



VS-403

Description

The VS-403 VCSO (Voltage Controlled Saw Oscillator) from Vectron is a ultra high frequency, low phase noise and low jitter oscillator. The VS-403 provides 14fs rms jitter in the 12kHz to 20MHz integration bandwidth and is available from 5GHz to 7GHz.

Features

- Frequency Range 5 to 7 GHz
- Ultra low jitter performance
- Typical Jitter: 14fsec rms, 12kHz to 20MHz
- 3.3V supply voltage
- Output sinewave
- 13x20 mm SMD package
- See table on Page 5 for standard frequencies

Applications

- High Speed ADCs
- Test & Measurement
- Wireless BTS
- Military

Performance Specifications

Pulling Characteristics					
Parameter	Min	Typ	Max	Units	Notes
Absolute Pull Range (APR)	±0			ppm	Includes df vs: •Operating temperature range -40 .. 85°C •Aging 10 years •Supply Voltage Change 5% •Load change 10%
Tuning Slope	Positive				
Control Voltage Range	0	1.65	3.3	V DC	with $V_s = 3.3V$
Frequency control input impedance	100			kΩ	
Supply Voltage (V_s)					
Supply voltage	3.135	3.3	3.465	VDC	
Current consumption			100	mA	@ Sinewave

Performance Specifications (Continued)

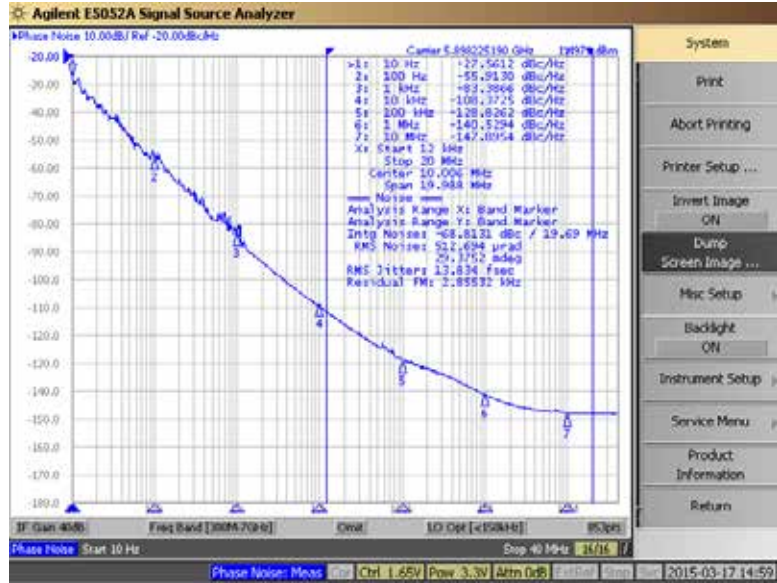
RF Output					
Parameter	Min	Typ	Max	Units	Notes
Signal	Sinewave				
Load	45	50	55	Ω	
Output Power	-5	0	3	dBm	
Subharmonics			-23	dBc	
Phase Noise: 100Hz offset		-55		dBc/Hz	@ 5.898GHz Sinewave 3.3V
Phase Noise: 1kHz offset		-83		dBc/Hz	
Phase Noise: 10kHz offset		-108		dBc/Hz	
Phase Noise: 100kHz offset		-128		dBc/Hz	
Phase Noise: 1MHz offset		-140		dBc/Hz	
Phase Noise: 10MHz offset		-147		dBc/Hz	
Jitter: 12kHz to 20MHz offset		14		fs rms	

Additional Parameters					
Weight	2.0g				
Processing and Packing	Handling and Processing Note				
Absolute Maximum Ratings					
Parameter	Min		Max	Units	Notes
Supply Voltage (V_s)			4.0	V	
Operable Temperature Range	-40		+85	$^{\circ}\text{C}$	
Storage Temperature Range	-40		+95	$^{\circ}\text{C}$	

Typical Performance

Phase Noise

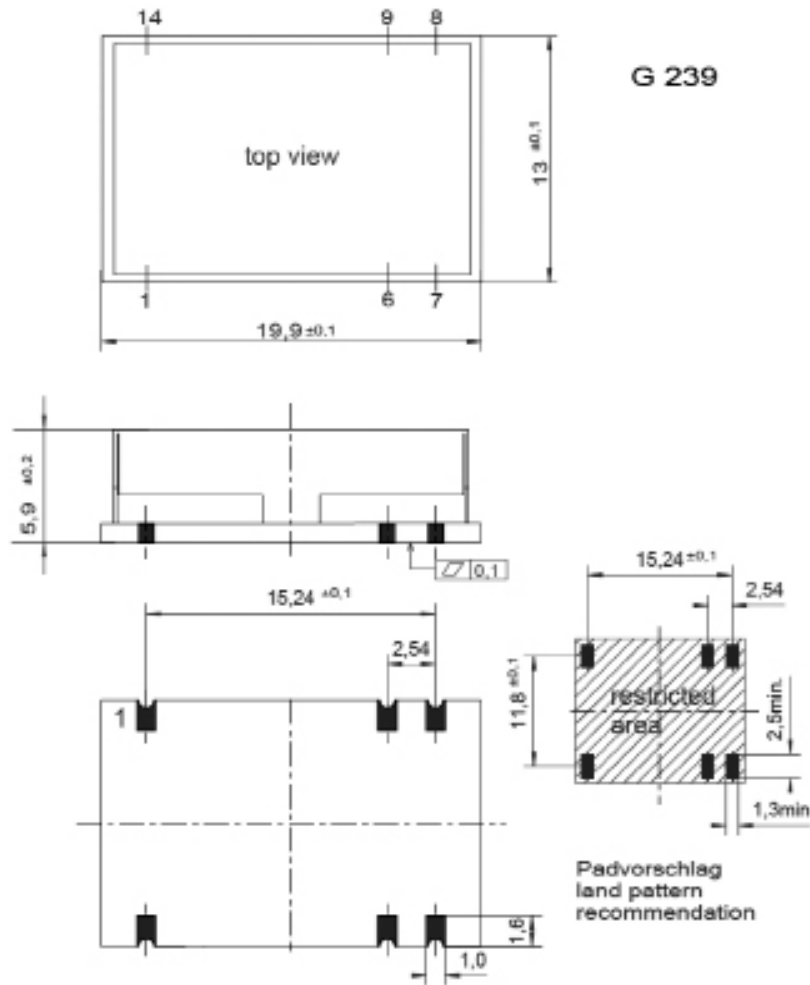
VS-403 @ 5.898GHz Sinewave



Outline Drawing / Enclosure

Package Codes		
Code	Height "H"	Pin Length "L"
G239	5.9	NA

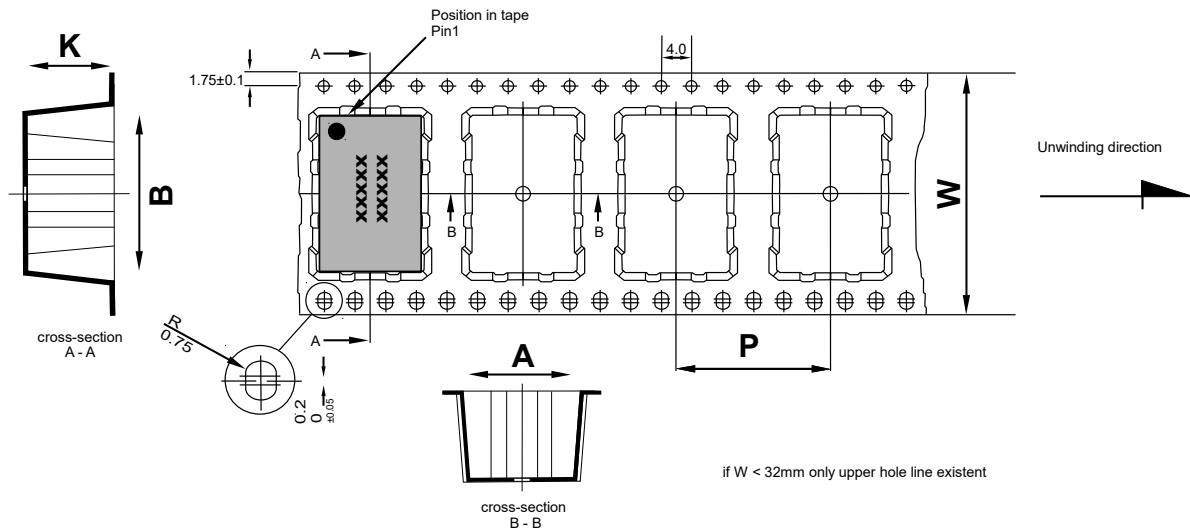
Dimensions in mm



Pin Assignment (Sinewave)	
1	Control Voltage (V_c)
6	GND
7	GND
8	RF Out
9	N.C.
14	Supply Voltage Input (V_s)

Marking	
VS-403-xxxx	
Frequency	
•AYYWW	

Standard Shipping Method



Dimension in mm:
 A, B and K are dependent upon 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
G239	24		500	12

Recommended Reflow Profile

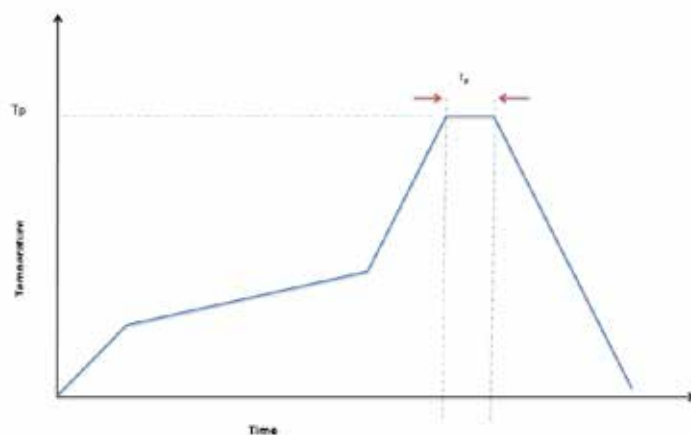
TP: max 250°C (@ solder joint, customer board level)

T_p: max: 10...30 sec

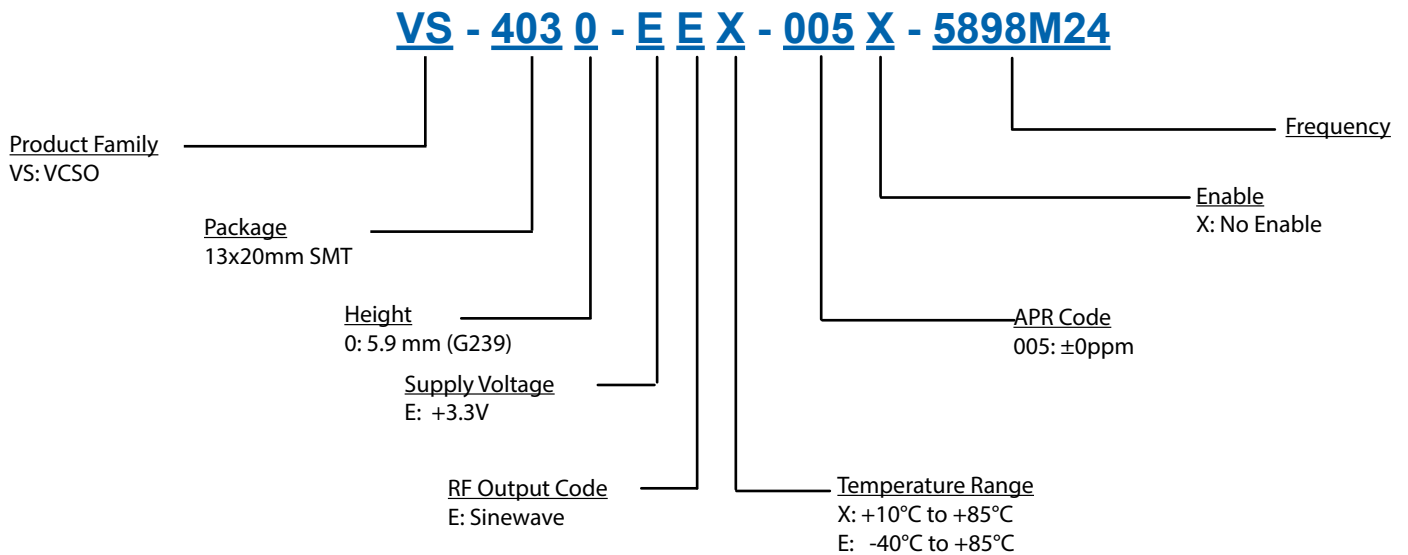
Additional Information:

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



Standard Frequencies (MHz)					
5625	5898.24	6750			

Other Frequencies Available Upon Request

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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