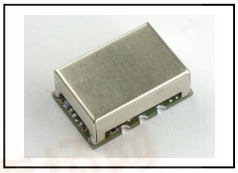
VECTRON INTERNATIONAL A DOVER COMPANY

C1310 PXO

Typical Applications
Base Stations
Test Equipment
Synthesizers

Features
Surface Mount Package
Reflow Process Compatible
AT-Cut Crystal
SONET Minimum Clock Specification



Previous Vectron Model Numbers SPO50, 9140

Frequency range 8 MHz – 700 MHz

Standard frequencies 10; 24.705; 30.720; 32.768; 50; 68.768 MHz; 77.76 MHz; 155.52; 622,08 MHz

Frequency stabilities[1] [Standard]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code[5]
vs. operating temperature range (Referenced to +25°C)	-10.0		+10.0	ppm	-20 … +70°C	D105
Parameter	**Min**	**Typ**	**Max.**	**Units**	**Condition**	
Initial tolerance	-5.0		+5.0	ppm		
vs. supply voltage change	-1.0		+1.0	ppm	V_S ± 5%	
vs. load change	-1.0		+1.0	ppm	Load ± 5%	
vs. aging /1. Year	-3.0		+3.0	ppm		
vs. aging / year (followingYears)	-1.0		+1.0	ppm		

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

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code[5]
vs. operating temperature range					-20 … +70°C	D205
Parameter	**Min**	**Typ**	**Max.**	**Units**	**Condition**	
overall tolerance	-20.0		+20.0	ppm	(15 Years aging, temp, initial, supply, load)	

Supply voltage

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code[5]
Supply voltage (Vs)	4.75	5.0	5.25	VDC		SV050
Current consumption			40	mA	@ HCMOS < 155 MHz	
Current consumption			90	mA	@ PECL < 155 MHz	
Supply voltage (Vs)	3.135	3.3	3.465	VDC		SV033
Current consumption			30	mA	@ LVHCMOS< 155 MHz	
Current consumption			80	mA	@ LVPECL< 155 MHz	
Current consumption			25	mA	@ LVDS< 155 MHz	

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RF output

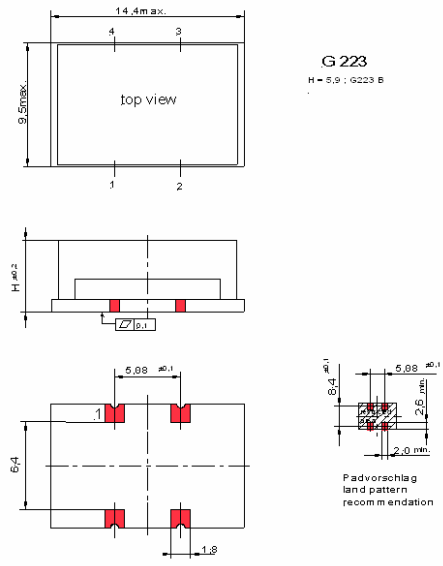
Parameter	Min	Typ	Max.	Units	Condition	Ordering Code[5]
Signal		HCMOS				RFH
Load		15.0		pF		
Rise and Fall time			5	ns	@ 15 pF 10 to 90 %	
Duty cycle	40		60	%	@ Vs/2	
Signal		PECL				RFP
Load		50		Ω	Vs - 2V	
Rise and Fall time			1	ns	20 to 80 %	
Duty cycle	45		55	%		
Signal		LVDS				RFL
Load		100		Ω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

Additional parameters

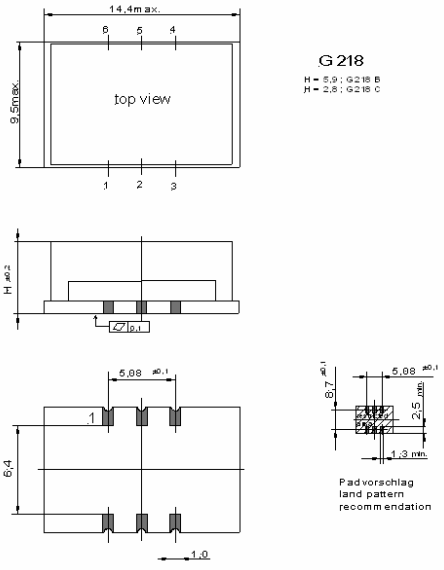
Parameter	Min	Typ	Max.	Units	Condition	
Phase Noise		-75		dBc/Hz	10 Hz	@155 MHz
		-110		dBc/Hz	100 Hz	PECL
		-135		dBc/Hz	1 kHz	3,3V
		-142		dBc/Hz	10 kHz	
		-142		dBc/Hz	100 kHz	
Jitter		1		ps RMS	@ 10 kHz to 20 MHz	
Weight			2	g		
Processing & Packing		handling&processing note				

Enclosures

Type G223A for HCMOS and LVHCMOS Version			Type G218B for PECL; LVPECL and LVDS Version		
Package Codes:					
Code A1	Height "H" 5,9	Pin Length "L" NA	Code B1	Height "H" 5,9	Pin Length "L" NA



Dimensions: mm



Dimensions: mm

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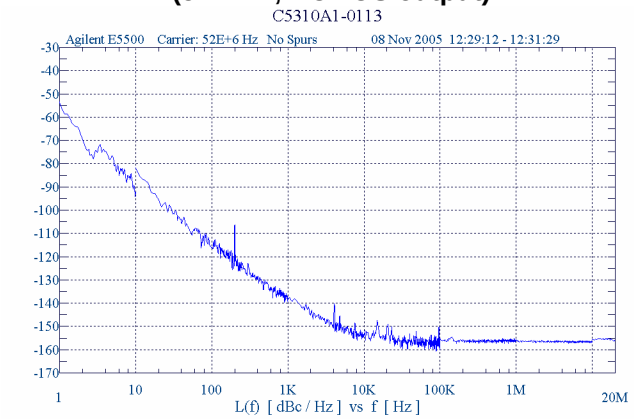
Pin Connections	Pin Connections
1 NC / Enable (optional) 2 Ground (Case) 3 RF Output 4 Supply Voltage Input (Vs) Outline Drawing: G223B	1 N/C 2 N/C / Enable (optional) 3 Ground (Case) 4 RF Output 5 Complementary RF Output 6 Supply Voltage Input (Vs) Outline Drawing: G218B
Marking	
C1310A1-xxxx frequency * VI AYYWW	

Absolute Maximum Ratings

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

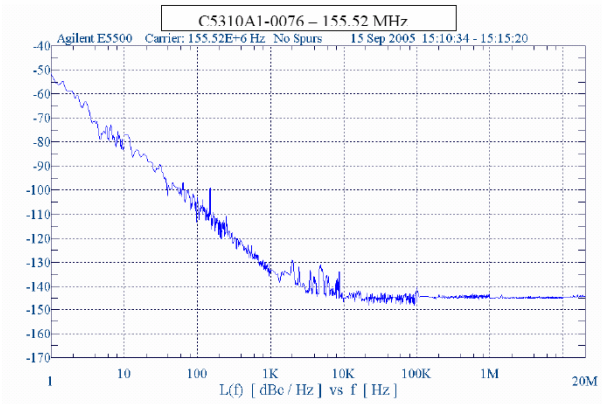
Typical Phase Noise and Jitter

(52 MHz; HCMOS output)



Frequency range [Hz]	Sϕ(f) [dB]	Jitter [ps rms]
100Hz to 1.5MHz	-77dB	0.432ps
50kHZ to 1.5MHz	-91dB	0.086ps
12kHz to 20MHz	-80dB	0.306ps

(155,52 MHz; PECL output)



Frequency range [Hz]	Sϕ(f) [dB]	Jitter [ps rms]
500Hz to 1.5MHz	-73.96dB	0.205ps
65kHZ to 1.5MHz	-75.87dB	0.165ps
12kHz to 20MHz	-65.34dB	0.553ps

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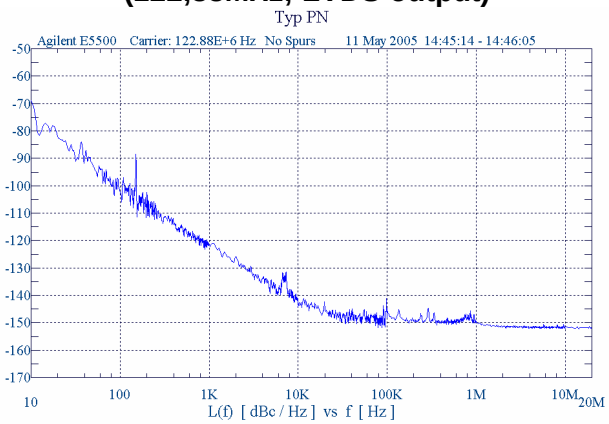
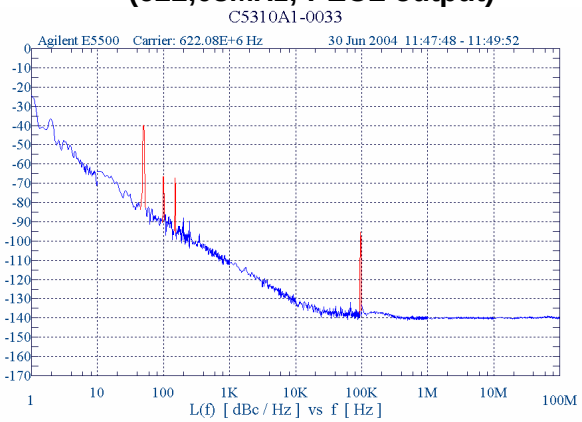
Typical Phase Noise and Jitter

(122,88MHz; LVDS output)



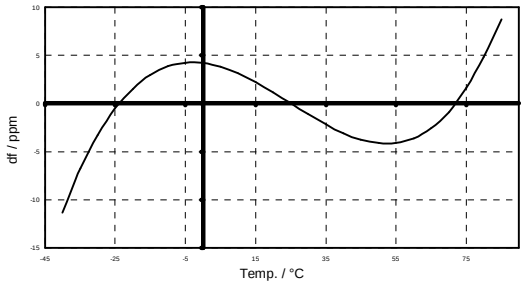
Frequency range [Hz]	Sϕ(f) [dB]	Jitter [ps rms]
100Hz to 1.5MHz	-75dB	0.230ps
50kHZ to 1.5MHz	-84dB	0.082ps
12kHz to 20MHz	-75dB	0.230ps

(622,08MHz; PECL output)

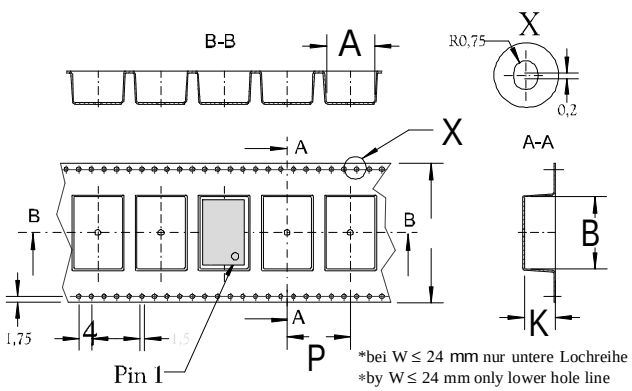


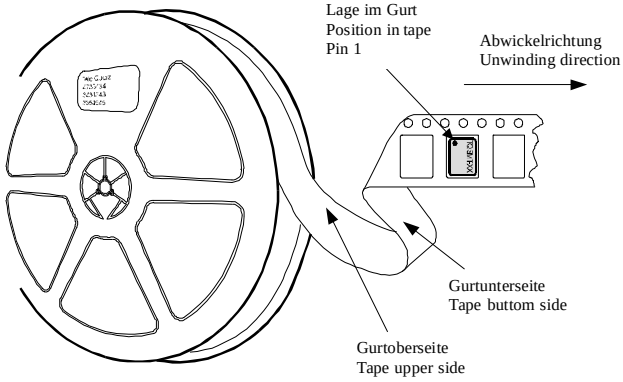
Frequency range [Hz]	Sϕ(f) [dB]	Jitter [ps rms]
1kHz to 5MHz	-67.09dB	0.113ps
250kHZ to 5MHz	-68.18dB	0.100ps
12kHz to 20MHz	-61.95dB	0.204ps

Typical frequency stability vs temp



Standard Shipping Method





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

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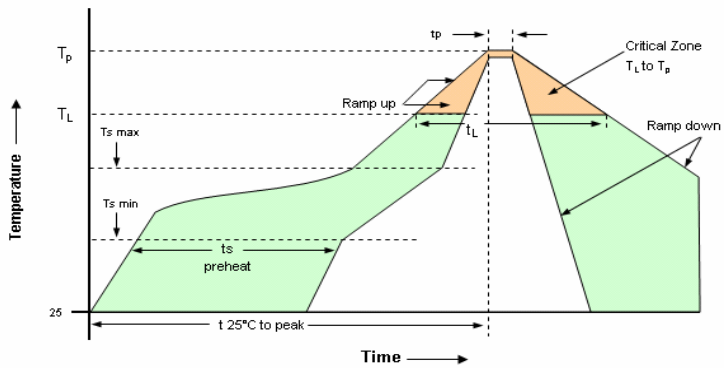
Recommended Reflow Profile

Solderprofile:



Profile Feature	Pb-Free Assembly /Sn-Pb Assembly	Profile Feature	Pb-Free Assembly /Sn-Pb Assembly
Average ramp-up rate (T_L to Tp)	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
Ts_{max} to T_L - Ramp-up Rate	3°C/second max.		
Time maintainted above - Temperature (T_L) - Time (t_L)	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Peak Temperature (Tp)	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:

Step 1	**Use this worksheet to forward the following information to your factory representative:**			
Model	**Stability Code**	**Supply Voltage Code**	**RF Output Code**	**Package Code**
C1310				
Example: C1310	*D105*	*SV050*	*RFH*	*A1*

Step 2	**The factory representative will then respond with a Vectron Model Number in the following Configuration:**		
Model	**Package Code**	**Dash**	**Dash Number**
C1310	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]

Typical P/N = C1310A1-0001

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.

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