## Dynamic Engineers Inc.

2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA TEL: 1-281-870-8822 EMAIL: Sales@DynamicEng.com XO2520BL-ULJ\_CMOS-25MHz-&&' WdæES[¸ÁRātc\¦ÁÔ\^•æ#ÁJ•&#Jæt[¦Á

#### **Features and Benefits**

Frequency range: 25MHz Supply voltage: 3.3V Current: 10mA Max.

Frequency stability vs. temperature: ±50PPM

Aging: ±3PPM 1st year

Operating temperature: -40°C to +85°C

Size: 2.5x2.0x0.9 mm

#### **Typical Applications**

- Wearable device
- Sport Video Cams
- Ultra-small Notebook PC
- Mobile Phones
- -Digital Circuit

### **Description**

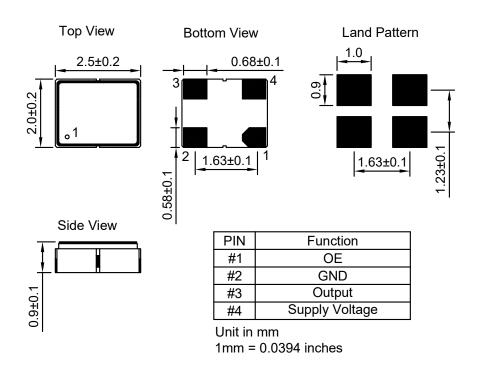
XO2520BL-ULJ\_CMOS-25MHz-223 is the ultra-low jitter crystal oscillator.

The RMS phase jitter can be 48fs typical. It can be widely used in the digital circuit and communication applications.

## **Mechanical Drawing & Pin Connections**

**Drawing No:** 

MD230031-1





# Dynamic Engineers Inc.

2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA TEL: 1-281-870-8822 EMAIL: Sales@DynamicEng.com

XO2520BL-ULJ\_CMOS-25MHz-&&' WdæÉi[, ÁRær\/hÔ|^•æ#ÁJ•&#Jæt ¦Á

# **Specifications**

Specification   Syll	Oscillator	Sym	Condition	Value			Unit	Note	
RF Output Load	•			Min.		Max.			
Output Level High         2.97         V           Output Level Low         0.33         V           Rise / Fall Time         @10%-90% of V <sub>cc</sub> 1.5         5         ns           Duty Cycle         45         55         %         Startup Time         0.8         5         ms           Output Enable/Disable Function on PIN1         Disable output         70%V <sub>cc</sub> V         V           Enable/Disable Time         Enable Disable         1         ms         1         ms           Power Supply         Voltage         V <sub>cc</sub> ±10%         3.3         V         V         V         V         V         Disable         9         35         uA         V         V         V         V         V         V         V         V         V         V         V         V         V         V         V         V         V         V         Disable		f <sub>0</sub>			25		MHz		
Output Level High         2.97         V           Output Level Low         0.33         V           Rise / Fall Time         @10%-90% of V <sub>cc</sub> 1.5         5         ns           Duty Cycle         45         55         %           Startup Time         0.8         5         ms           Output Enable/Disable Function on PIN1         Disable output         30%V <sub>cc</sub> V           Function on PIN1         Enable output         1         ms           Enable/Disable Time         Disable output         1         ms           Power Supply         Disable output         200         ns           Power Supply         Voltage Vs.         ±10%         3.3         V           Current With Output Disable Disable Output Disable Prequency Stability         9         35         uA           Frequency Stability         9         35         uA           Serought Voltage Vs.         £10.0         ppm           Frequency Stability         25°C         ±1.0         ppm           Vs. Temperature         2.40°C to +85°C         ±50         ppm           Aging@+25°C         1°I year         ±3.0         ppm           10Hz         -102         100									
Output Level Low         0.33         V           Rise / Fall Time         @10%-90% of Vcc         1.5         5         ns           Duty Cycle         45         55         %         Startup Time         0.8         5         ms           Output Enable/Disable Function on PIN1         Disable output         70%Vcc         V         V           Enable Disable Time         Enable Disable         1         ms         0           Power Supply         Voltage         Vcc         ±10%         3.3         V         V           Current With Output Disable         7         10         mA         A         P         In MA					15				
Rise / Fall Time   @ 10%-90% of Voc   1.5   5   ns     Duty Cycle   45   555   %     Startup Time   0				2.97			-		
Duty Cycle         45         55         %           Startup Time         0.8         5         ms           Output Enable/Disable Function on PIM1         Disable output         30%V <sub>cc</sub> V           Enable/Disable Time         Enable         1         ms           Power Supply         Enable         1         ms         0.8         5         ms           Voltage / Disable Time         Enable         1         ms         0.8         5         ms           Power Supply         Enable Disable         1         ms         0.8         5         ms           Voltage Visable Time         Enable Disable         1         ms         0.0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>V</td> <td></td>							V		
Startup Time			@10%-90% of Vcc		1.5	_	_		
Output Enable/Disable Function on PIN1         Enable output         70%V <sub>cc</sub> V           Enable/Disable Time         Disable output         30%V <sub>cc</sub> V           Enable/Disable Time         Disable         200         ns           Power Supply           Voltage         V <sub>cc</sub> ±10%         3.3         V           Current         7         10         mA           Current With Output Disable         9         35         uA           Frequency Stability           Supply Voltage Vs. Frequency Sensitivity         @25°C         ±1.0         ppm           Vs. Temperature         @-40°C to +85°C         ±50         ppm           Aging@+25°C         10Hz         -68         -68           100Hz         -102         -102           1KHz         -139         dBc/Hz           SSB phase noise         10KHz         -157         dBc/Hz           10MHz         -166         -106           5MHz         -168         -168           RMS Jitter         48         300         fs           Environmental Conditions         -40°C to +85°C         -40°C to +85°C				45			%		
Disable output					0.8	5			
Enable/Disable Time         Enable Disable         1 ms 200 ns           Power Supply         Journal Current With Output Disable         7 10 mA           Current With Output Disable         9 35 uA           Frequency Stability           Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0 ppm           Vs. Temperature         @ -40°C to +85°C         ±50 ppm           Aging@+25°C         1st year         ±3.0 ppm           Aging@+25°C         10Hz         -68           100Hz         -102         1KHz           10KHz         -139         dBc/Hz           10KHz         -157         dBc/Hz           10KHz         -170         1MHz           1MHz         -166         5MHz           RMS Jitter         48 300 fs         Environmental Conditions           Operating temperature range         -40°C to +85°C				70%Vcc					
Disable   Disable   200	Function on PIN1		Disable output			30%Vcc	V		
Disable         200         ns           Power Supply           Voltage         V <sub>cc</sub> ±10%         3.3         V           Current         7         10         mA           Current With Output Disable         9         35         uA           Frequency Stability           Supply Voltage Vs. Frequency Sensitivity         @25°C         ±1.0         ppm           Vs. Temperature         @-40°C to +85°C         ±50         ppm           Aging @+25°C         1st year         ±3.0         ppm           Aging @+25°C         10Hz         -68         -68           10Hz         -102         -102         -139           SSB phase noise         10KHz         -139         dBc/Hz           10KHz         -170         -166         -170           1MHz         -166         -166           5MHz         -168         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions           Operating temperature range         -40°C to +85°C			Enable			1	ms		
Voltage         V <sub>cc</sub> ±10%         3.3         V           Current         7         10         mA           Current With Output Disable         9         35         uA           Frequency Stability           Supply Voltage Vs. Frequency Sensitivity         @25°C         ±1.0         ppm           Vs. Temperature         @-40°C to +85°C         ±50         ppm           Aging@+25°C         1st year         ±3.0         ppm           10Hz         -68         100Hz         -102           1KHz         -139         dBc/Hz           SSB phase noise         10KHz         -157         dBc/Hz           10KHz         -170         -166           10MHz         -166         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions           Operating temperature range         -40°C to +85°C			Disable			200	ns		
Current   Current   Current   With Output   Disable   9   35   uA	Power Supply								
Current With Output Disable         9         35         uA           Frequency Stability           Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Vs. Temperature         @ -40°C to +85°C         ±50         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         10Hz         -68         -68           10Hz         -68         -102           1KHz         -139         dBc/Hz           SSB phase noise         10KHz         -157         dBc/Hz           10KHz         -170         -166         -170           1MHz         -166         -168           RMS Jitter         5MHz         -168         -168           RMS Jitter         48         300         fs           10VHz         -40°C to +85°C         -40°C to +85°C	Voltage	Vcc	±10%		3.3		V		
Disable           Frequency Stability           Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Vs. Temperature         @ -40°C to +85°C         ±50         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         10Hz         -68           10Hz         -68         -102           1KHz         -139         -139           SSB phase noise         10KHz         -157         dBc/Hz           10MHz         -170         -166           1MHz         -166         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions         -40°C to +85°C	Current				7	10	mA		
Disable   Frequency Stability   @ 25°C	Current With Output				0	25			
Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Vs. Temperature         @ -40°C to +85°C         ±50         ppm           Aging@+25°C         1st year         ±3.0         ppm           10Hz         -68         -68           100Hz         -102         -102           1KHz         -139         dBc/Hz           SSB phase noise         10KHz         -157         dBc/Hz           100KHz         -170         -166         -166           5MHz         -168         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions         -40°C to +85°C					9	33	uA		
Frequency Sensitivity									
Frequency Sensitivity         #50         ppm           Vs. Temperature         @-40°C to +85°C         ±50         ppm           Aging@+25°C         1st year         ±3.0         ppm           10Hz         -68         100Hz         -102           1KHz         -139         dBc/Hz           10KHz         -157         dBc/Hz           10KHz         -170         1MHz           1MHz         -166         5MHz           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions         -40°C to +85°C			@25°C			+1.0	nnm		
Aging@+25°C	Frequency Sensitivity		@20 0			11.0	ррпп		
10Hz	Vs. Temperature		@-40°C to +85°C			±50	ppm		
100Hz	Aging@+25°C		1 <sup>st</sup> year			±3.0	ppm		
1KHz			10Hz		-68		dBc/Hz		
SSB phase noise									
100KHz			1KHz		-139				
1MHz			10KHz		-157				
RMS Jitter (12KHz-20MHz) 48 300 fs  Environmental Conditions Operating temperature range -40°C to +85°C			100KHz		-170				
RMS Jitter (12KHz-20MHz)  Environmental Conditions Operating temperature range  -40°C to +85°C					-166				
(12KHz-20MHz)  Environmental Conditions  Operating temperature range -40°C to +85°C			5MHz		-168				
(12KHZ-20MHZ)  Environmental Conditions  Operating temperature range -40°C to +85°C					<u></u>	300	fe		
Operating temperature range -40°C to +85°C					40	300	13		
Storage temperature range -55°C to +150 °C									
	Storage temperature range	Э	-55°C to +150 °C						