Travelling Merchant: A012

# DATASHEET

Standard: **O22S-1202-20.00MHz**

P/N:

| Plot | | | The Label |
|---|---|---|---|
| Drew | Audited | Approved | |
| Amway.wei | Tony · Wang | James.Liu | |
| Date: 2019.12.11 | | | Stamp, please! Thanks! |


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# Table of amendment

| Version | Revision contents | Prepared by | Revised date |
|---|---|---|---|
| 1.0 | The first issued | Amway | 2019.12.11 |
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## 1. Electrical Parameters

| **MODEL： O22S-1202-20.00MHz** | | | | | | |
|---|---|---|---|---|---|---|
| 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 | | 55 | % | @50% |
| | Rise / Fall Time (10%~90%) | | | 5 | ns | |
| | Sub Harmonics | | | -50 | dBc | |
| | Load | 13.5 | 15 | 16.5 | pF | |
| Frequency Stabilities | Over all | -4.6 | | +4.6 | $\times 10^{-6}$ | -40~85℃,Include:Temp.Stab.supply.load stab.initial.20years aging. |
| | Frequency Tolerance vs. Operating Temperature Range | -5 | | +5 | $\times 10^{-9}$ | $T_A$ varied from -40℃ to 85℃, 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℃per minute. |
| | Initial Frequency Tolerance | -0.2 | | +0.2 | $\times 10^{-6}$ | Measurement referenced to frequency observed with $T_A$=25℃, $V_{cc}$=3.3V, and after 15 minutes of operation, within 30 days after ex-works. |
| | Frequency Tolerance vs. Supply Voltage | -2 | | +2 | $\times 10^{-9}$ | measurement referenced to frequency observed $T_A$=25℃, $V_{cc}$ varied from 3.135V to 3.465V, and $O_{Load}$=15pF. |
| | Frequency Tolerance vs. Load | -2 | | +2 | $\times 10^{-9}$ | 5% load change measurement referenced to frequency observed with $T_A$=25℃, $V_{cc}$=3.3V, and $O_{Load}$=15pF. |
| | Aging Tolerance Per Daily | -1 | | +1 | $\times 10^{-9}$ | $V_{cc}$,$T_A$ constant measurement referenced to frequency observed with $T_A$=25℃,$V_{cc}$=3.3V, and after 30 days of operation. |
| | Aging Tolerance Per Year | -0.1 | | +0.1 | $\times 10^{-6}$ | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | Holdover/Drift | -1 | | +1 | $\times 10^{-9}$ | Over 24hours and ±2.8℃. |
| | | | | 10 | $\times 10^{-9}$ (pk-pk) | Over 24hours, -40~85℃. |
| Power Supply | Supply Voltage | 3.135 | 3.3 | 3.465 | V | |
| | Steady Consumption | | | 400 | mA | @25℃ |
| | Warm up current | | | 1150 | mA | |
| | Warm-Up Time | | | 5 | min | @25℃within $\pm 0.01 \times 10^{-6}$ of final frequency with reference after 1 hour on. |
| Phase Noise | Phase Noise | | | -110 | dBc/Hz | 10Hz |
| | | | | -130 | | 100Hz |
| | | | | -140 | | 1KHz |
| | | | | -145 | | 10KHz |
| | | | | -150 | | 100KHz |
| Environmental Conditions | Operable Temperature | -40 | | +85 | ℃ | |
| | Storage Temperature | -55 | | +105 | ℃ | |
| | 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 | Not humidity sensitive. | | | | |
| | 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. | | | | |
| Full Package Storage | Relative humidity (%) | 20%～70% | | | | |
| | Temperature (℃) | -10~35℃ | | | | |

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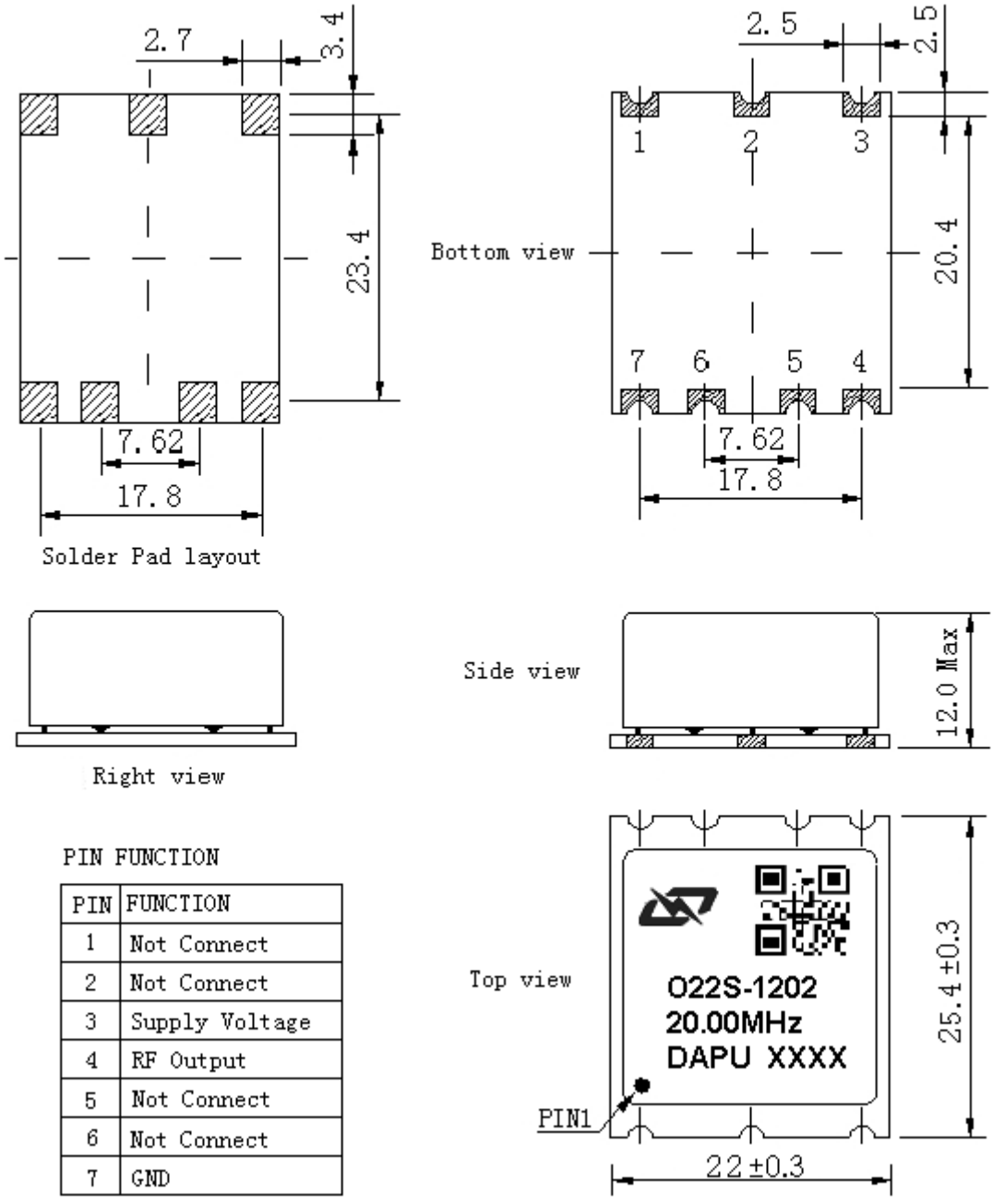
## 2. Mechanical Structure (mm)




PIN FUNCTION

| PIN | FUNCTION |
|---|---|
| 1 | Not Connect |
| 2 | Not Connect |
| 3 | Supply Voltage |
| 4 | RF Output |
| 5 | Not Connect |
| 6 | Not Connect |
| 7 | GND |

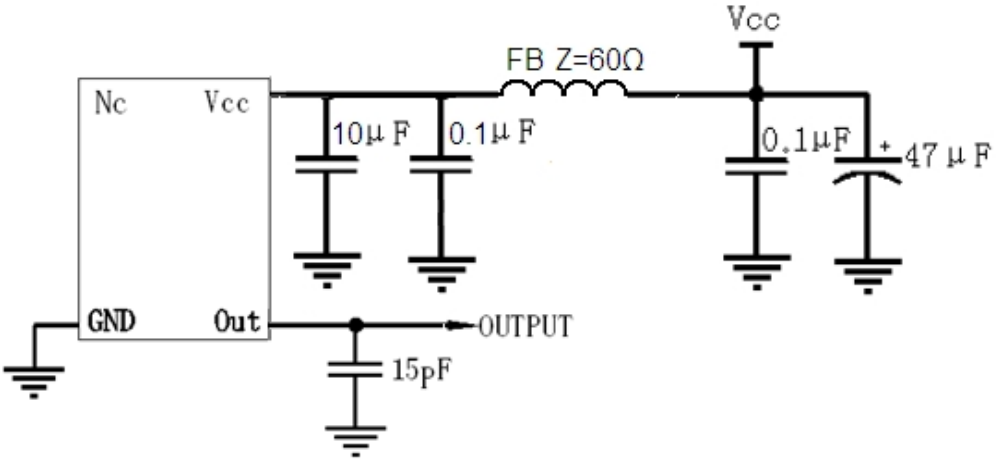
**Note1:** Tolerance ±0.2mm without mark

**Note2:** The first two xx representative: week
After two xx representative: year

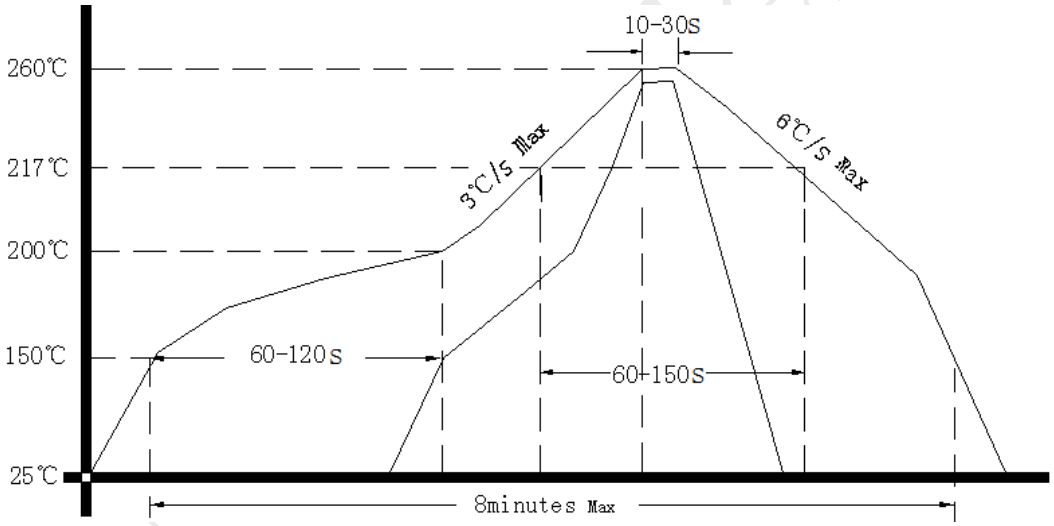
**Note3:** Referential weight 30g

**Note4:** NC is not connect

## 3. Test Circuit




## 4. Reflow Soldering Curve (RoHS)




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