



VX-501

Features

- Surface Mount FR4 based package
- Reflow Process Compatible
- Low Phase Noise and Jitter
- Tight Stabilities
- Frequency Range 10 - 1200MHz
- Standard Frequencies 10; 28; 36.864; 50; 52; 61.44; 63; 65; 80; 100; 120; 122.88; 125; 128; 134.4; 153.6; 156.25; 160; 195; 200; 204.8 208; 245.76; 256; 300; 307.2; 312.5; 320; 322.6; 400; 420; 491.52; 680; 800; 840; 1000; 1200; 1200.1MHz
- Previous Model Number: C5310

Applications

- Communication
- Test & Measurement
- Medical
- Military

Performance Specifications

Frequency Stabilities ¹					
Parameter	Min	Typical	Max	Units	Condition ²
vs. operating temperature range (referenced to +25°C)	-15		+15	ppm	-20 to +70°C
Initial tolerance	-10		+10	ppm	@V _c =V _s /2 V _s ±5% Load ±10%
vs. supply voltage change	-3		+3	ppm	
vs. load change	-1		+1	ppm	
vs. aging / 1st Year	-2		+2	ppm	
vs. aging (following years)	-1		+1	ppm	
vs. operating temperature range (referenced to +25°C)	-30		+30	ppm	-40 to +85°C
Initial tolerance	-15		+15	ppm	@V _c =V _s /2 V _s ±5% Load ±10%
vs. supply voltage change	-3		+3	ppm	
vs. load change	-2		+2	ppm	
vs. aging / 1st Year	-2		+2	ppm	
vs. aging (following years)	-1		+1	ppm	

Performance Specifications

Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition ²	
Supply voltage (standard)	3.135	3.3	3.465	VDC		Options ⁵
Current consumption			40	mA	@ HCMOS, Sinewave	
Current consumption			90	mA	@ PECL, LVDS	
Supply voltage	4.75	5	5.25	VDC		
Current consumption			30	mA	@ HCMOS, Sinewave	
Current consumption			80	mA	@ PECL, LVDS	
RF Output						
Signal	HCMOS					Options ⁵
Load		15		pF		
Rise and Fall time			5	ns	@ 15 pF 10 to 90%	
Duty cycle	40		60	%	@ Vs / 2	
Signal	PECL					
Load		50		Ω		
Rise and Fall time			1	ns	20 to 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		
Frequency Tuning (EFC)						
Tuning Range	±65.0	±90	±200.0	ppm		
Linearity	10 %					
Tuning Slope	Positive					
Control Voltage Range	0 0.5	1.65 2.5	3.3 4.5	VDC VDC	with Vs = 3.3V with Vs = 5V	
Frequency Control Input Impedance	100			kΩ		
Additional Parameters						
Phase Noise		-76 -112 -138 -153 -161 -166		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz	@100MHz LVCMOS 3.3V
Jitter		0.049		ps RMS	@ 12kHz .. 20MHz	
Phase Noise		-59 -90 -118 -137 -144		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	@ 300 MHz LVDS 3.3V
Jitter		0.1		ps RMS	@ 12kHz .. 20MHz	
Phase Noise		-60 -95 -121 -141 -150		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz	@ 491.52 MHz PECL 3.3V
Jitter		0.03		ps RMS	@ 12kHz .. 20MHz	

Performance Specifications

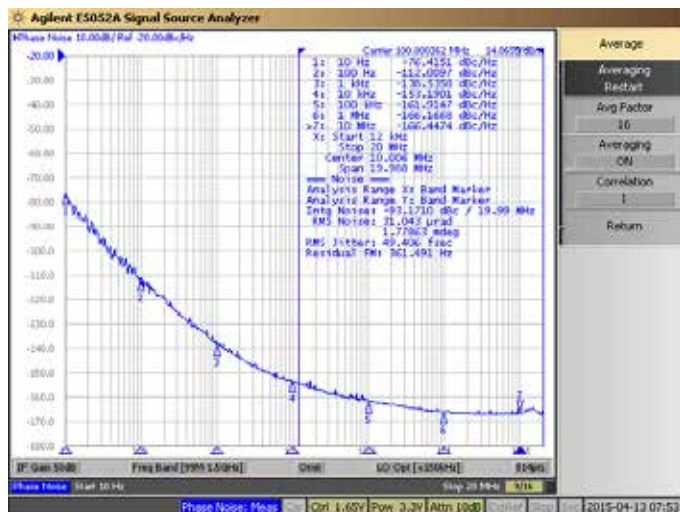
Additional Parameters

Subharmonics		-40	dBc	For f > 200 MHz
Weight		2.0 g		
Processing & Packing	Handling & Processing Note			
Absolute Maximum Ratings				
Supply voltage (Vs)		6.0	V	
Operable Temperature Range	-40	+85	°C	
Storage Temperature Range	-40	+95	°C	

Typical Phase Noise and Jitter

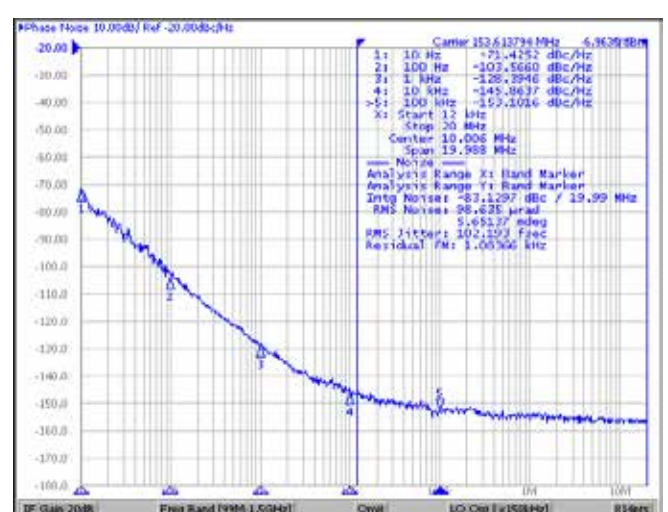
Phase Noise

VX-501 @ 100 MHz LVCMOS



Phase Noise

VX-501 @ 153.6 MHz LVPECL



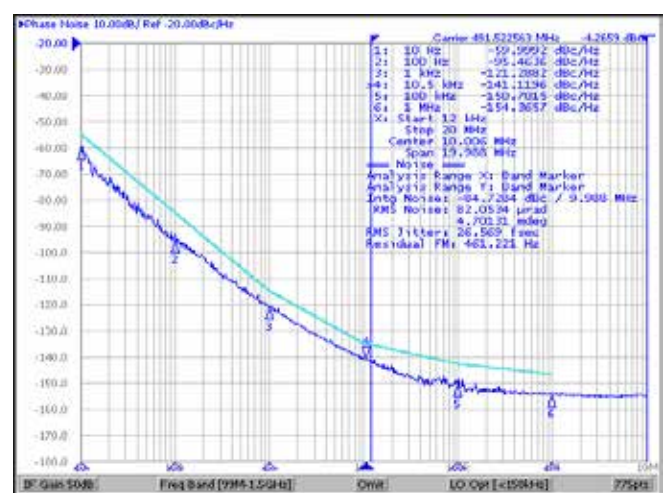
Phase Noise

VX-501 @ 300 MHz LVDS



Phase Noise

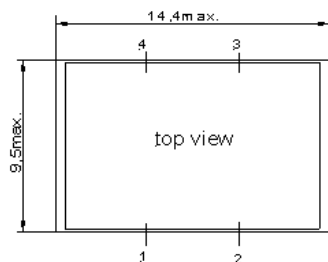
VX-501 @ 491.52 MHz LVPECL



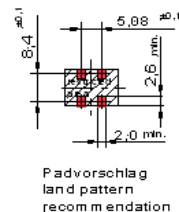
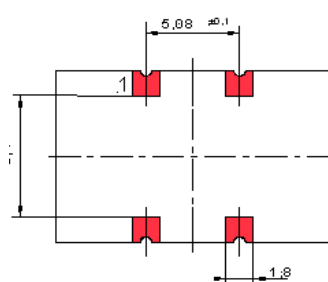
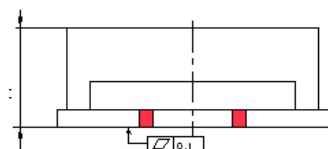
Enclosure

Package Codes

Type	Height "H"
G223C	2.8



G 223



Pin Connections

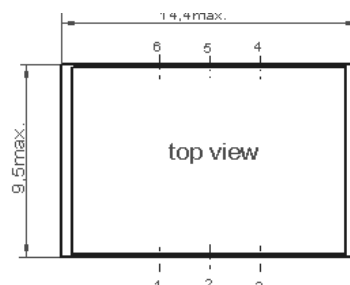
1	Control Voltage (Vc)
2	Ground
3	RF Output
4	Supply Voltage Input (Vs)

Marking

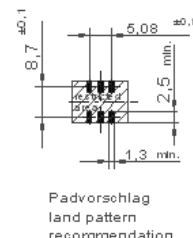
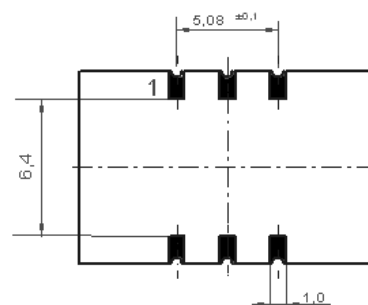
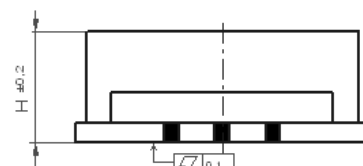
VX-501-xxxx
Frequency
● AYYWW

Package Codes

Type	Height "H"
G218C	2.8



G 218



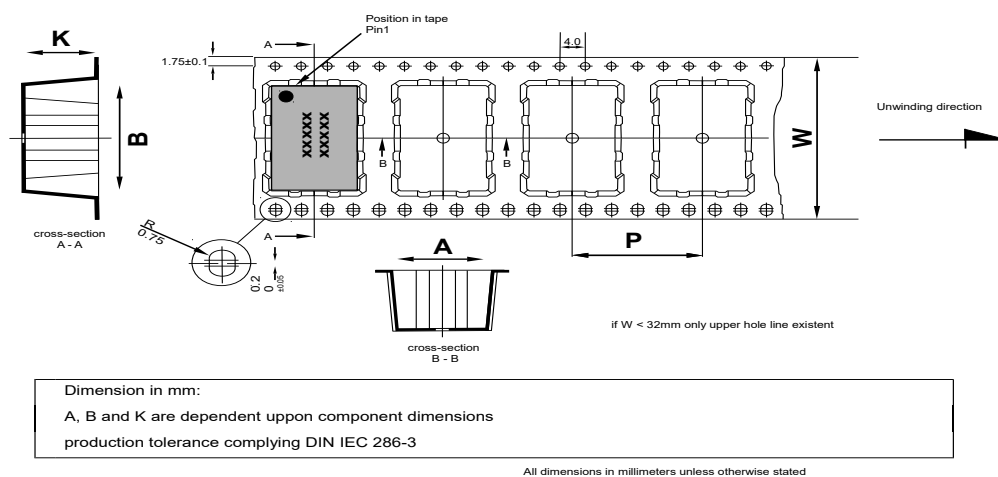
Pin Connections

1	Control Voltage (Vc)
2	N.C. / Enable (Option)
3	Ground
4	RF Output
5	RF Output complementary (PECL / LVDS) N.C. (CMOS)
6	Supply Voltage Input (Vs)

Enable true table (optional)

	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

Standard Shipping Method



Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G218C, G223C	24	83.3	1700	12

Recommended Reflow Profile

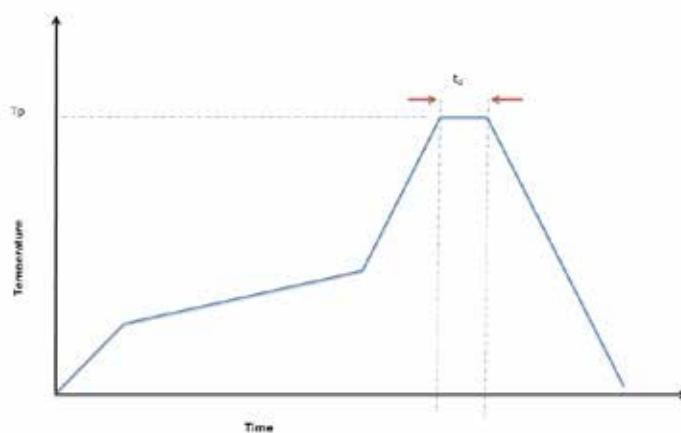
TP: max 250°C (@ solder joint, customer board level)

T_p: max: 10...30 sec

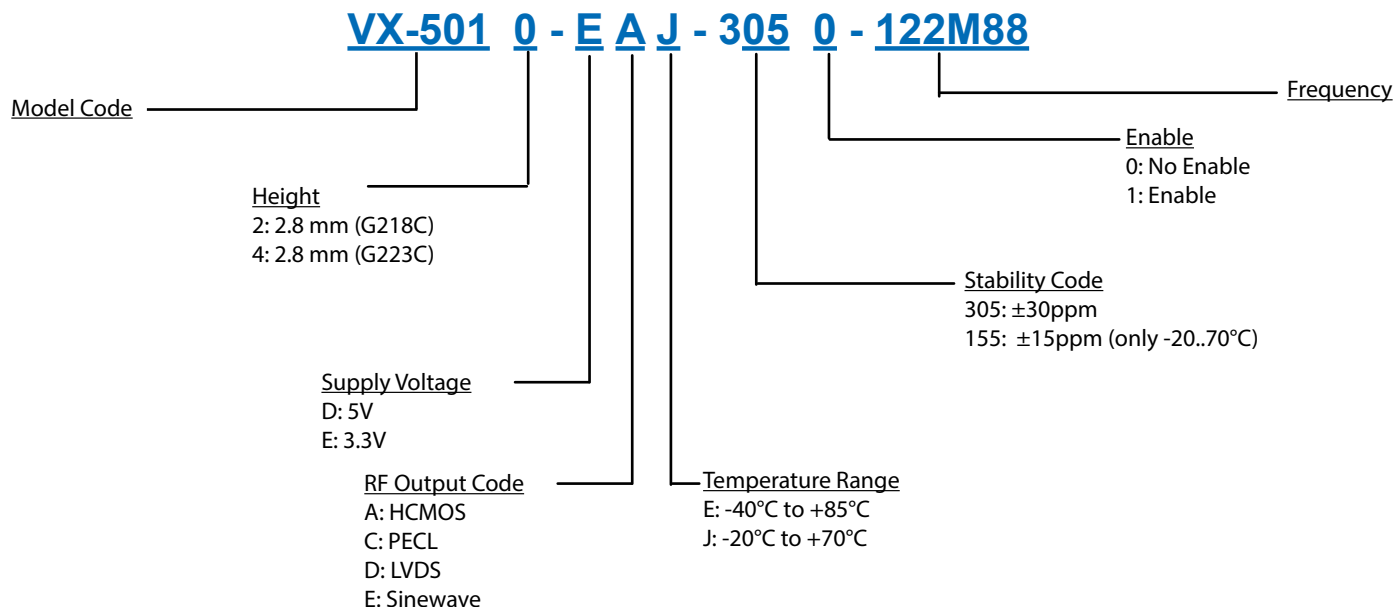
Additional Information:

This SMD oscillator has been designed for pick and place reflow soldering

SMD oscillators must be on the top side of the PCB during the reflow process.



Ordering Information



Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other 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.

Contact Information

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