VX-401

Voltage Controlled Crystal Oscillator
Dual Frequency

Features

- AT-Cut Crystal
- Surface Mount FR4 based package
- Reflow Process Compatible
- Low Phase Noise
- Tight Stabilities
- Dual Frequency
- Frequency Range 100 - 800MHz
- Standard Frequencies 100; 112; 122.88; 125; 134.4; 153.6; 155.52;
- 160; 179.2; 184.32; 245.76; 307.2; 312.5;
- 320; 368.64; 400; 448; 471.8592; 491.52;
- 622.08; 672; 737.28; 800MHz
- Previous Model Number: C5430

Applications

- Base Stations
- Test Equipment
- Synthesizers
- Switching
- Military

Performance Specifications

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

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Performance Specifications

Parameter	Min	Typical	Max	Units	Condition	
Supply Voltage (Vs)						
Supply voltage (standard)	3.135	3.3	3.465	VDC		Options
Current consumption			90	mA	@ PECL, LVDS	
Supply voltage	4.75	5	5.25	VDC		
Current consumption			80	mA	@ PECL, LVDS	
RF Output						
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	%		
Frequency Tuning (EFC)						
Tuning Range	±75.0	±90	±200.0			
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	10			kΩ		
Additional Parameters						
Phase Noise Jitter		-77 -111 -139 -145 -146 0.24		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz ps RMS	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz @ 12kHz .. 20MHz	@ 160 MHz LVPECL 3.3V
Phase Noise Jitter		-62 -93 -119 -140 -148 0.07		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz ps RMS	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz @ 12kHz .. 20MHz	@ 448 MHz LVPECL 3.3V

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Performance Specifications

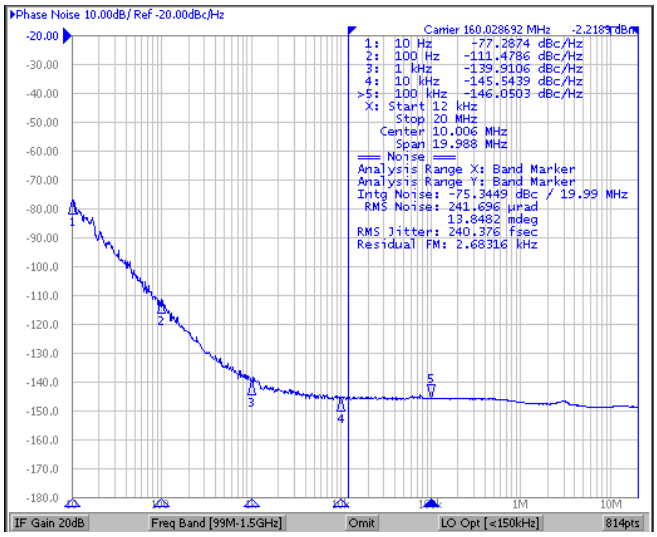
Additional Parameters				
Subharmonics		-40	dBc	
Weight		2.0 g		
Processing & Packing	Handling & Processing Note			

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

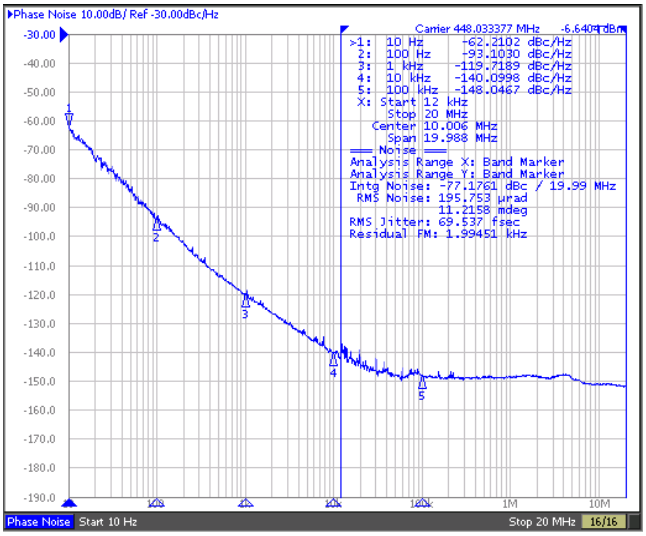
Phase Noise

VX-401 @ 160 MHz LVPECL



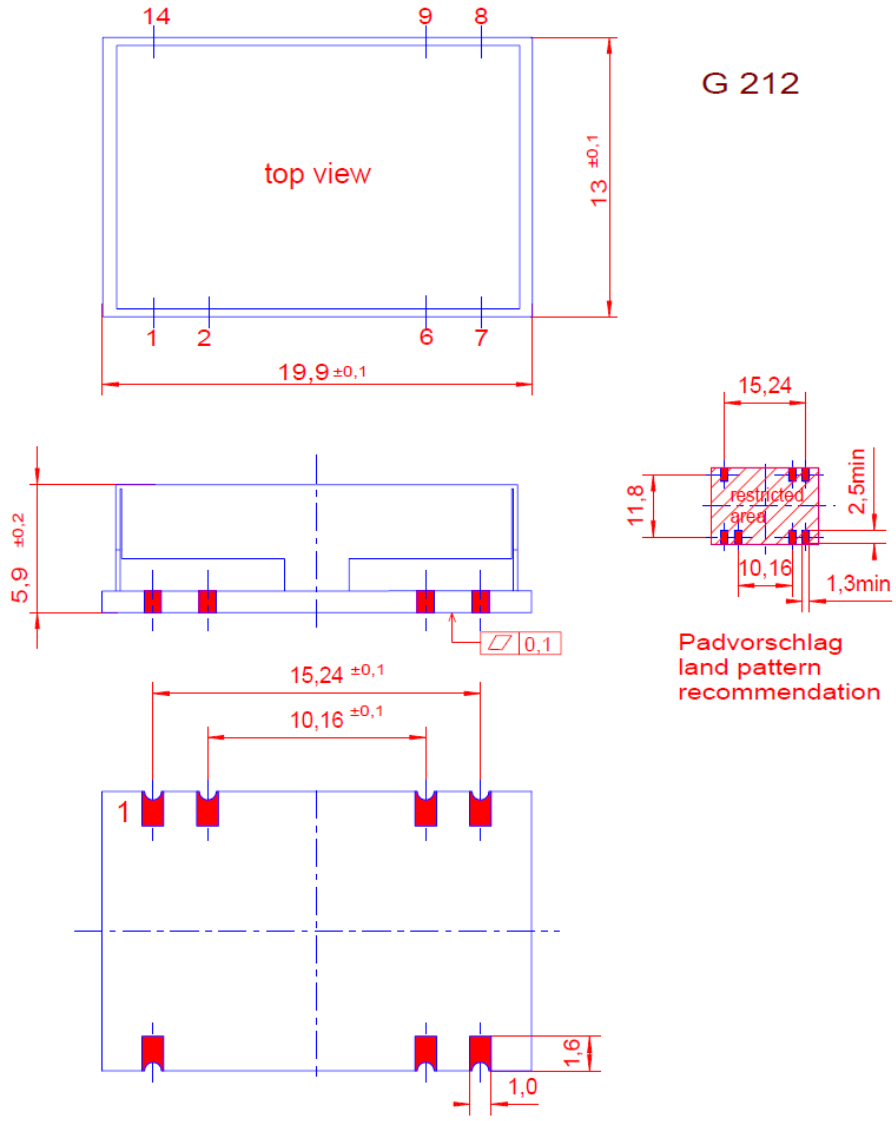
Phase Noise

VX-401 @ 448 MHz LVPECL



Enclosure

Package Codes		
Type	Height "H"	Pin Length "L"
G212	5.9	NA



G 212

Padvorschlag
land pattern
recommendation

Marking
VX-401-xxxx
Frequency 1 / Frequency 2
● AYYWW

Pin Connections	
1	Control Voltage (Vc)
2	Frequency Select Low: Frequency 1 / High: Frequency 2
6	Enable
7	GND
8	RF Output
9	RF Output complementary
14	Supply Voltage Input (Vs)

Enable true table		
	LVPECL / LVDS	
Pin 6	Pin 8	Pin 9
High	No Data	No Data
Open	Data	Compl. Data
Low	Data	Compl. Data

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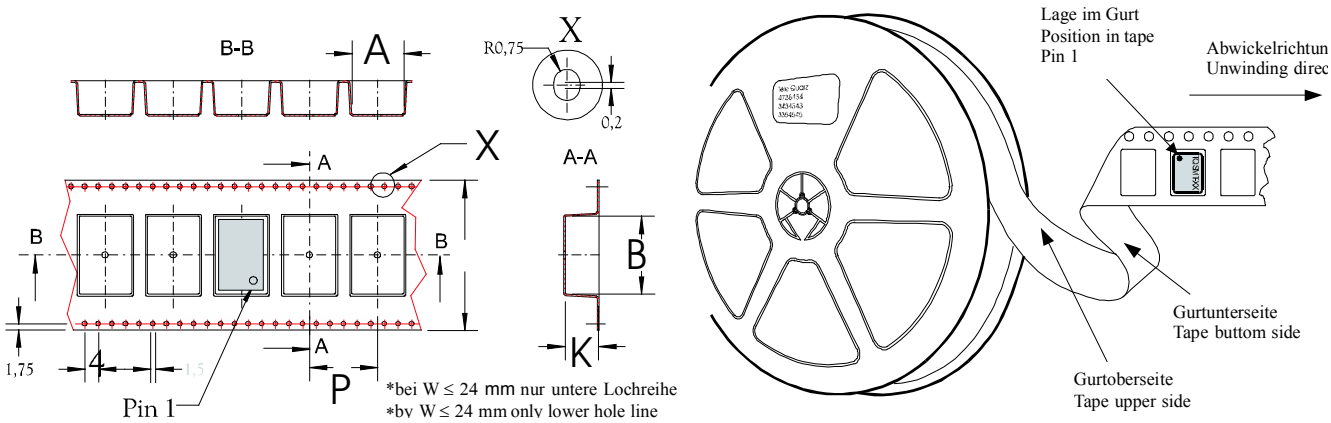
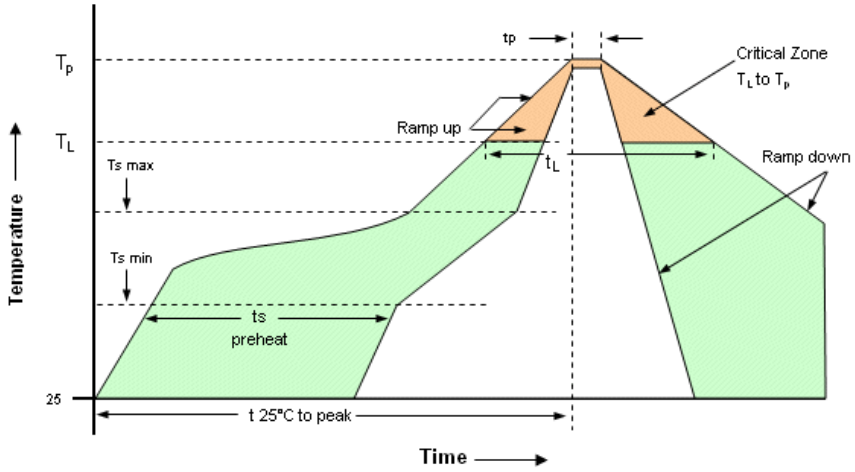
Standard Shipping Method



Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G212	24		500	12

Recommended Reflow Profile



Profile Feature	Pb-Free Assembly/ Sn-Pb Assembly	Profile Feature	Pb-Free Assembly/ Sn-Pb Assembly
Average ramp-up rate (T_L to T_p)	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min T_{Smin} -Temperature Min T_{Smax} -Time (min to max) t_S	150°C 200°C 60-180 seconds	Time maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
TSmax to TL -Ramp-up Rate	3°C/second max		
Time maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Peak Temperature (T_p)	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.

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Ordering Information

VX-401 0 - E C E - 305 0 - 122M880 - 153M600

Model Code

Height
0: 5.9 mm (G212)

Supply Voltage
D: 5V
E: 3.3V

RF Output Code
C: PECL

Temperature Range
E: -40°C to +85°C

Stability Code
E-305: ±30ppm

Enable
0: No Enable
1: Enable

Frequency 1

Frequency 2

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.

For Additional Information, Please Contact

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