C4600 OCXO

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 stabilities[1] [AT Cut Crystal – Standard]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code
vs. operating temperature range	-30		+30	ppb	0 … +70°C	C308
(Referenced to +25°C)	-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 stabilities[1] [SC Cut Crystal – Option]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code
vs. operating temperature range	-10		+10	ppb	0 … +70°C	C108
(Referenced to +25°C)	-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	

Vectron International Headquarters
267 Lowell Road
Hudson, New Hampshire 03051
+1-888-328-7661 tel
+1-888-329-8328 fax

Vectron International LLC.
100 Watts Street
Mount Holly Springs, PA 17065
USA
+1-717-486-3411 tel
+1-717-486-5920 fax

Vectron international GmbH & Co. KG
Landstrasse
D-74924 Neckarbischofsheim
Germany
+49-07268-801-0 tel
+49-07268-801-281 fax

Vectron Asia Pacific Sales Office
Unit 3119 31st Floor, Jin Mao Tower, 88
Century Boulevard, Shanghai,
P.R. China 200120
+86 21 28909740 tel.
+86 21 28909240 fax

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	
			0.3	VDC	with Vs=3.3V and 15pF load	
Signal Level (Voh)	4.5			VDC	with Vs=12.0V or 5.0V and 15pF load	
	3.0			VDC	with Vs=3.3V and 15pF load	
Duty cycle	45		55	%	@ (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	with 10 MHz SC Cut
			-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	with 10 MHz AT Cut
			-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				

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Landstrasse
D-74924 Neckarbischofsheim
Germany
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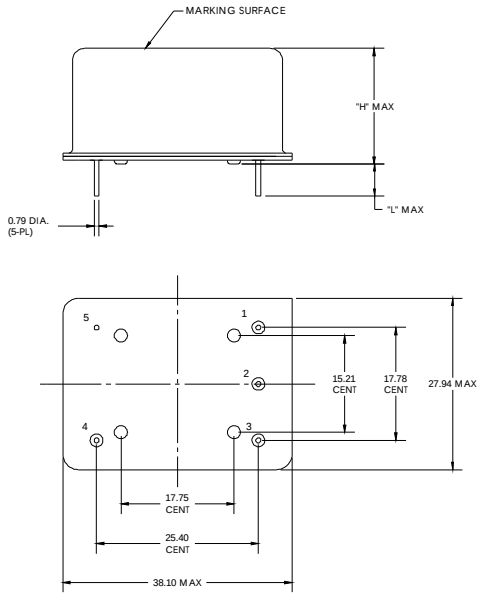
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Enclosures

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	

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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 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

Supply:

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

Signal:

RFH: HCMOS
RFS: Sinewave

Enclosure:

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

Tuning Range:

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

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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