

Customer Code : \_\_\_\_\_

# DATASHEET

DAPU P/N: 022ST-B314-10.00MHz

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DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2023.04.19			

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## 1. Electrical Parameters

MODEL: O22ST-B314-10.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	10.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15pF$
	Output High Voltage	2.8			V	$V_{cc}=3.3V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			5	ns	
	Load	15			pF	
	Frequency Tolerance vs. Operating Temperature Range	-3		+3	$\times 10^{-9}$	$T_A$ varied from $-40^{\circ}C$ to $85^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}-f_{min})/f_0, V_{cc}=3.3V, V_c=1.65V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
	Initial Frequency Tolerance	-0.2		+0.2	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V, V_c=1.65V$ , and after 15 minutes of operation, within 30 days after ex-works. Note: Secondary reflow absolutely not exceeded initial offset
	Frequency Tolerance vs. Supply Voltage	-1.5		+1.5	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^{\circ}C, V_{cc}$ varied from 3.13V to 3.47V, $V_c=1.65V$ and $O_{Load}=15pF$ .
	Frequency Tolerance vs. Load	-1.5		+1.5	$\times 10^{-9}$	10% load change measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V, V_c=1.65V$ , and $O_{Load}=15pF$ .
	Retrace	-0.02		+0.02	$\times 10^{-6}$	After 24 hours off @ $25^{\circ}C$ 15 min power on
Reflow shift	-0.2		+0.2	$\times 10^{-6}$	After 24 hours recovery @ $25^{\circ}C$ 2 times reflow.	
Short-Term Stability Allan Variance			0.01	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to $25^{\circ}C; 1s$ .	



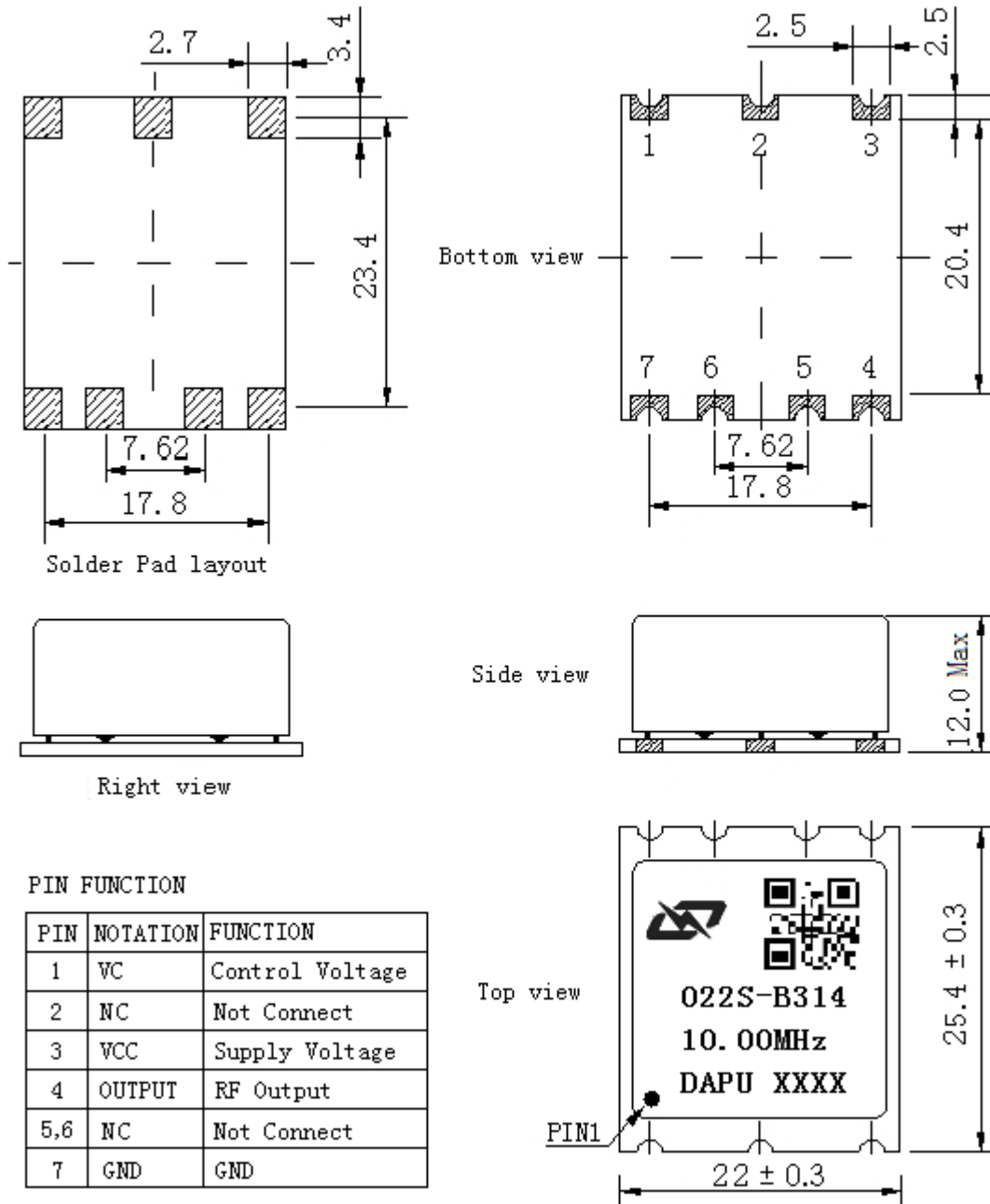
	Aging Tolerance Per Day	-1		+1	$\times 10^{-9}$	$V_{cc}$ , $V_c$ , $T_A$ constant measurement referenced to frequency observed with $T_A=25^\circ\text{C}$ , $V_{cc}=3.3\text{V}$ , $V_c=1.65\text{V}$ , and after 30 days of operation.
	Aging Tolerance 1 Year	-0.1		+0.1	$\times 10^{-6}$	
	Aging Tolerance 10 Year	-0.6		+0.6	$\times 10^{-6}$	
Power Supply	Supply Voltage	3.13	3.3	3.47	V	
	Steady Consumption			400	mA	@25°C
	Warm up current			900	mA	
	Warm-Up Time			8	minutes	@25°C within $\pm 0.02 \times 10^{-6}$ of final Frequency with reference after 1 hour on.
Voltage Control Characteristics	Frequency Tuning Range	-2.4		-0.8	$\times 10^{-6}$	$V_c=0\text{V}$ . measurement referenced to $V_c=1.65\text{V}$
		-0.2		+0.2	$\times 10^{-6}$	$V_c=1.65\text{V}$ . measurement referenced to exactly 10.00MHz
		+0.8		+2.4	$\times 10^{-6}$	$V_c=3.3\text{V}$ . measurement referenced to $V_c=1.65\text{V}$
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100			K $\Omega$	
Phase Noise	Phase Noise		-85	-75	dBc/Hz	1Hz
			-120	-110		10Hz
			-140	-135		100Hz
			-145	-140		1KHz
			-150	-145		10KHz
			-150	-145		100KHz
			-155	-150		1MHz
Jitter			1	ps	RMS Jitter (12KHz-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; ANSI/ESDA/JEDEC JS-001-2010.				
	Moisture Sensitivity Level	Level 2.				
	Vibration	Test Condition: 0.75mm ;acceleration:10g;5Hz~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.				
Free fall	100 mm, The frequency difference between before and after the test is less than 2E-7					
Full Package Storage	Relative humidity (%)	20% ~70%				
	Temperature (°C)	-10~35°C				



## 2. Mechanical Structure (mm)

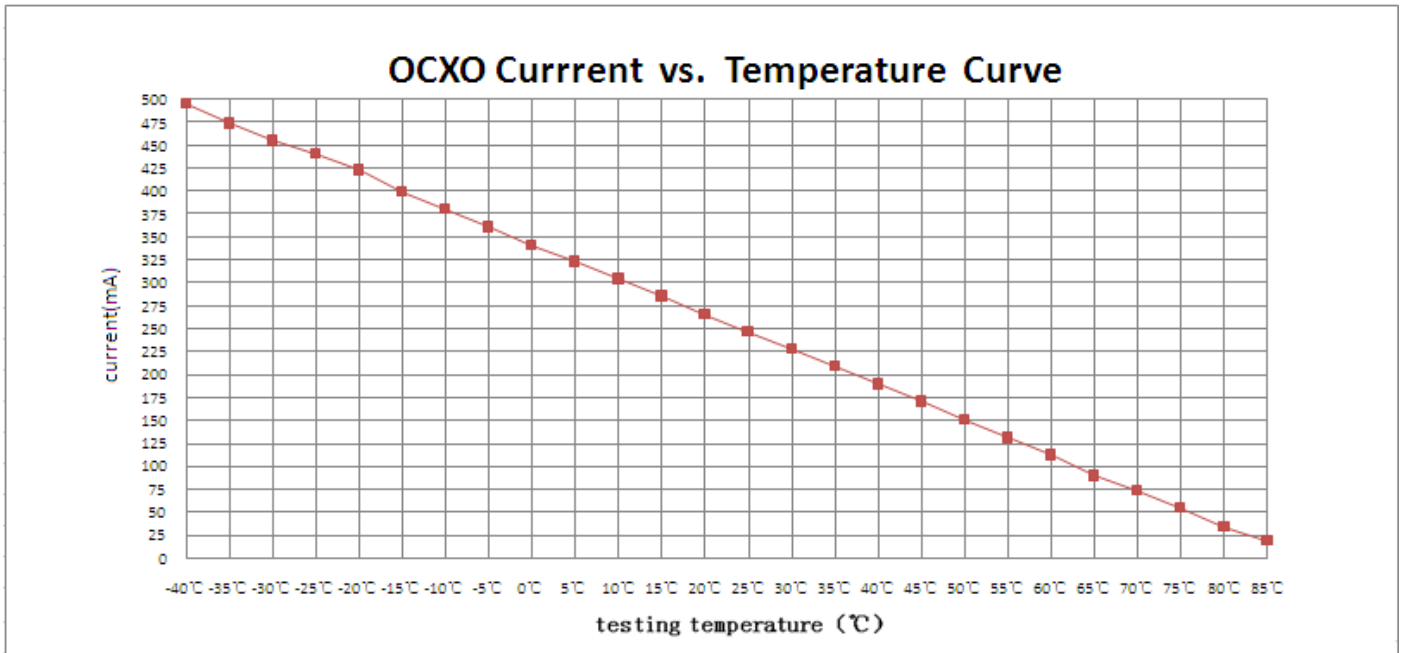


- Note1:** Tolerance  $\pm 0.20\text{mm}$  without mark
- Note2:** The first two xx representative: week  
After two xx representative: year
- Note3:** Referential weight 7.8g
- Note4:** NC is not connect

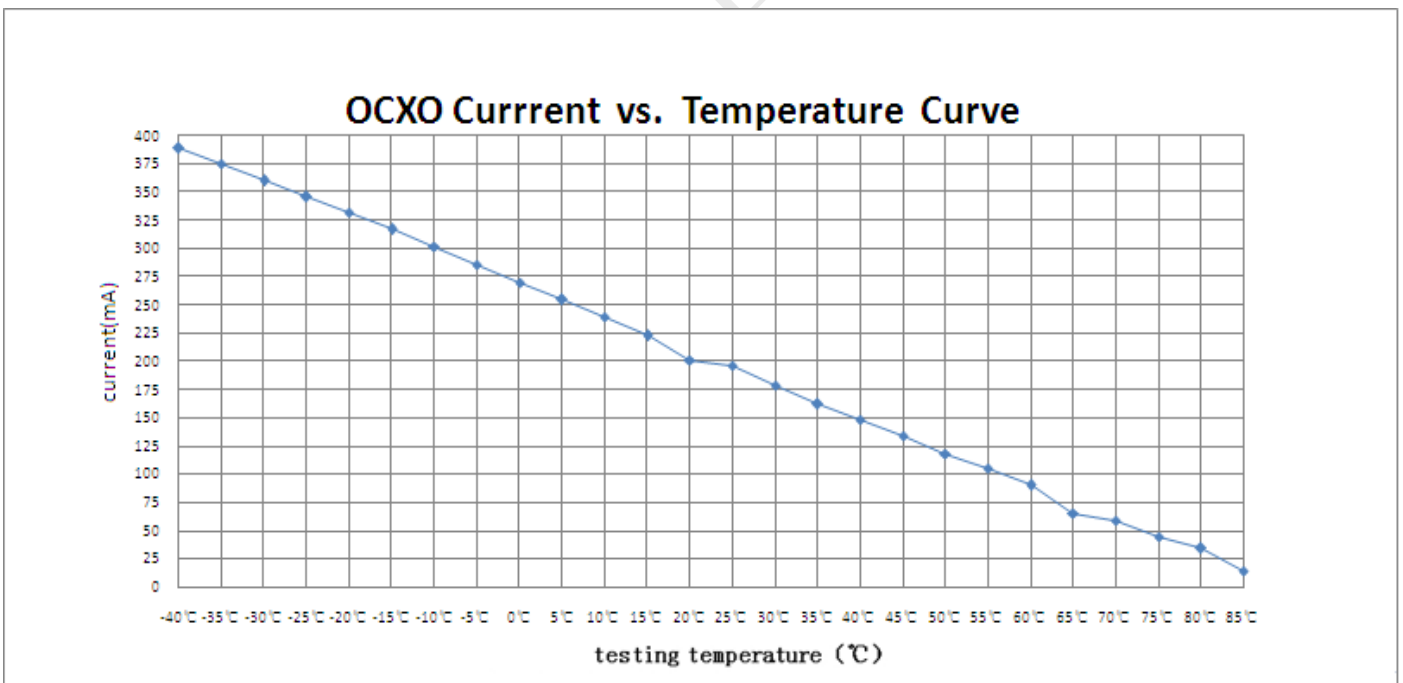


### 3. Current vs. Temperature

Airflow=1.5m/s

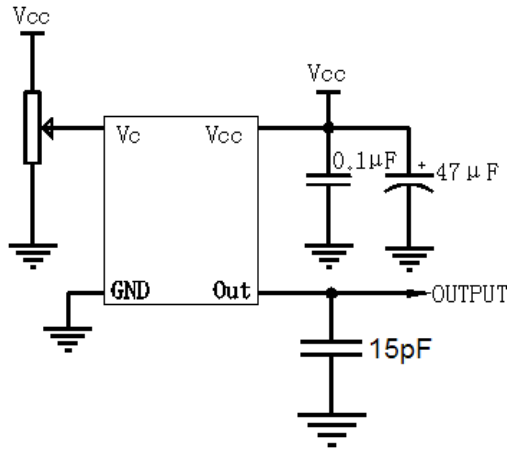


Airflow=0m/s

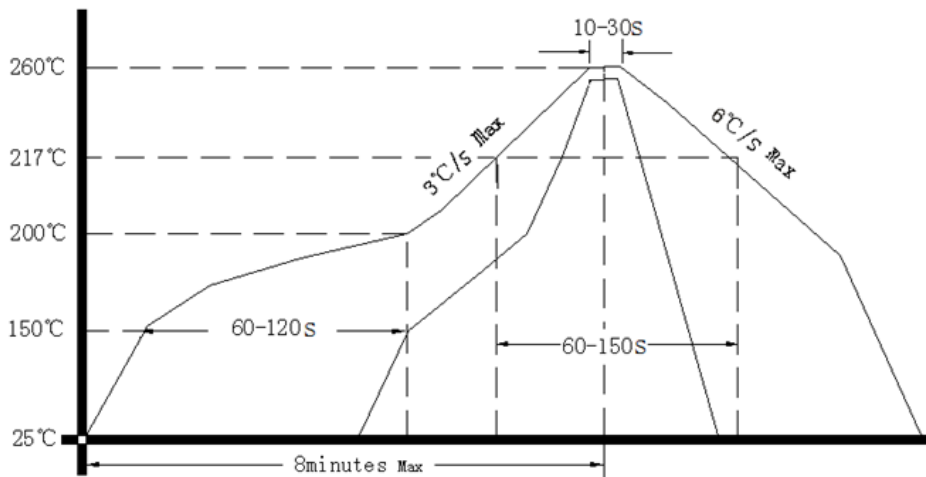




#### 4. Test Circuit



#### 5. Reflow Soldering Curve (RoHS)



Note: passing through reflow upside down is not supported

#### 6. Package: Tape & Reel (mm)

