

## Typical Applications

PCS Base Stations  
 Land Mobile Radio  
 Cellular Telephony  
 Radio in the Local Loop

## Previous Vectron Model Numbers

## Frequency range

## Standard frequencies

## Features

EFC Standard  
 Standard Surface Mount Package  
**Low Phase Noise option**  
 Low Profile



STO50; STO50S3; STO50S3-01

6.4 MHz – 800 MHz

10; 12.288; 12.8; 19,44 MHz,  
 20; 20,48, 77.76, 100 MHz

## Frequency stabilities<sup>1</sup> [ Standard TCXO]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code <sup>5</sup>
vs. operating temperature range (Referenced to +25°C)	-2.5		+2.5	ppm	-40 ... +85°C	F256
	-1.0		+1.0	ppm	-40 ... +85°C	F106
	-2.5		+2.5	ppm	-20 ... +70°C	D256
	-1.0		+1.0	ppm	-20 ... +70°C	D106
	-1.0		+1.0	ppm	0 ... +50°C	B106
	-0.5		+0.5	ppm	0 ... +50°C	B507
Parameter	Min	Typ	Max.	Units	Condition	
Initial tolerance	- 1.5		+1.5	ppm	at time of shipment, nominal EFC	
vs. supply voltage change	- 0.2		+0.2	ppm	V <sub>S</sub> ± 5%	
vs. load change	- 0.2		+0.2	ppm	Load ± 10%	
vs aging /1. Year	- 1.0		+1.0	ppm		

## Frequency stabilities<sup>1</sup> [ Stratum 3 TCXO]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code <sup>5</sup>
vs. operating temperature range (Referenced to +25°C)	-0.8		+0.8	ppm	-40 ... +85°C	F807
	-0.28		+0.28	ppm	-30 ... +85°C	G287*
	-0.8		+0.8	ppm	-20 ... +70°C	D807
	-0.28		+0.28	ppm	-20 ... +70°C	D287*
	-0.28		+0.28	ppm	0 ... +50°C	B287*
Parameter	Min	Typ	Max.	Units	Condition	
Initial tolerance	- 1.0		+1.0	ppm	at time of shipment, nominal EFC	
vs. supply voltage change	- 0.2		+0.2	ppm	V <sub>S</sub> ± 5%	
vs. load change	- 0.1		+0.1	ppm	Load ± 10%	
vs aging /15 Years	- 2.5		+2.5	ppm		
overall tolerance	-4.6		-4.6	ppm		
Note: * Stratum 3 per GR-1244-CORE: <±4.6 ppm for all causes and 20 years aging, Holdover: <±0.37 ppm over 24 hours (Code: D287 & B287)						

## Supply voltage (Vs)

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code <sup>5</sup>
Supply voltage [Standard]	3.135	3.3	3.465	VDC		SV033
Supply voltage [Option]	4.75	5	5.25	VDC		SV050
Current consumption			35	mA	steady state @ +25°C & 3.3VDC	
			35	mA	steady state @ +25°C & 5.0VDC	

## RF output

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code <sup>5</sup>
Signal [Standard]	HCMOS					RFH
Load	13.5	15	16.5	pF	with Vs= 5.0V and 15pF load with Vs=3.3V and 15pF load with Vs= 5.0V and 15pF load with Vs=3.3V and 15pF load	
Signal Level (Vol)			0.5	VDC		
Signal Level (Voh)	4.5		0.3	VDC		
Rise and Fall time	3.0			VDC		
Duty cycle	40	50	60	%		
Signal [Option]	clipped Sinewave				> 12.288MHz	RFC
Load R	9	10	11	kΩ	@ 10kΩ   10pF	
C	9	10	11	pF		
Output power	0.7			V <sub>pp</sub>		
Signal [Standard]	PECL					RFP
Load		50		Ω	to Vs-2V	20 to 80%
Rise and Fall time			1	ns		
Duty cycle	45	50	55	%		
Subharmonics	-45			dBc		

## Frequency Tuning (EFC)

Parameter	Min	Typ	Max.	Units	Condition
Tuning Range	± 8.0	±14.0	± 20.0	ppm	Standard Version
	± 5.0	±12.0	± 20.0	ppm	S3 Version
Linearity			10	%	
Tuning Slope	Positive				
Control Voltage Range	0.3	1.65	3.0	VDC	with Vs=3.3VDC
	0.5	2.5	4.5	VDC	with Vs=5.0VDC
Freq. control input impedance	10			kΩ	

## Additional parameters

Parameter	Min	Typ	Max.	Units	Condition
Phase Noise <sup>3</sup>		-90		dBc/Hz	10 Hz TCXO @19.44MHz
		-120		dBc/Hz	100 Hz
		-135		dBc/Hz	1 kHz
		-140		dBc/Hz	10 kHz
		-145		dBc/Hz	100 kHz
Phase Noise <sup>3</sup>		-98		dBc/Hz	10 Hz Low Phase Noise TCXO @12.8 MHz
		-125		dBc/Hz	100 Hz
		-147		dBc/Hz	1 kHz
		-153		dBc/Hz	10 kHz
		-154		dBc/Hz	100 kHz
Weight			3	g	

Processing & Packing	Handling & processing note
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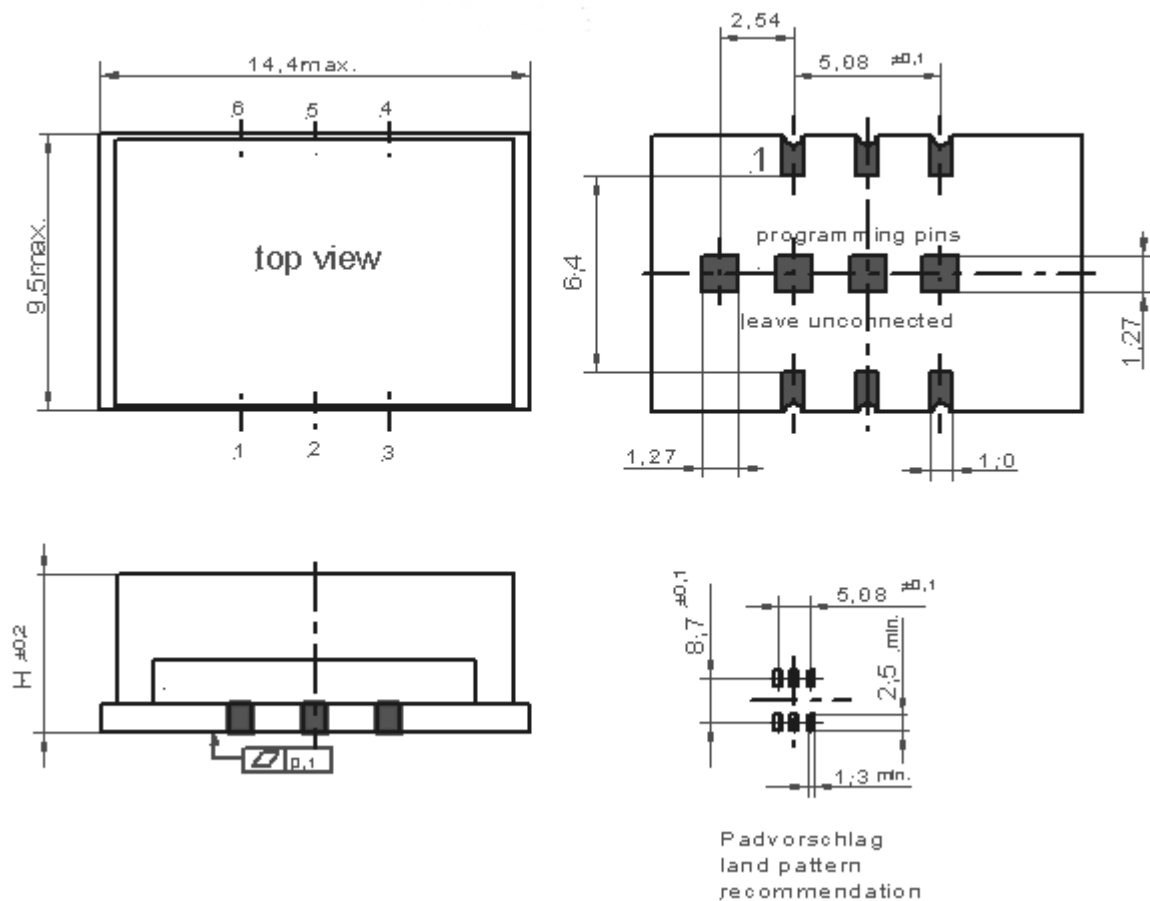
## Enclosures

### Type G214B

Package Codes:

Code	Height "H"	Pin Length "L"
A1	5.9	NA

### G 214



Dimensions: mm

#### Pin Connections

- 1 Voltage Control (Vc)
- 2 N.C.
- 3 GND, case
- 4 RF output
- 5 N.C. / RF output compl.
- 6 Supply Voltage (V<sub>s</sub>)

#### Marking

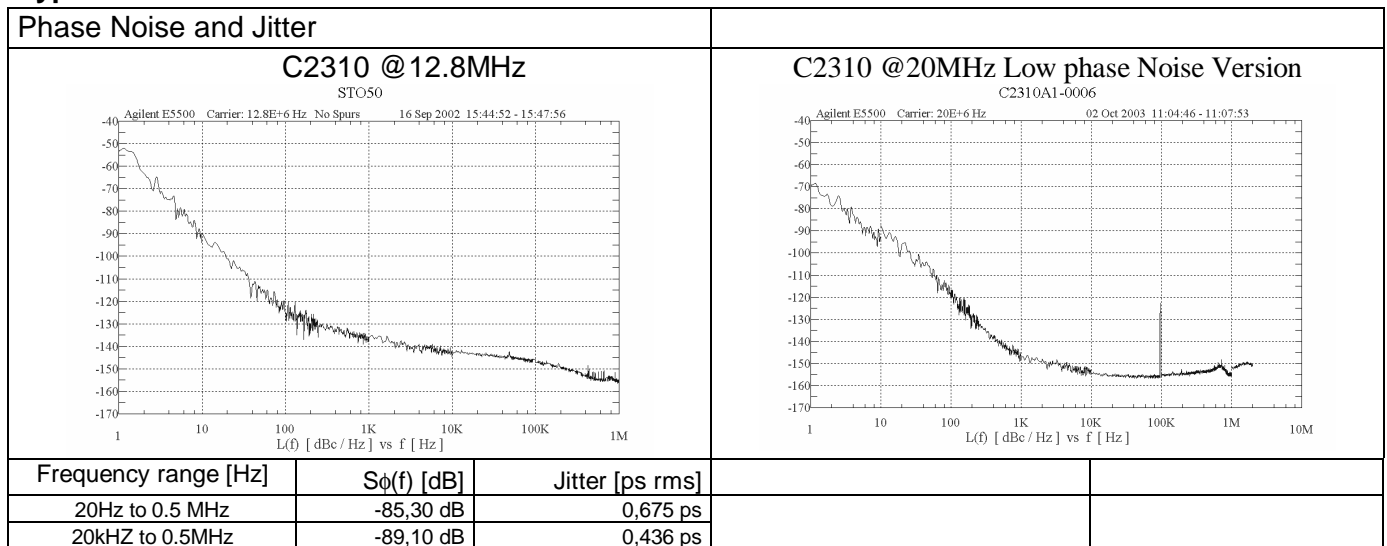
- C2310-xxxx
- Frequency
- \* C AYYWW

Outline Drawing: G214B

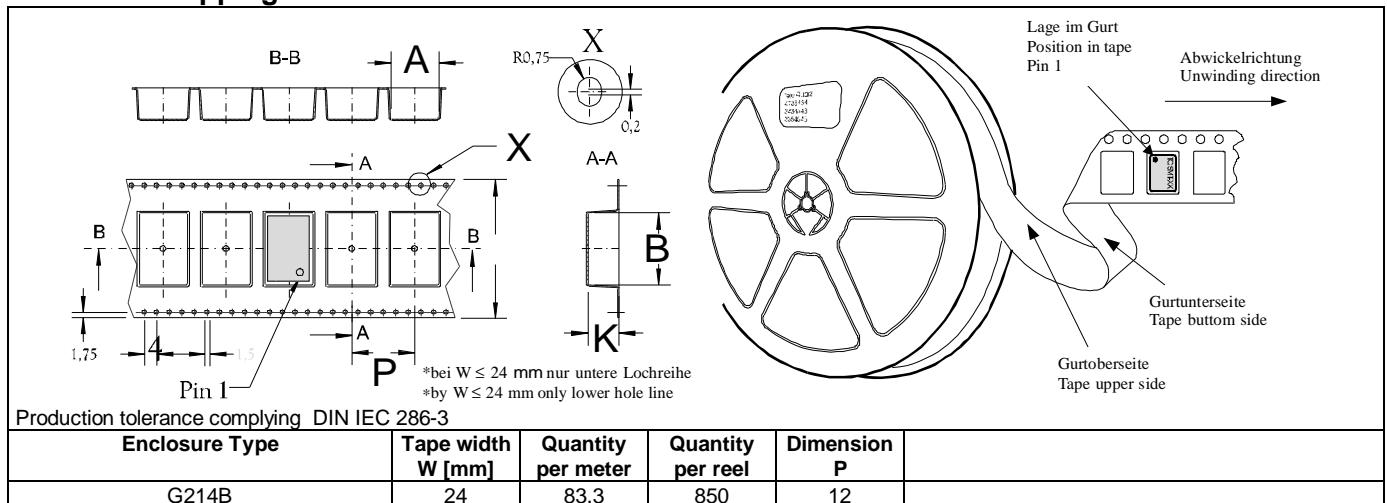
## Absolute Maximum Ratings

Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			6.0	V	
Control Voltage	0		Vs	V	
Maximum output load @ CMOS			40	pF	
Operable temperature range	-40		+85	°C	
Storage temperature range	-55		+125	°C	

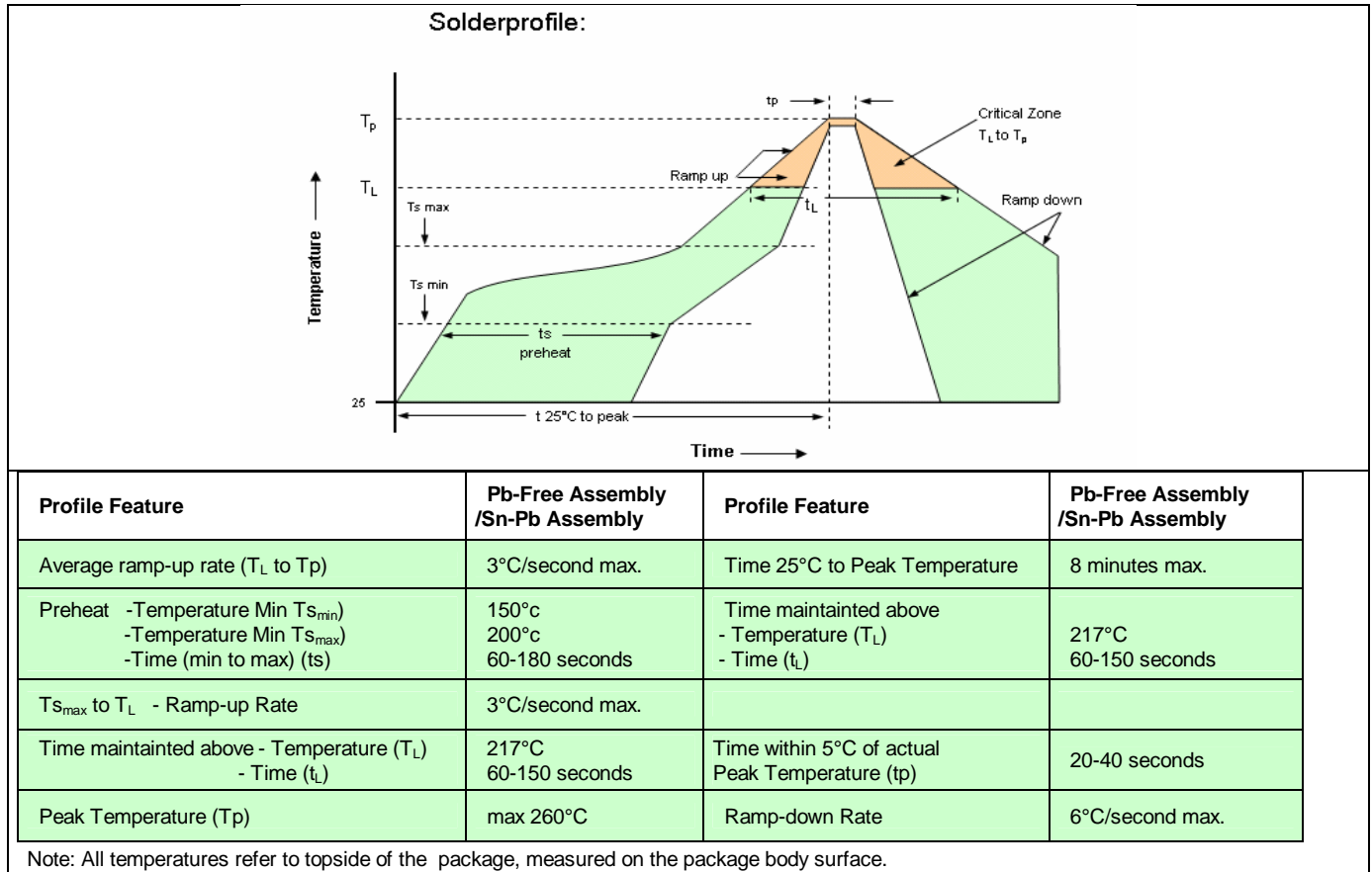
## Typical measurement data



## Standard Shipping Method



## Recommended Reflow Profile



## How to order this product:

 Vectron International · [www.vectron.com](http://www.vectron.com)

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Model	Stability Code	Supply Voltage Code	RF Output Code	Package Code	Frequency
C2310	F256	SV033	RFP	A1	6,4MHz

**Vs.operat. Temp. Range**

F256	±2.5ppm	-40 ... +85°C
F106	±1.0ppm	-40 ... +85°C
D256	±2.5ppm	-20 ... +70°C
D106	±1.0ppm	-20 ... +70°C
B106	±1.0ppm	0 ... +50°C
B507	±0.5ppm	0 ... +50°C
F807	±0.8ppm	-40 ... +85°C
G287	±0.28ppm	-30 ... +85°C
D807	±0.8ppm	-20 ... +70°C
D287	±0.28ppm	-20 ... +70°C
B287	±0.28ppm	0 ... +50°C

**Supply:**

SV033: 3.3V  
 SV050: 5V

**Enclosure:**

A1: G214B

**Signal:**

RFP: PECL  
 RFC: clipped sinewave  
 RFH: HCMOS

**Notes:**

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