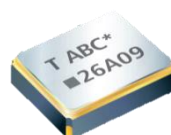


## Product Features

1. Output Frequency : 10 ~ 52MHz
2. Supply Voltage : 2.8 , 3.3V (Typ.)
3. Frequency Stability :  $\pm 0.5 \sim \pm 2.0$  ppm
4. Output Type : Clipped Sinewave
5. Voltage Control Function Available
6. Output Enable / Disable Function Available
7. RoHS and REACH Compliant , Pb-free , Halogen-free
8. Industry Standard Package :  
2.5 x 2.0 x 0.8 mm

Application :

- GPS
- Cellular and Wireless Communications



Test Condition  
Ambient Temperature :  $25 \pm 5^\circ\text{C}$   
Relative Humidity : 40% ~ 70%

● Table 1 . Electrical Specifications

| Parameters                                       | Symbol                | Min.                    | Typ. | Max.      | Units                 | Notes                               |
|--|-----------------------|-------------------------|------|-----------|-----------------------|-------------------------------------|
| <b>Output Type Frequency Range and Stability</b> |                       |                         |      |           |                       |                                     |
| Nominal Frequency                                | F                     | 10 ~ 52                 |      |           | MHz                   | Fundamental                         |
| Frequency Tolerance                              | -                     | $\pm 2.5$               |      |           | ppm                   | Note1. After 2 Times Reflow         |
| Frequency Stability                              | vs. Temp.             | $\pm 0.5 \sim \pm 2.0$  |      |           | ppm                   | Note2. $-40 \sim +85^\circ\text{C}$ |
|  | vs. Load              | $\pm 0.2$ (Max)         |      |           |                       | vs. Load ( $\pm 5\%$ )              |
|  | vs. Vdd               | $\pm 0.2$ (Max)         |      |           |                       | vs. Supply Voltage ( $\pm 5\%$ )    |
| <b>Operating Temperature Range</b>               |                       |                         |      |           |                       |                                     |
| Operating Temperature                            | Topr                  | -40                     | +25  | +85       | $^\circ\text{C}$      |                                     |
| <b>Supply Voltage and Current Consumption</b>    |                       |                         |      |           |                       |                                     |
| Supply Voltage                                   | Vdd                   | 1.8 ~ 3.3 ( $\pm 5\%$ ) |      |           | V                     |                                     |
| Supply Current                                   | Icc                   | -                       | -    | 2.0       | mA                    |                                     |
| <b>Output Type Signal Characteristics</b>        |                       |                         |      |           |                       |                                     |
| Output Load                                      | RL // CL              | 9                       | 10   | 11        | k $\Omega$            | Clipped Sinewave                    |
|  |                       | 9                       | 10   | 11        | pF                    |                                     |
| Output Level                                     | Vp-p                  | 0.8                     | -    | -         | V                     | Clipped Sinewave                    |
| <b>Symmetry and Start-up time</b>                |                       |                         |      |           |                       |                                     |
| Symmetry (Duty Ratio)                            | TH/T                  | 40                      | ~    | 60        | %                     |                                     |
| Start-up Time                                    | Tosc                  | -                       | -    | 5         | ms                    | To 90% of Final Amplitude           |
| Harmonics  |                       |                         |      | -5        | dBc                   |                                     |
| <b>Frequency Slope</b>                           |                       |                         |      |           |                       |                                     |
| Slope over Temperature                           | $(\Delta F/\Delta T)$ | -                       | -    | $\pm 50$  | ppb/ $^\circ\text{C}$ | $-40 \sim +85^\circ\text{C}$        |
|  |                       | -                       | -    | $\pm 100$ |                       | $-40 \sim +105^\circ\text{C}$       |
| <b>Symmetry and Start-up time</b>                |                       |                         |      |           |                       |                                     |
| Symmetry (Duty Ratio)                            | TH/T                  | 40                      | ~    | 60        | %                     |                                     |
| Start-up Time                                    | Tosc                  | -                       | -    | 5         | ms                    | To 90% of Final Amplitude           |

Note 1 : Operation after reflow 2 hrs , refer to nominal frequency.

Note 2 : Refer to  $(F_{\text{max}}+F_{\text{min}}) / 2$  , at VC = Center (Option).

Test Condition  
Ambient Temperature :  $25 \pm 5^{\circ}\text{C}$   
Relative Humidity : 40% ~ 70%

● **Table 1 . Electrical Specifications (continued)**

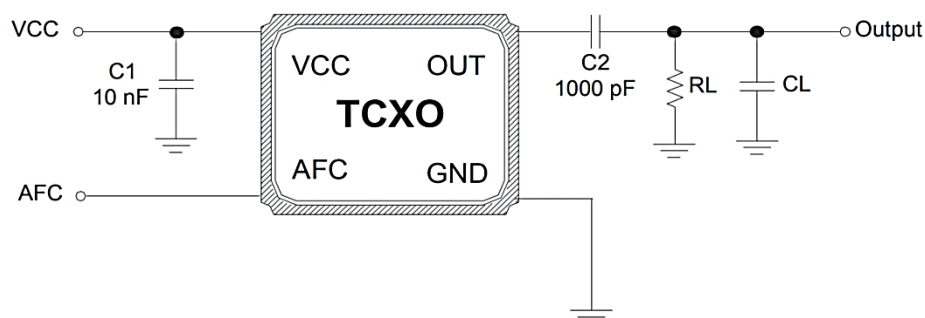
| Parameters  | Symbol | Min.    | Typ. | Max.    | Units | Notes                         |
|---|--------|---------|------|---------|-------|-------------------------------|
| <b>AFC pin and Input Characteristics</b>                  |        |         |      |         |       |                               |
| Auto-Frequency-Control Range(Ref : VC= 1.5 V)<br>(Option) | AFC    | +7      | -    | +16     | ppm   | VC = 2.5 V                    |
|   |        | -16     | -    | -7      | ppm   | VC = 0.5 V                    |
| <b>Tri-state Control</b>                                  |        |         |      |         |       |                               |
| Input High Level  | OE     | 0.8*Vdd | -    | -       | V     | Output Enable , Note 3        |
| Input Low Level   |        | -       | -    | 0.2*Vdd | V     | Output Disable                |
| <b>Aging Performance</b>                                  |        |         |      |         |       |                               |
| Aging   | Aging  | $\pm 1$ |      |         | ppm   | 1 <sup>st</sup> Year , Note 4 |
| <b>Harmonics</b>  |        |         |      |         |       |                               |
| Harmonics   |        |         |      | -5      | dBc   |                               |

Note 3 : Tristate floating is output enable as same as input high level.

Note 4 : After 30 days and continuous operation at fix temperature, power supply and load.

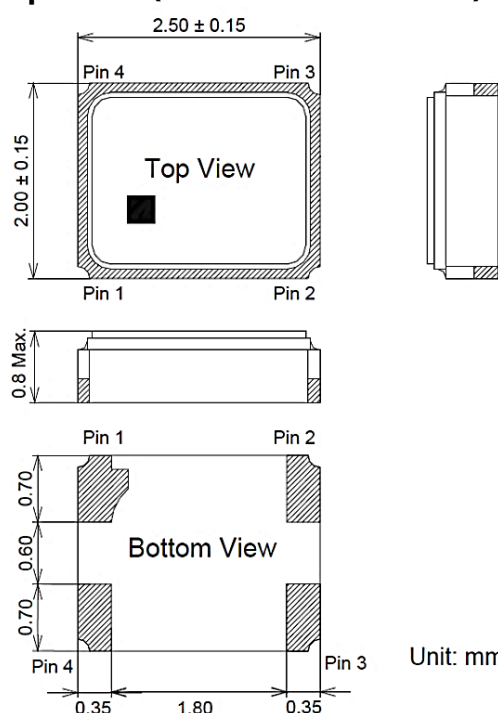
● **Test Diagram**

■ **Output Type : Clipped Sinewave**



Note: (1) By pass capacitor (C1) should be placed.  
(2) AFC is optional function.

● **Dimensions & Footprint (Recommended)**



**Pin Connection**

| Name  | Function  |
|-------|-----------|
| Pin 1 | GND or NC |
| Pin 2 | GND       |
| Pin 3 | OUTPUT    |
| Pin 4 | VCC       |

**Recommended Land Pattern**

