


Helping Customers Innovate, Improve & Grow



## Description

The TX-550 Series TCXO innovative manufacturing and the latest technology to provide extremely low phase noise and g-sensitivity. The assembly includes a dual crystal circuit to cancel opposing g-sensitivity vectors.

## Features

- Low Phase Noise, Low g-Sensitivity
- Fully RoHS Compliant 
- Surface Mount, Low Profile
- High Shock Survival up to 20 Kg
- Frequency Range: 8 MHz to 100 MHz

## Applications

- Military Portable Radios
- GPS Telemetry
- Test and Measurement Equipment

## Performance Specifications

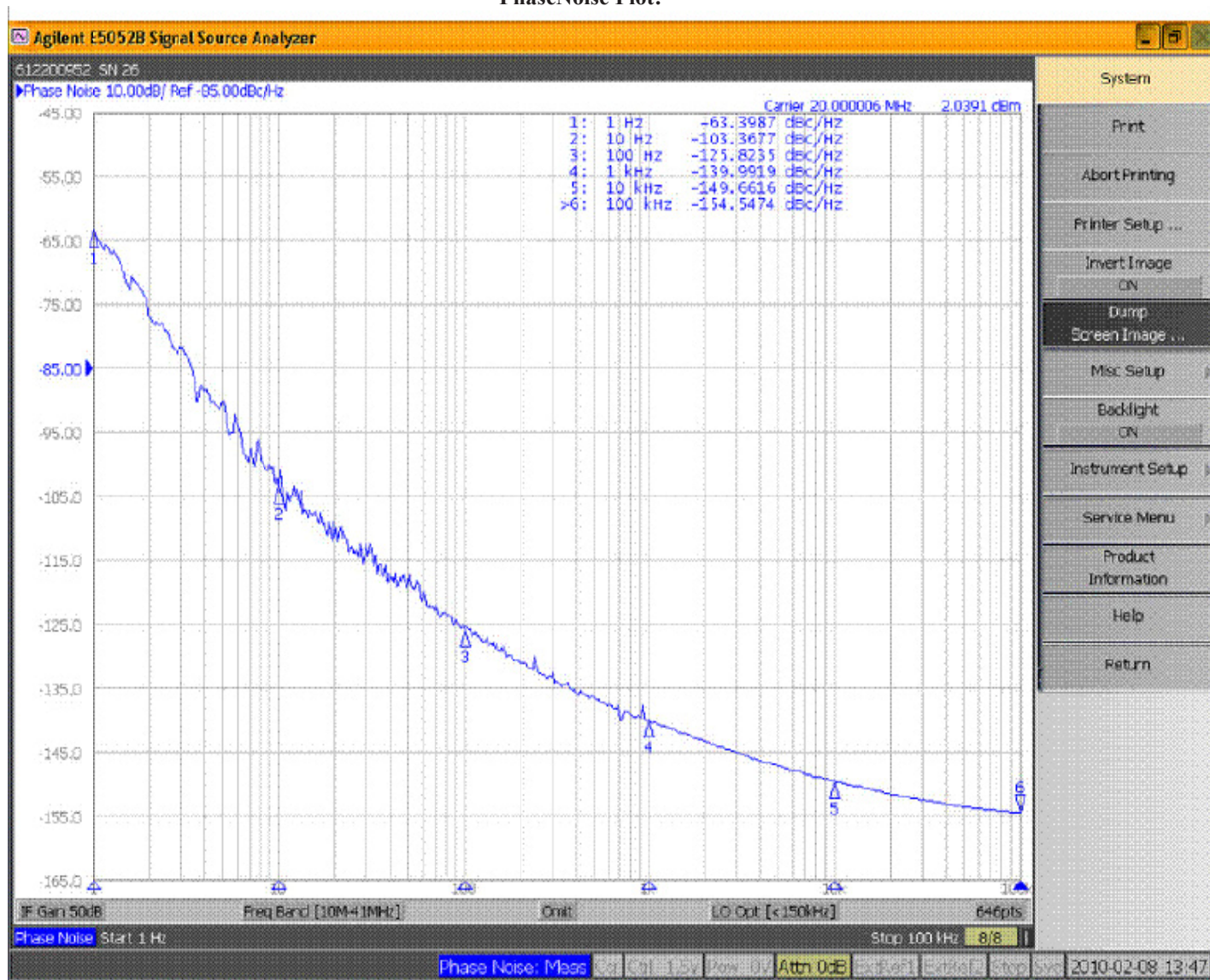
Parameter	Min	Typ	Max	Units	Condition
<b>Frequency Stabilities<sup>1</sup></b>					
vs. operating temperature range (referenced to +25°C)	-2.0		+2.0	ppm	-40... +85°C
	-1.0		+1.0	ppm	-40... +85°C
	-0.5		+0.5	ppm	-20... +70°C
	-0.28		+0.28	ppm	0... +50°C
Initial Tolerance	-1.0		+1.0	ppm	at time of shipment, nominal EFC Vs ± 5% Load ± 10% @ +40°C for 15 years
vs. supply voltage change	-0.1		+0.1	ppm	
vs. load change	-0.2		+0.2	ppm	
vs. aging / 1 year		±1		ppm	
vs. aging			4.0	ppm	
<b>Supply Voltage (Vs)</b>					
Supply voltage	4.75	5.0	5.25	VDC	
Supply voltage	3.135	3.3	3.465	VDC	
Supply voltage	2.7	2.8	2.9	VDC	
Current consumption			35	mA	Depends on frequency

## Performance Specifications

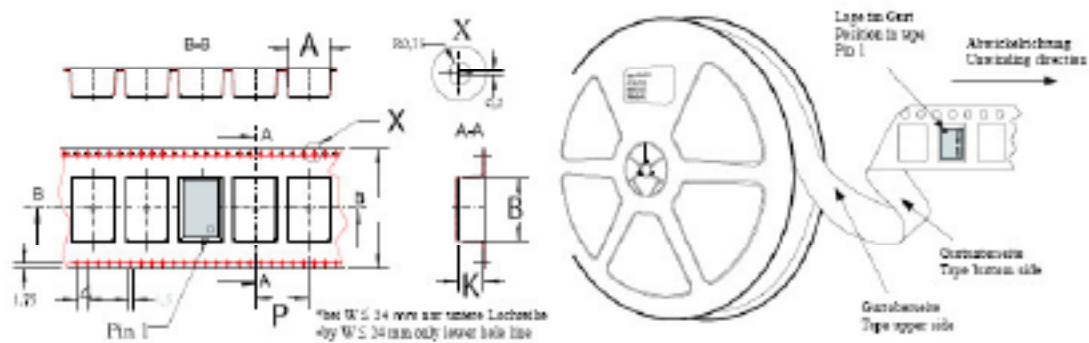
Parameter	Min	Typ	Max	Units	Condition
<b>RF Output</b>					
Subharmonics			0	dBc	F≤50 Mhz
			-20	dBc	F>50 MHz
<b>HCMOS</b>					
Load		15		pF	
Signal Level (Vol)			0.1*Vs	V	
Signal Level (Voh)	0.9*Vs			V	
Rise/Fall Time			5	ns	@ nominal Load and 10% to 90% of waveform
Duty cycle	40	50	60	%	@ nominal Load and @ 50% level
<b>Clipped Sinewave (F≥ 30 MHz)</b>					
Level		1		Vpp	with Nominal Load
Load R		10		kOhm	
Load C		10		pF	
<b>Sinewave (F≥ 30 MHz)</b>					
Load		50		Ohm	
Output	0	3	6	dBm	with Nominal Load
Harmonics			-20	dBc	
<b>Frequency Tuning (EFC)</b>					
Tuning Range	±5.0			ppm	Fixed frequency option available
Tuning Slope		Positive			
Control Voltage Range	0.0		Vs	VDC	
Freq. control input impedance	10			kOhm	
<b>Additional Parameters<sup>1</sup></b>					
Phase Noise <sup>3</sup> (@ 10 MHz - no vibration)		-110		dBc/Hz	10 Hz
		-130		dBc/Hz	100 Hz
		-145		dBc/Hz	1 kHz
		-155		dBc/Hz	10 kHz
		-160		dBc/Hz	100 kHz
Phase Noise <sup>3</sup> (@ 40 MHz - no vibration)		-100		dBc/Hz	10 Hz
		-120		dBc/Hz	100 Hz
		-140		dBc/Hz	1 kHz
		-155		dBc/Hz	10 kHz
		-155		dBc/Hz	100 kHz
Phase Noise <sup>3</sup> (@ 100 MHz - no vibration)		-81		dBc/Hz	10 Hz
		-107		dBc/Hz	100 Hz
		-130		dBc/Hz	1 kHz
		-148		dBc/Hz	10 kHz
		-151		dBc/Hz	100 kHz
g-Sensitivity		0.2		ppb/g	per axis
Shock					MIL-STD-202G; Method 213B; Test Condition B
Vibration Random					MIL-STD-202G; Method 214A; Test Condition I-F
Vibration Sine					MIL-STD-202G, METHOD 204D, Test Condition A
Thermal Cycling					MIL-STD-202, METHOD 107, Test Condition A
<b>Absolute Maximum Ratings</b>					

Parameter	Min	Typ	Max	Units	Condition
<b>Absolute Maximum Ratings</b>					
Supply voltage (Vs)			6.0	V	Damage will occur beyond this level
Control Voltage	0		Vs	V	
Operable temperature range	-45		+90	°C	
Storage temperature range	-55		+105	°C	

**PhaseNoise Plot:**



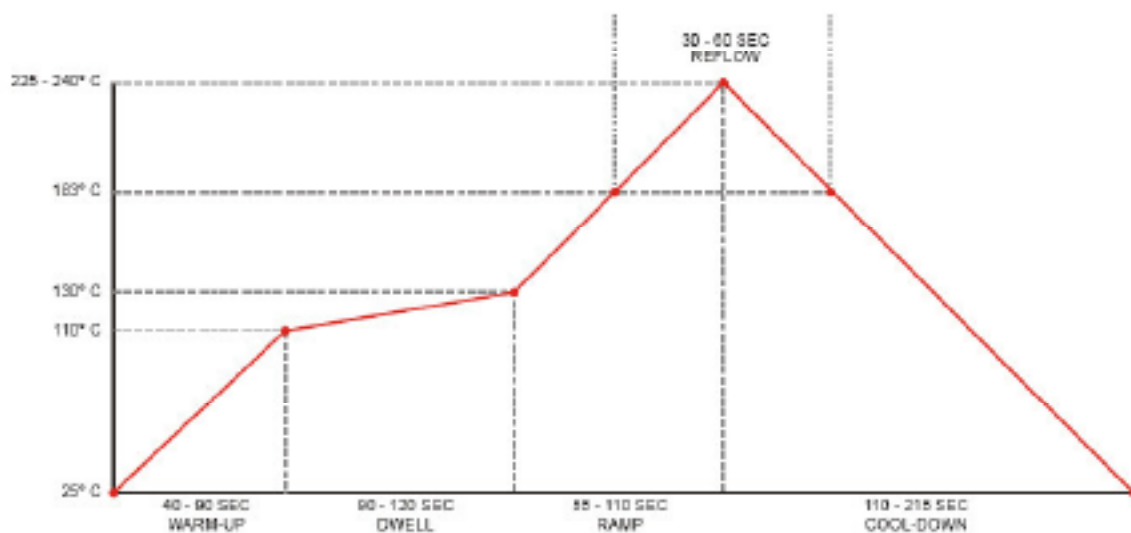
### Standard Shipping Method



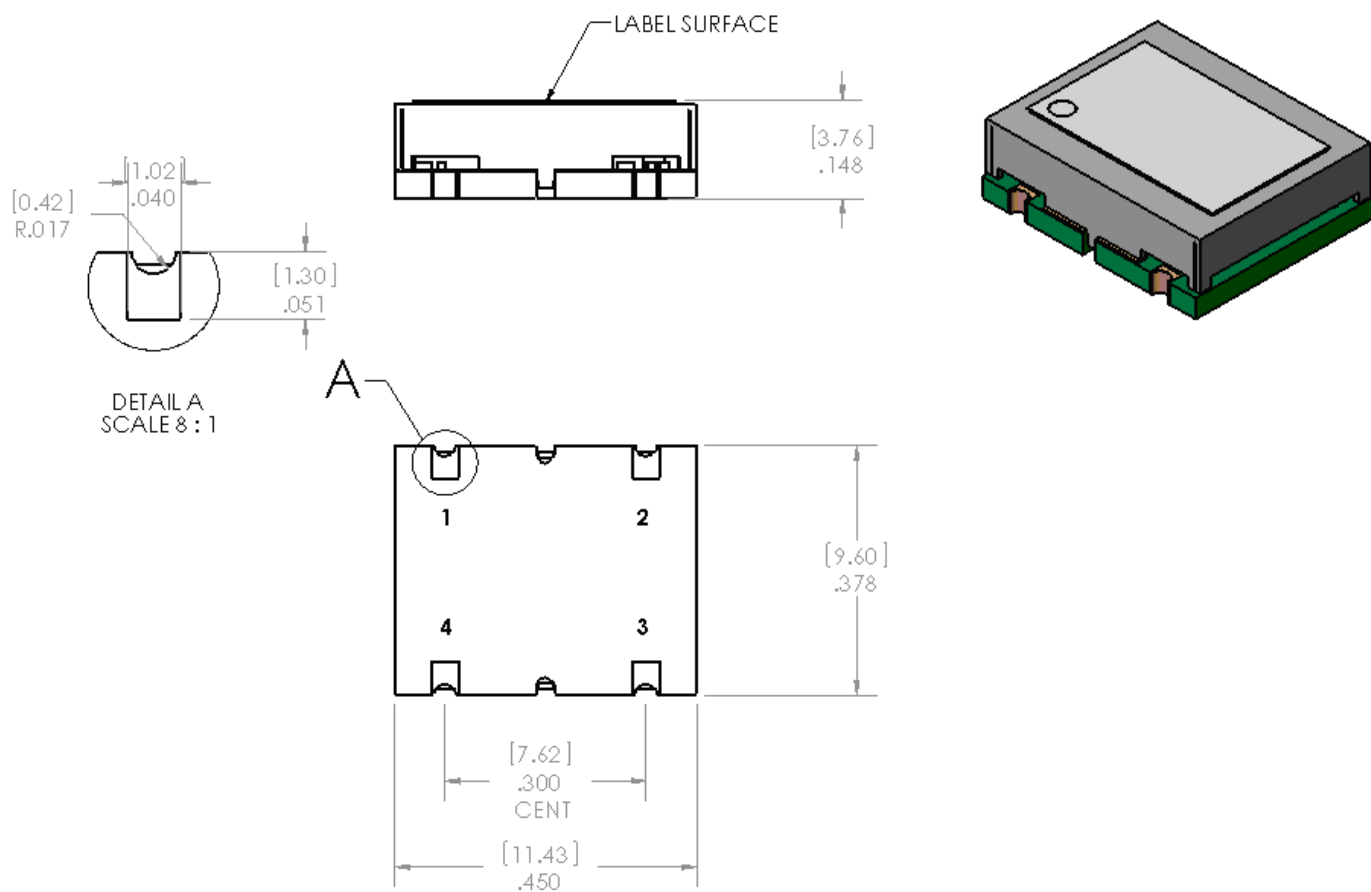
### Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W (mm)	Quantity per meter	Quantity per reel	Dimension P

### Recommended Reflow Profile



## Outline Drawing / Enclosure

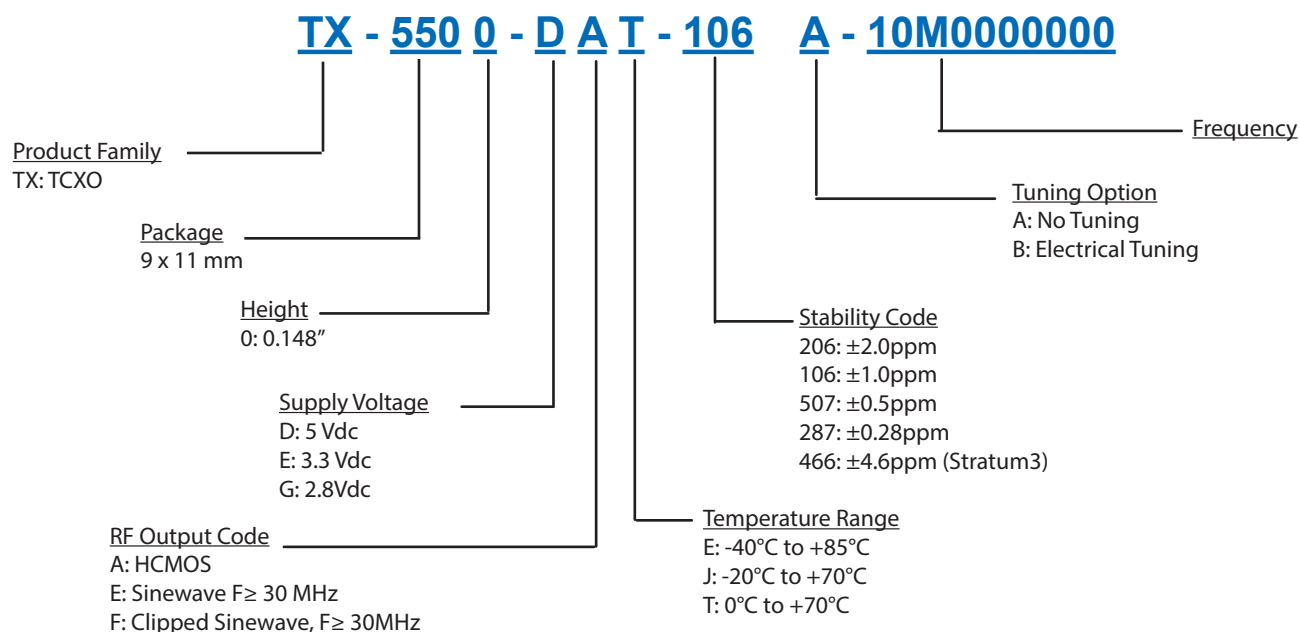


PIN NUMBERS SHOWN FOR REFERENCE ONLY

Dimensions in inches (mm)

TX-550 Pin Connections	
1	Electronic Frequency Control (EFC)
2	Ground
3	RF Output
4	Supply

## Ordering Information



Available Frequencies (MHz) <sup>6</sup>		
9.600	10.000	12.500
19.200	20.000	25.000
38.400	40.000	50.000
76.800	80.00	100.000

Vectron stocks the following items for small orders and prototype development:

TX-5500-EFE-106A-100M000000

### Notes:

- Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature ( $25^{\circ}\text{C}$ ).
- Phase noise degrades with increasing output frequency.
- Subject to technical modification.
- Contact factory for availability.
- Frequencies not listed above may require NRE charges and additional lead times.

## For Additional Information, Please Contact

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