

FTX1 Series High Reliability 7.0 x 5.0mm Ceramic CMOS/TTL Clock Oscillator

Rev. D

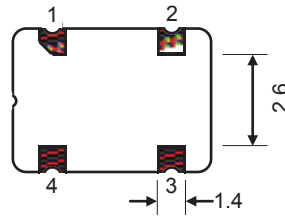
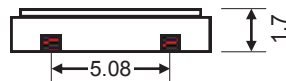
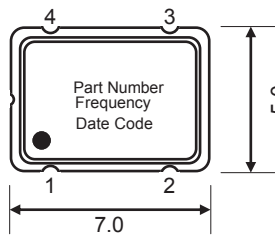
Product Features

- Made in the USA
- 0.5MHz to 220 MHz Frequency Range(32.768KHz available)
- 1.8V ,2.5V,3.0V , 3.3V,5.0V supply
- Hermetically sealed ceramic packages
- Wide operating temperature range
- Military and space screening tests available
- High shock resistance(meet 36000G shock)
- Excellent Jitter Performance
- LVHCMOS,HCMOS,and TTL compatible
- Pb-free and RoHS/Green compliant

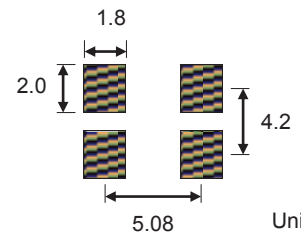
Applications

- High shock and vibration environments
- Military and space applications
- Extended temperature applications
- Down-hole drilling Equipments
- Instrumentation and Microprocessor

Package & Dimensions :



SOLDER PATTERN



Unit :mm

PIN CONNECTIONS

1. Not connected (N) or Enable/Disable (E)
2. Ground
3. Output
4. V_{DD}

HOW TO ORDER

FTX1	-	E	L	B	N /	100
Frequency/Temperature Stability			Voltage	Screening Level	Pin 1 Connection	Frequency
A= 100 ppm over -40°C to +85°C			R=+1.8V	N = No Screening	N=Not connected	KHz/MHz
B= 50 ppm over -40°C to +85°C			N=+2.5V	I = Industrial Std	E=Enable/Disable	
C= 25 ppm over -40°C to +85°C			M=+3.0V	M = MIL-STD-883 B		Note:Frequency range up to
D= 100 ppm over -55°C to +125°C			L=+3.3V	B = MIL-PRF-55310 , level B		170MHz for 1.8V
E=50 ppm over -55°C to +125°C			H=+5.0V	S = MIL-PRF-55310 , level S		220MHz for 3.3V
F= 20 ppm over -20°C to +70 °C				V = MIL-PRF-55310, level S ,50krad(Si) total dose		150MHz for 5.0V
G= 25 ppm over -20°C to +70 °C				R = MIL-PRF-55310, level S ,100krad(Si) total dose, for 3.3V only		

FTX1 Series High Reliability 7.0 x 5.0mm Ceramic CMOS/TTL Clock Oscillator

Table 1. Electrical Performance, 5V Option

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Frequency Range	0.5 MHz to 150.0 MHz (32.768KHz Available)
Frequency Accuracy Over Operating Temperature	See Options
Operating Temperature Range	See Options
Storage Temperature Range	-62 °C to +200 °C
Input Voltage	+ 5.0 VDC \pm 5%
Input Current @ +5.0 VDC (No Load)	
0.5MHz to 10.0 MHz	15 mA Max.
10.1 MHz to 35.0 MHz	20 mA Max.
35.1 MHz to 70.0 MHz	60 mA Max.
70.1 MHz to 150.0 MHz	100 mA Max.
Output	HCMOS/TTL Compatible
Output Load	HCMOS (15 pf) or 8 TTL loads Max.
High Level	0.8 V _{DD} Min.
Low Level	0.2 V _{DD} Max.
Symmetry @ 50% Level	40/60%
Rise & Fall Times (10% to 90% of Output)	
\leq 40 MHz	10 nS Max.
$>$ 40 MHz	8 nS Max.
Enable / Disable Input Function	
Open or High ($>$ 2.2V)	Normal Output
Low ($<$ 0.8 V)	Output disabled into a HI-Z state
Start-Up Time	10 mS Max.
Phase Jtter (RMS, 10 KHz to 20 MHz Integrated)	0.3 pS Typical
Aging @ +25 °C	\pm 0.0005% (\pm 5 PPM) / year Max.
Package – Seal	Hermetic, Conforms to MIL-PRF-55310
Pad Finish	0.3 μ m Min. gold plate over Nickel
Solder Reflow Temp/Time	260 °C Max for 10 Seconds Max.

Table 2. Electrical Performance, 3.3V Option

Frequency Range	0.5 MHz to 220 MHz(32.768KHz Available)
Frequency Accuracy Over Operating Temperature	See Options
Operating Temperature Range	See Options
Storage Temperature Range	-62 °C to +200 °C
Input Voltage	+ 3.3 VDC \pm 5%
Input Current @ +3.3 VDC (No Load)	
0.5 MHz to 10.0 MHz	12 mA Max.
10.1 MHz to 35.0 MHz	18 mA Max.
35.1 MHz to 70.0 MHz	50 mA Max.
70.1 MHz to 100.0 MHz	80 mA Max.
100.1 MHz to 220.0 MHz	100 mA Max.
Output	HCMOS/TTL Compatible
Output Load	HCMOS (15 pf) or 4 TTL Max.
High Level	0.8 V _{DD} Min.
Low Level	0.2 V _{DD} Max.
Symmetry @ 50% Level	40/60%
Rise & Fall Times (10% to 90% of Output)	
\leq 40 MHz	10 nS Max.
$>$ 40 MHz	8 nS Max.
Enable / Disable Input Function	
Open or High (\geq 0.7 V _{CC})	Normal Output
Low (\leq 0.3 V _{CC})	Output disabled into a HI-Z state
Start-Up Time	10 mS Max.
Phase Jitter (RMS, 10 KHz to 20 MHz Integrated)	0.3 pS Typical
Aging @ +25 °C	\pm 0.0005% (\pm 5 PPM) / year Max.
Package – Seal	Hermetic, Conforms to MIL-PRF-55310
Pad Finish	0.3 μ m Min. gold plate over Nickel
Solder Reflow Temp/Time	260 °C Max for 10 Seconds Max.
For	

F7X1 Series High Reliability 7.0 x 5.0mm Ceramic CMOS/TTL Clock Oscillator

Table 3 Electrical Performance, 2.5V Option

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Frequency Range	0.5 MHz to 200 MHz
Frequency Accuracy Over Operating Temperature	See Options
Operating Temperature Range	See Options
Storage Temperature Range	-62 °C to +200 °C
Input Voltage	+ 2.5 VDC \pm 5%
Input Current @ +2.5 VDC (No Load)	
0.5MHz to 10.0 MHz	10mA Max.
10.1 MHz to 35.0 MHz	15mA Max.
35.1 MHz to 70.0 MHz	30 mA Max.
70.1 MHz to 110.0 MHz	50 mA Max.
110.1 MHz to 200.0 MHz	80mA Max.
Output	HC/ACMOS Compatible
Output Load	15 pf // 10K
High Level	0.8 V _{DD} Min.
Low Level	0.2 V _{DD} Max.
Symmetry @ 50% Level	40/60%
Rise & Fall Times (20% to 80% of Output)	
\leq 40 MHz	10 nS Max.
40.0 to 70.0 MHz	8 nS Max.
70.1 to 200 MHz	6 nS Max.
Enable / Disable Input Function	
Open or High (\geq 0.7 V _{CC})	Normal Output
Low (\leq 0.3 V _{CC})	Output disabled into a HI-Z state
Start-Up Time	10 mS Max.
Phase Jtter (RMS, 10 KHz to 20 MHz Integrated)	0.3 pS Typical
Aging @ +25 °C	\pm 0.0005% (\pm 5 PPM) / year Max.
Package – Seal	Hermetic, Conforms to MIL-PRF-55310
Pad Finish	0.3 μ m Min. gold plate over Nickel
Solder Reflow Temp/Time	260 °C Max for 10 Seconds Max.

Table 4 Electrical Performance, 1.8V Option

Frequency Range	0.5 MHz to 180 MHz
Frequency Accuracy Over Operating Temperature	See Options Below
Operating Temperature Range	See Options Below
Storage Temperature Range	-62 °C to +200 °C
Input Voltage	+ 1.8 VDC \pm 5%
Input Current @ +1.8 VDC (No Load)	
1.0 MHz to 10.0 MHz	10mA Max.
10.1 MHz to 32.0 MHz	15mA Max.
32.1 MHz to 64.0 MHz	25 mA Max.
64.1 MHz to 100.0 MHz	45 mA Max.
100.1 MHz to 180.0 MHz	75 mA Max.
Output	HC/ACMOS Compatible
Output Load	15 pf // 10K
High Level	0.8 V _{DD} Min.
Low Level	0.2 V _{DD} Max.
Symmetry @ 50% Level	40/60%
Rise & Fall Times (20% to 80% of Output)	
\leq 40 MHz	10nS Max.
40.0 to 70.0 MHz	8 nS Max.
70.1 to 180 MHz	6 nS Max.
Enable / Disable Input Function	
Open or High (\geq 0.7 V _{CC})	Normal Output
Low (\leq 0.3 V _{CC})	Output disabled into a HI-Z state
Start-Up Time	10 mS Max.
Phase Jtter (RMS, 10 KHz to 20 MHz Integrated)	0.3 pS Typical
Aging @ +25 °C	\pm 0.0005% (\pm 5 PPM) / year Max.
Package – Seal	Hermetic, Conforms to MIL-PRF-55310
Pad Finish	0.3 μ m Min. gold plate over Nickel
Solder Reflow Temp/Time	260 °C Max for 10 Seconds Max.