

FT1/2/3/5Series High Reliability 7.0 x 5.0mm Ceramic CMOS/TTL Clock Oscillator

Rev. E

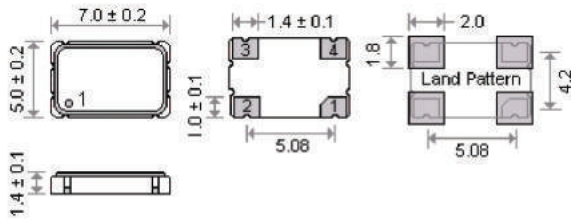
Product Features

- Made in the USA
- 0.5MHz to 220 MHz Frequency Range(32.768KHz available)
- 1.8V ,2.5V, 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

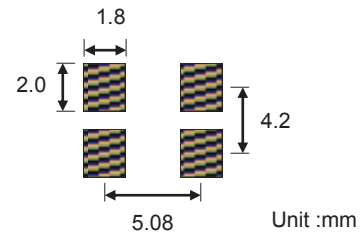
Applications

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

Package & Dimensions :



SOLDER PATTERN



PIN CONNECTIONS

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

HOW TO ORDER

FT	-	3	25	48			M	/	100
		Voltage	Initial tolerance,Temp Stability	Temperature	Symmetry	Pin 1 Connection	Screening Level		Frequency
		1=+1.8V	25=+/-20ppm,25ppm	07= 0°C to +70 °C	Blank or A=45/55%	Blank or N=Not connected	N= No Screening		KHz/MHz
		2=+2.5V	050=+/-20ppm,50ppm	27= -20°C to +70 °C	B=40/60%	H=Enable/Disable	I = Industrial Std		
		3=+3.3V	100=+/-20ppm,100ppm	48= -40°C to +85 °C			M = MIL-STD-883B		
		5=+5.0V	Note: Initial tolerance@25 °C	50= -55°C to + 105°C			B = MIL-PRF-55310,level B		
			the former is initial tolerance,	55= -55°C to + 125°C			S = MIL-PRF-55310,level B		
			the latter is temperature stability.						

FT1/2/3/5 Series High Reliability 7.0 x 5.0mm Ceramic CMOS/TTL Clock Oscillator

Table 1. Electrical Performance, 5V Option

Rev. E

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 8.0 MHz	25mA Max.
8.1 MHz to 32.0 MHz	30 mA Max.
32.1 MHz to 64.0 MHz	80 mA Max.
64.1 MHz to 150.0 MHz	120 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 0.0003% (\pm 3 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 8.0 MHz	10 mA Max.
8.1 MHz to 50.0 MHz	20 mA Max.
50.1 MHz to 84.0 MHz	40 mA Max.
84.1 MHz to 100.0 MHz	60 mA Max.
100.1 MHz to 200.0 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 0.0003% (\pm 3 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	

FT1/2/3/5 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 190 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 8.0 MHz	10mA Max.
8.1 MHz to 32.0 MHz	15mA Max.
32.1 MHz to 64.0 MHz	30 mA Max.
64.1 MHz to 100.0 MHz	50 mA Max.
100.1 MHz to 190.0 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	10nS Max.
40.0 to 70.0 MHz	8 nS Max.
70.1 to 190 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 0.0003% (\pm 3 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 165 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 8.0 MHz	5 mA Max.
8.1 MHz to 32.0 MHz	10mA Max.
32.1 MHz to 64.0 MHz	20 mA Max.
64.1 MHz to 100.0 MHz	40 mA Max.
100.1 MHz to 165.0 MHz	60 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 160 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 0.0003% (\pm 3 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.