

## Typical Applications

Base Stations  
 Test Equipment  
 Synthesizers  
 Digital Switching

## Previous Vectron Model Numbers

## Frequency range

## Standard frequencies

## Features

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



4853, 4853S, 4597, 4597S,  
 4859, 4859S, 4877, 4877S

10 MHz – 100 MHz

10; 12.8;13; 16.384;20; 32.768MHz; 100Mhz

## Frequency stabilities<sup>1</sup> [AT Cut Crystal – Standard]

Parameter	Min	Typ	Max.	Units	Operating temp range	Ordering Code
vs. operating temperature range (Referenced to +25°C)	-50		+50	ppb	0 ... +70°C	C508
	-100		+100	ppb	-20 ... +70°C	D107
	-150		+150	ppb	-40 ... +70°C	E157
	-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	-10		+10	ppb	V <sub>S</sub> ± 5%	
vs. load change	-10		+10	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<sup>1</sup> [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
	-20		+20	ppb	-20 ... +70°C	D208
	-25		+25	ppb	-40 ... +70°C	E258
	-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 <sub>S</sub> ± 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			3.0	Watts	during warm-up	
			1.0	Watts	steady state @ +25°C	

## RF output

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

## Frequency Tuning (EFC)

Parameter	Min	Typ	Max.	Units	Condition
Tuning Range	±0.75	±1.25	±2.0	ppm	with SC Cut Crystal
	±6.0	±8.0	±12	ppm	with AT Cut Crystal
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	1.4	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

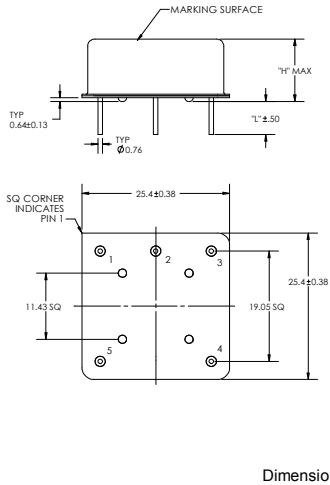
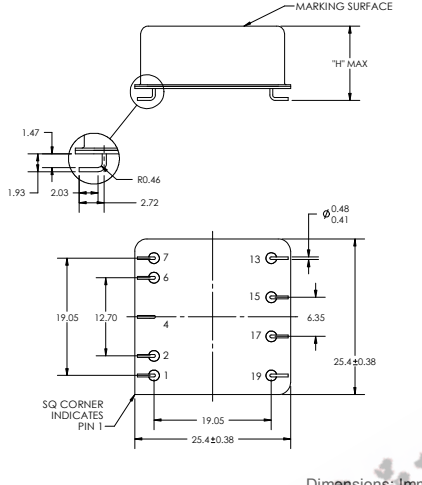
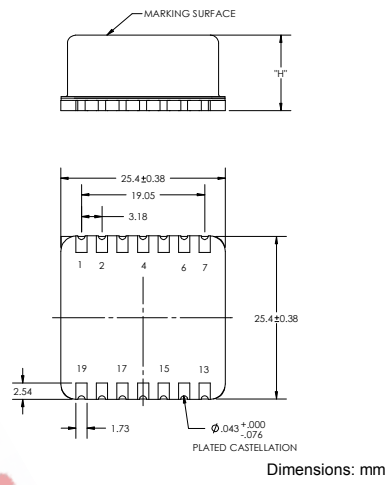
## Additional parameters

Parameter	Min	Typ	Max.	Units	Condition
Phase Noise <sup>3</sup>			-80	dBc/Hz	1 Hz 10 Hz 100 Hz 1 kHz 10 kHz with 10 MHz SC Cut
			-120	dBc/Hz	
			-140	dBc/Hz	
			-145	dBc/Hz	
			-150	dBc/Hz	
Phase Noise <sup>3</sup>			-75	dBc/Hz	1 Hz 10 Hz 100 Hz 1 kHz 10 kHz with 10 MHz AT Cut
			-100	dBc/Hz	
			-130	dBc/Hz	
			-140	dBc/Hz	
			-150	dBc/Hz	
Weight			14	g	
Processing & Packing	Handling & processing note				

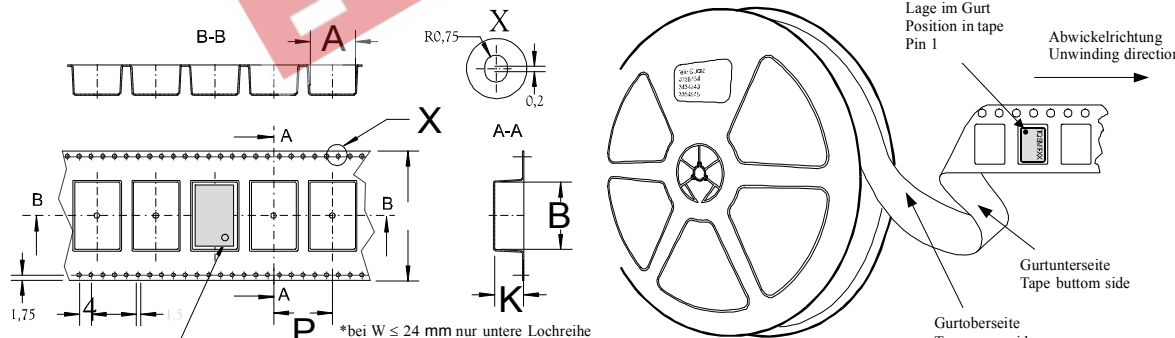
## Absolute Maximum Ratings

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	with HCMOS signal
			25	Ohms	with Sinewave signal
Operable temperature range	-55		+85	°C	
Storage temperature range	-55		+125	°C	

## Enclosures

Type A			Type B			Type C		
Package Codes:								
Code	Height "H"	Pin Length "L"	Code	Height "H"	Pin Length "L"	Code	Height "H"	Pin Length "L"
A1	11.25	6.35	B1	12.70	NA	C1	15.24	NA
A2	13.40	6.35	B2	15.24	NA	C2	13.00	NA
A3 <sup>5</sup>	10.00	6.35	B3	11.30	NA	C3	11.70	NA
 <p>Dimensions: mm</p>			 <p>Dimensions: mm</p>			 <p>Dimensions: mm</p>		
<p><b>Pin Connections</b></p> <ul style="list-style-type: none"> <li>1 RF Output</li> <li>2 Ground (Case)</li> <li>3 Electronic Frequency Control Input (EFC)</li> <li>4 Reference Voltage Output</li> <li>5 Supply Voltage Input (Vs)</li> </ul>			<p><b>Pin Connections</b></p> <ul style="list-style-type: none"> <li>1 RF Output</li> <li>2 N/C*</li> <li>4 Ground (Case)</li> <li>6 N/C*</li> <li>7 Electronic Frequency Control Input (EFC)</li> <li>13 Reference Voltage Output (Vref)</li> <li>15 N/C*</li> <li>17 N/C*</li> <li>19 Supply Voltage Input (Vs)</li> </ul>			<p><b>Pin Connections</b></p> <ul style="list-style-type: none"> <li>1 RF Output</li> <li>2 N/C*</li> <li>4 Ground (Case)</li> <li>6 N/C*</li> <li>7 Electronic Frequency Control Input (EFC)</li> <li>13 Reference Voltage Output (Vref)</li> <li>15 N/C*</li> <li>17 N/C*</li> <li>19 Supply Voltage Input (Vs)</li> </ul>		

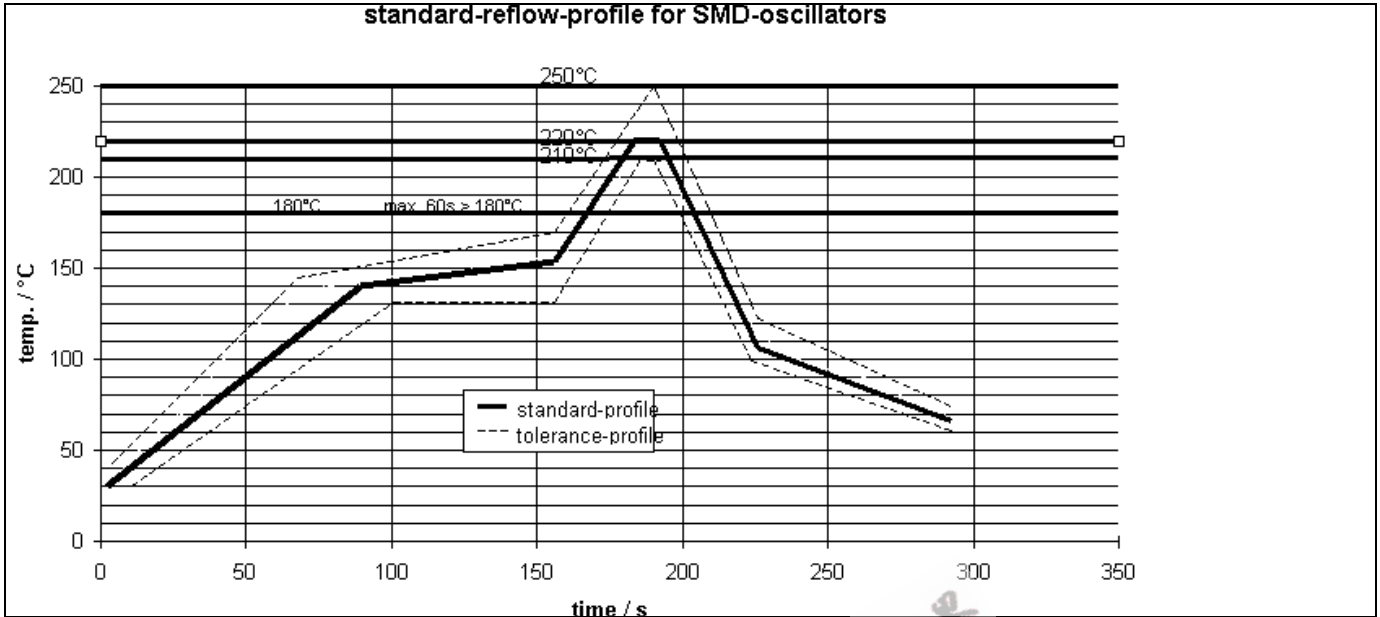
## Standard Shipping Method (For SMD Type B and C Packages)



Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
Type B	44	33.3	250	34
Type C	44	33.3	250	34

**Recommended Reflow Profile**



**How to Order this Product:**

<b>Step 1</b>	Use this worksheet to forward the following information to your factory representative:				
<b>Model</b>	<b>Stability Code</b>	<b>Supply Voltage Code</b>	<b>RF Output Code</b>	<b>Package Code</b>	<b>Frequency</b>
C4550					

Example: C4550      D207      SV050      RFH      A1      10.000Mhz

<b>Step 2</b>	The factory representative will then respond with a Vectron Model Number in the following configuration:		
<b>Model</b>	<b>Package Code</b>	<b>Dash</b>	<b>Dash Number</b>
C4550	[Customer Specified Package Code]	-	[Factory Generated 4 digit number]

Typical P/N = C4550A1-0001

**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.