C4505

RoHS Conform

OCXO

Typical Applications

Base Stations
Test Equipment
Synthesizers
Digital Switching

Features

Surface Mount Package
Reflow Process Compatible
AT-Cut and SC-Cut Crystal Options
Compact Package



Previous Vectron Model Numbers OCO700

Frequency range 6 MHz – 60 MHz

Standard frequencies 8.192; 10; 12, 12.8; 16.384;20; 32.768; 38.88, 61.44MHz

Frequency stabilities[1] [AT Cut Crystal – Standard]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code
vs. operating temperature range	-50		+50	ppb	-20 … +70°C	D508
(Referenced to +25°C)	-100		+100	ppb	-20 … +70°C	D107
	-100		+100	ppb	-40 … +85°C	F107
Parameter	**Min**	**Typ**	**Max.**	**Units**	**Condition**	
Initial tolerance	-500		+500	ppb	at time of shipment, nominal EFC	
vs. supply voltage change	-10		+10	ppb	V_S ± 5%	
vs. load change	-10		+10	ppb	Load ± 5%	
vs. aging / day	-5.0		+5.0	ppb	after 30 days of operation	
vs. aging / year	-250		+250	ppb	after 30 days of operation	
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	-20 … +70°C	D108
(Referenced to +25°C)	-20		+20	ppb	-20 … +70°C	D208
	-20		+20	ppb	-40 … +85°C	F258
Parameter	**Min**	**Typ**	**Max.**	**Units**	**Condition**	
Initial tolerance	-200		+200	ppb	at time of shipment, nominal EFC	
vs. supply voltage change	-2.0		+2.0	ppb	V_S ± 5%	
vs. load change	-5.0		+5.0	ppb	Load ± 5%	
vs. aging / day	-1.0		+1.0	ppb	after 30 days of operation	
vs aging / year	-75		+75	ppb	after 30 days of operation	
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			3.0	Watts	during warm-up	
			1.0	Watts	steady state @ +25°C	

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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	

Frequency Tuning (EFC)

Parameter	Min	Typ	Max.	Units	Condition	Ordering Code[5]
Tuning Range		Fixed OCXO; No adjust				0
Tuning Range	±1.0	±1.75	±2.5	ppm	with SC Cut Crystal	1
	±3.0	±5.0	±8	ppm	with AT Cut Crystal	1
Linearity			5	%		
Tuning Slope		Positive				
Control Voltage Range	0.0	2.0	4.0	VDC	with Vs=5.0VDC	
	0.0	2.0	4.0	VDC	with Vs=12VDC	
	0.0	1.4	2.8	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]			-90	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
			-105	dBc/Hz	10 Hz	
			-130	dBc/Hz	100 Hz	
			-140	dBc/Hz	1 kHz	
			-150	dBc/Hz	10 kHz	
Weight			14	g		
Processing & Packing		Handling & processing note				

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	
Operable temperature range	-55		+85	°C	
Storage temperature range	-55		+125	°C	

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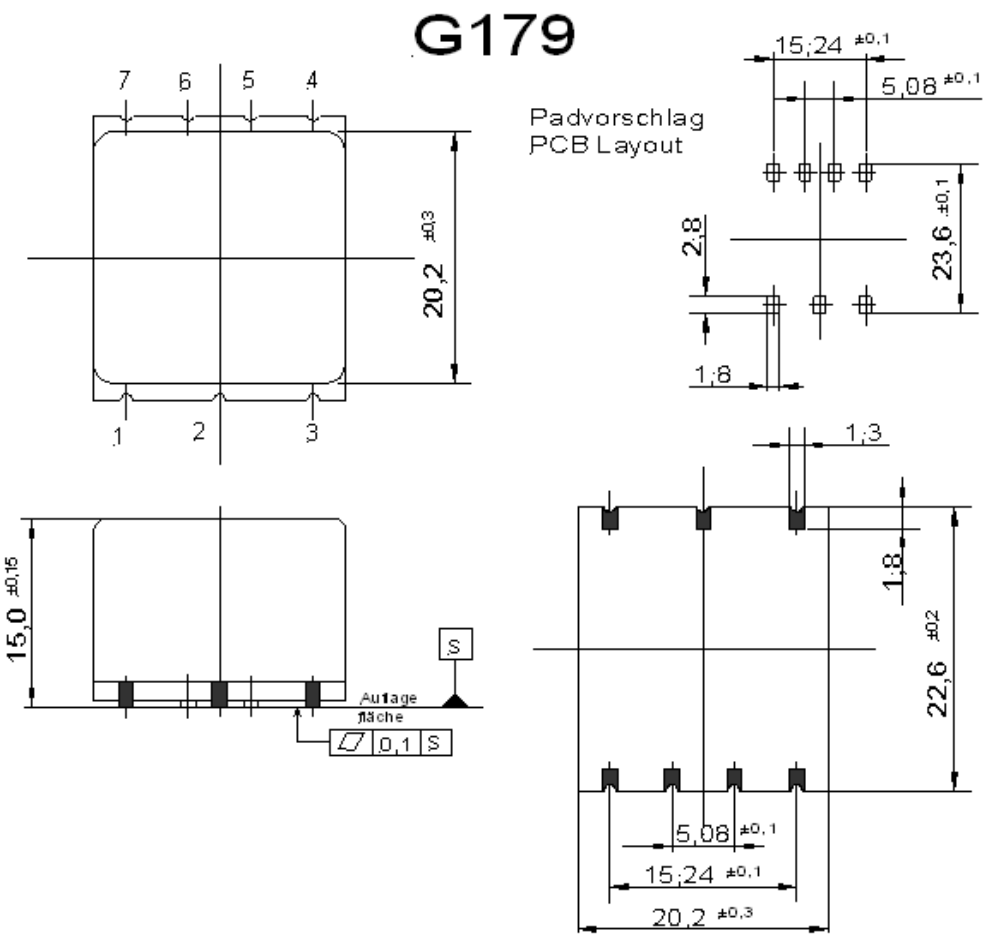
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Type A

Package Codes:

Code	Height "H"	
A1	15.0	G179



Dimensions: mm

Pin Connections

1 RF output
2 GND, Case
3 Control Voltage (Vc)
4 Reference Voltage Output
5 Oven Control Output
6 GND,Case
7 Supply Voltage Vs

* Pin 5 must be remain unconnected.

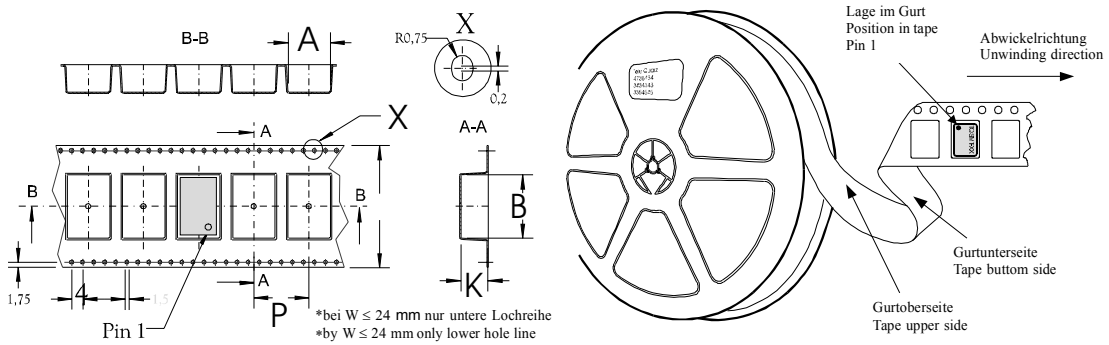
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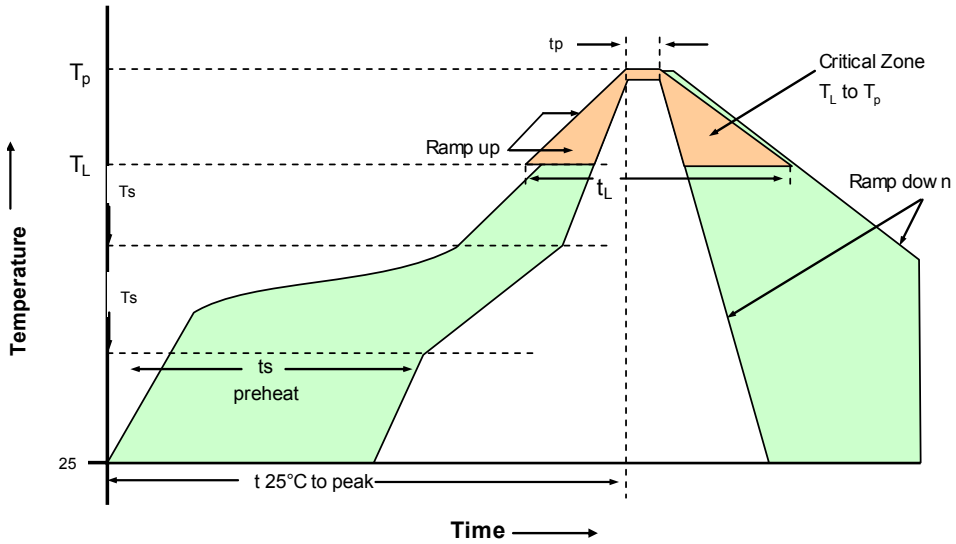
Standard Shipping Method



Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P	
Type B and C	44	37.5	280	32	

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 Tp)	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min Ts_{min}) -Temperature Min Ts_{max}) -Time (min to max) (ts)	150°c 200°c 60-180 seconds	Time maintainted above - Temperature (T_L) - Time (t_L)	 217°C 60-150 seconds
Ts_{max} to T_L - Ramp-up Rate	3°C/second max.		
Time maintainted 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 (Tp)	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 informations to your factory representative :					
Model	**Stability Code**	**Supply Voltage Code**	**RF Output Code**	**Package Code**	**Frequency Control/ Enable**	**Frequency**
C4505	D508	SV050	RFH	A1	1	6MHz

Vs.operat. Temp. Range

D508:	±50ppb	-20…+70°C
D107:	±100ppb	-20…+70°C
F107:	±100ppb	-40…+85°C
D108:	±10ppb	-20…+70°C
D208:	±20ppb	-20…+70°C
F258	±20ppb	-40…+85°C

Supply:

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

Signal:

RFH: HCMOS

Enclosure:

A1: G179

Tuning Range:

0: Fixed OCXO; No adjust
1: ±1.0 ppm .. ±2.5 ppm(SC)
1: ±3.0 ppm .. ±8.0 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**
C4505	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]

Typical P/N = C4505A1-0001

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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