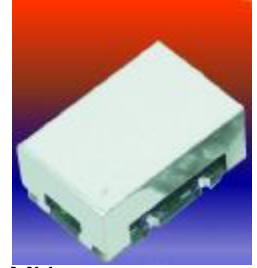


Typical Applications

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 – 220 MHz; 622 MHz

Standard frequencies

10; 24.705; 30.720; 32.768; 50; 68.768 MHz;
 77.76 MHz; 155.52 MHz

Frequency stabilities¹ [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	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 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	

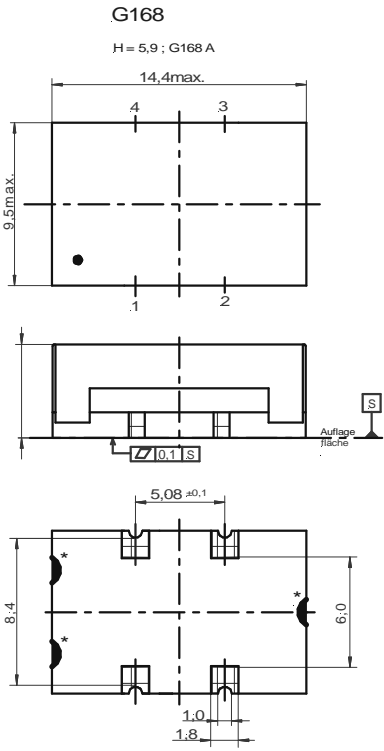
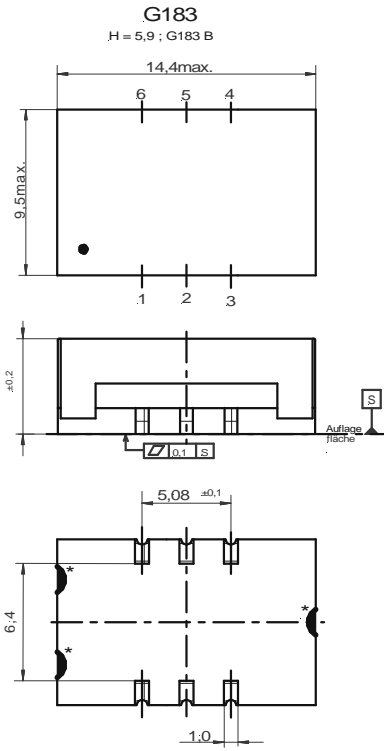
RF output

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

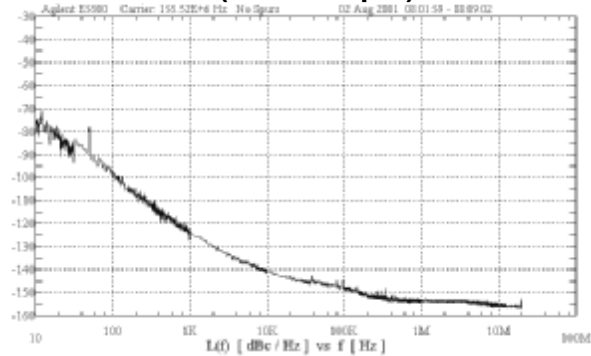
Enclosures

Type G168A for HCMOS and LVHCMOS Version			Type G183B for PECL; LVPECL and LVDS Version		
Package Codes:					
Code	Height "H"	Pin Length "L"	Code	Height "H"	Pin Length "L"
A1	5,9	NA	B1	5,9	NA
<p>G168 H = 5,9 ; G168 A</p>  <p style="text-align: right;">Dimensions: mm</p>			<p>G183 H = 5,9 ; G183 B</p>  <p style="text-align: right;">Dimensions: mm</p>		
<p style="text-align: center;">Pin Connections</p> <p>1 NC / Enable (optional) 2 Ground (Case) 3 RF Output 4 Supply Voltage Input (Vs)</p> <p>Outline Drawing: G168A</p>			<p style="text-align: center;">Pin Connections</p> <p>1 N/C 2 N/C / Enable (optional) 3 Ground (Case) 4 RF Output 5 Complementary RF Output 6 Supply Voltage Input (Vs)</p> <p>Outline Drawing: G183B</p>		
<p>Marking</p> <p>C1310A1-xxxx frequency * C AYYWW</p>					

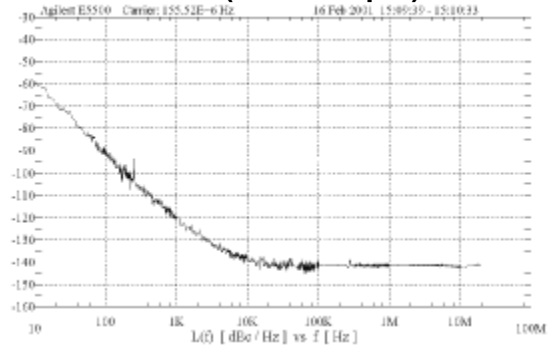
Absolute Maximum Ratings

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

Typical Phase Noise and Jitter (LVDS output)



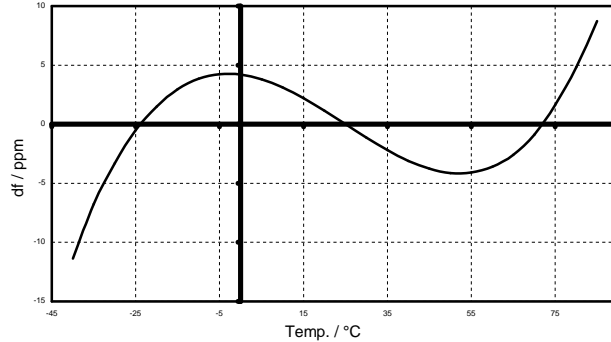
(PECL output)



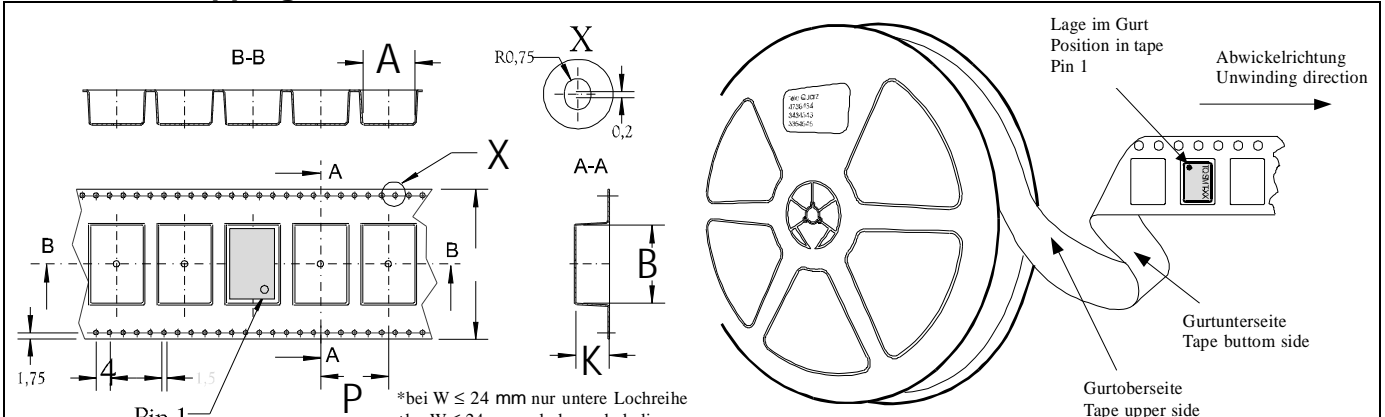
Frequency range [Hz]	S ϕ (f) [dB]	Jitter [ps rms]	Frequency range [Hz]	S ϕ (f) [dB]	Jitter [ps rms]
500Hz to 1.5MHz	-83.76dB	0.066ps	500Hz to 1.5MHz	-73.96dB	0.205ps
65kHz to 1.5MHz	-87.46dB	0.043ps	65kHz to 1.5MHz	-75.87dB	0.165ps
12kHz to 20MHz	-78.47dB	0.122ps	12kHz to 20MHz	-65.34dB	0.553ps

Typical datas for all C1310

Typical frequency stability vs temp



Standard Shipping Method

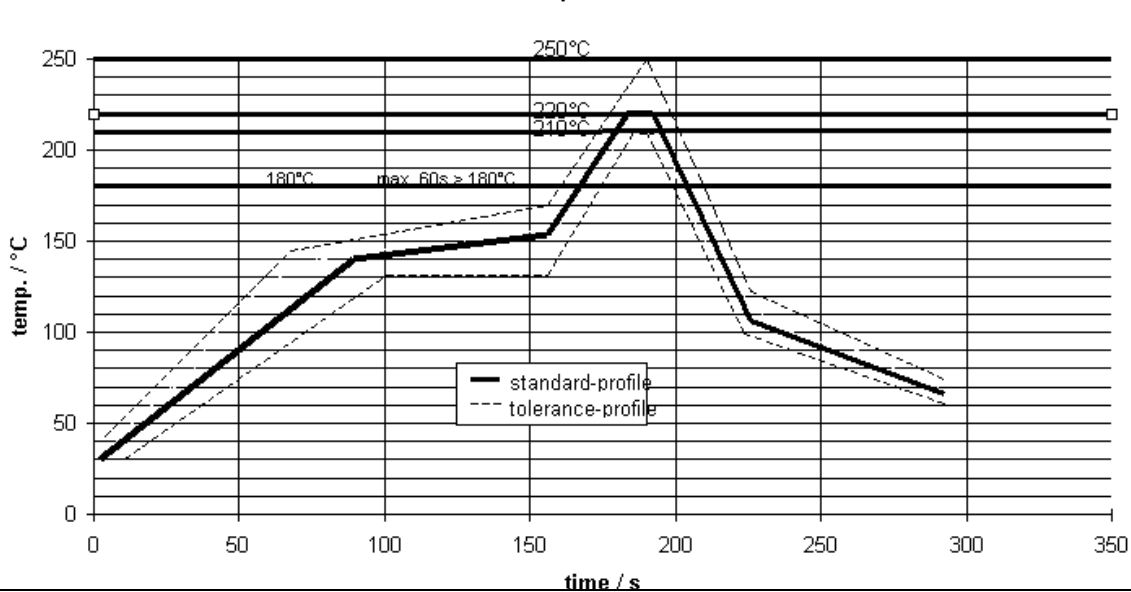


Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
G168A/G183B	24	83,3	850	12

Recommended Reflow Profile

standard-reflow-profile for SMD-oscillators



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				
<i>Example:</i>	<i>C1310</i>	<i>D105</i>	<i>SV050</i>	<i>RFH</i>	<i>A1</i>

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.