

## Typical Applications

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

## Features

Wide Frequency range  
 Mechanical control  
 EFC Standard  
 Standard Surface Mount Package



## Previous Vectron Model Numbers

STO150; STO150S3;

## Frequency range

10 MHz – 100 MHz

## Standard frequencies

37.72102; 64.0; 67.584 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)	-2.0		+2.0	ppm	-40 ... +85°C	F206
	-1.0		+1.0	ppm	-40 ... +85°C	F106
	-2.0		+2.0	ppm	-20 ... +70°C	D206
	-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	- 1.0		+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	- 0.2		+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		
(*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			60	mA	steady state @ +25°C & 3.3VDC	
			50	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  @ (Voh-Vol)/2	
Signal Level (Vol)			0.5	VDC		
			0.3	VDC		
Signal Level (Voh)	4.5			VDC		
	3.0			VDC		
Rise and Fall time			5	ns		
Duty cycle	40	50	60	%		
Subharmonics	-45			dBc		

## Frequency Tuning (EFC)

Parameter	Min	Typ	Max.	Units	Condition
Mechanical (No EFC)	± 3.0				
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>		-70		dBc/Hz	10 Hz @ 67.584MHz
		-105		dBc/Hz	100 Hz
		-130		dBc/Hz	1 kHz
		-145		dBc/Hz	10 kHz
		-150		dBc/Hz	100 kHz
Weight			5	g	
Processing & Packing	Handling & processing note				

## Enclosures

### Type G200

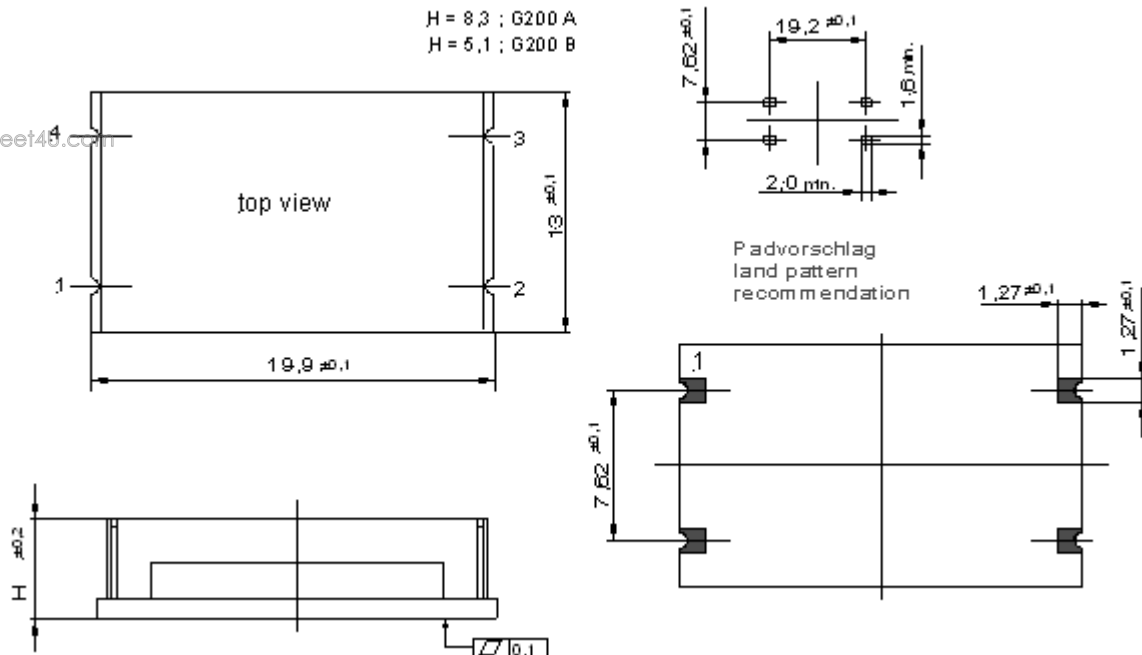
Package Codes:

Code	Height "H"	Pin Length "L"
A1	5.1	NA

G 200

H = 8,3 ; G200 A  
 H = 5,1 ; G200 B

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Dimensions: mm

#### Pin Connections

- 1 Voltage Control (Vc)
- 2 GND, case
- 3 RF output
- 4 Supply Voltage (Vs)

Outline Drawing: G200

#### Marking

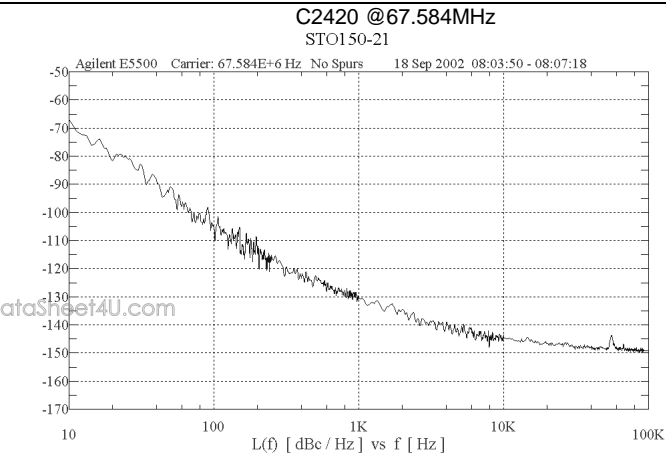
C2420A1-xxxx  
 Frequency  
 \* C AYYWW

## Absolute Maximum Ratings

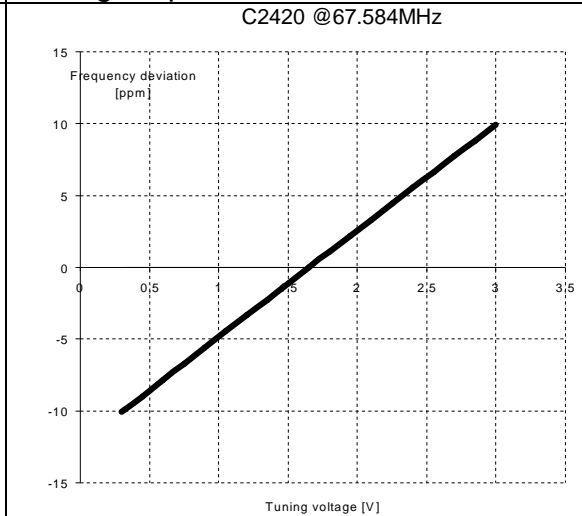
Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			6.0	V	
Control Voltage	0		Vs	V	
Maximum output load @ CMOS			40	pF	
Operable temperature range	-40		+85	°C	
Storage temperature range	-55		+125	°C	

## Typical measurement data

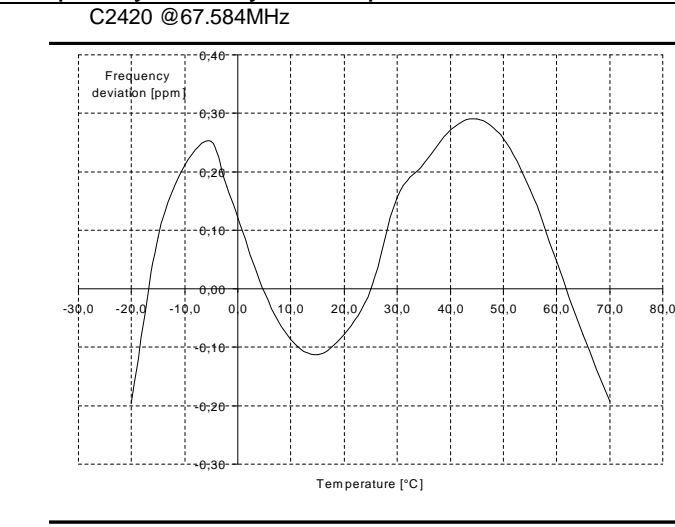
### Phase Noise and Jitter



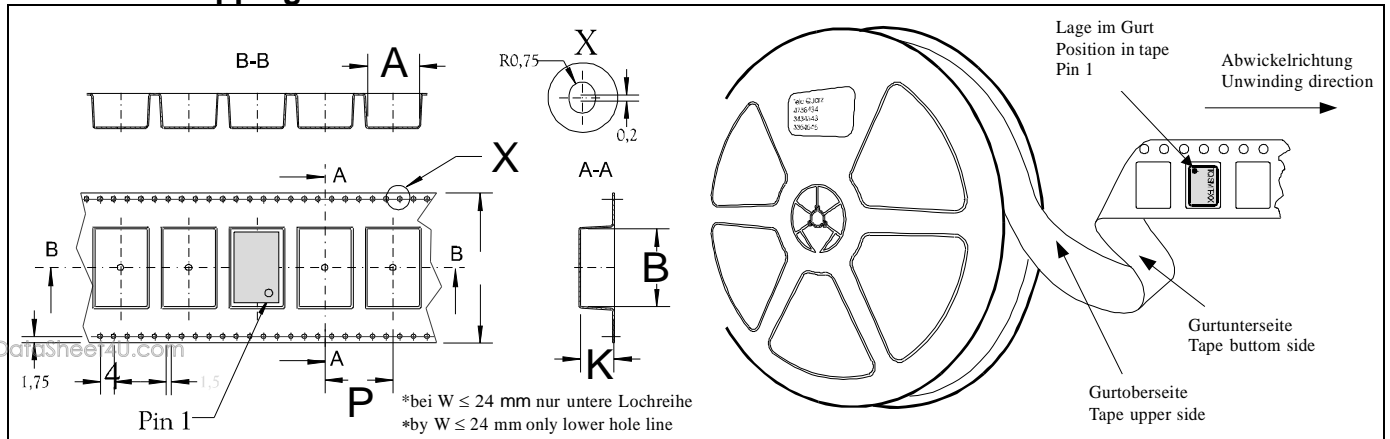
### Tuning Slope



### frequency stability vs temp



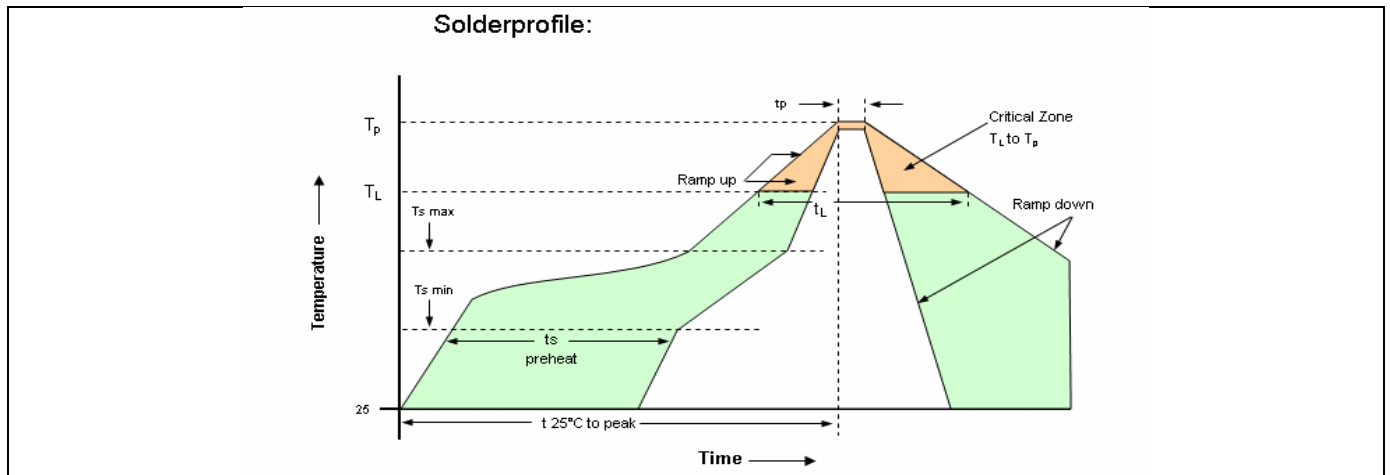
## Standard Shipping Method



Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
G200	32	50	380	20

## 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) (ts)	150°C 200°C 60-180 seconds	Time maintained above - Temperature ( $T_L$ ) - Time ( $t_L$ )	217°C 60-150 seconds
$T_{Smax}$ to $T_L$ - 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 (tp)	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.

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## 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
C2420					

Example: C2420                      D206                      SV033                      RFC                      A1                      12.8MHz

Step 2	The factory representative will then respond with a Vectron Model Number in the following Configuration:		
Model	Package Code	Dash	Dash Number
C2420	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]

Typical P/N = C2420A1-0001

### 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.