

Typical Applications

Base Stations
 Digital Switching
 Synthesizers
 Test Equipment

Features

Standard Package
 Low Aging
 AT-Cut and SC-Cut Crystal Options
 Fast Warm-up

Previous Vectron Model Numbers

OCO100, 4598, MC2001 Series

Frequency range

5 MHz – 40 MHz

Standard frequencies

10; 16.384 MHz



Frequency stabilities¹ [AT Cut Crystal – Standard]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code
vs. operating temperature range (Referenced to +25°C)	-30		+30	ppb	0 ... +70°C	C308
	-80		+80	ppb	-20 ... +70°C	D808
	-100		+100	ppb	-40 ... +70°C	E107
	-200		+200	ppb	-40 ... +85°C	F207
Parameter	Min	Typ	Max.	Units	Condition	
Initial tolerance	-300		+300	ppb	at time of shipment, nominal EFC	
vs. supply voltage change	-5		+5	ppb	V _S ± 5%	
vs. load change	-5		+5	ppb	Load ± 5%	
vs. aging /1 day	-2.0		+2.0	ppb	after 72 hours of operation	
vs. aging /1 Year	-500		+500	ppb	after 72 hours of operation	
vs. aging / year (following Years)	-250		+250	ppb		
Warm-up Time			3	minutes	to ± 100ppb of final frequency (1 hour reading) @ +25°C	

Frequency stabilities¹ [SC Cut Crystal – Option]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code
vs. operating temperature range (Referenced to +25°C)	-10		+10	ppb	0 ... +70°C	C108
	-15		+15	ppb	-20 ... +70°C	D158
	-20		+20	ppb	-40 ... +70°C	E208
	-30		+30	ppb	-40 ... +85°C	F308
Parameter	Min	Typ	Max.	Units	Condition	
Initial tolerance	-100		+100	ppb	at time of shipment, nominal EFC	
vs. supply voltage change	-5.0		+5.0	ppb	V _S ± 5%	
vs. load change	-5.0		+5.0	ppb	Load ± 5%	
vs. aging /1 day	-1.0		+1.0	ppb	after 72 hours of operation	
vs. aging /1 Year	-100		+100	ppb	after 72 hours of operation	
vs. aging / year (following Years)	-50		+50	ppb		
Warm-up Time			3	minutes	to ± 10ppb of final frequency (1 hour reading) @ +25°C	

Supply voltage (Vs)

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code
Supply voltage [Standard]	4.75	5	5.25	VDC		SV050
Supply voltage [Option]	11.4	12.0	12.6	VDC		SV120
Supply voltage [Option]	3.135	3.3	3.465	VDC		SV033
Power consumption			3.5	Watts	during warm-up	
			1.2	Watts	steady state @ +25°C	

RF output

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code
Signal [Standard]	HCMOS					RFH
Load		15		pF		
Signal Level (Vol)			0.5	VDC	with Vs=12.0V or 5.0V and 15pF load	
Signal Level (Voh)	4.5		0.3	VDC	with Vs=3.3V and 15pF load	
Duty cycle	3.0			VDC	with Vs=12.0V or 5.0V and 15pF load	
	45		55	%	with Vs=3.3V and 15pF load	
					@ (Voh-Vol)/2	
Signal [Option]	Sinewave					RFS
Load		50		Ω		
Output Power	+3.0	+5.5	+8.0	dBm	50 Ohm load	
Harmonics			-30	dBc	50 Ohm load	

Frequency Tuning (EFC)

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code ⁵
Tuning Range	Fixed OCXO; No adjust					0
Tuning Range	± 0.75	± 1.25	± 2.0	ppm	with SC Cut Crystal	1
	± 6.0	± 8.0	± 12	ppm	with AT Cut Crystal	1
Linearity			20	%		
Tuning Slope	Positive					
Control Voltage Range	0.0	2.0	4.0	VDC	with Vs=5.0VDC	
	0.0	2.5	5.0	VDC	with Vs=12VDC	
	0.0	1.5	3.0	VDC	with Vs=3.3VDC	

Reference Voltage Output (Vref)

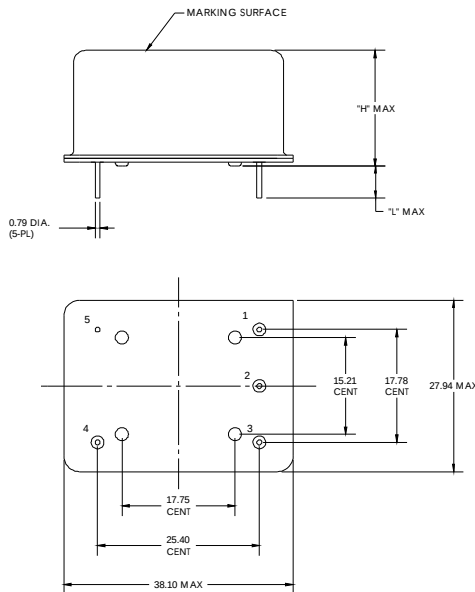
Parameter	Min	Typ	Max.	Units	Condition
Reference Voltage	3.92	4.0	4.08	VDC	with Vs=5.0VDC
	4.9	5.0	5.1	VDC	with Vs=12VDC
	2.75	2.8	2.85	VDC	with Vs=3.3VDC

Additional parameters

Parameter	Min	Typ	Max.	Units	Condition
Phase Noise ³			-85	dBc/Hz	1 Hz
			-120	dBc/Hz	10 Hz
			-140	dBc/Hz	100 Hz
			-145	dBc/Hz	1 kHz
			-150	dBc/Hz	10 kHz
Phase Noise ³			-75	dBc/Hz	1 Hz
			-100	dBc/Hz	10 Hz
			-130	dBc/Hz	100 Hz
			-140	dBc/Hz	1 kHz
			-150	dBc/Hz	10 kHz
Weight			3.0	g	
Processing & Packing	Handling & processing note				

Enclosures

Type A		
Package Codes:		
Code	Height "H"	Pin Length "L"
A1	19.00	5.0
A2	15.00	5.0
A3 ⁵	12.70	5.0



Dimensions: mm

Pin Connections	
1	Electronic Frequency Control Input (EFC)
2	Reference Voltage Output
3	Supply Voltage Input (Vs)
4	RF Output
5	Ground (Case)

Absolute Maximum Ratings

Parameter	Min	Typ	Max.	Units	Condition
Supply voltage (Vs)			7.0	V	with Vs=5.0VDC
			15.0	V	with Vs=12VDC
			7.0	V	with Vs=3.3VDC
Output Load			50	pF	with HCMOS signal
			25	Ohms	with Sinewave signal
Operable temperature range	-55		+85	°C	
Storage temperature range	-55		+125	°C	

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 Control/ Enable	Frequency
C4600	D808	SV050	RFH	A1	1	5MHz

Vs.operat. Temp. Range

C308:	±30ppb	0 ...+70°C
D808:	±80ppb	-20 ...+70°C
E107:	±100ppb	-40 ...+70°C
F207:	±200ppb	-40 ...+85°C
C108:	±10ppb	0 ...+70°C
D158:	±15ppb	-20 ...+70°C
E208:	±20ppb	-40 ...+70°C
F208:	±30ppb	-40 ...+85°C

Signal:

RFH: HCMOS
RFS: Sinewave

Tuning Range:

0: Fixed OCXO; No adjust
1: ±0.75 ppm...±2.0 ppm(SC)
1: ±6.0 ppm...±12.0 ppm(AT)

Supply:

SV033: 3.3V
SV050: 5V
SV120: 12V

Enclosure:

A1: H: 19.0 L: 5
A2: H: 15.0 L: 5
A3: H: 12.7 L: 5

Step 2	The factory representative will then respond with a Vectron Model Number in the following configuration:			
Model	Package Code	Dash	Dash Number	
C4600	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]	

Typical P/N = C4600A1-0001

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.

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