![Microsemi - a Microchip company]

Features

- AT-Cut Crystal
- Surface Mount FR4 based package
- Reflow Process Compatible
- Extended temperature range -55..+125°C
- Low Phase Noise
- Tight Stabilities
- Frequency Range 20 - 800MHz
- Standard Frequencies 20; 30,72; 32,768; 38,88; 44.8; 61.44; 76.8; 77.76; 81.92; 92.16;100; 112; 122.88; 125; 134.4; 153.6; 155.52; 160; 179.2; 184.32; 195; 208; 245.76; 320; 368.64; 400; 448; 491.52; 640; 672; 737.28; 800MHz

Applications

- Communication
- Industrial
- Harsh Environmental
- Military

Performance Specifications

Frequency Stabilities[1]					
Parameter	Min	Typical	Max	Units	Condition[2]
vs. operating temperature range (referenced to +25°C)	-45		+45	ppm	-55 to +125°C
Initial tolerance	-30		+30	ppm	@Vc=Vs/2
vs. supply voltage change	-2		+2	ppm	V_S ±5%
vs. load change	-1		+1	ppm	Load ±10%
vs. aging / 20 Years	-8		+8	ppm	

Performance Specifications
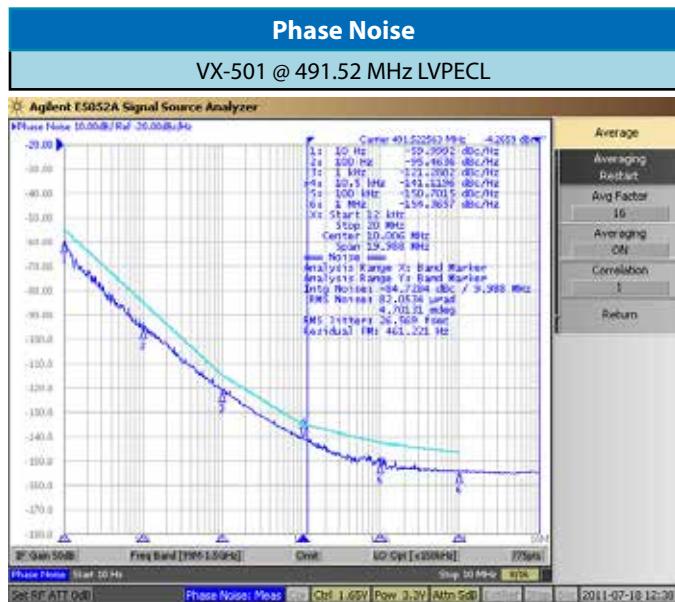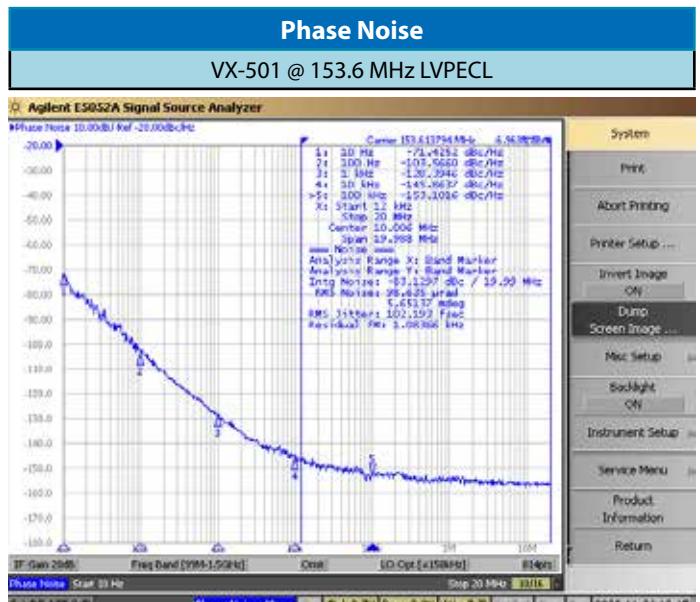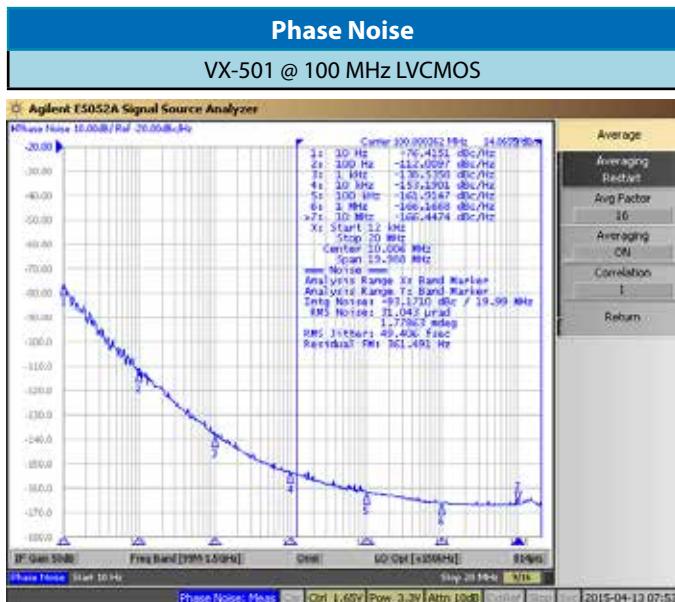
Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition[2]	
Supply voltage (standard)	3.135	3.3	3.465	VDC		Options[5]
Current consumption			40	mA	@ HCMOS	
Current consumption			90	mA	@ PECL	
Supply voltage	4.75	5	5.25	VDC		
Current consumption			30	mA	@ HCMOS	
Current consumption			80	mA	@ PECL	

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	%		

Frequency Tuning (EFC)					
Tuning Range	±60.0		±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	2			MΩ	

Additional Parameters					
Phase Noise		-76		dBc/Hz	10 Hz	
		-112		dBc/Hz	100 Hz	
		-138		dBc/Hz	1 kHz	@100MHz
		-153		dBc/Hz	10 kHz	LVCMOS
		-161		dBc/Hz	100 kHz	3.3V
		-166		dBc/Hz	1 MHz	
Jitter		0.049		ps RMS	@ 12kHz .. 20MHz	
Phase Noise		-75		dBc/Hz	10 Hz	
		-105		dBc/Hz	100 Hz	@ 153.6
		-130		dBc/Hz	1 kHz	MHz
		-145		dBc/Hz	10 kHz	PECL
		-153		dBc/Hz	100 kHz	3.3V
Jitter		0.1		ps RMS	@ 12kHz .. 20MHz	
Phase Noise		-60		dBc/Hz	10 Hz	
		-95		dBc/Hz	100 Hz	@ 491.52
		-121		dBc/Hz	1 kHz	MHz
		-141		dBc/Hz	10 kHz	PECL
		-150		dBc/Hz	100 kHz	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	-55	+125	°C	
Storage Temperature Range	-55	+125	°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 @ 491.52 MHz LVPECL
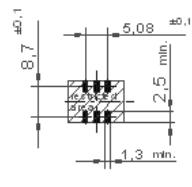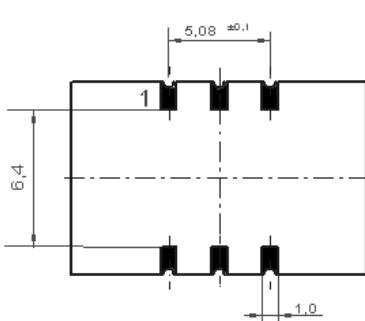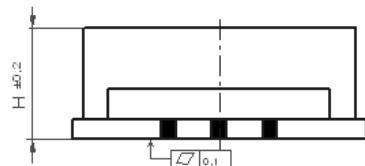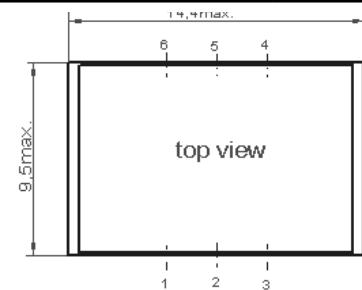
Package Codes

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) N.C. (CMOS)
6	Supply Voltage Input (Vs)
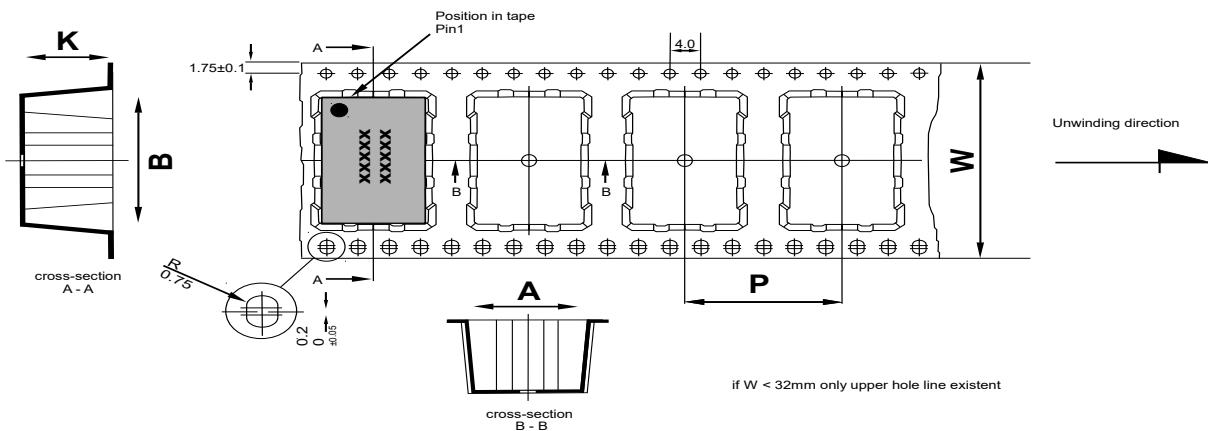
Marking

VX-505-xxxx
Frequency
● AYYWW

Enable true table (optional)

	HCMOS		LVPECL	
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

Dimension in mm:

A, B and K are dependent uppon component dimensions

production tolerance complying DIN IEC 286-3

All dimensions in millimeters unless otherwise stated

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

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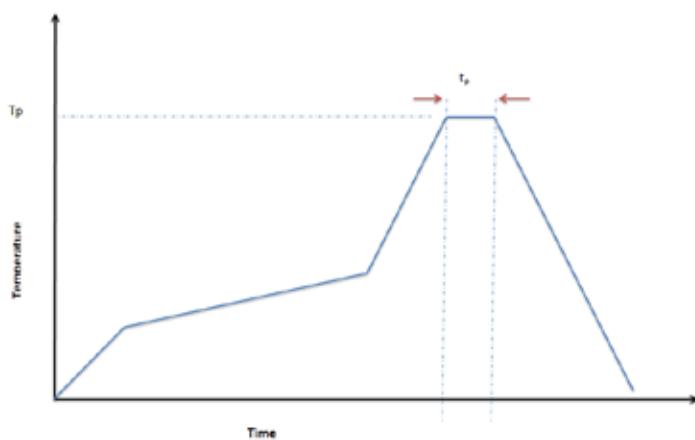
TP: max 250°C (@ solder joint, customer board level)

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.

VX-505 0 - E A C - 455 0 - 96M0

Model Code

Height
0: 2.8 mm (G218C)

Frequency

Enable
0: No Enable
1: Enable

Stability Code
455: ±45ppm

Supply Voltage
D: 5V
E: 3.3V

RF Output Code
A: HCMOS
C: PECL

Temperature Range
A: -55°C to +85°C
B: -55°C to +105°C
C: -55°C to +125°C
F: -40°C to +105°C

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.

Rev: 07/2018