VX-504

Low G-Sensitivity
Voltage Controlled Crystal Oscillator

Features

- AT-Cut Crystal
- Surface Mount FR4 based package
- Low Phase Noise
- Low G-Sensitivity
- Tight Stabilities
- Frequency Range 30 - 160MHz
- Standard Frequencies 32,768; 38,4; 44.8; 61.44; 76.8; 81.92; 92.16;100; 102.4; 112; 122.88; 125; 134.4; 153.6; 155.52; 160MHz

Applications

- Wireless Communication
- Test & Measurement
- Harsh Environment
- Industrial
- Military

Performance Specifications

Frequency Stabilities[1]						
Parameter	Min	Typical	Max	Units	Condition[2]	
vs. operating temperature range (referenced to +25°C)	-30		+30	ppm	-40 to +85°C	
Initial tolerance vs. supply voltage change vs. load change vs. aging / 1 Year vs. aging (15 years)	-15 -3 -2 -2 -7		+15 +3 +2 +2 +7	ppm ppm ppm ppm ppm	@Vc=Vs/2 V_S ±5% Load ±10%	

Performance Specifications

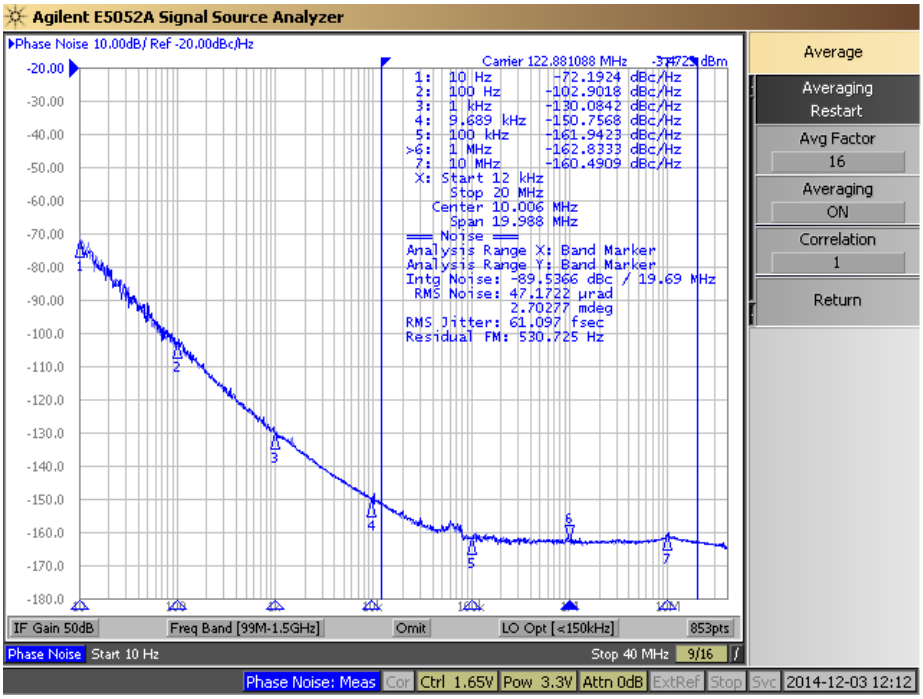
Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition[2]	
Supply voltage (standard)	3.135	3.3	3.465	VDC		Options[5]
Current consumption			25	mA	@ HCMOS	
Supply voltage	4.75	5	5.25	VDC		
Current consumption			20	mA	@ HCMOS	
RF Output						
Signal	HCMOS					Options[5]
Load		15		pF		
Rise and Fall time			5	ns	@ 15 pF 10 to 90%	
Duty cycle	40		60	%	@ Vs / 2	
Frequency Tuning (EFC)						
Tuning Range	±65.0	±80	±180.0	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 Jitter		-72 -103 -130 -150 -161 0.06		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz ps RMS	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz @ 12kHz .. 20MHz	@122MHz LVCMOS 3.3V
G-Sensitivity		0.3		ppb/g	@0.06g²/Hz	

Additional Parameters				
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	+105	°C	

Typical Phase Noise and Jitter

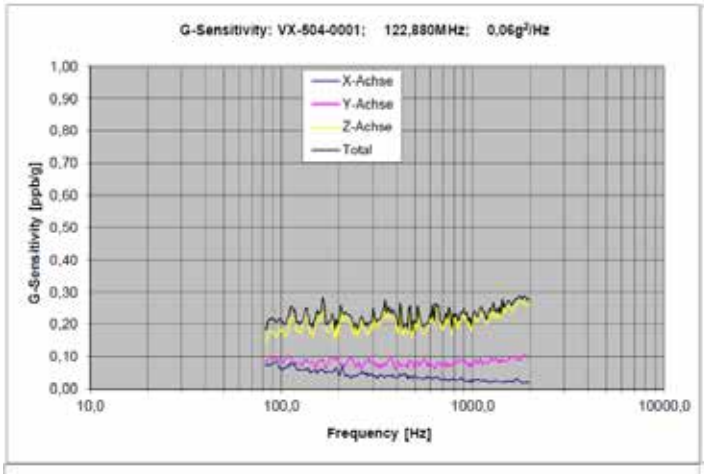
Phase Noise

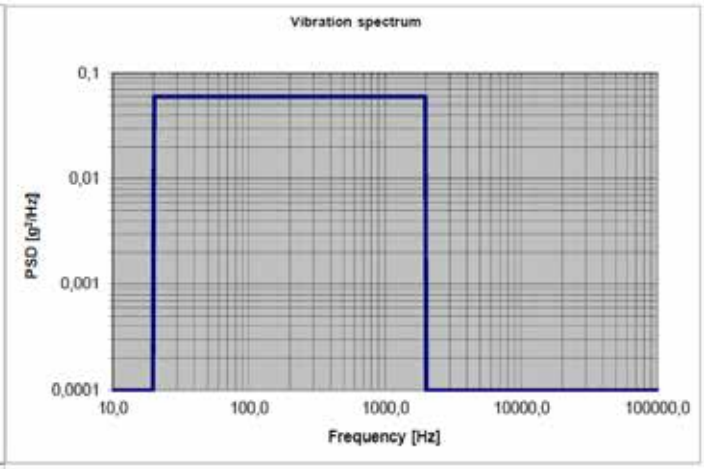
VX-504 @ 122.88 MHz LVCMOS

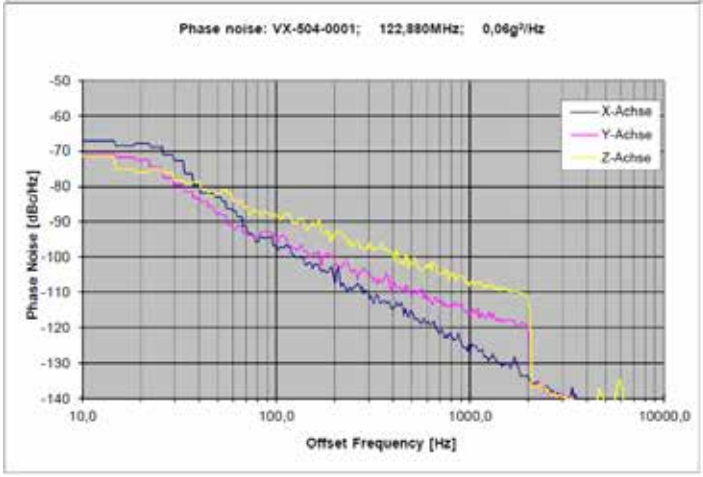


G-Sensitivity

VX-504 @ 122.88 MHz LVCMOS



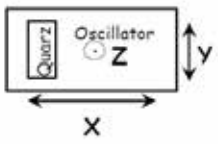




Calculation equation according to Vig-Tutorial

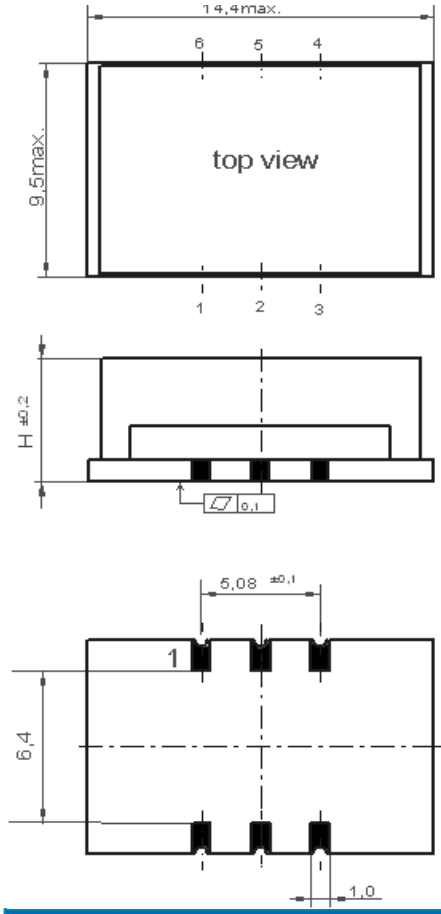
g-sensitivity: $G = \frac{2 \cdot f_r}{Apeak \cdot f_0} \cdot 10^{\frac{\Gamma(f_r)}{20}}$

Peak g-level: $A_{peak} = \sqrt{PSD \cdot 2}$

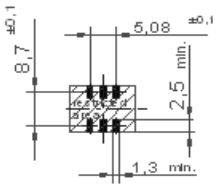


Enclosure

Package Codes	
Type	Height "H"
G218C	2.8



G 218



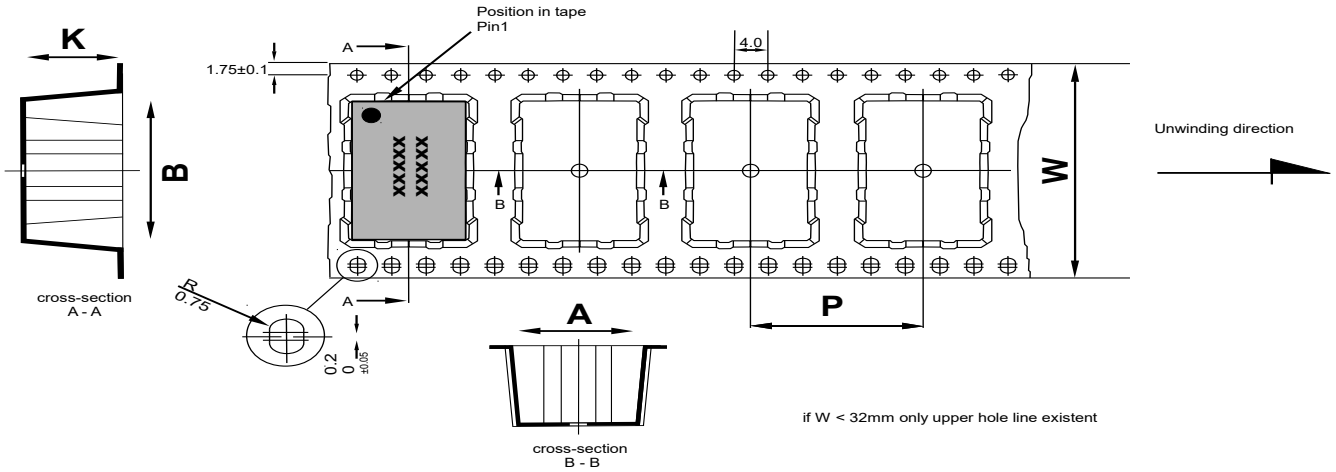
Padvorschlag
land pattern
recommendation

Pin Connections	
1	Control Voltage (Vc)
2	N.C. / Enable (Option)
3	Ground
4	RF Output
5	N.C.
6	Supply Voltage Input (Vs)

Marking
VX-504-xxxx
Frequency
● AYYWW

Enable true table (optional)		
	HCMOS	
Pin 2	Pin 4	Pin 5
High	Data	N.C.
Open	Data	N.C.
Low	High Tristate	N.C.

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

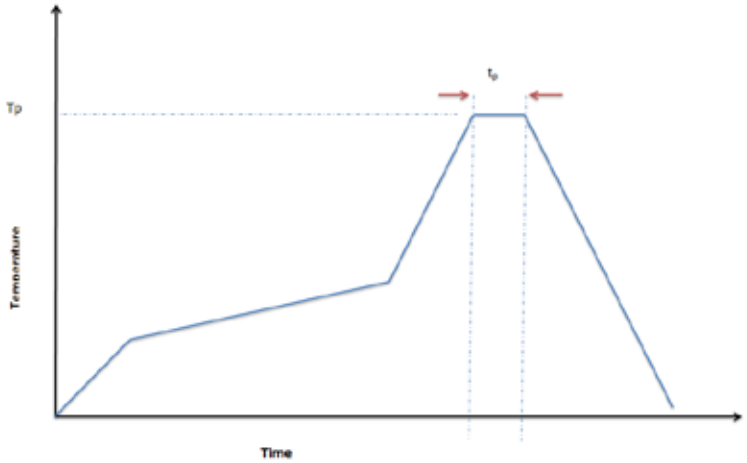
TP: max 250°C (@ solder joint, customer board level)

T_p: max: 10…30 sec

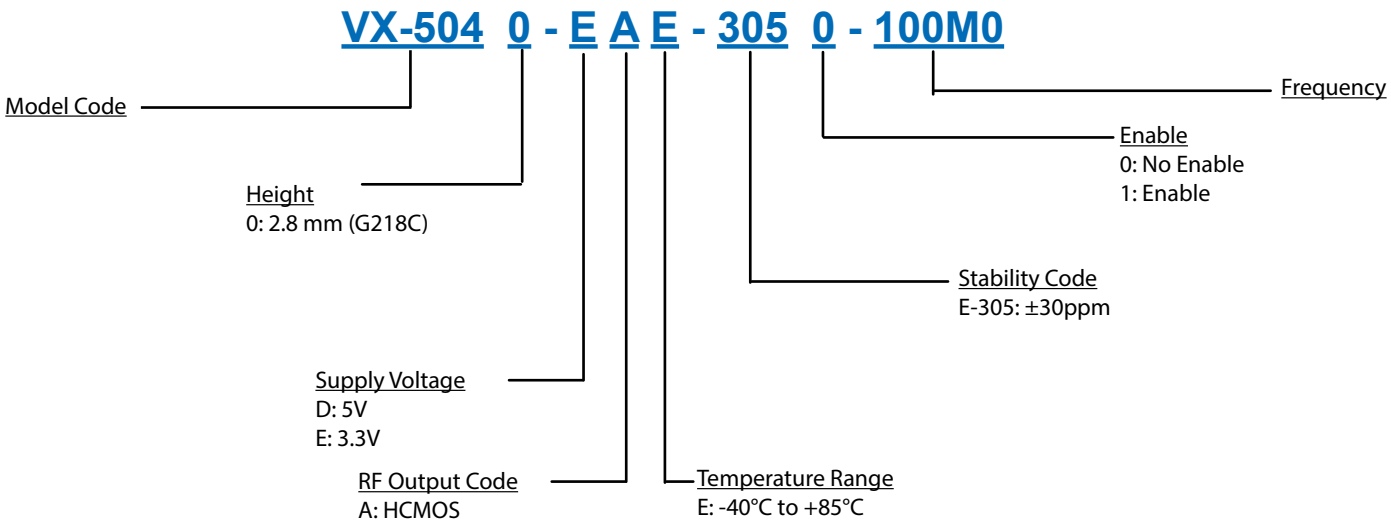
Additional Information:

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.



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.

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Rev: 07/2018