



C2310

TCXO

Typical Applications

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

Features

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



Previous Vectron Model Numbers

STO50; STO50S3; STO50S3-01

Frequency range

6.4 MHz – 800 MHz

Standard frequencies

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

Frequency stabilities¹ [Standard TCXO]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code ⁵
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 _S ± 5%	
vs. load change	- 0.2		+0.2	ppm	Load ± 10%	
vs aging /1. Year	- 1.0		+1.0	ppm		

Frequency stabilities¹ [Stratum 3 TCXO]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code ⁵
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 _S ± 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 ⁵
Supply voltage [Standard]	3.135	3.3	3.465	VDC		SV033
Supply voltage [Option]	4.75	5	5.25	VDC		SV050
Current consumption			15	mA	steady state @ +25°C & 3.3VDC	
			18	mA	steady state @ +25°C & 5.0VDC	

RF output

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code ⁵
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 _{pp}		

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 ³		-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 ³		-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				

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	

Enclosures

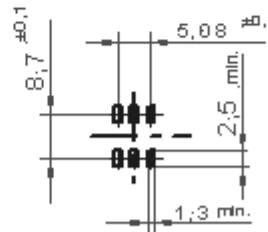
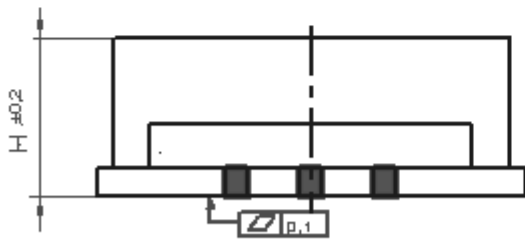
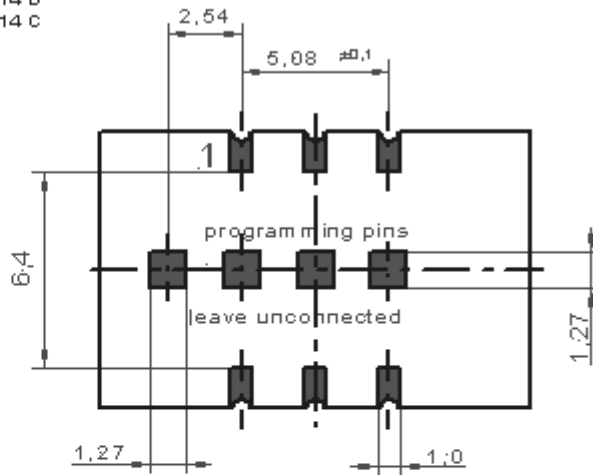
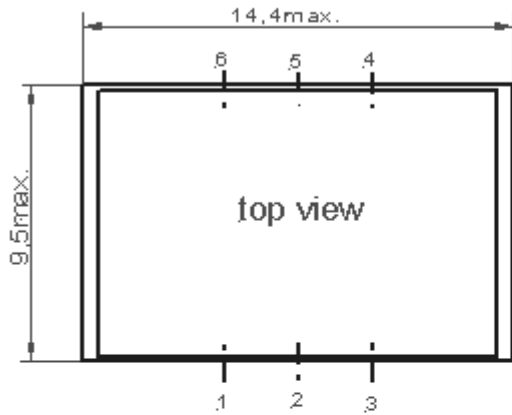
Type G214B

Package Codes:

Code A1	Height "H" 5.9	Pin Length "L" NA
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G 214

H = 5,9 ; G 214 B
H = 2,8 ; G 214 C



Dimensions: mm

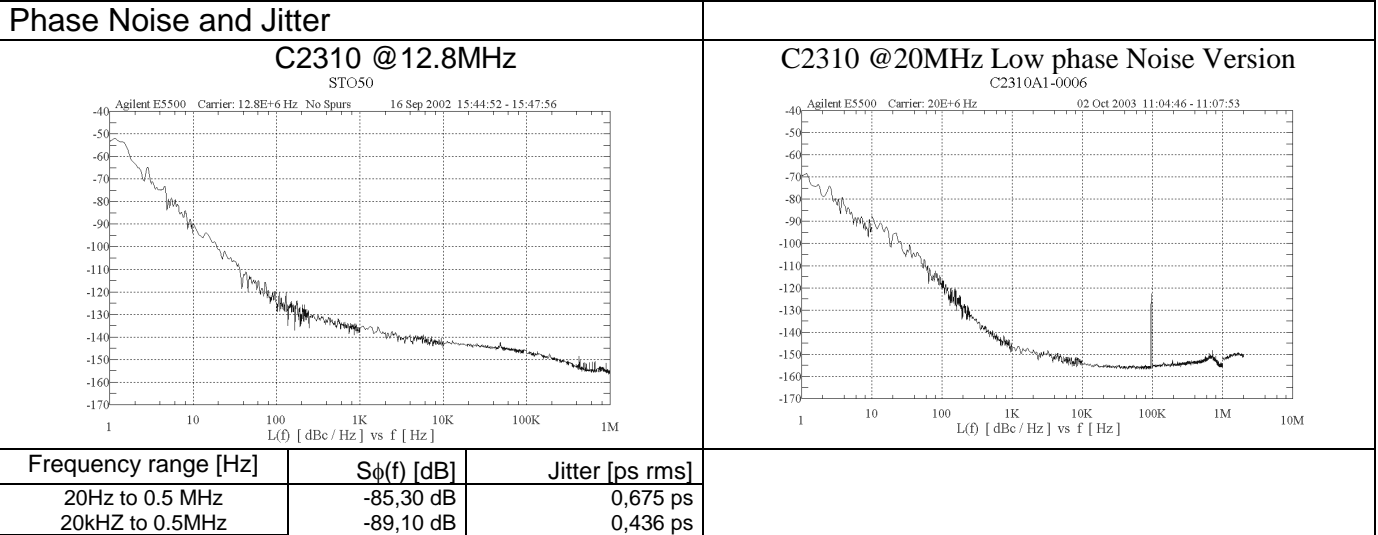
Pin Connections

Marking

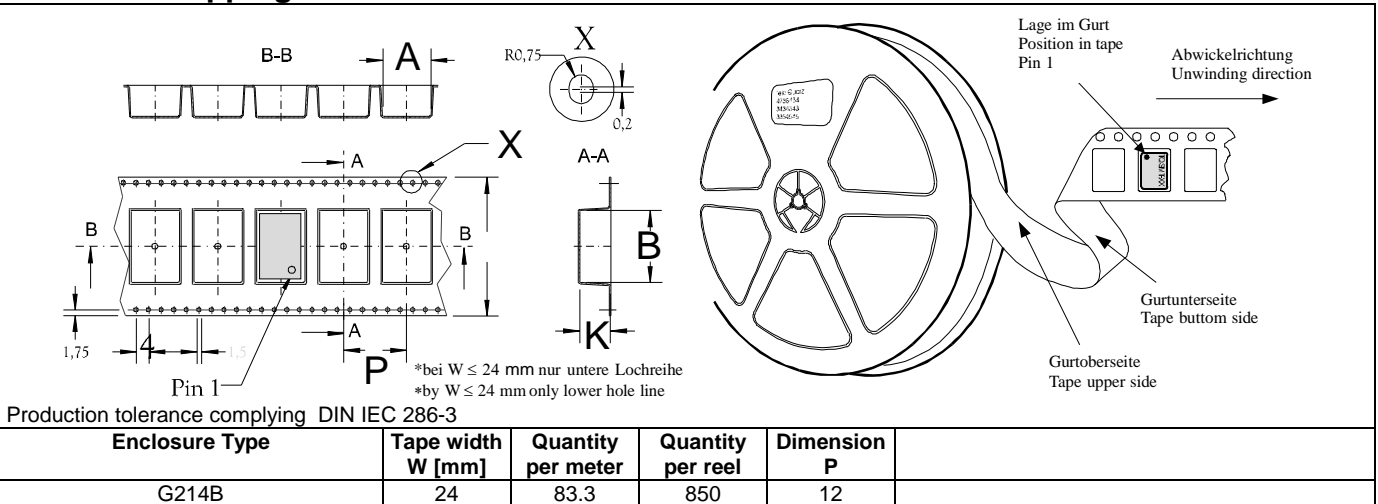
1 Voltage Control (V _c)	C2310-xxxx
2 N.C.	Frequency
3 GND, case	* C AYYWW
4 RF output	
5 N.C.	
6 Supply Voltage (V _s)	

Outline Drawing: G214B

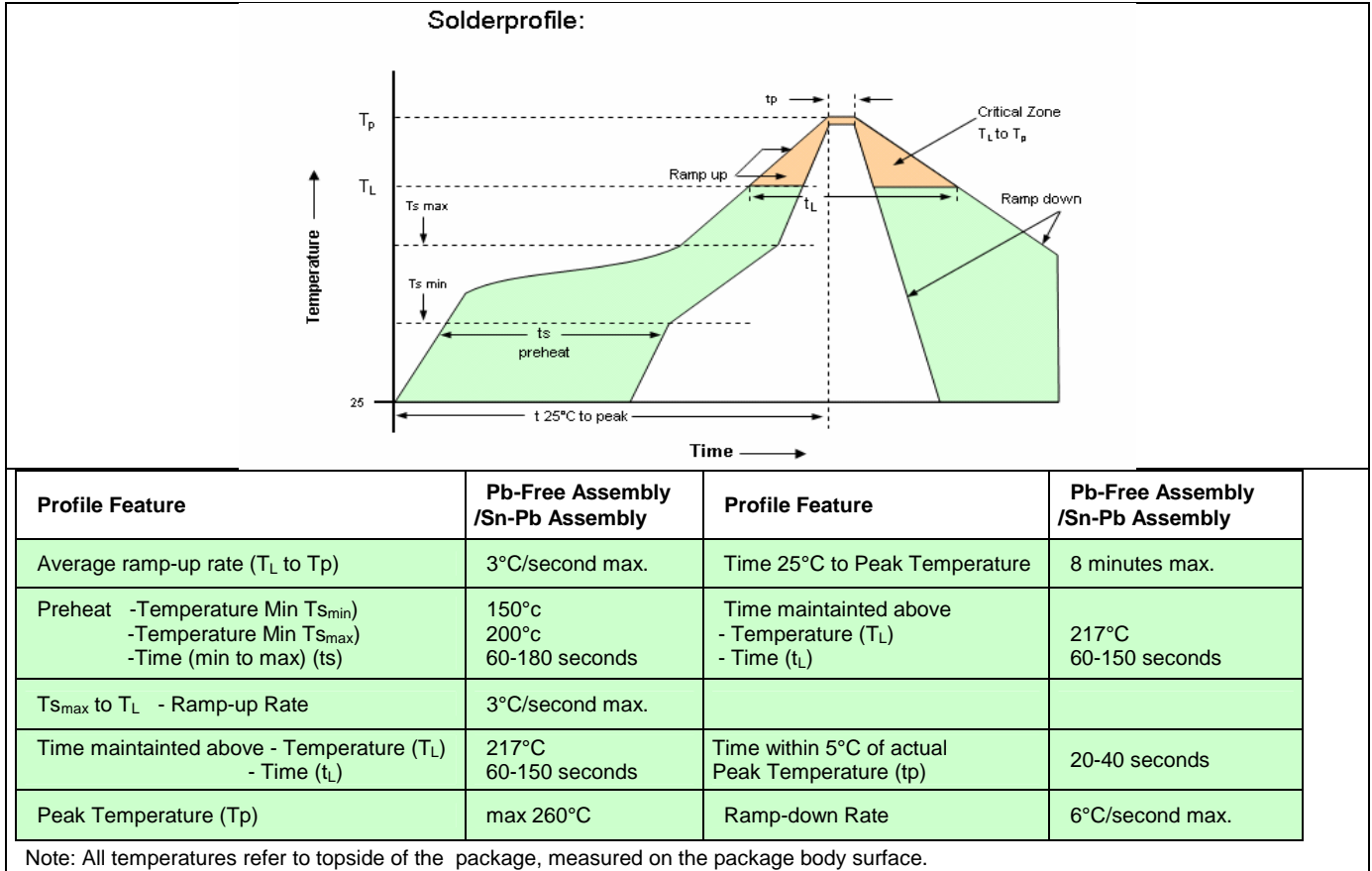
Typical measurement data



Standard Shipping Method



Recommended Reflow Profile



How to Order this Product:

Step 1	Use this worksheet to forward the following information to your factory representative:				
Model	Stability Code	Supply Voltage Code	RF Output Code	Package Code	Frequency
C2310					

Example: C2310 D256 SV033 RFC A1 12.800 MHz

Step 2	The factory representative will then respond with a Vectron Model Number in the following Configuration:		
Model	Package Code	Dash	Dash Number
C2310	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]

Typical P/N = C2310A1-0001

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.