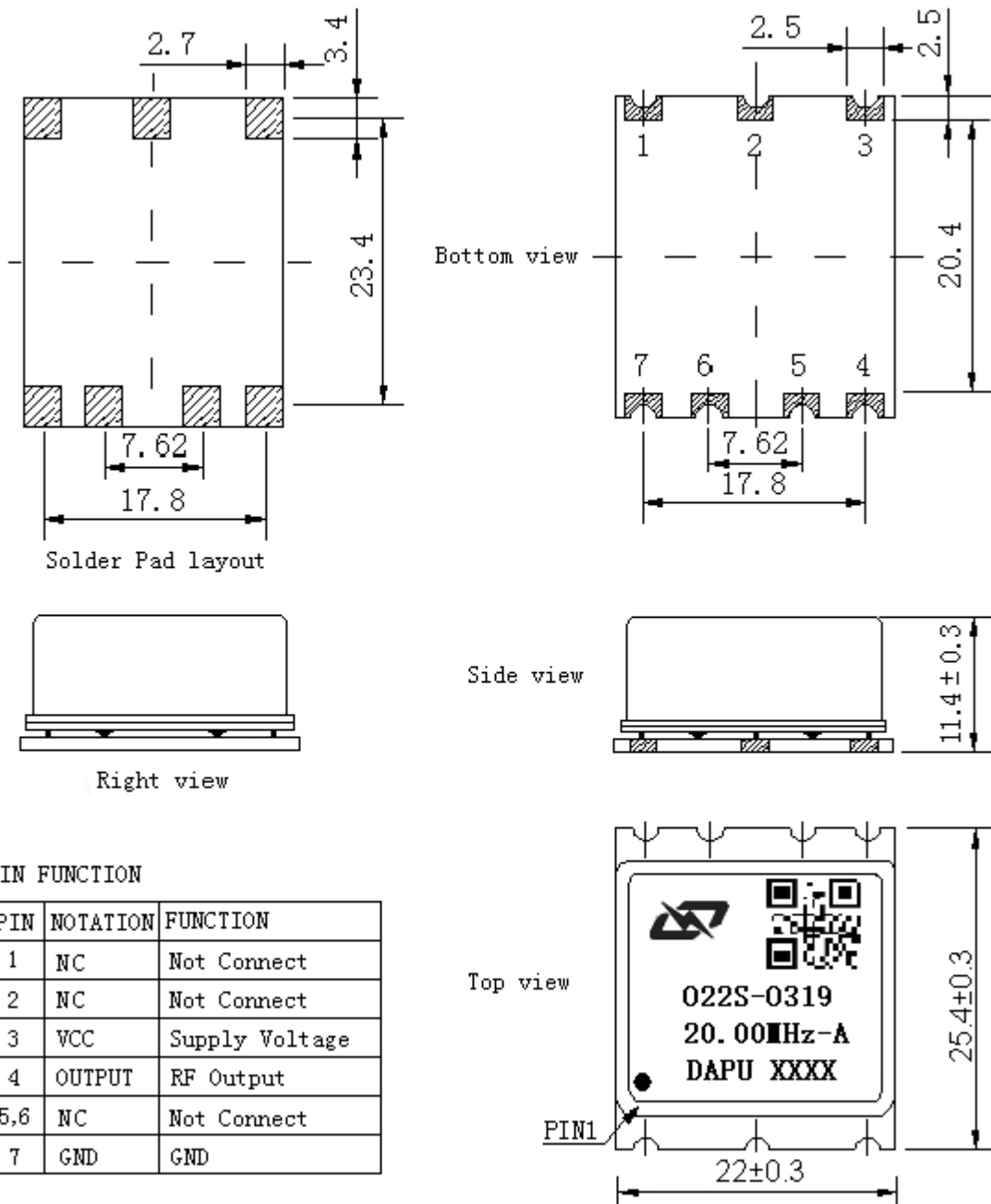
MODEL: O22S-O319-20.00MHZ-A						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	LVCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15pF$
	Output High Voltage	2.4			V	$V_{cc}=3.3V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time			5	ns	(10%~90%)
	Start up time			500	ms	
	Load	15			pF	
Frequency Stabilities	Frequency Accuracy	-0.2		+0.2	$\times 10^{-6}$	Within 90 days after shipment and 15 minutes warm up time(before reflow), Measurement referenced to nominal frequency
		-0.2		+0.2	$\times 10^{-6}$	Within 90 days after shipment and 5 minutes warm up time(after reflow), Measurement referenced to initial frequency (after 2 hours and 5 minutes warm up time after reflow)
	Frequency Tolerance vs. Operating Temperature Range	-1		+1	$\times 10^{-9}$	T_A varied from $-10^{\circ}C$ to $70^{\circ}C$, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, O_{load}=15pF$, temperature variable speed less than $2^{\circ}C$ per minute.
		-5		+5	$\times 10^{-9}$	T_A varied from $-40^{\circ}C$ to $85^{\circ}C$, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, O_{load}=15pF$, temperature variable speed less than $2^{\circ}C$ per minute.
	Frequency Tolerance vs. Supply Voltage	-1		+1	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^{\circ}C, V_{cc}$ varied from 3.13V to 3.47V, and $O_{Load}=15pF$.
	Frequency Tolerance vs. Load	-1		+1	$\times 10^{-9}$	5% load change measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V$, and $O_{Load}=15pF$.
	Retrace	-0.01		+0.01	$\times 10^{-6}$	After 48 hours operation, record the frequency f1. Power off the oscillator at least 24 hours. Then power on, measurement frequency f2 after 1 hour operation. $\Delta fr=f1-f2$
	Short-Term Stability			0.01	$\times 10^{-9}$	1s.
Allan Variance			0.05	$\times 10^{-9}$	100s.	



	Aging Tolerance Per Day	-0.15		+0.15	$\times 10^{-9}$	V_{cc}, T_A constant measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3\text{V}$, and after 30 days of operation.	
	Aging Tolerance 1 Year	-0.03		+0.03	$\times 10^{-6}$		
	Aging Tolerance 10Years	-0.6		+0.6	$\times 10^{-6}$		
Power Supply	Supply Voltage	3.13	3.3	3.47	V		
	Steady Consumption			300	mA	@25°C	
	Warm up current			1200	mA	@40°C	
	Warm up Time			5	minutes		
	Warm up		-0.1		+0.1	$\times 10^{-6}$	After warm up 5 minutes. Measurement referenced to frequency observed with $T_A = 25^\circ\text{C}, V_{cc}=3.3\text{V}$, and after 1 hour of operation.
			-0.1		+0.1	$\times 10^{-6}$	After warm up 1 hour. Measurement referenced to frequency observed with $T_A = 25^\circ\text{C}, V_{cc}=3.3\text{V}$, and after 24hour of operation.
Phase Noise	Phase Noise			-70	dBc/Hz	1Hz	
				-100		10Hz	
				-125		100Hz	
				-145		1KHz	
				-154		10KHz	
				-155		100KHz	
				-157		1MHz	
Jitter	Jitter			0.45	ps	@12kHz to 5MHz	
Environmental Conditions	Operable Temperature	-40		+85	°C		
	Storage Temperature	-55		+105	°C		
	ESD Level	Human Body Model, class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.					
		Machine Model, class B: 200V to 400V; JEDEC JESD22-A115C.					
	Moisture Sensitivity Level: Level 2.						
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~500Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X, Y, Z), IEC 68-2-06 Test Fc.					
	Shock	50g; 11ms; half sine wave (3 times for each 3 directions X, Y, Z), IEC 68-2-27 Test Ea/Severity 50A.					
Air-tightness	$1 \times 10^{-6} \text{ pa.m}^3/\text{s}$						
Full Package Storage	Relative humidity (%)	20% ~ 70%					
	Temperature (°C)	-10~35°C					



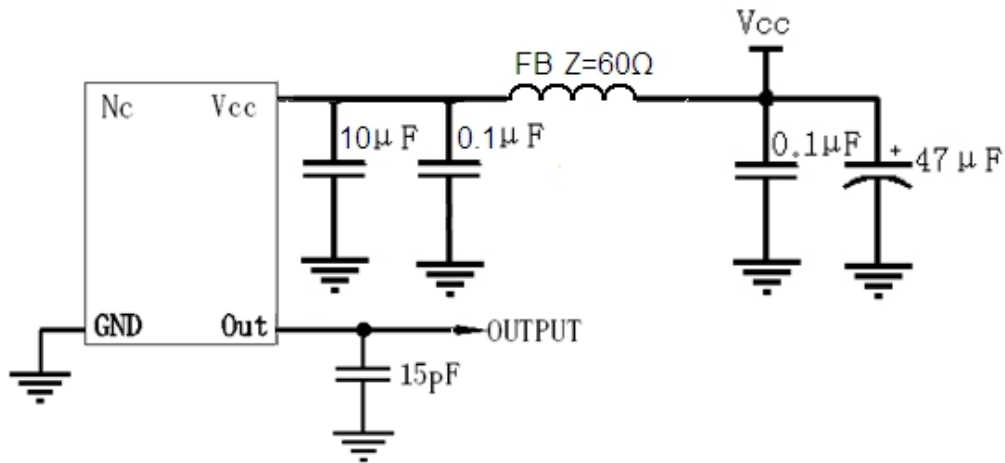
2. Mechanical Structure (mm)



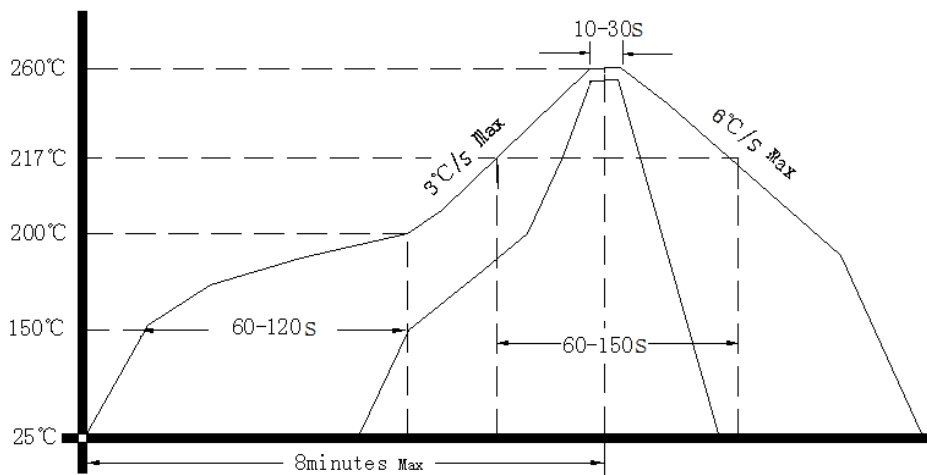
- Note1:** Tolerance $\pm 0.2\text{mm}$ without mark
- Note2:** The first two xx representative: week
After two xx representative: year
- Note3:** Referential Weight 7.8g
- Note4:** NC is not connect



3. Test Circuit



4. Reflow Soldering Curve (RoHS)



Passing through reflow upside down is not supported

5. Package: Tape & Reel (mm)

