

**Features**

- Both continuous and fixed Vdd options available
- Output waveform CMOS
- Hermetically seam-sealed ceramic package
- Low current consumption

STANDARD SPECIFICATIONS <small>[Note 1]</small>	
PARAMETERS	MAX (Unless otherwise noted)
Frequency Range ( $f_0$ )	9.600 ~ 60.000MHz
Temperature Range	
Operating ( $T_{OPR}$ )	-40°C ~ +105°C (see option in table)
Storage ( $T_{STG}$ )	-40°C ~ +125°C
Frequency Stability vs:	
Tolerance (Reference to $f_0$ , at 25°C±2°C, Pre-reflow)	±1 PPM
Tolerance (Reference to $f_0$ , at 25°C ±2°C, 24 hours after reflow, two times)	±2 PPM
Temperature (See Options (Table 1))	±2.5 PPM
Supply Voltage Change ( $V_{DD} \pm 5\%$ )	±0.2 PPM
Load Change	±0.2 PPM
Aging (First year @+25°C±2°C)	±1.0 PPM
Supply Voltage ( $V_{DD}$ )	3.3V±5% 3.0V±5% 2.8V±5% 2.5V±5% 1.8V±5% 1.68V to 3.63V
Supply Current ( $I_{DD}$ )	4.8 mA 5.5 mA 6.0 mA 7.0 mA 8.0 mA
Start-up Time	10 ms
Rise and Fall Time ( $T_r/T_f$ )	5 ns
@10%Vdd-90%Vdd, 15pF load	
Symmetry @ ½ Vdd	50±5%
Output Voltage	
$V_{OH}$	90%Vdd Min.
$V_{OL}$	10%Vdd
Output Waveform	CMOS
Output Load	15 pF
Moisture Sensitivity Level (MSL)	1
Tri-State function <small>[Note 2]</small>	"1" ( $V_{IH} \geq 0.7 * V_{dd}$ ) or Open: Oscillation; "0" ( $V_{IL} < 0.3 * V_{dd}$ ): No Oscillation/Hi Z
Stand-by Current (INH = GND)	10 µA

Note 1: All measurements made at 25°C ±2°C, nominal Vdd, unless otherwise specified

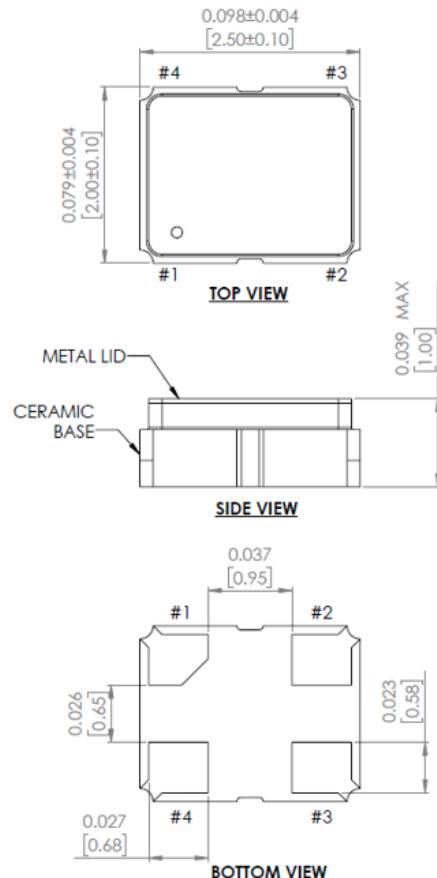
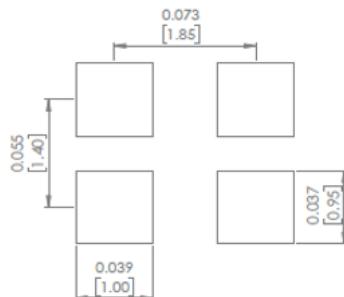
Note 2: Do not leave pin 1 (INH) floating. If pin 1 (INH) is not utilized for toggling, it must be tied to Vdd (logic 1).

PARAMETERS	MAX (Unless otherwise noted)	
Phase Noise (@ 10 MHz Carrier, @ 25°C ±2°C)		
@10Hz offset	-98 dBc/Hz Typical	-94 dBc/Hz
@100Hz offset	-122 dBc/Hz Typical	-118 dBc/Hz
@1kHz offset	-145 dBc/Hz Typical	-141 dBc/Hz
@10kHz offset	-152 dBc/Hz Typical	-149 dBc/Hz
@100kHz offset	-154 dBc/Hz Typical	-151 dBc/Hz
@1MHz offset	-154 dBc/Hz Typical	-151 dBc/Hz
@5MHz offset	-155 dBc/Hz Typical	-152 dBc/Hz
Phase Noise (@ 52 MHz Carrier, @ 25°C ±2°C)		
@10Hz offset	-83 dBc/Hz Typical	-79 dBc/Hz
@100Hz offset	-106 dBc/Hz Typical	-102 dBc/Hz
@1kHz offset	-127 dBc/Hz Typical	-123 dBc/Hz
@10kHz offset	-147 dBc/Hz Typical	-144 dBc/Hz
@100kHz offset	-154 dBc/Hz Typical	-151 dBc/Hz
@1MHz offset	-155 dBc/Hz Typical	-152 dBc/Hz
@10MHz offset	-155 dBc/Hz Typical	-152 dBc/Hz
@20MHz offset	-155 dBc/Hz Typical	-152 dBc/Hz

Table 1					
Available Options by Stability & Operating Temp					
Operating Temperature (°C)	±2.5PPM	±3.0PPM	±4.0PPM	±5.0PPM	±10.0PPM
0 ~ +70	O	O	O	O	O
-10 ~ +60	O	O	O	O	O
-20 ~ +70	O	O	O	O	O
-30 ~ +75	O	O	O	O	O
-30 ~ +85	O	O	O	O	O
-40 ~ +85	O	O	O	O	O
-40 ~ +105	X	X	X	O	O

Key: O = Available, X = Not Available

## DIMENSIONS / MECHANICAL SPECIFICATIONS

Recommended Land Pattern

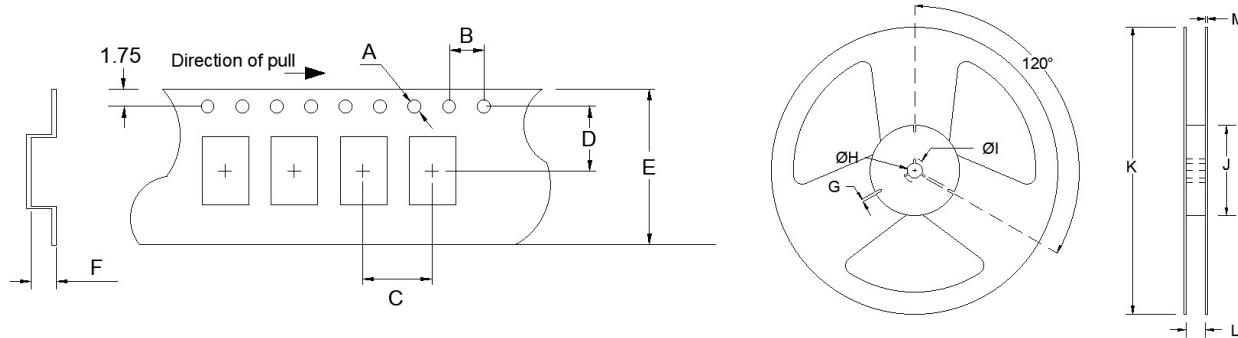
Dimensions: inches [mm]

Pin #	Function
1	INH
2	GND
3	Output
4	Vdd

INH Function	
#1	#3 (Output)
Open	Active
"H" Level	Active
"L" Level	High Z (No Oscillation)

Note 3:  
Recommended to use approximately 0.01µF bypass capacitor between PIN 2 and PIN 4

TAPE SPECIFICATIONS (mm)						REEL SPECIFICATIONS (mm)							
A	B	C	D	E	F	REEL QTY	G	H	I	J	K	L	M
Ø1.5	4.0	4.0	3.5	8.0	1.15	-T3 = 3,000 -T1 = 1,000	2.5	Ø13.2	Ø21	Ø60.2	Ø178	9.0	1.5



#### Available Options & Part Identification

Sample PN: FT2MHKNC40.0-T1

F	T2MH	K	N	C	40.0	-T1
<u>Fox</u>	<u>Model Number</u> T2MH = TCXO	<u>Voltage</u>  K = 1.8V±5% H = 2.5V±5% Q = 2.8V±5% D = 3.0V±5% B = 3.3V±5% U = 1.68V ~ 3.63V	<u>Stability</u>  P = ±2.5PPM N = ±3.0PPM M = ±4.0PPM L = ±5.0PPM H = ±10.0PPM	<u>Operating Temperature</u>  C = 0 to +70°C D = -10 to +60°C F = -20 to +70°C H = -30 to +75°C K = -30 to +85°C M = -40 to +85°C P = -40 to +105°C	<u>Frequency (MHz)</u>	<u>Values Added Options</u> Blank = Bulk T1 = 1,000 pcs T3 = 3,000 pcs

Note: Operating Temperature (P option) not available with Stability (P, N, M options)

#### Reliability Test Conditions

Please contact Abracan Quality Assurance department