Microsemi
Power Matters.™

PX-501
Clock Oscillator

Helping Customers Innovate, Improve & Grow

Features

Reflow Process Compatible
Surface Mount Package
AT-Cut Crystal
SONET Minimum Clock Specification
Low Phase Noise
Tight Toleraces

Typical Applications

Base Stations
Test Equipment
Synthesizers

Previous Vectron Model Number C1310

Frequency Range 10 MHz – 1200 MHz

Standard frequencies 10; 20; 24.705; 30.720; 32.768; 50; 68.768; 76.8; 77.76MHz; 100; 125; 150; 155.52; 156.25; 175; 200; 250; 280; 312.5MHz; 340; 400; 622,08 MHz

Frequency stabilities[1] [Standard]

Parameter	Min	Typ	Max	Units	Operating temp range
vs. operating temperature range (Referenced to +25°C)	-10.0		+10.0	ppm	-20 … +70°C
Parameter	**Min**		**Max**	**Units**	**Condition**
Initial tolerance vs. supply voltage change vs. load change vs. aging /1. Year vs. aging / year (followingYears)	-5.0 -1.0 -1.0 -3.0 -1.0		+5.0 +1.0 +1.0 +3.0 +1.0	ppm ppm ppm ppm ppm	V_S ± 5% Load ± 5%

http://www.vectron.com
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Vectron International GmbH & Co. KG • Landstraße, 74924 Neckarbischofsheim, Germany • Tel: +49 7268 801 100

Frequency stabilities[1] [meets SONET Minimum Clock Specification-Option]

Parameter	Min	Typ	Max	Units	Operating temp range
vs. operating temperature range					-40 … +85°C
Parameter	**Min**		**Max**	**Units**	**Condition**
overall tolerance	-20.0		+20.0	ppm	(15 Years aging, temp, initial, supply, load)

Supply Voltage (Vs)

Parameter	Min	Typ	Max	Units	Condition
Supply voltage (Vs)	4.75	5.0	5.25	VDC	
Current consumption			40	mA	@ HCMOS < 155 MHz
Current consumption			90	mA	@ PECL < 155 MHz
Supply voltage (Vs)	3.135	3.3	3.465	VDC	
Current consumption			30	mA	@ LVHCMOS< 155 MHz
Current consumption			80	mA	@ LVPECL< 155 MHz
Current consumption			25	mA	@ LVDS< 155 MHz

RF Output

Parameter	Min	Typ	Max	Units	Condition
Signal		HCMOS			
Load		15.0		pF	
Rise and Fall Time			5	ns	@15 pF 10 to 90%
Duty cycle	40		60	%	@Vs/2
Signal		PECL			
Load		50		Ω	Vs-2V
Rise and Fall Time			1	ns	20-80%
Duty cycle	45		55	%	
Signal		LVDS			
Load		100		Ω	
Rise and Fall time			1	ns	10 to 90 %
Duty cycle	40		60	%	
Signal		Sinewave			
Load		50		Ω	
Output Power	-3	0	3	dBm	

Additional Parameters

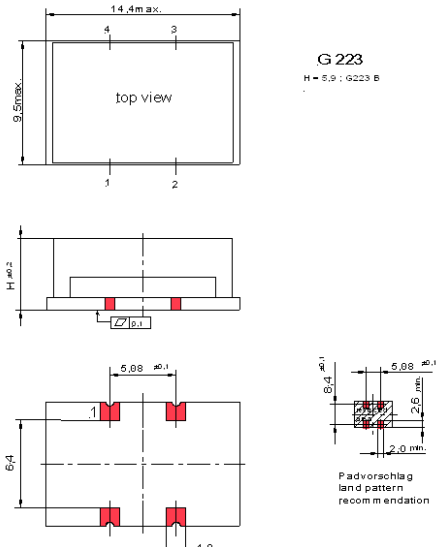
Parameter	Min	Typ	Max	Units	Condition		
Phase Noise		-85		dBc/Hz	10	Hz	@49,408 MHz
		-120		dBc/Hz	100	Hz	HCMOS
		-145		dBc/Hz	1	kHz	3,3V
		-155		dBc/Hz	10	kHz	
		-160		dBc/Hz	100	kHz	
Jitter		0,2		ps RMS	@ 12 kHz to 20 MHz		

Additional Parameters

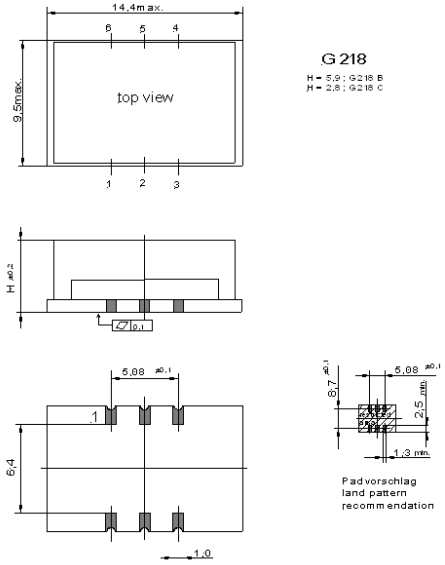
Parameter	Min	Typ	Max	Uniits	Condition		
Phase Noise		-76		dBc/Hz	10	Hz	@416 MHz
		-108		dBc/Hz	100	Hz	LVPECL
		-134		dBc/Hz	1	kHz	3,3V
		-147		dBc/Hz	10	kHz	
		-154		dBc/Hz	100	kHz	
		-159		dBc/Hz	1	MHz	
Jitter		0,018		ps RMS	@ 12 kHz to 20 MHz		
Weight			2	g			
Processing & Packing	handling & processing note						

Enclosure

Type G223A for HCMOS and LVHCMOS Version		Type G218B for HCMOS; PECL; LVPECL and LVDS Version	
Height "H"	Pin Length "L"	Height "H"	Pin Length "L"
5,9	NA	5,9	NA



Dimensions: mm



Dimensions: mm

Pin Connections	
1	NC / Enable (optional)
2	Ground (Case)
3	RF Output
4	Supply Voltage Input (Vs)

Outline Drawing: G223B

Pin Connections	
1	N/C
2	N/C / Enable (optional)
3	Ground (Case)
4	RF Output
5	Complementary RF Output / (N/C: HCMOS only)
6	Supply Voltage Input (Vs)

Outline Drawing: G218B

Enable true table	HCMOS		LVPECL / LVDS	
Pin 2	Pin 4	Pin 5	Pin 4	Pin 5
High	Data	N/C	No Data	No Data
Open	Data	N/C	Data	compl. Data
Low	High Tristate	N/C	Data	compl. Data

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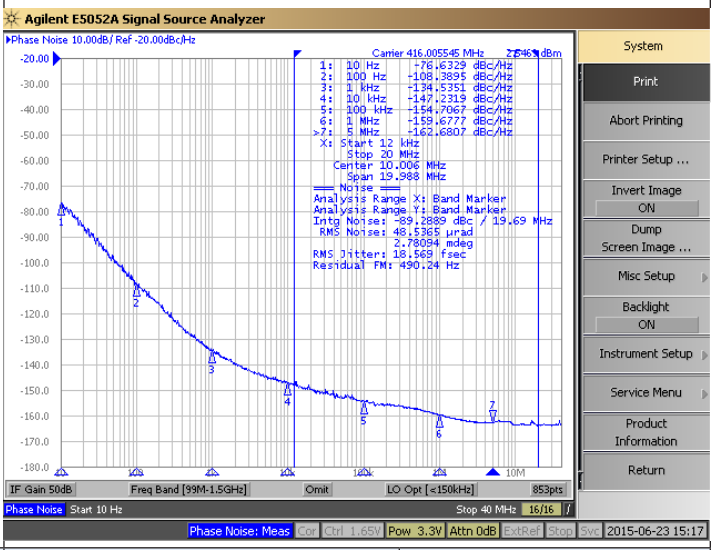
Enclosure

Marking
PX-501-xxxx frequency * VI AYYWW

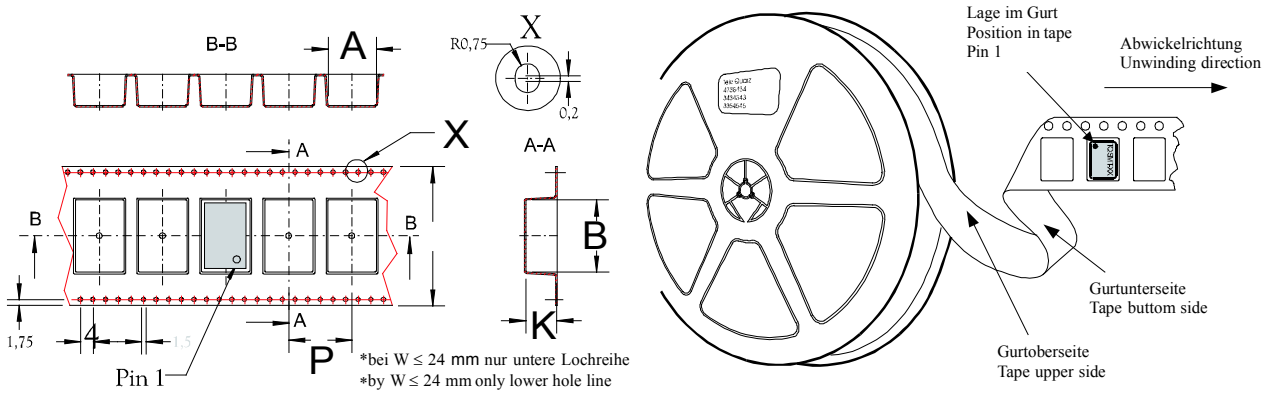
Absolute Maximum Ratings

Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			7	V	
Operable temperature range	-40		+85	°C	
Storage temperature range	-40		+95	°C	

Typical Phase Noise and Jitter

		(416 MHz; LVPECL output)	
			
		Frequency range [Hz]	Jitter [rms]
		12kHz to 20MHz	18 fsec

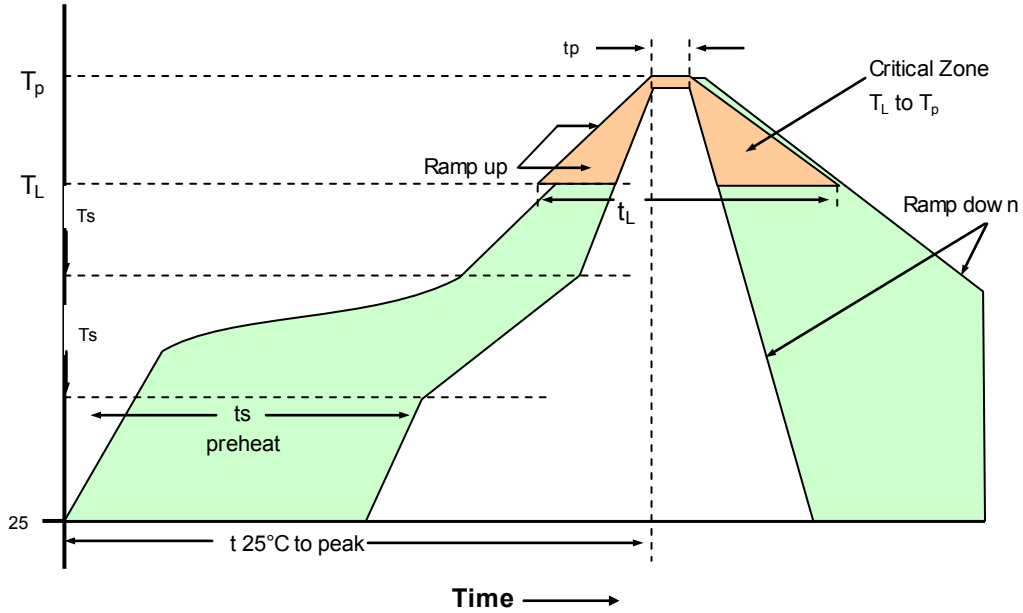
Standard Shipping Methode



Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
G218B / G223B	24	83,3	850	12

Recommanded Reflow Profile



Profile Feature	Pb-Free Assembly/ Sn.Pb Assembly	Profile Feature	Pb-Free Assembly/ Sn.Pb Assembly
Average ramp-up rate (T_L to T_p)	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min Ts_{min} -Temperature Min Ts_{max} -Time (min to max) (ts)	150°C 200°C 60-180 seconds	Time maintainted above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds

T_{Smax} to T_L-Ramp-up Rate	3°C/second max	Time within 5°C of actual Peak Temperature (t_P)	20-40 seconds
Peak Temperature (T_P)	max 260°C	Ramp-down Rate	6°C/ second max
Note: All temperatures refer to topside of the package, measured on the package body surface. SMD oscillators must be on the top side of the PCB during the reflow process.			

How to order this product:

Use this worksheet to forward the following information to your factory representative:									
Model	**Height**	**-**	**Supply Voltage Code**	**RF Output Code**	**Temperature Range**	**-**	**Stability**	**-**	**Frequency**
PX-501	1	-	E	A	J	-	105	-	10MHz

Height:
1: 5,9 mm

Supply Voltage Code:
E: 3,3 V
D: 5 V

RF Output Code:
A: HCMOS
C: PECL
D: LVDS
E: Sinewave

Temperature Range/Stability Code:
J-105: -20...+70°C ±10ppm
J-205: -20...+70°C ±20ppm

Notes:

1 Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2 Unless otherwise stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C)
3 Phase noise degrades with increasing output frequency.
4 Subject to technical modification.
5 Contact factory for availability.