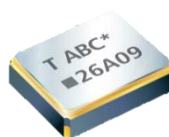


## Product Features

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 :  
2.0 x 1.6 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)**

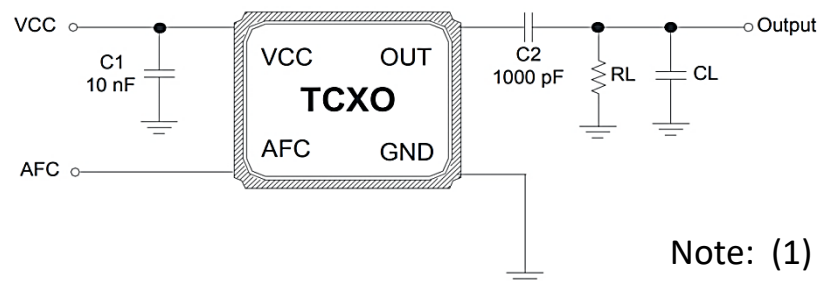
Parameters	Symbol	Min.	Typ.	Max.	Units	Notes
<b>AFC pin and Input Characteristics</b>						
Auto-Frequency-Control Range(Ref : VC= 1.5 V) (Option)	AFC	+7	-	+16	ppm	VC = 2.5 V
		-16	-	-7	ppm	VC = 0.5 V
<b>Tri-state Control</b>						
Input High Level	OE	0.8*Vdd	-	-	V	Output Enable , Note 3
Input Low Level		-	-	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.

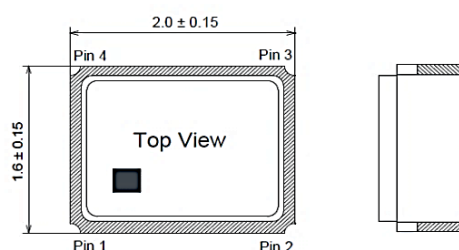
● **Test Diagram**

■ **Output Type : Clipped Sinewave**



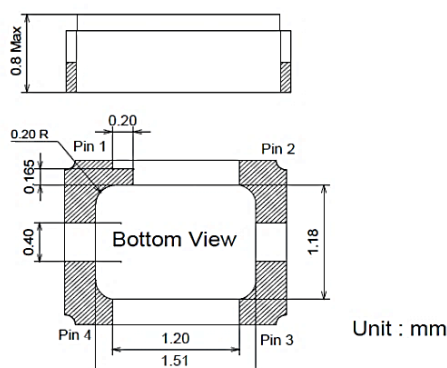
Note: (1) By pass capacitor (C1) should be placed.  
(2) AFC is optional function.

● **Dimensions & Footprint (Recommended)**

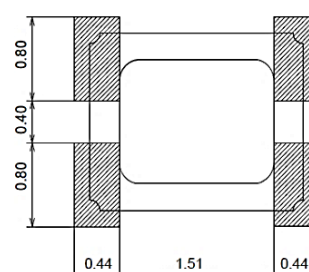


**Pin Connection**

Name	Connection
Pin 1	AFC
Pin 2	GND
Pin 3	OUTPUT
Pin 4	VCC



**Recommended Land Pattern**



Unit : mm