

Customer Code : _____

DATASHEET

DAPU P/N: **O22S-B314-10.00MHz**

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| DAPU | | | Customer Approval |
|------------------|---------|----------|------------------------|
| Drew | Audited | Approved | Stamp, please! Thanks! |
| | | | |
| Date: 2019.05.24 | | | |

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1. Electrical Parameters

| MODEL: O22S-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 $O_{Load}=15pF$. |
| | Micro jump | -0.2 | | +0.2 | $\times 10^{-9}$ | power on 5days,Continuous testing for 48 hours, temperature fluctuations $< 3^{\circ}C$,one sampling/1H |
| | Temper hysteresis effect | -0.5 | | +0.5 | $\times 10^{-9}$ | Over temperature range($0.5^{\circ}C$ /minute) Note: batch sampling tests |
| Retrace | -0.01 | | +0.01 | $\times 10^{-6}$ | 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. | |



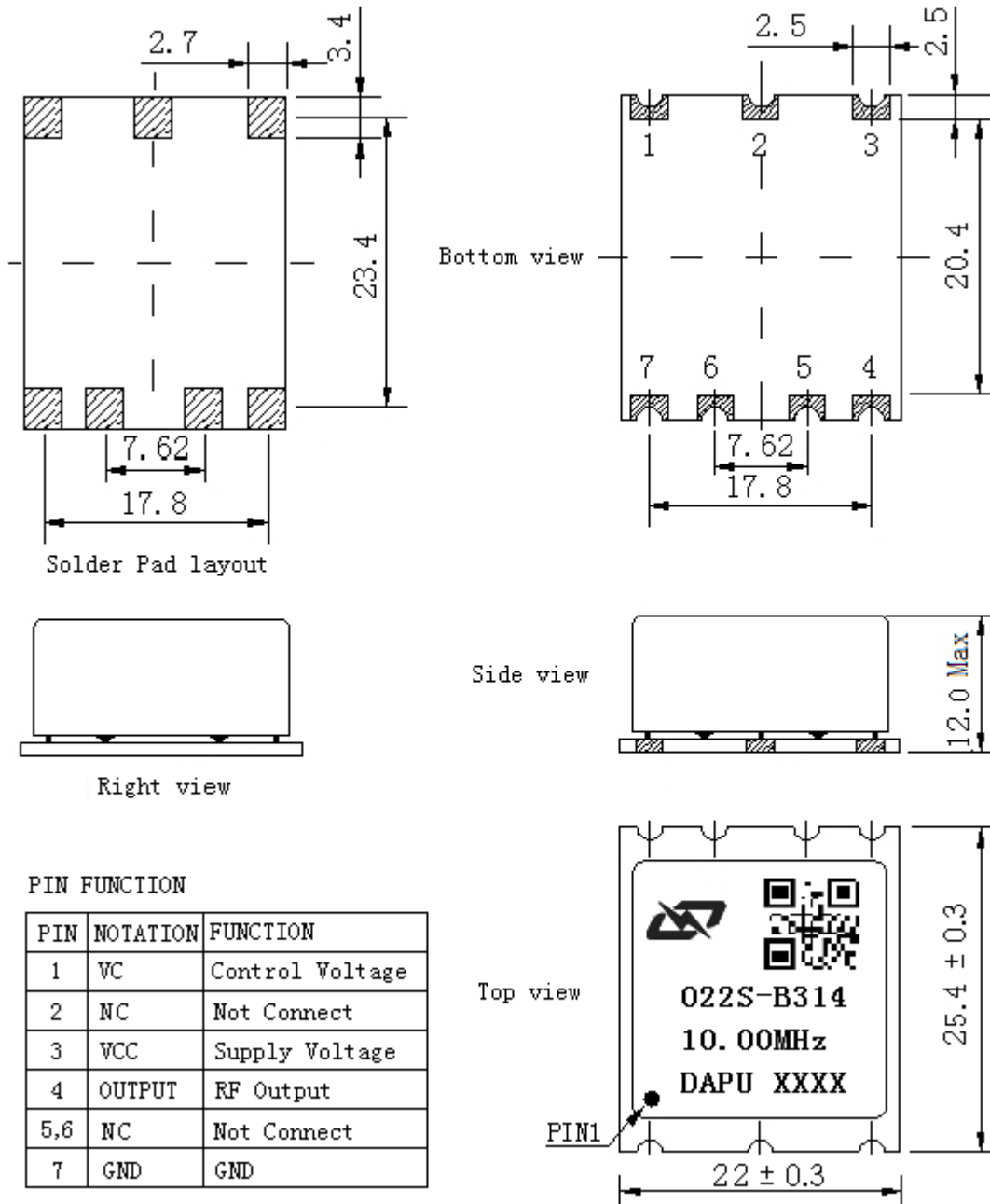
| | | | | | | |
|---------------------------------|--|----------|-----|-------|------------------|--|
| | Short-Term Stability Allan Variance | | | 0.01 | $\times 10^{-9}$ | Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C; 1s, using PN9000 equipment. |
| | | | | 0.05 | $\times 10^{-9}$ | Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C; 100s, using PN9000 equipment. |
| | Aging Tolerance Per Day | -0.5 | | +0.5 | $\times 10^{-9}$ | 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 | -0.05 | | +0.05 | $\times 10^{-6}$ | |
| | Aging Tolerance 10 Year | -0.3 | | +0.3 | $\times 10^{-6}$ | |
| | Aging Tolerance 15 Year | -0.4 | | +0.4 | $\times 10^{-6}$ | |
| 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 $\pm 0.01 \times 10^{-6}$ 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 Ω |



| | | | | | | |
|--------------------------|--|---|------|------|--------|-------------------------|
| 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

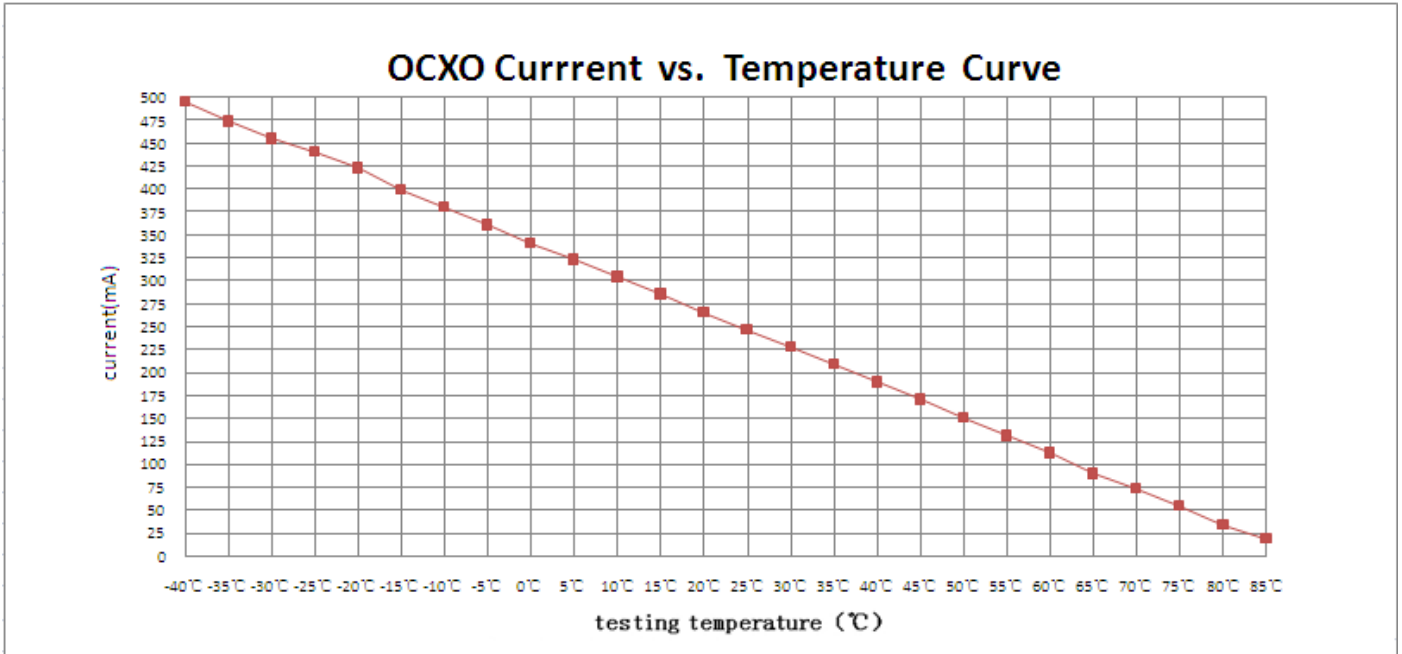
Note3: Referential weight 7.8g

Note4: NC is not connect

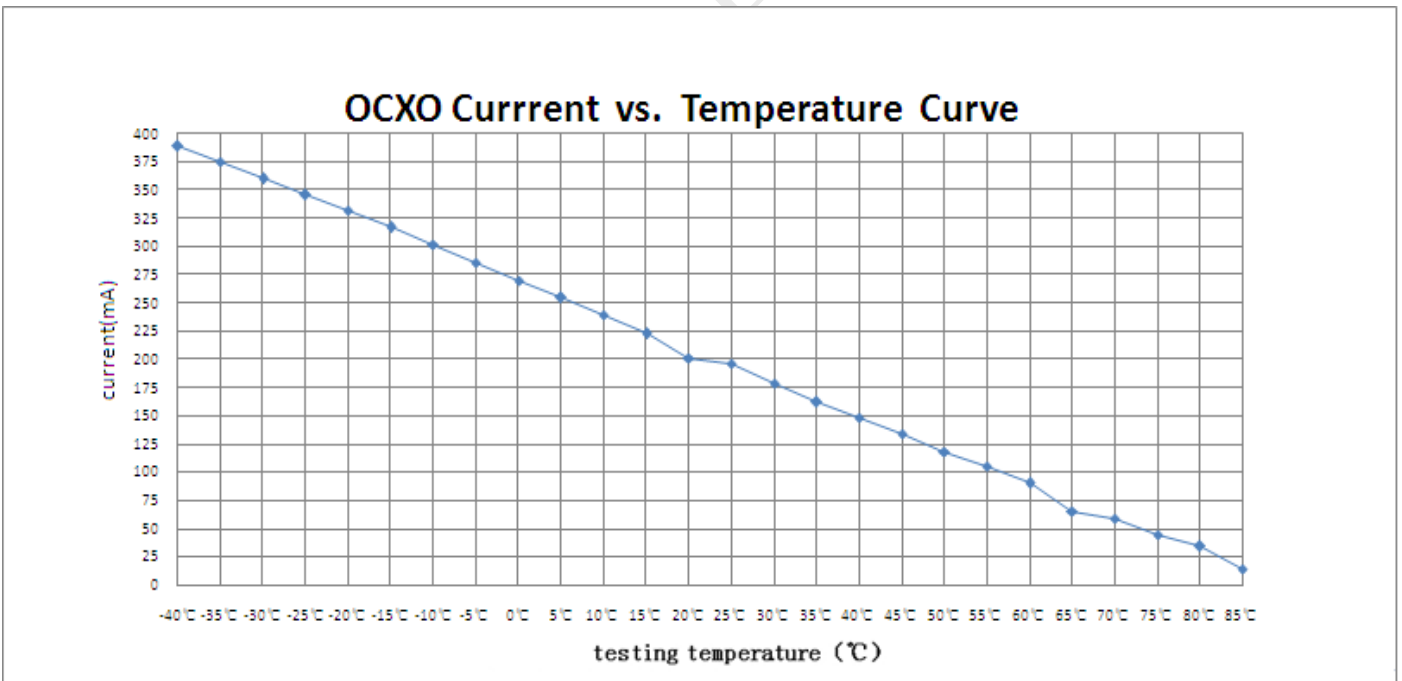


3. Current vs. Temperature

Airflow=1.5m/s

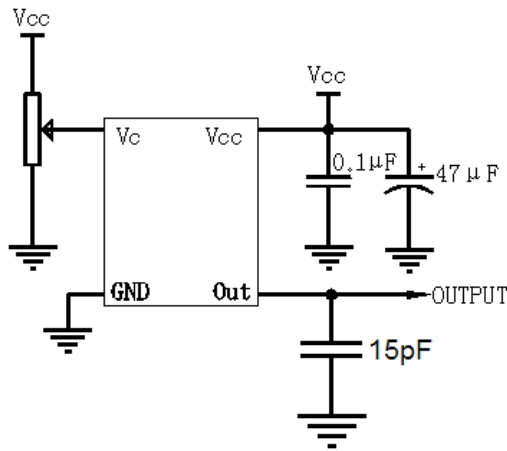


Airflow=0m/s

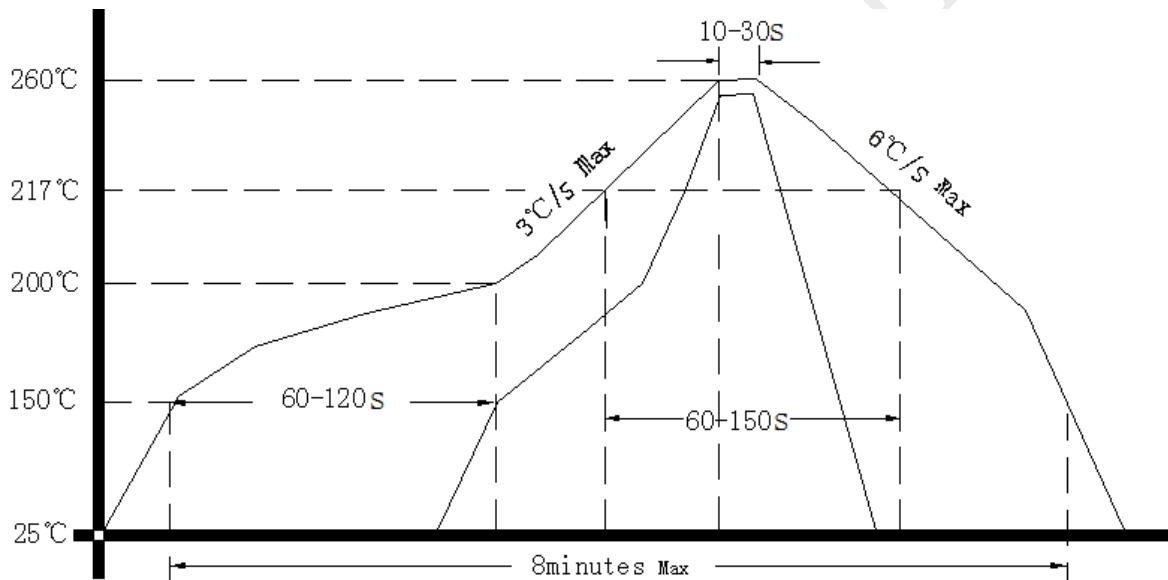




4. Test Circuit



5. Reflow Soldering Curve (RoHS)



Note: passing through reflow upside down is not supported

6. Package: Tape & Reel (mm)

