

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

# DATASHEET

DAPU P/N:     **T75B-0802-20.00MHz**    

Customer P/N: \_\_\_\_\_

| DAPU             |         |          | Customer Approval      |
|------------------|---------|----------|------------------------|
| Drew             | Audited | Approved | Stamp, please! Thanks! |
|                  |         |          |                        |
| Date: 2016.06.01 |         |          |                        |

## Guangdong Dapu Telecom Technology Co.,Ltd

Bldg 16,.N.Ind.Zone,SSL Industry Park, Dongguan City, Guangdong Province, China

TEL: 0086-0769-88010888 FAX: 0086-0769-81800098



### Table of amendment

| Version | Revision contents | Prepared by  | Revised date |
|---------|-------------------|--------------|--------------|
| 1.0     | The first issued  | <i>Amway</i> | 2016.06.01   |
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DAPU

Confidential



## 1. Electrical Parameters

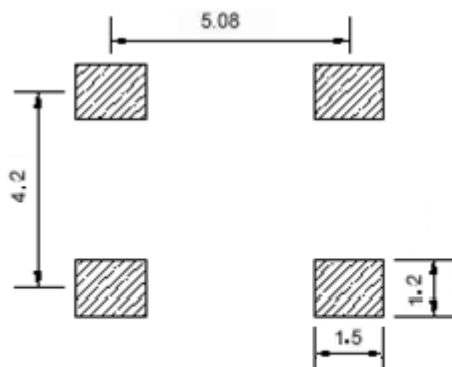
| MODEL: T75B-0802-20.00MHz |   |                 |      |       |                                 |   |
|---------------------------|---|-----------------|------|-------|---------------------------------|---|
| Item                      | Parameters  | Electrical Spec |      |       | Unit                            | Test Condition  |
|                           |   | Min.            | Typ. | Max.  |                                 |   |
| Output                    | Frequency   | 20.00           |      |       | MHz                             |   |
|                           | Output Waveform                                     | HCMOS           |      |       |                                 |   |
|                           | Output Low Voltage                                  |                 |      | 0.4   | V                               | $V_{cc}=3.3V, O_{load}=15\text{ pF}$  |
|                           | Output High Voltage                                 | 2.4             |      |       | V                               | $V_{cc}=3.3V, O_{load}=15\text{ pF}$  |
|                           | Duty Cycle  | 45              |      | 55    | %                               | @50%  |
|                           | Rise / Fall Time<br>(10%~90%)                       |                 |      | 5     | ns                              | @25°C   |
|                           | Load  | 15              |      |       | pF                              |   |
|                           | Settling time                                       |                 |      | 50    | ms                              | Time taken for frequency to reach specified calibration tolerance   |
| Frequency Stabilities     | Frequency Tolerance vs. Operating Temperature Range | -0.28           |      | +0.28 | $\times 10^{-6}$                | $T_A$ varied from -40°C to 85°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, O_{load}=15\text{ pF}$ , temperature variable speed less than 2°C per minute. |
|                           | Initial Frequency Tolerance                         | -0.5            |      | +0.5  | $\times 10^{-6}$                | Measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V$ within 30 days after ex-works.  |
|                           | Frequency Tolerance vs. Supply Voltage              | -0.1            |      | +0.1  | $\times 10^{-6}$                | measurement referenced to frequency observed $T_A=25^\circ\text{C}, V_{cc}$ varied from 3.13V to 3.47V, and $O_{Load}=15\text{ pF}$ .   |
|                           | Frequency Tolerance vs. Load                        | -0.1            |      | +0.1  | $\times 10^{-6}$                | 10% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, O_{Load}=15\text{ pF}$  |
|                           | Reflow shift  | -1              |      | +1    | $\times 10^{-6}$                | Two consecutive reflows as per attached profile after 1 hour recovery 25°C  |
|                           | Frequency perturbations                             |                 |      | 0.1   | $\times 10^{-6}$                | Minimum of 1 frequency reading every 3°C over the operating temperature range   |
|                           | Static temperature hysteresis                       |                 |      | 0.4   | $\times 10^{-6}$                | Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C  |
|                           | Frequency slope                                     |                 |      | 0.1   | $\times 10^{-6}/^\circ\text{C}$ | Minimum of 1 frequency reading every 2°C, over the operating temperature range  |
|                           | Aging Tolerance 1 Year                              | -1              |      | +1    | $\times 10^{-6}$                | $T_A=25^\circ\text{C}, V_{cc}=3.3V$ , after 1h of operation.  |
|                           | Aging Tolerance 10 Year                             | -3              |      | +3    | $\times 10^{-6}$                |   |



|                          |   |  |      |      |        |  |
|--------------------------|---|--|------|------|--------|--|
| Power Supply             | Current Consumption   |  |      | 3    | mA     | @25°C, V <sub>cc</sub> =3.3V, O <sub>load</sub> =15pF. |
|                          | Supply Voltage  | 3.15   | 3.3  | 3.45 | V      |  |
| Phase Noise              | Phase Noise @25°C   |  | -93  | -90  | dBc/Hz | 10Hz   |
|                          |   |  | -120 | -110 |        | 100Hz  |
|                          |   |  | -140 | -130 |        | 1KHz   |
|                          |   |  | -150 | -145 |        | 10KHz  |
|                          |   |  | -153 | -148 |        | 100KHz   |
|                          |   |  | -153 | -148 |        | 1MHz   |
| Jitter                   |   |  |      | 2    | ps     | RMS(12K-10MHz)   |
| Environmental Conditions | Operable Temperature  | -40  |      | +85  | °C     |  |
|                          | Storage Temperature   | -40  |      | +85  | °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;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   |      |      |        |  |



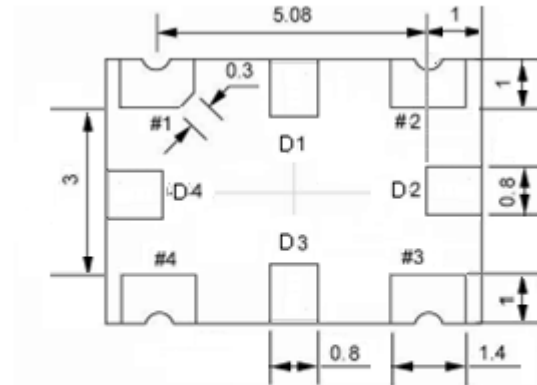
## 2. Mechanical Structure(mm)



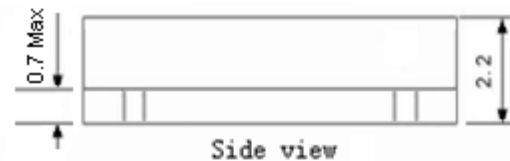
Solder pad layout



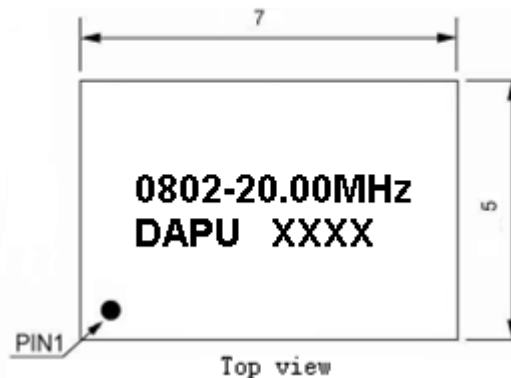
Right view



Bottom view



Side view



Top view

### PIN FUNCTION

| PIN            | NOTATION | FUNCTION       |
|----------------|----------|----------------|
| D1, D2, D3, D4 | NC       | Not Connect    |
| 1              | NC       | Not Connect    |
| 2              | GND      | GND            |
| 3              | OUTPUT   | RF Output      |
| 4              | VCC      | Supply Voltage |

**Note1:** Tolerance  $\pm 0.20\text{mm}$  without mark

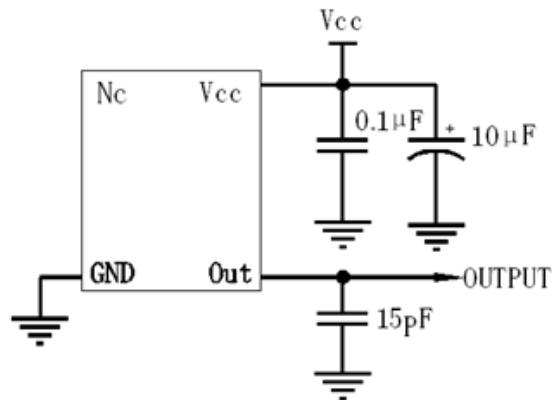
**Note2:** The first two xx representative: week  
After two xx representative: year

**Note3:** Referential Weight 0.2g

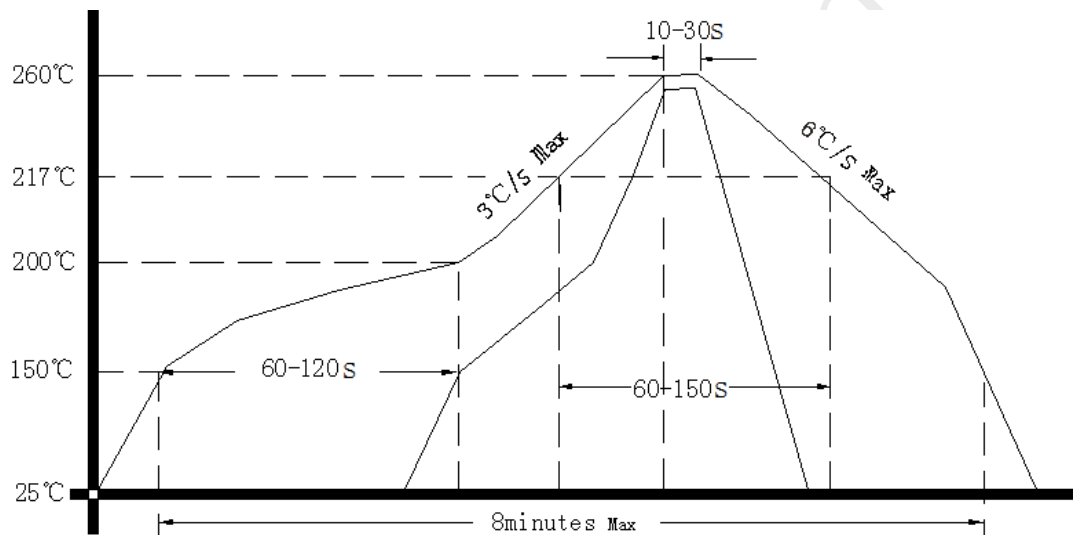
**Note4:** NC is not connect



### 3. Test circuit



### 4. Reflow Soldering Curve (RoHS)



Note: If soldering with a hot air gun, ensure the temperature < 320°C, soldering time < 15 seconds.

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

