

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 stabilities¹ [Standard TCXO]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code ⁵
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 _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	(*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			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 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 @ (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 ³		-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				

Absolute Maximum Ratings

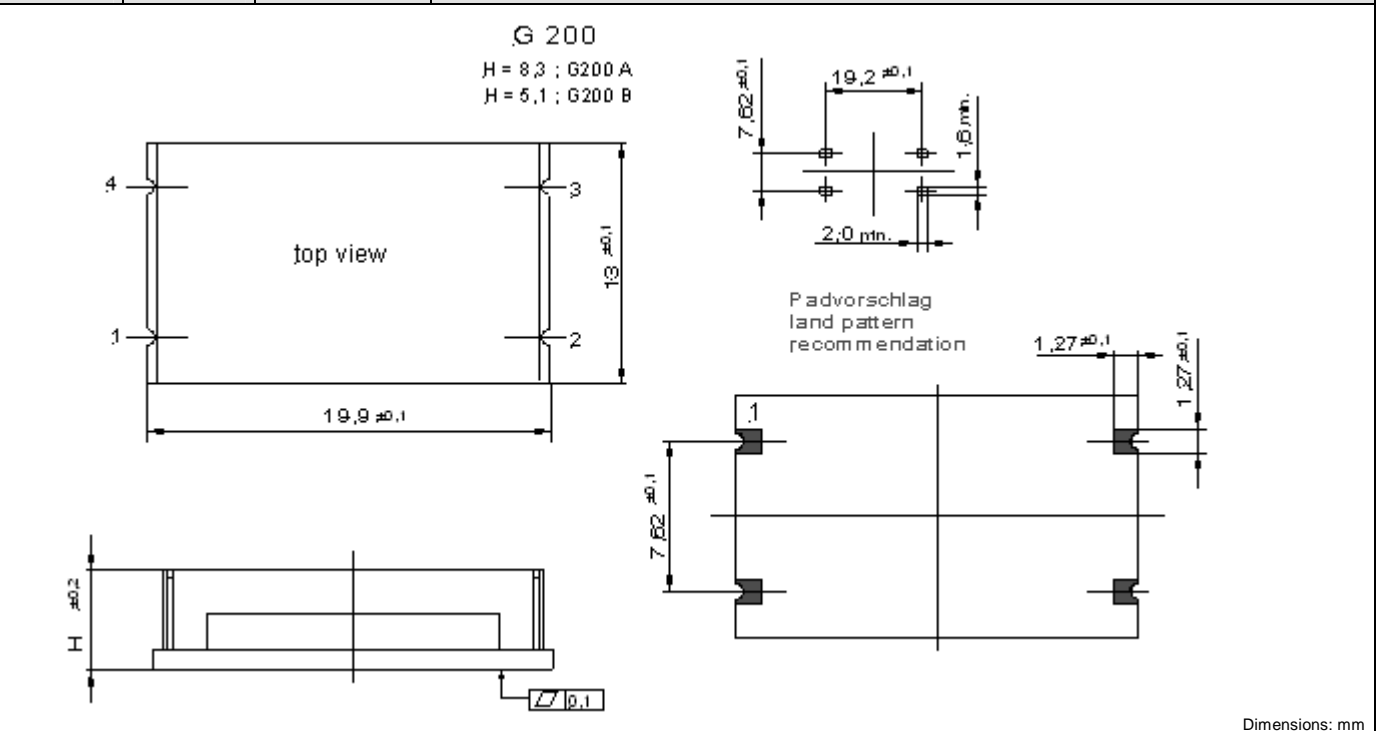
Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			6.0	V	
Control Voltage	0		Vs	V	
Maximum output load @ CMOS			40	pF	
Operable temperature range	-40		+85	°C	
Storage temperature range	-55		+125	°C	

Enclosures

Type G200

Package Codes:

Code	Height "H"	Pin Length "L"	
A1	5.1	NA	G200A
A2	5.1	NA	G200B



Pin Connections

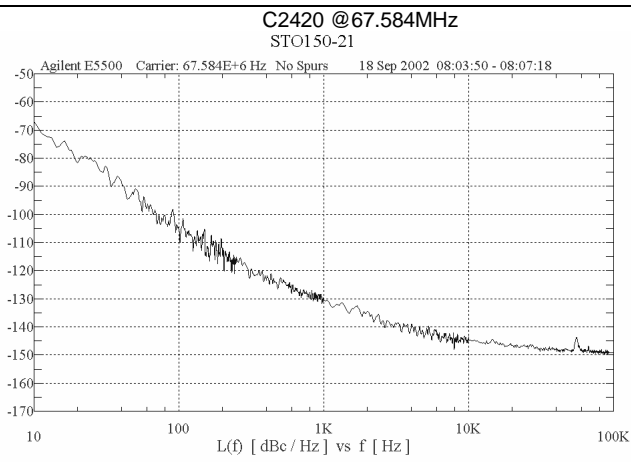
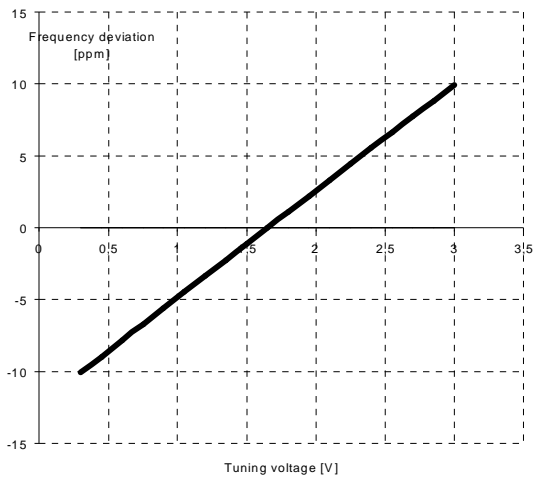
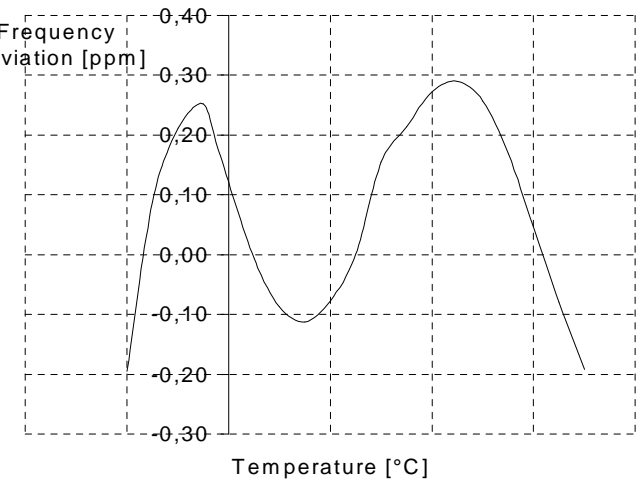
- 1 Voltage Control (V_c)
- 2 GND, case
- 3 RF output
- 4 Supply Voltage (V_s)

Outline Drawing: G200

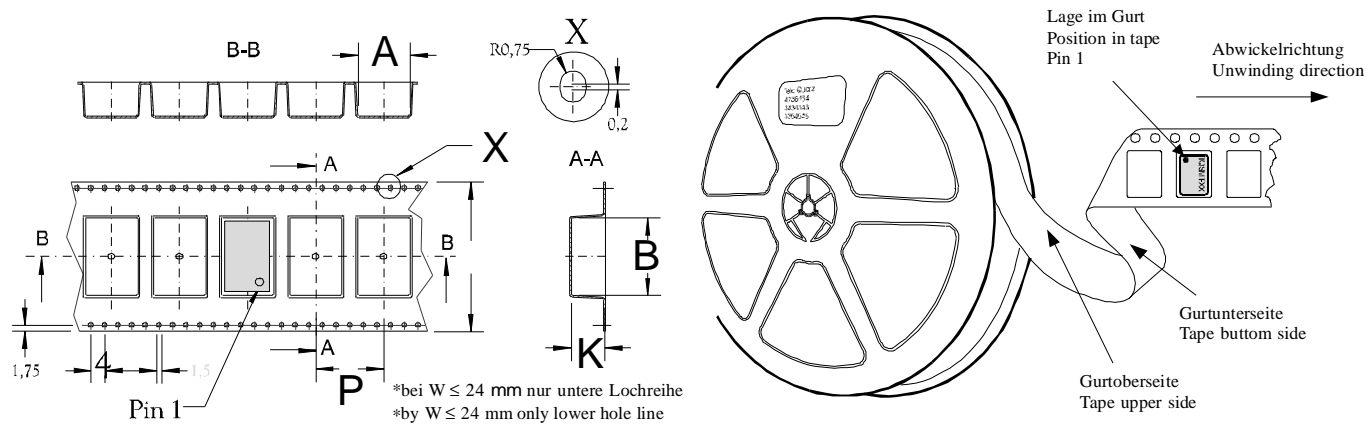
Marking

C2420A1-xxxx
 Frequency
 * C AYYWW

Typical measurement data

<p>Phase Noise and Jitter</p>  <p>C2420 @67.584MHz STO150-21 Agilent E5500 Carrier: 67.584E+6 Hz No Spurs 18 Sep 2002 08:03:50 - 08:07:18</p> <p>L(f) [dBc / Hz] vs f [Hz]</p>	<p>Tuning Slope</p>  <p>C2420 @67.584MHz</p> <p>Frequency deviation [ppm]</p> <p>Tuning voltage [V]</p>
<p>frequency stability vs temp</p>  <p>C2420 @67.584MHz</p> <p>Frequency deviation [ppm]</p> <p>Temperature [°C]</p>	

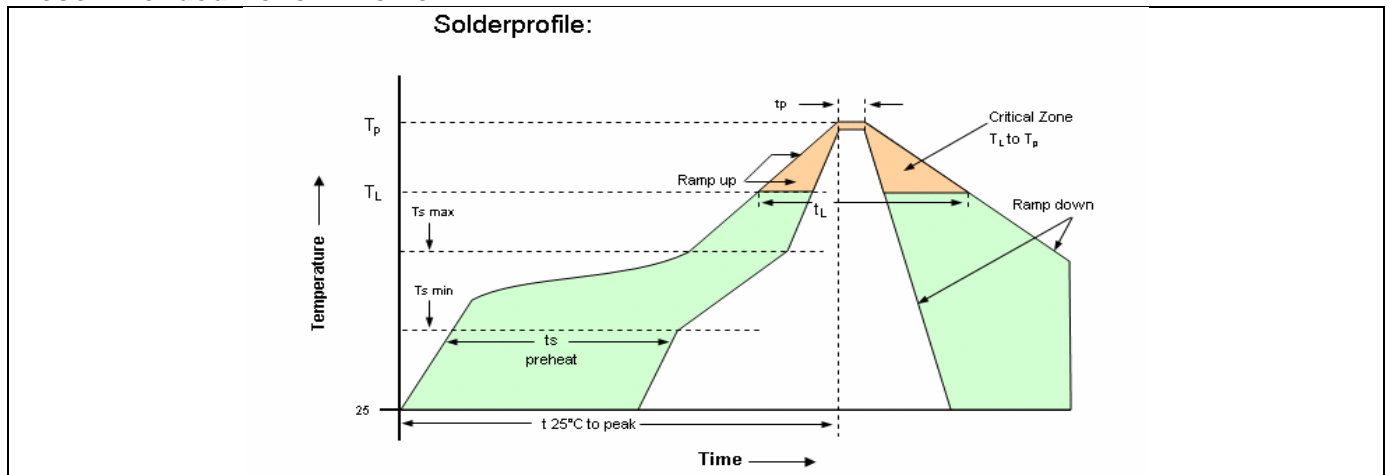
Standard Shipping Method



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.

How to order this product:

Model	Stability Code	Supply Voltage Code	RF Output Code	Package Code	Frequency
C2520	F206	SV033	RFH	A1	10MHz

Vs.operat. Temp. Range

F206	±2.0ppm	-40 ... +85°C
F106	±1.0ppm	-40 ... +85°C
D206	±2.0ppm	-20 ... +70°C
D107	±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:

SV050: 5V
SV033: 3.3V

Enclosure:

A1: G200A
B1: G200B

Signal:

RFH: HCMOS

Notes:

- Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- 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)
- Phase noise degrades with increasing output frequency.
- Subject to technical modification.
- Contact factory for availability.