Programmable 5MHz to 1GHz Ultra Low Jitter PLL Crystal Oscillator 5.0 X 3.2mm

2.5V/3.3V Frequency & Logic Selection XO

NX50SB

5.0 x 3.2mm Ceramic SMD

Product Features

- Programming capability & short lead time
- Available CML, LVPECL, LVDS, HCSL and CMOS output
- Very low phase jitter - < 1.0ps RMS max.
- Wide frequency range - 5 ~ 1000MHz
- Thicker crystal for improved reliability
- Low supply current - 80mA max.
- Industrial Temperature Range
- Pb-free & RoHS compliant

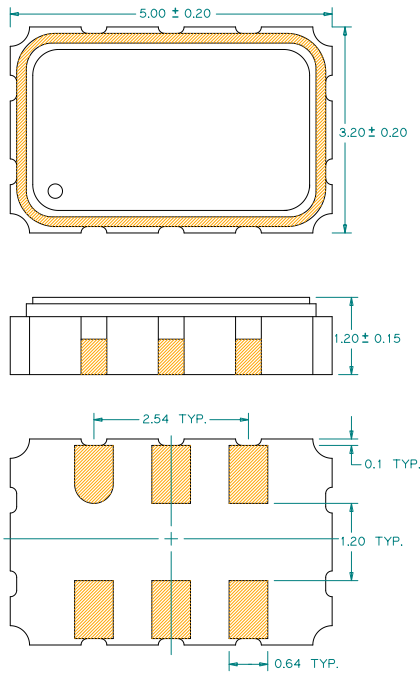
Product Description

The NX50SB XO series is a high performance & programmable crystal oscillator family with very low jitter capability. Depending on customers' needs, this family devices can support different Logical types between CML, LVPECL, LVDS, HCSL and CMOS. It supports various options including wider frequency range, 2.5V/3.3V voltage, and various stabilities. It is designed to meet the clock source specifications for communication systems, and other high performance equipment.

Applications

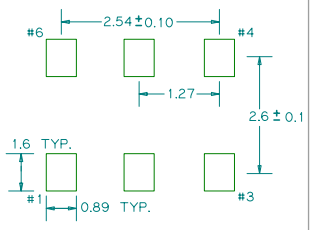
- Networking systems
- Servers and storage systems
- Profession video equipments
- Test and measurement
- FPGA/ASIC clock generation
- Communication system

Package: (Scale: none, Dimensions are in mm)



*Extended high frequency power decoupling is recommended (see test circuit for minimum recommendation). To ensure optimal performance, do not route RF traces beneath the package.

Recommended Land Pattern:



Pin Functions:

Pin	Function
1	FS1
2	FS0
3	Ground
4	Q
5	$\overline{Q}$
6	V_{CC}

Frequency Select Table:

FS0	FS1	Output
0	0	Freq. 1*
0	1	Freq. 2*
1	0	Freq. 3*
1	1	Freq. 4*

*The output 1 to 4 are flexible can be any frequencies within the range, it could be the different clock type by customer request.

Part Ordering Information:

NX 50 SB XXXX

(A) Frequency Select family

(B) Specification Code

SaRonix-eCera™

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Electrical Performance

Parameter		Min.	Typ.	Max.	Units	Notes
Output Frequency		5		1000	MHz	CMOS: 5-250 MHZ
Supply Voltage		3.135	3.3	3.465	V	
		2.375	2.5	2.625		
CML/HCSL/LVDS Supply Current				70	mA	
LVPECL Supply Current				80	mA	
CMOS Supply Current				60	mA	
Frequency Stability		±20		±50	ppm	±20ppm is for -20°C to 70°C only
Operating Temperature Range		-40		+85	°C	
LVPECL Output Logic 0, V_{OL}				V_{CC}-1.55	V	
LVPECL Output Logic 1, V_{OH}		V_{CC}-1.2			V	
LVPECL Output Load		50Ω to V_{CC}-2V				
LVDS Output Logic 0, V_{OL}		0.9			V	
LVDS Output Logic 1, V_{OH}				1.6	V	
LVDS Output Load		100Ω & 5pF				
HCSL Output Logic 0, V_{OL}		-0.15			V	
HCSL Output Logic 1, V_{OH}				0.9	V	
HCSL Output Load		Rs = 33Ω, Rp = 50Ω, CL = 2pF (Output requires termination)				
CMOS Output Logic 0, V_{OL}				0.4	V	
CMOS Output Logic 1, V_{OH}		V_{CC}-0.4			V	
CMOS Output Load		At 15pF				
CML Output (VOD)		350m		650m	V	
CML Output Load		100Ω & 5pF (Differential)				
Duty Cycle		45		55	%	Measured 50% V_{CC}
Rise and Fall Time				400	ps	Measured 20/80% of waveform
Jitter, Accumulated , RMS (1-σ)				6	ps	20.000 adjacent periods
Jitter, Phase, RMS	< 40MHz		0.4	1	ps	12kHz to 5 MHz frequency band
	40 to 1000MHz		0.4	1	ps	12kHz to 20 MHz frequency band
	125MHz, 156.25MHz		0.4	0.6	ps	12kHz to 20 MHz frequency band
Jitter, pk-pk				40	ps	100,000 random periods

Notes:
1. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (1 year at 25°C average effective ambient temperature), shock and vibration.
2. Phase jitter typical value is depending on output frequencies.
3. For specifications other than those listed, please contact sales.

Frequency Select Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1 & pin 2), FS1 & FS0 (High)	0.7 V_{CC}			V	
Input Voltage (pin 1 & pin 2), FS1 & FS0 (Low)			0.3 V_{CC}	V	
Settling Time after FS Change			10	ms	
Start up Time			10	ms	

Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-55		+125	°C	

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