



## Features and Benefits

Frequency range: 20MHz-50MHz

Supply voltage: 1.8V/2.5V/3.3V

Current: 10mA Max.

Frequency stability vs. temperature:  $\pm 25$ PPM-100PPM

Aging:  $\pm 3$ PPM 1<sup>st</sup> year

Operating temperature: -40°C to +85°C

Size: 2.5x2.0x0.9 mm

## Typical Applications

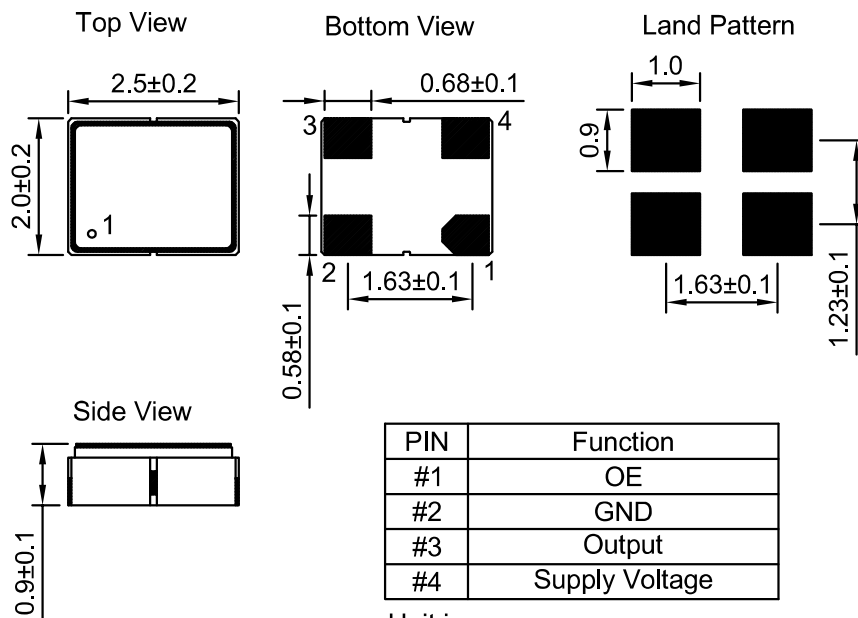
- Wearable device
- Sport Video Cams
- Ultra-small Notebook PC
- Mobile Phones
- Digital Circuit

## Description

XO2520BL-ULJ\_CMOS 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



Unit in mm  
1mm = 0.0394 inches

**Specifications**

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Operational Frequency	$f_0$		20		50	MHz	
<b>RF Output</b>							
Output Load				15		pF	
Output Level High			90%V <sub>cc</sub>			V	
Output Level Low					10%V <sub>cc</sub>	V	
Rise / Fall Time		@10%-90% of V <sub>cc</sub>		1.5	5	ns	For 3.3V supply voltage
Duty Cycle			45		55	%	
Startup Time				0.8	5	ms	
Output Enable/Disable Function on PIN1		Enable output	70%V <sub>cc</sub>			V	
		Disable output			30%V <sub>cc</sub>	V	
Enable/Disable Time		Enable			1	ms	
		Disable			200	ns	
<b>Power Supply</b>							
Voltage	V <sub>cc</sub>			1.8/2.5/3.3		V	See ordering section
Current		V <sub>cc</sub> = 1.8V		3	5	mA	
		V <sub>cc</sub> = 2.5V		5	7	mA	
		V <sub>cc</sub> = 3.3V		7	10	mA	
Current With Output Disable		V <sub>cc</sub> = 1.8V		3	25	uA	
		V <sub>cc</sub> = 2.5V		5	30	uA	
		V <sub>cc</sub> = 3.3V		9	35	uA	
<b>Frequency Stability</b>							
Supply Voltage Vs. Frequency Sensitivity		@25°C			±1.0	ppm	
Vs. Temperature		@-40°C to +85°C			±25	ppm	See ordering section
Aging@+25°C		1 <sup>st</sup> year			±3.0	ppm	
RMS Jitter (12KHz-20MHz)				48	300	fs	
Phase Noise (25MHz, 3.3V)		@10Hz		-68		dBc/Hz	
		@100Hz		-102		dBc/Hz	
		@1KHz		-139		dBc/Hz	
		@10KHz		-157		dBc/Hz	
		@100KHz		-170		dBc/Hz	
		@1MHz		-166		dBc/Hz	
		@5MHz		-168		dBc/Hz	
<b>Environmental Conditions</b>							
Operating temperature range		-40°C to +85°C (See ordering section)					
Storage temperature range		-55°C to +150 °C					



## Ordering Information

XO2520BL-ULJ_CMOS	-	xMHz	-01	02	03
Group			Code		

For example, XO2520BL-ULJ\_CMOS -25MHz-111 denotes the XO has the following specifications:

Frequency: 25MHz  
Temperature Range: -10°C to +70°C  
Stability Over Temperature: ±25 ppm  
Supply Voltage: 1.8V

01	Temperature Range
Code	Specification
1	-10°C to +70°C
2	-40°C to +85°C

02	Frequency Stability
Code	Specification
1	±25 ppm
2	±50 ppm
3	±100 ppm

03	Supply Voltage
Code	Specification
1	1.8 V ±5%
2	2.5 V ±10%
3	3.3 V ±10%