

Customer Code : _____

DATASHEET

DAPU P/N: 011A-A321-32.768MHz

Customer P/N: _____

| DAPU | | | Customer Approval |
|------------------|---------|----------|------------------------|
| Drew | Audited | Approved | Stamp, please! Thanks! |
| | | | |
| Date: 2019.05.22 | | | |

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Table of amendment

| Version | Revision contents | Prepared by | Revised date |
|---------|------------------------------------------|--------------|--------------|
| 1.0 | The first issued | <i>Amway</i> | 2018.03.07 |
| 1.1 | The “Frequency Stabilities” changed | <i>Amway</i> | 2018.03.15 |
| 1.2 | The “Mechanical Structure” changed | <i>Amway</i> | 2018.03.20 |
| 1.3 | The “Moisture Sensitivity Level” changed | <i>Amway</i> | 2019.05.21 |
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1. Electrical Parameters

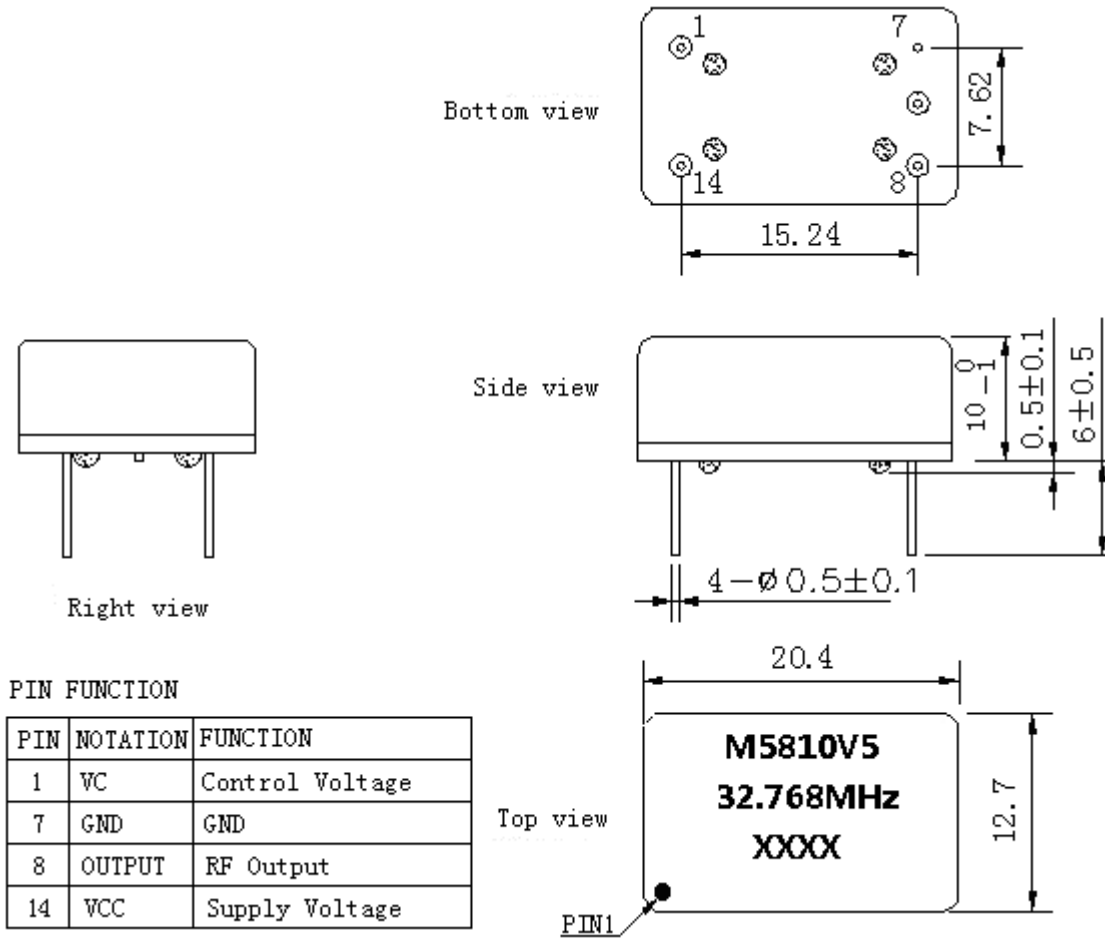
| MODEL: O11A-A321-32.768MHz | | | | | | |
|----------------------------|-----------------------------------------------------|------------|------|-------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item | Description | Parameters | | | Unit | Test Condition |
| | | Min. | Typ. | Max. | | |
| Output | Frequency | 32.768 | | | MHz | |
| | Output Waveform | HCMOS | | | | |
| | Output Low Voltage | | | 0.4 | V | $V_{cc}=5V, O_{load}=15pF$ |
| | Output High Voltage | 2.7 | | | V | $V_{cc}=5V, O_{load}=15pF$ |
| | Duty Cycle | 45 | 50 | 55 | % | @50% |
| | Rise / Fall Time (10%~90%) | | | 10 | ns | |
| | Load | 15 | | | pF | |
| Frequency Stabilities | Frequency Tolerance vs. Operating Temperature Range | -0.02 | | +0.02 | $\times 10^{-6}$ | T_A varied from $-40^{\circ}C$ to $80^{\circ}C$, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5V, V_c=2.5V, O_{load}=15pF$, 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 $T_A=25^{\circ}C, V_{cc}=5V, V_c=2.5V$ and after 15 minutes of operation, within 30 days after ex-works. |
| | Frequency Tolerance vs. Supply Voltage | -3 | | +3 | $\times 10^{-9}$ | measurement referenced to frequency observed $T_A=25^{\circ}C, V_{cc}$ varied from 4.75V to 5.25V and $O_{Load}=15pF$. |
| | Frequency Tolerance vs. Load | -3 | | +3 | $\times 10^{-9}$ | 5% load change measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5V, V_c=2.5V$ and $O_{Load}=15pF$. |
| | 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, using PN9000 equipment. |
| | Aging Tolerance Per Day | -2 | | +2 | $\times 10^{-9}$ | V_{cc}, V_c, T_A constant measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5V, V_c=2.5V$ and after 30 days of operation. |
| | Aging Tolerance 1 Year | -0.2 | | +0.2 | $\times 10^{-6}$ | |
| Power Supply | Supply Voltage | 4.75 | 5.0 | 5.25 | V | |
| | Steady Consumption | | | 300 | mA | @ $25^{\circ}C$ |
| | Warm up current | | | 700 | mA | |



| | | | | | | |
|---------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------------|----------------------------------------------------------|
| Voltage Control Characteristics | Frequency Tuning Range | -1.0 | | -0.5 | $\times 10^{-6}$ | $V_c=0V$. measurement referenced to $V_c=2.5V$ |
| | | -0.1 | | 0.1 | $\times 10^{-6}$ | $V_c=2.5V$. measurement referenced to exactly 32.768MHz |
| | | 0.5 | | 1.0 | $\times 10^{-6}$ | $V_c=5V$. measurement referenced to $V_c=2.5V$ |
| | Linearity | | | 10 | % | |
| | Slope | Positive | | | | |
| | Input Impedance | 100 | | | | K Ω |
| Phase Noise | Phase Noise @25°C | | -115 | -105 | dBc/Hz | 10Hz |
| | | | -135 | -125 | | 100Hz |
| | | | -140 | -135 | | 1KHz |
| | | | -145 | -140 | | 10KHz |
| | | | -145 | -140 | | 100KHz |
| Environmental Conditions | Operable Temperature | -40 | | +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; 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 (°C) | -10~35°C | | | | |



2. Mechanical Structure (mm)



Note1: Tolerance ±0.20mm without mark

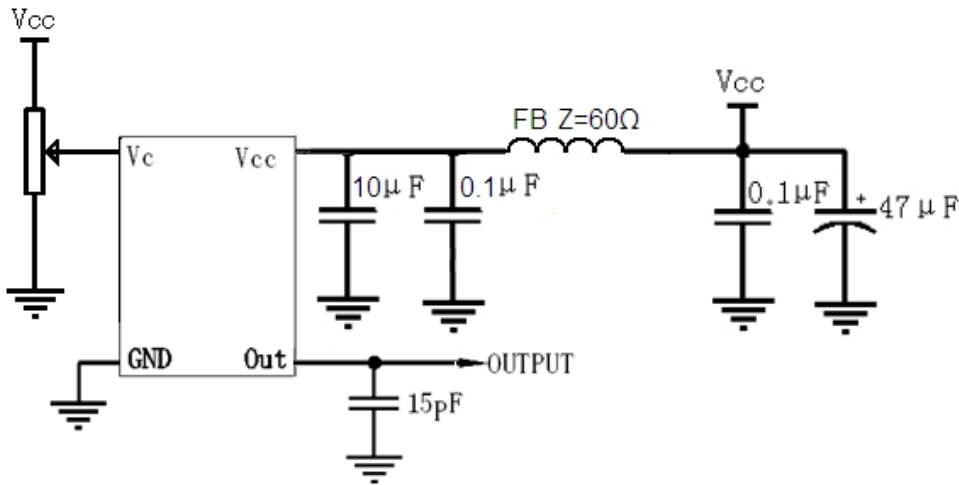
Note2: The first two xx representative: year
After two xx representative: week

Note3: Referential weight 8.0g

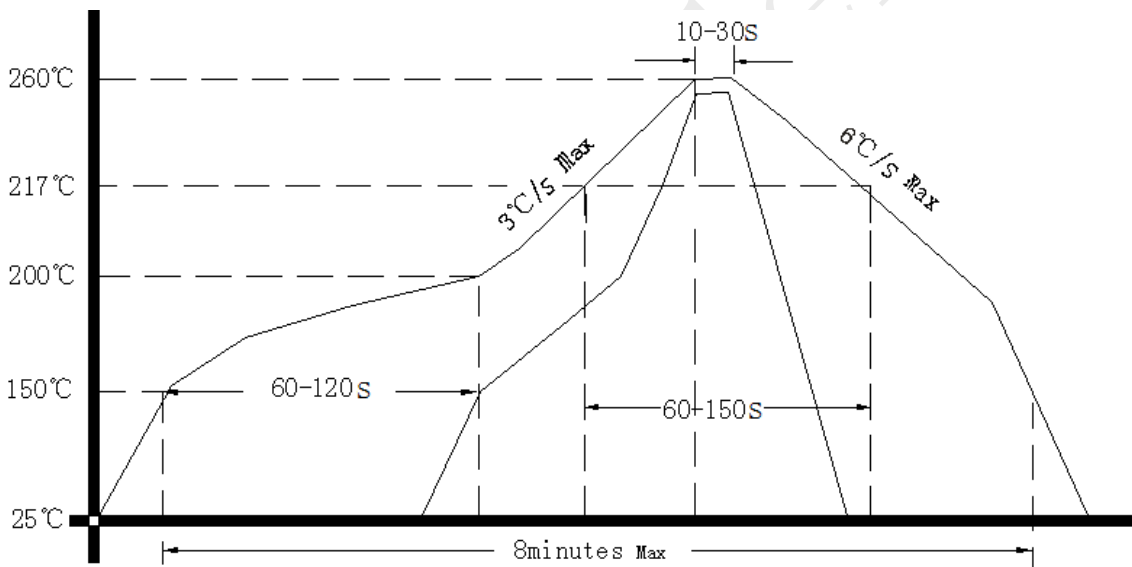
Note4: NC is not connect



3. Test Circuit



4. Reflow Soldering Curve (RoHS)



5. Package: Tape & Reel (mm)

