## Dynamic Engineers Inc.

2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA TEL: 1-281-870-8822 EMAIL: Sales@DynamicEng.com  $\begin{array}{l} \textbf{XO2520BL-ULJ\_CMOS-25MHz-\&\%} \\ \textbf{Wd} \text{ $a$} & \text{$\hat{A}$} & \text{$\hat{A}$}$ 

#### **Features and Benefits**

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

Frequency stability vs. temperature: ±25PPM

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**

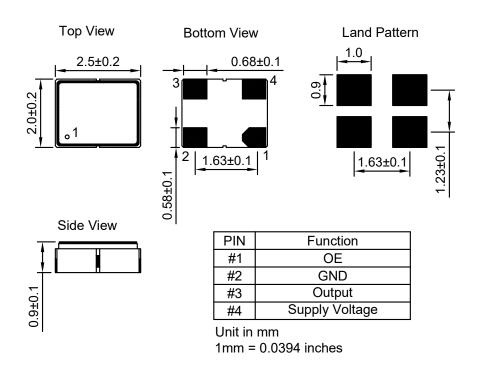
XO2520BL-ULJ\_CMOS-25MHz-213 is the ultra-low jitter crystal oscillator.

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





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XO2520BL-ULJ\_CMOS-25MHz-&% WdæÉi ҈Áજૉα∿¦Æi∿-œÁJ•&#怦Á

## **Specifications**

Specification   Sylii	Oscillator	Sym	Condition	Value			Unit	Note
RF Output Load	Specification			Min.	Тур.	Max.		
Output Load         15         pF           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         Enable output         70%V <sub>cc</sub> V         V           Enable/Disable Time         Enable         1         ms         ms           Power Supply         Voc         ±10%         3.3         V         V           Current Outrent With Output Disable         9         35         uA         V           Frequency Stability         @25°C         ±1.0         ppm         ppm           Vs. Temperature         @-40°C to +85°C         ±25         ppm         Ads/Hz		$f_0$			25		MHz	
Output Level High         2.97         V           Output Level Low         0.333         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           Enable Disable Time         Enable Disable         1         ms           Power Supply           Voltage         V <sub>cc</sub> ±10%         3.3         V           Current With Output Disable         9         35         uA           Prequency Stability           Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Frequency Sensitivity           Vs. Temperature         @ -40°C to +85°C         ±25         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         1st year         ±3.0         ppm           100Hz         -68         100Hz         -102           10MHz         -157         dBc/Hz           100KHz         -166								
Output Level Low         0.33         V           Rise / Fall Time         @ 10%-90% of V <sub>oc</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           Enable Disable Time         1         ms         0           Power Supply         Voc         ±10%         3.3         V           Current With Output Disable         7         10         mA           Current With Output Disable         9         35         uA           Frequency Stability         @ 25°C         ±1.0         ppm           Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Vs. Temperature         @ -40°C to +85°C         ±25         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         10Hz         -68         -68           10Hz         -102         -102         -102           1KHz         -139         -166         -100           SSB phase noise         10KHz         -166         -166<					15			
Rise / Fall Time				2.97				
Duty Cycle   Startup Time   Duty Cycle   Enable output   T0%Vcc   V   Function on PIN1   Disable output   S30%Vcc   V   Function on PIN1   Enable   Disable   Disabl						0.33	V	
Startup Time			$@10\%-90\%$ of $V_{cc}$		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         Enable         1         ms           Power Supply         200         ns           Voltage         V <sub>cc</sub> ±10%         3.3         V           Current         7         10         mA           Current With Output Disable         9         35         uA           Disable output         9         3.3         V           Current With Output Disable         9         35         uA           Disable output         9         35         uA           Prequency Stability         9         35         uA           Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Vs. Temperature         @ -40°C to +85°C         ±25         ppm           Aging@+25°C         10Hz         -68         -68           10OHz         -102         -102         -102           1KHz         -139         dBc/Hz           1MHz         -157         dBc/Hz           1MHz         -166         -166 </td <td>Duty Cycle</td> <td></td> <td></td> <td>45</td> <td></td> <td></td> <td>%</td> <td></td>	Duty Cycle			45			%	
Function on PIN1         Disable output         30%V <sub>cc</sub> V           Enable/Disable Time         Enable         1         ms           Power Supply         John Stable         200         ns           Power Supply         Voltage         V         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         ±25         ppm           Aging@+25°C         1°st year         ±3.0         ppm           10Hz         -68         10Hz         -68           10Hz         -68         48         30         dBc/Hz           SSB phase noise         10KHz         -157         dBc/Hz         -100KHz           10MHz         -166 <t< td=""><td></td><td></td><td></td><td></td><td>8.0</td><td>5</td><td></td><td></td></t<>					8.0	5		
Enable			Enable output	70%Vcc				
Disable   Disa	Function on PIN1		Disable output			30%Vcc	V	
Disable   200    ns	Enable/Disable Time		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         ±25         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         1st year         ±3.0         ppm           10Hz         -68         -68         -102           1KHz         -139         dBc/Hz           SSB phase noise         10KHz         -157         dBc/Hz           10KHz         -170         -166           1MHz         -166         -168           SMHz         48         300         fs           Environmental Conditions           Operating temperature range         -40°C to +85°C			Disable			200	ns	
Current	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         ±25         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         1st year         ±3.0         ppm           10Hz         -68         -68         -102           1KHz         -102         -139         -170           1KHz         -157         dBc/Hz           10KHz         -170         -170           1MHz         -166         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions         -40°C to +85°C         -40°C to +85°C	Voltage	Vcc	±10%		3.3		V	
Disable   Supply Voltage Vs.   Frequency Sensitivity   Ppm   Ppm	Current				7	10	mA	
Supply Voltage Vs.   @25°C					9	35	uA	
Supply Voltage Vs. Frequency Sensitivity         @ 25°C         ±1.0         ppm           Vs. Temperature         @ -40°C to +85°C         ±25         ppm           Aging@+25°C         1st year         ±3.0         ppm           Aging@+25°C         10Hz         -68         -68           10OHz         -102         -102           1KHz         -139         -157           1KHz         -157         dBc/Hz           100KHz         -170         -166           1MHz         -166         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions           Operating temperature range         -40°C to +85°C								
Vs. Temperature         @-40°C to +85°C         ±25         ppm           Aging@+25°C         1st year         ±3.0         ppm           10Hz         -68	Supply Voltage Vs.		@25°C			±1.0	ppm	
10Hz			@-40°C to +85°C			±25	ppm	
10Hz	Aging@+25°C		1 <sup>st</sup> vear			+3.0	maa	
100Hz					-68		PP	
1KHz							dBc/Hz	
SSB phase noise         10KHz         -157         dBc/Hz           100KHz         -170         -166           1MHz         -166         -168           RMS Jitter (12KHz-20MHz)         48         300         fs           Environmental Conditions           Operating temperature range         -40°C to +85°C								
100KHz								
RMS Jitter (12KHz-20MHz)  Environmental Conditions  Operating temperature range  -40°C to +85°C								
RMS Jitter (12KHz-20MHz) 48 300 fs  Environmental Conditions  Operating temperature range -40°C to +85°C			1MHz		-166			
(12KHz-20MHz)  Environmental Conditions  Operating temperature range -40°C to +85°C			5MHz		-168			
Operating temperature range -40°C to +85°C					48	300	fs	
	<b>Environmental Condition</b>	ıs						
	Operating temperature ran	ige	-40°C to +85°C					
			-55°C to +150 °C					