

Customer Code : _____

DATASHEET

DAPU P/N: 022S-K445-10.00MHz

Customer P/N: _____

| DAPU | | | Customer Approval |
|------------------|---------|----------|------------------------|
| Drew | Audited | Approved | Stamp, please! Thanks! |
| | | | |
| Date: 2022.05.31 | | | |

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Table of amendment

| Version | Revision contents | Prepared by | Revised date |
|---------|---|--------------|--------------|
| 1.0 | The first issued | <i>Amway</i> | 2020.08.11 |
| 1.1 | The “Mechanical Structure” changed | <i>Amway</i> | 2021.03.01 |
| 1.2 | Add “Tuning Sensitivity” | <i>Amway</i> | 2021.08.04 |
| 1.3 | The “Modulation Bandwidth” “Reflow Soldering Curve” changed | <i>Amway</i> | 2022.04.13 |
| 1.4 | The “Note2” changed | <i>Amway</i> | 2022.05.31 |
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1. Electrical Parameters

| MODEL: O22S-K445-10.00MHz | | | | | | |
|---------------------------|---|------------|------|-------|------------------|---|
| Item | Description | Parameters | | | Unit | Test Condition |
| | | Min. | Typ. | Max. | | |
| Output | Frequency | 10.00 | | | MHz | |
| | Output Waveform | Sine wave | | | | |
| | Level | 5 | | 10 | dBm | |
| | Load | 50 | | | Ω | |
| | Harmonics Suppression | | | -20 | dBc | Except 9-11MHz |
| | Spurious Suppression | | | -90 | dBc | At frequency range 9-11MHz |
| Reference Voltage Output | Reference Voltage | 4.925 | 5 | 5.075 | V | |
| | Internal Resistance | | | 100 | Ω | |
| Alarm Output | Alarm Level | 0 | | 0.4 | V | |
| | Ready Level | 2.4 | | 3.6 | V | |
| | Load Current | | | 100 | μ A | |
| Frequency Stabilities | Frequency Tolerance vs. Operating Temperature Range | -0.05 | | +0.05 | $\times 10^{-6}$ | T_A varied from -20°C to 75°C , measurement referenced to frequency observed with $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$, $V_{\text{cc}}=10.5\text{V}\sim 12.6\text{V}$, $V_{\text{c}}=2.5\text{V}$, $O_{\text{load}}=50\Omega$, temperature variable speed less than 2°C per minute. |
| | Initial Frequency Tolerance | -0.1 | | +0.1 | $\times 10^{-6}$ | Measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$, $V_{\text{cc}}=10.5\text{V}\sim 12.6\text{V}$, $V_{\text{c}}=2.5\text{V}$, and after 15 minutes of operation, within 30 days after ex-works. |
| | Frequency Tolerance vs. supply voltage | -5 | | +5 | $\times 10^{-9}$ | measurement referenced to frequency observed $T_A=25^{\circ}\text{C}$, $V_{\text{cc}}=10.5\text{V}\sim 12.6\text{V}$, $V_{\text{c}}=2.5\text{V}$, $O_{\text{load}}=50\Omega$. |
| | Frequency Tolerance vs. Load | -5 | | +5 | $\times 10^{-9}$ | 5% Load Change Measurement referenced to frequency observed with $T_A=25^{\circ}\text{C}$, $V_{\text{cc}}=10.5\text{V}\sim 12.6\text{V}$, $V_{\text{c}}=2.5\text{V}$, $O_{\text{load}}=50\Omega$. |
| | Orientation | -0.01 | | +0.01 | $\times 10^{-6}$ | |
| | Short-Term Stability: Allan Variance | | | | 0.5 | $\times 10^{-9}$ |
| | | | | 0.1 | $\times 10^{-9}$ | Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C ; 10s. |
| | | | | 1 | $\times 10^{-9}$ | Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C ; 100s. |



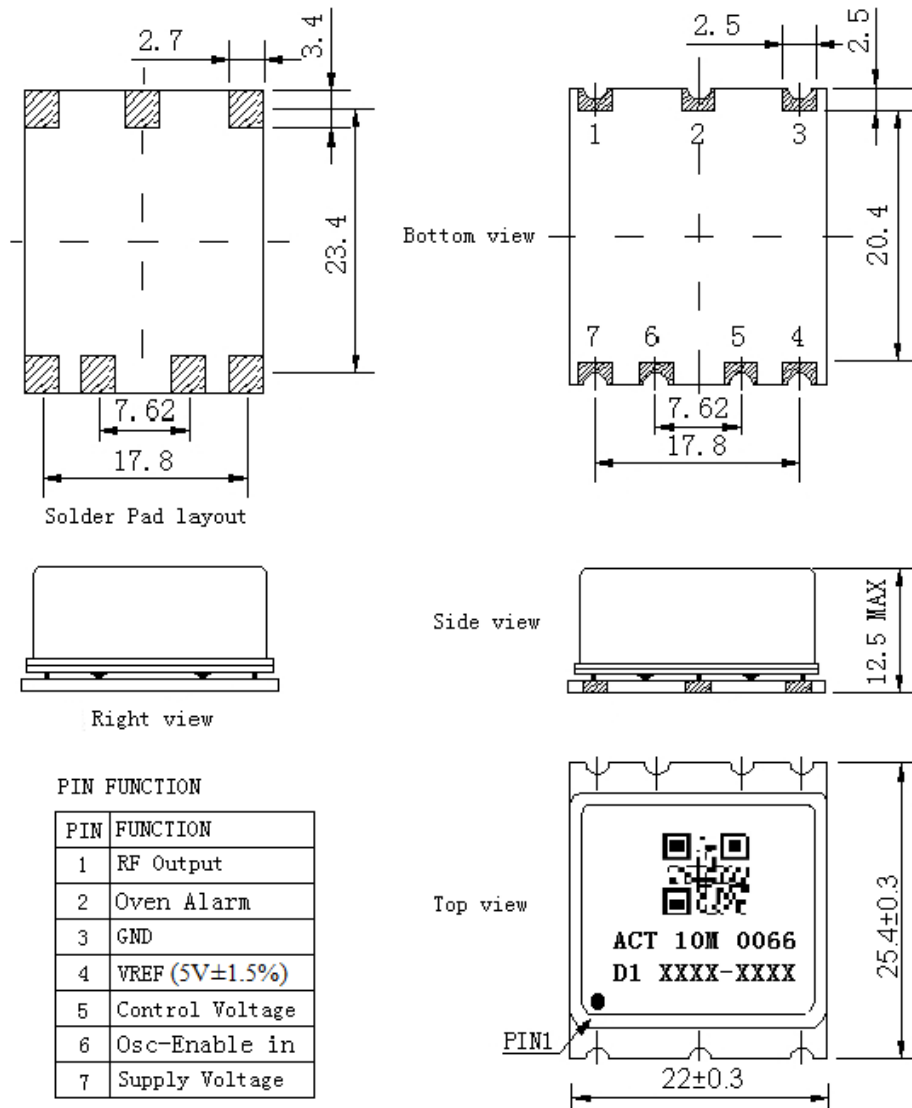
| | | | | | | |
|---------------------------------|----------------------------|---|------|-------|------------------|---|
| | Aging Tolerance Per Day | -1 | | +1 | $\times 10^{-9}$ | V _{cc} , V _c , T _A constant Measurement referenced to frequency observed with T _A =25°C, V _{cc} =10.5V~12.6V, V _c =2.5V, O _{load} =50Ω and after 30 days of operation. |
| | Aging Tolerance Per 30 Day | -0.02 | | +0.02 | $\times 10^{-6}$ | |
| | Aging Tolerance Per Year | -0.1 | | +0.1 | $\times 10^{-6}$ | |
| | Aging Tolerance 15 Year | -1 | | +1 | $\times 10^{-6}$ | |
| | Retrace | | | 0.02 | $\times 10^{-6}$ | |
| Power Supply | Supply Voltage | 10.5 | 12.0 | 12.6 | V | |
| | Steady Consumption | | | 400 | mA | @-20°C |
| | | | | 340 | mA | @25°C |
| | | | | 380 | mA | @0°C |
| | Warm up current | | | 400 | mA | |
| Warm-Up Time | | | 10 | min | | |
| Voltage Control Characteristics | Frequency Tuning Range | -1.5 | | -0.8 | $\times 10^{-6}$ | V _c =0V. measurement referenced to V _c =2.5V |
| | | -0.1 | | +0.1 | $\times 10^{-6}$ | V _c =2.5V. measurement referenced to exactly 10.00MHz |
| | | +0.8 | | +1.5 | $\times 10^{-6}$ | V _c =5.0V. measurement referenced to V _c =2.5V |
| | Tuning Sensitivity | ±0.32 | | ±0.6 | ppm/V | V _c =0V~5V |
| | Modulation Bandwidth | 3 | | | Hz | |
| | Linearity | | | 10 | % | |
| | Slope | Positive | | | | |
| | Input Impedance | 100 | | | KΩ | |
| Phase Noise | Phase Noise @25°C | | | -80 | dBc/Hz | 1Hz |
| | | | | -110 | | 10Hz |
| | | | | -135 | | 100Hz |
| | | | | -145 | | 1KHz |
| | | | | -150 | | 10KHz |
| | | | | -150 | | 100KHz |
| | | | | -150 | | 100KHz |
| Environmental Conditions | Operating Temperature | -20 | | +75 | °C | |
| | Operable Temperature | -30 | | +80 | °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. | | | | |



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|----------------------|--|--|
| | 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 pressure | Operating | 54kPa(equiv.5000m) |
| | Non operating | 26kPa(equiv.10000m) |
| MTBF | @100% operating time and 45°C ambient temperature [hours] >100 000 | |
| 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
At last four xxxx representative: serial number

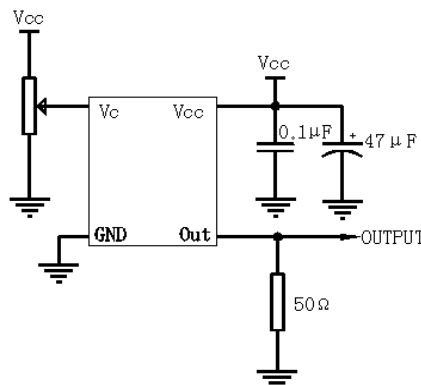
Note3: Referential Weight 10g

Note4: Instruction of Pin 6:

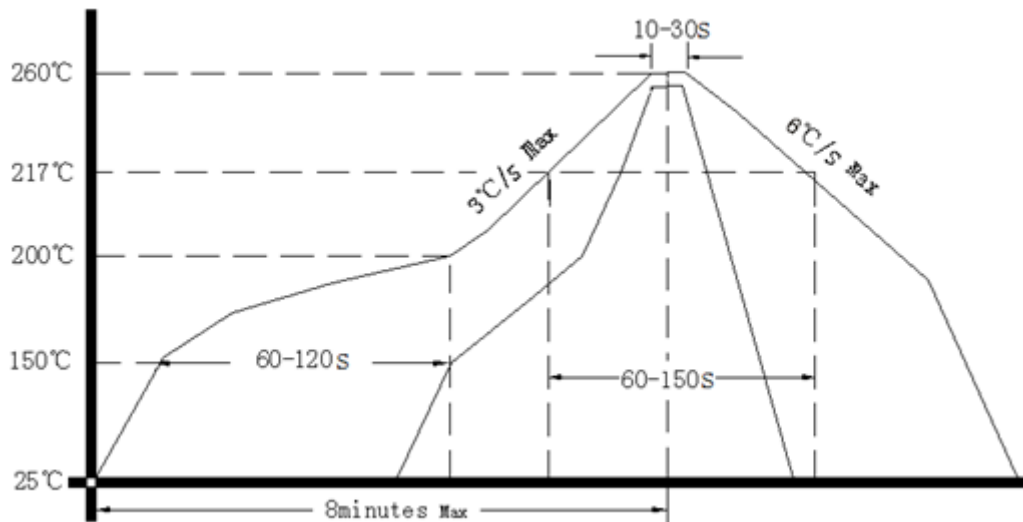
- 1): Oscillator must be switched ON with high signal: TTL/CMOS/HCMOS compatible input.
- 2): High level up to 12.6V, high level min 2.4V, must be acceptable. The input impedance $\geq 100\text{ K}\Omega$.
- 3): When the voltage is between 2.4V and 12.6V, the RF output pin needs to output a signal between 5dBm and 10dBm.
- 4): When the voltage is 0 ~ 2.4V, the RF output pin cannot have signal output.
- 5): With OSC-enable = low (0 ~ 2.4V) the internal oscillator is not oscillating. It is totally switched off.
- 6): If Osc-Enable function is not used, Pin6 must be connected to Pin7.



3. Test Circuit



4. Reflow Soldering Curve (RoHS)



Note: Passing through reflow upside down is not supported

5. Package: Tape & Reel (mm)

