

Helping Customers Innovate, Improve & Grow



Features

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

Typical Applications

Base Stations
Test Equipment
Synthesizers

Previous Vectron Model Number	C1310
Frequency Range	1 MHz – 700 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 stabilities¹ [Standard]

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

Frequency stabilities¹ [meets SONET Minimum Clock Specification-Option]

Parameter	Min	Typ	Max	Units	Operating temperature range
vs. operating temperature range					-20 ... +70°C
Parameter	Min	Typ	Max	Units	Conditions
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	@ HCMOS < 155 MHz	
Current consumption			40	mA		
Current consumption			90	mA		@ PECL < 155 MHz
Supply voltage (Vs)	3.135	3.3	3.465	VDC	@ LVHCMOS < 155 MHz	
Current consumption			30	mA		
Current consumption			80	mA		@ LVPECL < 155 MHz
Current consumption			25	mA		@ LVDS < 155 MHz

RF Output

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

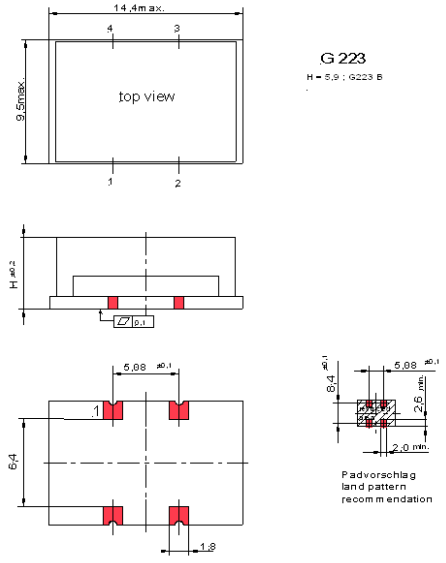
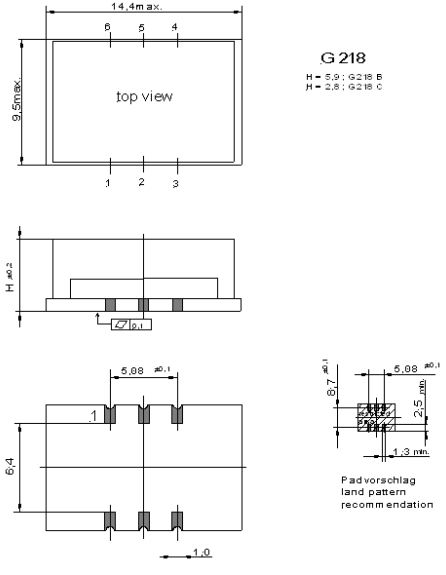
Additional Parameters

Parameter	Min	Typ	Max	Units	Condition	
Phase Noise		-80		dBc/Hz	10	Hz @125 MHz
		-115		dBc/Hz	100	Hz PECL
		-135		dBc/Hz	1	kHz 3,3V
		-141		dBc/Hz	10	kHz
		-141		dBc/Hz	100	kHz
Jitter		0,6		ps RMS	@ 12 kHz to 20 MHz	
Parameter	Min	Typ	Max	Units	Condition	
Phase Noise		-62		dBc/Hz	10	Hz @400 MHz
		-93		dBc/Hz	100	Hz PECL
		-124		dBc/Hz	1	kHz 3,3V
		-142		dBc/Hz	10	kHz
		-143		dBc/Hz	100	kHz
Jitter		0,2		ps RMS	@ 12 kHz to 20 MHz	
Weight			2	g		
Processing & Packing	handling & processing note					

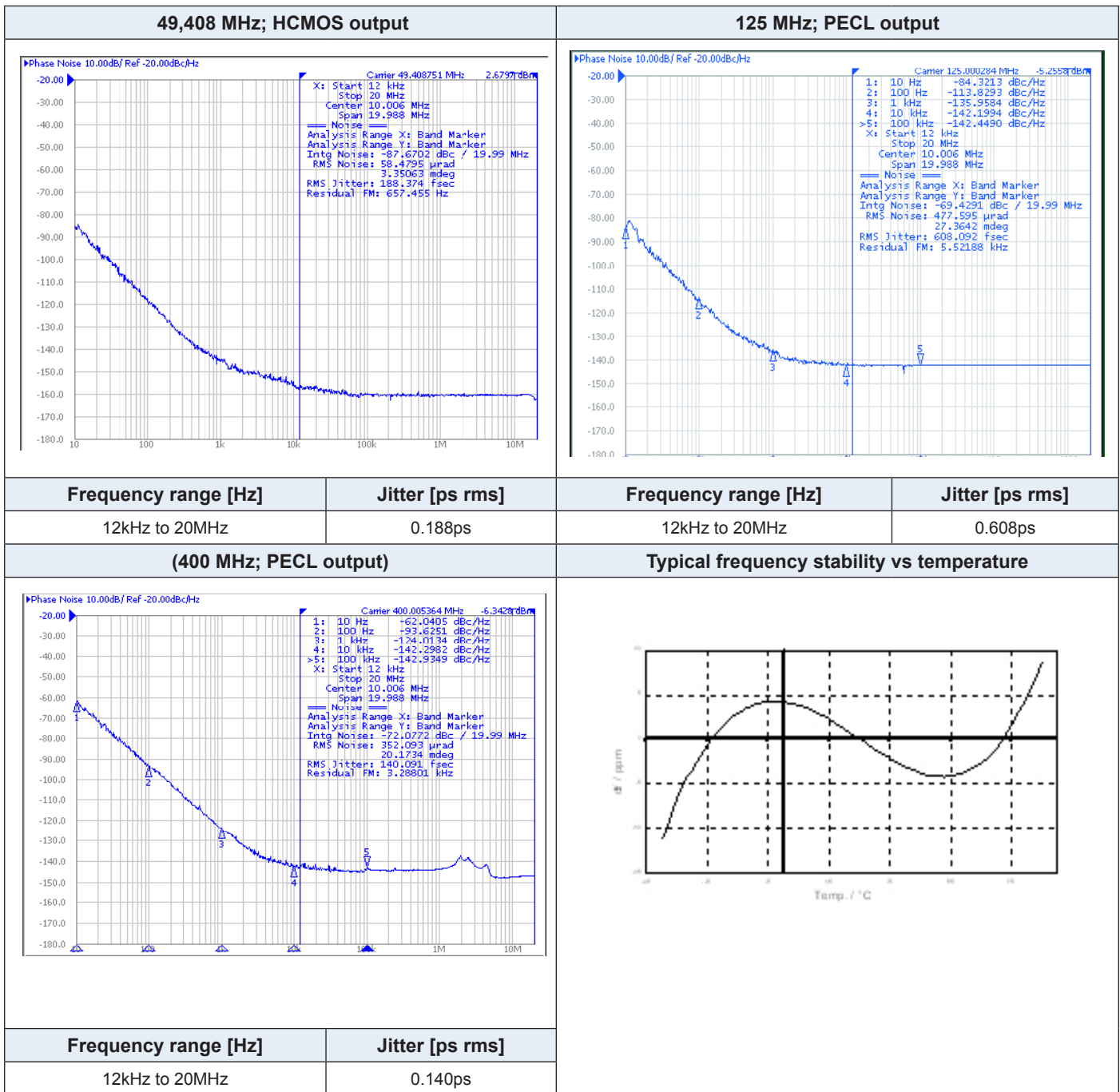
Absolute Maximum Ratings

Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			7	V	
Operable temperature range	-30		+80	°C	
Storage temperature range	-40		+90	°C	

Enclosure

Type G223 "A" for HCMOS and LVHCMOS Version			Type G218 "B" for HCMOS; PECL; LVPECL and LVDS Version				
Height "H"	Pin Length "L"	Options ⁵⁾	Height "H"	Pin Length "L"	Options ⁵⁾		
5,9	NA		5,9	NA			
 <p style="text-align: center;">G 223 H = 5,9 : G223 B</p> <p style="text-align: center;">Dimensions: mm</p>			 <p style="text-align: center;">G 218 H = 5,9 : G218 B H = 2,8 : G218 C</p> <p style="text-align: center;">Dimensions: mm</p>				
Pin Connections			Pin Connections				
<ol style="list-style-type: none"> 1 NC / Enable (optional) 2 Ground (Case) 3 RF Output 4 Supply Voltage Input (Vs) <p style="text-align: center;">Outline Drawing: G223B</p>			<ol style="list-style-type: none"> 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) <p style="text-align: center;">Outline Drawing: G218B</p>				
			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
Marking							
PX-501 Frequency • AYYWW							

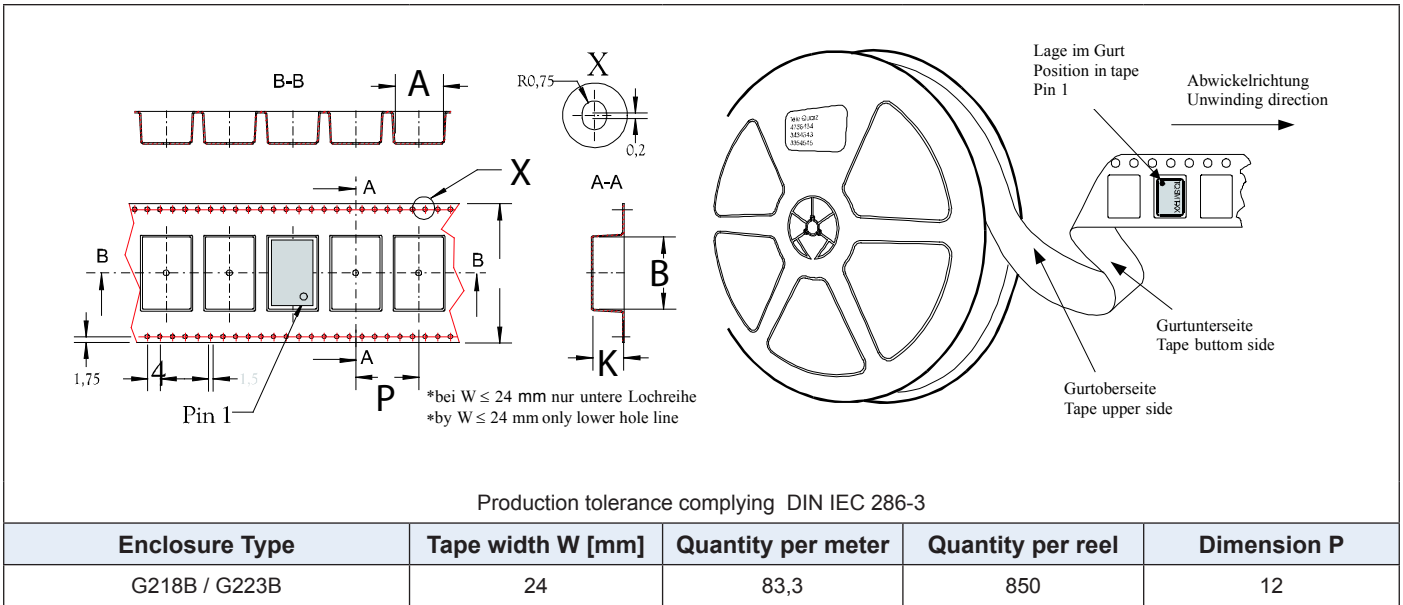
Typical Phase Noise and Jitter



Notes:

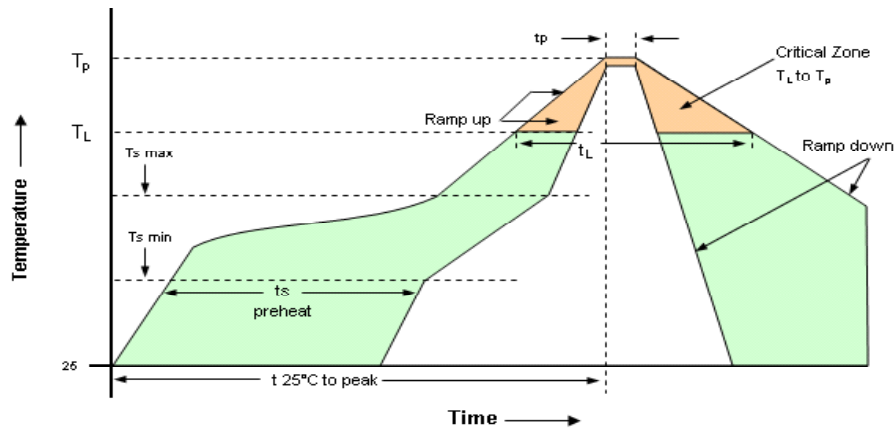
- 1 Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- 2 Unless otherwise stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature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

Standard Shipping Methode



Recommended Reflow Profile

Solderprofile:



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 $T_{s\ min}$ -Temperature Min $T_{s\ max}$ -Time (min to max) (t_s)	150°C 200°C 60-180 seconds	Time maintained 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 maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds	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	X	-	Frequency
PX-501	0	-	E	A	J	-	105	X	-	10MHz

Height: _____
 0: A 5,9 mm
 1: B 5,9

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 over all