







## 1. Electrical Parameters

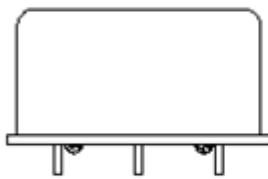
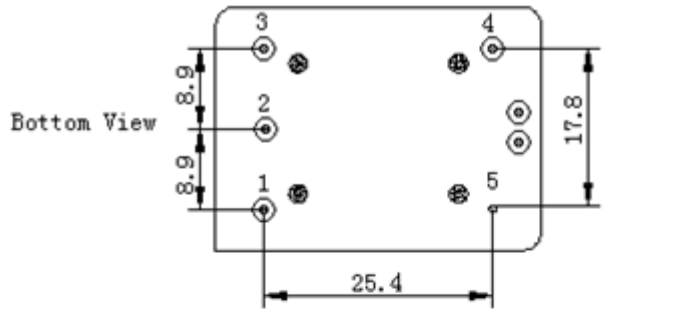
| MODEL: O23L-0801-38.88MHz |   |            |      |       |                  |   |
|---------------------------|---|------------|------|-------|------------------|---|
| Item                      | Description   | Parameters |      |       | Unit             | Test Condition  |
|                           |   | Min.       | Typ. | Max.  |                  |   |
| Output                    | Frequency   | 38.88      |      |       | MHz              |   |
|                           | Output Waveform                                     | HCMOS      |      |       |                  |   |
|                           | Output High Voltage                                 | 3.6        |      |       | V                | $V_{cc}=5.0V, O_{load}=20pF$  |
|                           | Output Low Voltage                                  |            |      | 0.5   | V                | $V_{cc}=5.0V, O_{load}=20pF$  |
|                           | Duty Cycle  | 45         | 50   | 55    | %                | @50%  |
|                           | Spurious Suppression                                |            |      | -60   | dBc              |   |
|                           | Rise / Fall Time<br>(10%~90%)                       |            |      | 5     | ns               |   |
|                           | Load  | 20         |      |       | pF               |   |
| Frequency Stabilities     | Frequency Tolerance vs. Operating Temperature Range | -0.1       |      | +0.1  | $\times 10^{-6}$ | $T_A$ varied from $-20^{\circ}C$ to $70^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5.0V, V_c=0V, O_{load}=20pF$ , temperature variable speed less than $2^{\circ}C$ per minute. |
|                           | Initial Frequency Tolerance                         | -0.3       |      | +0.3  | $\times 10^{-6}$ | Measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5.0V, V_c=0V$ , and after 15 minutes of operation, within 90 days after ex-works.  |
|                           | Frequency Tolerance vs. Supply Voltage              | -0.02      |      | +0.02 | $\times 10^{-6}$ | measurement referenced to frequency observed $T_A=25^{\circ}C, V_{cc}$ varied from 4.75V to 5.25V, $V_c=0V$ and $O_{Load}=20pF$ .   |
|                           | Frequency Tolerance vs. Load                        | -0.02      |      | +0.02 | $\times 10^{-6}$ | 5% load change measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5.0V, V_c=0V$ , and $O_{Load}=20pF$ .   |
|                           | Short-Term Stability: Allan Variance                |            |      | 0.2   | $\times 10^{-9}$ | 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                             | -0.01      |      | +0.01 | $\times 10^{-6}$ | $V_{cc}, V_c, T_A$ constant measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5.0V, V_c=0V$ , and after 30 days of operation.  |
|                           | Day fluctuation                                     | -0.04      |      | +0.04 | $\times 10^{-6}$ |   |
|                           | Aging Tolerance 1 Year                              | -1         |      | +1    | $\times 10^{-6}$ |   |
|                           | Aging Tolerance 10 Years                            | -4         |      | +4    | $\times 10^{-6}$ |   |



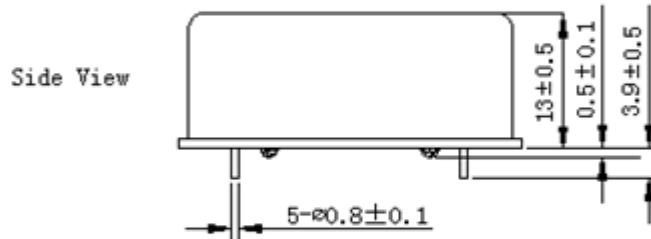
|                                 |  |  |      |      |                  |   |
|---------------------------------|--|--|------|------|------------------|---|
| Power Supply                    | Supply Voltage   | 4.75   | 5.0  | 5.25 | V                |   |
|                                 | Steady Consumption   |  |      | 300  | mA               | @25°C   |
|                                 | Warm up current  |  |      | 700  | mA               |   |
| Voltage Control Characteristics | Frequency Tuning Range   | +6   |      | +9   | $\times 10^{-6}$ | $V_c=-5.0V$ . measurement referenced to $V_c=0V$      |
|                                 |  | -0.3   |      | +0.3 | $\times 10^{-6}$ | $V_c=0V$ . measurement referenced to exactly 38.88MHz |
|                                 |  | -9   |      | -6   | $\times 10^{-6}$ | $V_c=+5.0V$ . measurement referenced to $V_c=0V$      |
|                                 | Linearity  |  |      | 10   | %                |   |
|                                 | Slope  | Negative   |      |      |                  |   |
|                                 | Input Impedance  | 50   |      |      | K $\Omega$       |   |
| Phase Noise                     | Phase Noise  |  | -85  | -80  | dBc/Hz           | 10Hz  |
|                                 |  |  | -115 | -110 |                  | 100Hz   |
|                                 |  |  | -125 | -120 |                  | 1KHz  |
|                                 |  |  | -135 | -130 |                  | 10KHz   |
|                                 |  |  | -145 | -140 |                  | 100KHz  |
| Environmental Conditions        | Jitter   |  |      | 100  | ps               | 12KHz~1MHz  |
|                                 | Operable Temperature   | -20  |      | +70  | °C               |   |
|                                 | Storage Temperature  | -50  |      | +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   | 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)



Right View



Side View

### PIN FUNCTION

| PIN | NOTATION | FUNCTION              |
|-----|----------|-----------------------|
| 1   | VC       | Control Voltage Input |
| 2   | NC       | Not Connect           |
| 3   | VCC      | Power Supply          |
| 4   | OUTPUT   | RF Output             |
| 5   | GND      | GND                   |

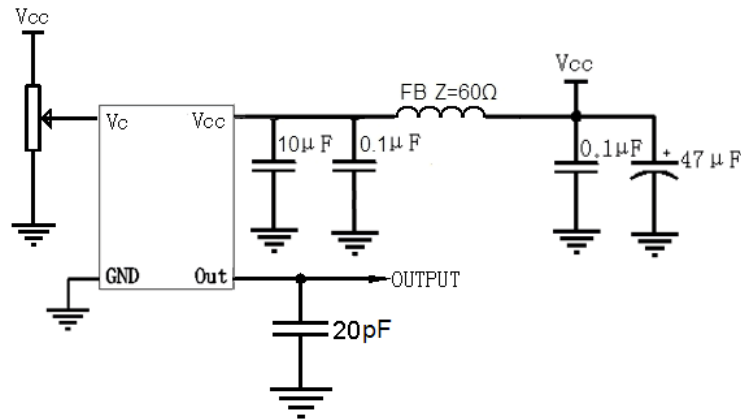
Top View



- Note1:** Tolerance  $\pm 0.2$ mm without mark
- Note2:** The first two xx representative: week  
After two xx representative: year
- Note3:** Referential weight 17g
- Note4:** NC is not connect



### 3. Test Circuit



### 4. Reflow Soldering Curve (RoHS)



### 5. Package (mm)

