


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

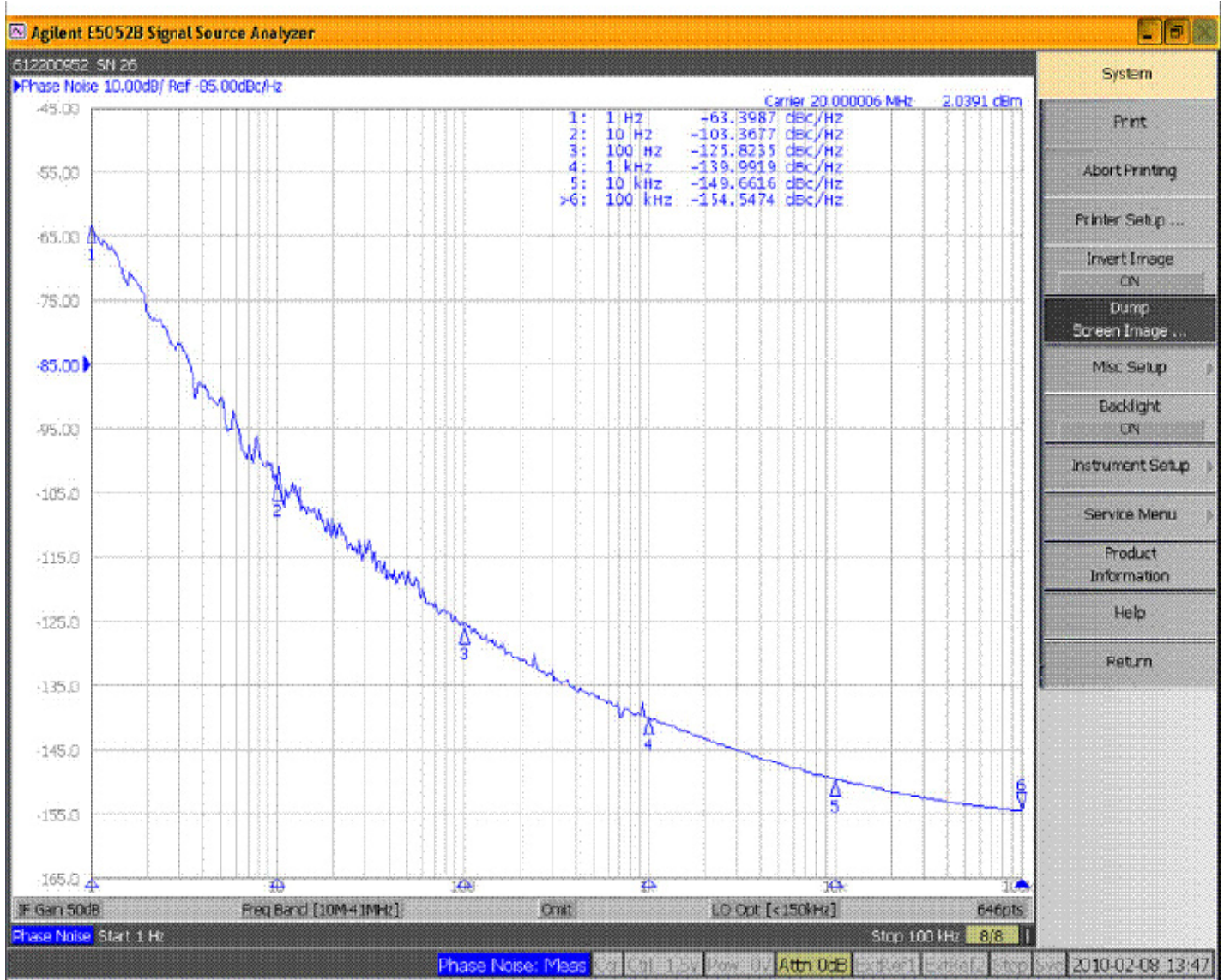
Parameter	Min	Typ	Max	Units	Condition
Frequency Stabilities¹					
vs. operating temperature range (referenced to +25°C)	-2.0		+2.0	ppm	-40... +85°C
	-1.0		+1.0	ppm	-40... +85°C
	-0.5		+0.5	ppm	-20... +70°C
	-0.28		+0.28	ppm	0... +50°C
Initial Tolerance vs. supply voltage change vs. load change vs. aging / 1 year vs. aging	-1.0		+1.0	ppm	at time of shipment, nominal EFC Vs ± 5% Load ± 10% @ +40°C for 15 years
	-0.1		+0.1	ppm	
	-0.2		+0.2	ppm	
		±1		ppm	
			4.0	ppm	
Supply Voltage (Vs)					
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

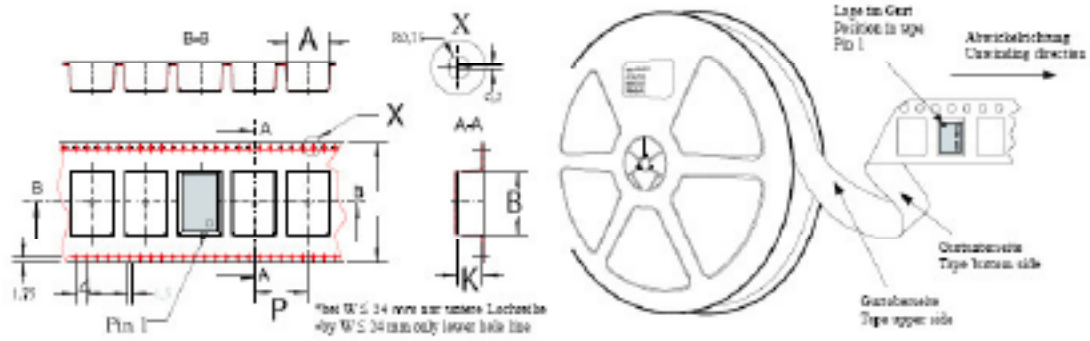
Parameter	Min	Typ	Max	Units	Condition
RF Output					
Subharmonics			0	dBc	F≤50 Mhz
			-20	dBc	F>50 MHz
HCMOS					
Load		15		pF	
Signal Level (Vol)			0.1*Vs	V	
Signal Level (Voh)	0.9*Vs			V	
Rise/Fall Time			5	ns	@ nominal Load and 10% to 90% of waveform
Duty cycle	40	50	60	%	@ nominal Load and @ 50% level
Clipped Sinewave (F≥ 30 MHz)					
Level		1		Vpp	with Nominal Load
Load R		10		kOhm	
Load C		10		pF	
Sinewave (F≥ 30 MHz)					
Load		50		Ohm	
Output	0	3	6	dBm	with Nominal Load
Harmonics			-20	dBc	
Frequency Tuning (EFC)					
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	
Additional Parameters¹					
Phase Noise ³ (@ 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 ³ (@ 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 ³ (@ 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
Absolute Maximum Ratings					

Parameter	Min	Typ	Max	Units	Condition
Absolute Maximum Ratings					
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:



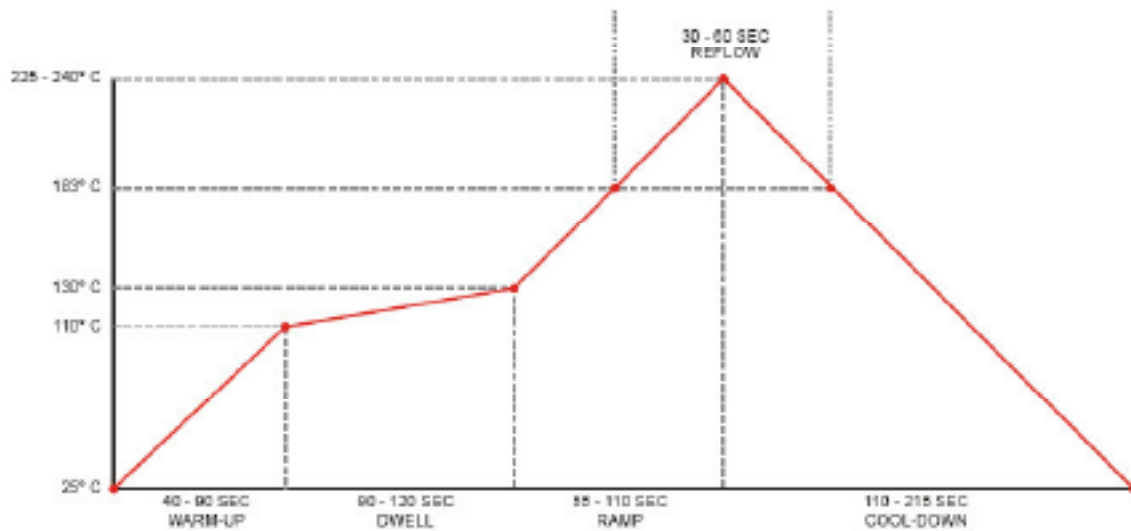
Standard Shipping Method



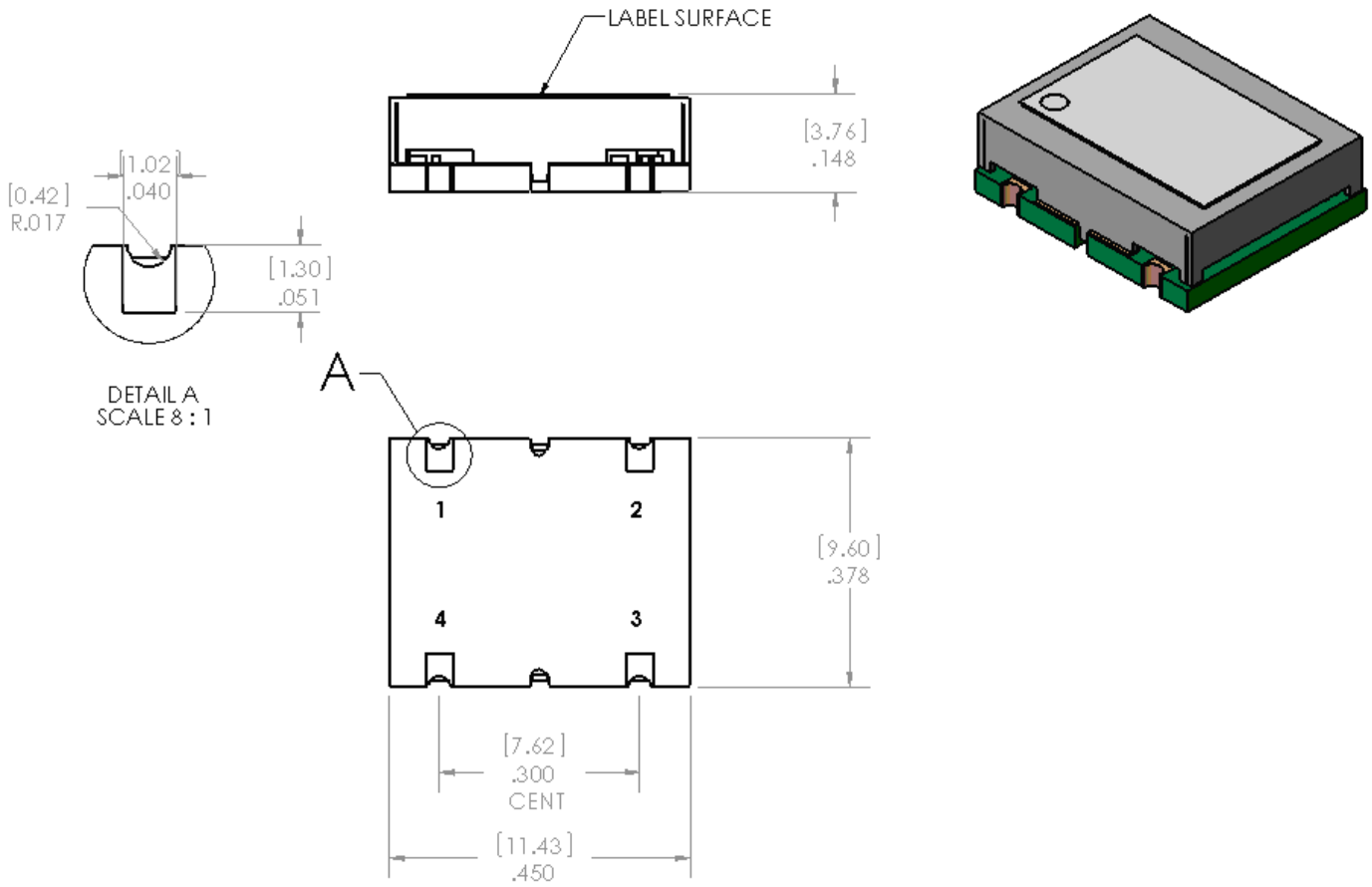
Production tolerance complying DIN IEC 286-3

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

TX - 550 0 - D A T - 106 A - 10M0000000

Product Family
TX: TCXO

Package
9 x 11 mm

Height
0: 0.148"

Supply Voltage
D: 5 Vdc
E: 3.3 Vdc
G: 2.8Vdc

RF Output Code
A: HCMOS
E: Sinewave $F \geq 30$ MHz
F: Clipped Sinewave, $F \geq 30$ MHz

Frequency

Tuning Option
A: No Tuning
B: Electrical Tuning

Stability Code
206: ± 2.0 ppm
106: ± 1.0 ppm
507: ± 0.5 ppm
287: ± 0.28 ppm
466: ± 4.6 ppm (Stratum3)

Temperature Range
E: -40°C to $+85^{\circ}\text{C}$
J: -20°C to $+70^{\circ}\text{C}$
T: 0°C to $+70^{\circ}\text{C}$

Available Frequencies (MHz) ⁶		
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°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.

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