

Helping Customers Innovate, Improve & Grow




TX-707

Description

The TX-707 Series TCXO combines innovative manufacturing and the latest technology to provide low phase noise and excellent g-sensitivity. The fully hermetic assembly includes a dual crystal circuit to cancel opposing g-sensitivity vectors enclosed in a 5x7mm ceramic package.

Features

- Low Phase Noise, Low g-sensitivity 0.1ppb/g
- Fully RoHS Compliant 
- Surface Mount, Low Profile
- High Shock Survival up to 20k g
- Frequency Range: 10 MHz to 50 MHz

Applications

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

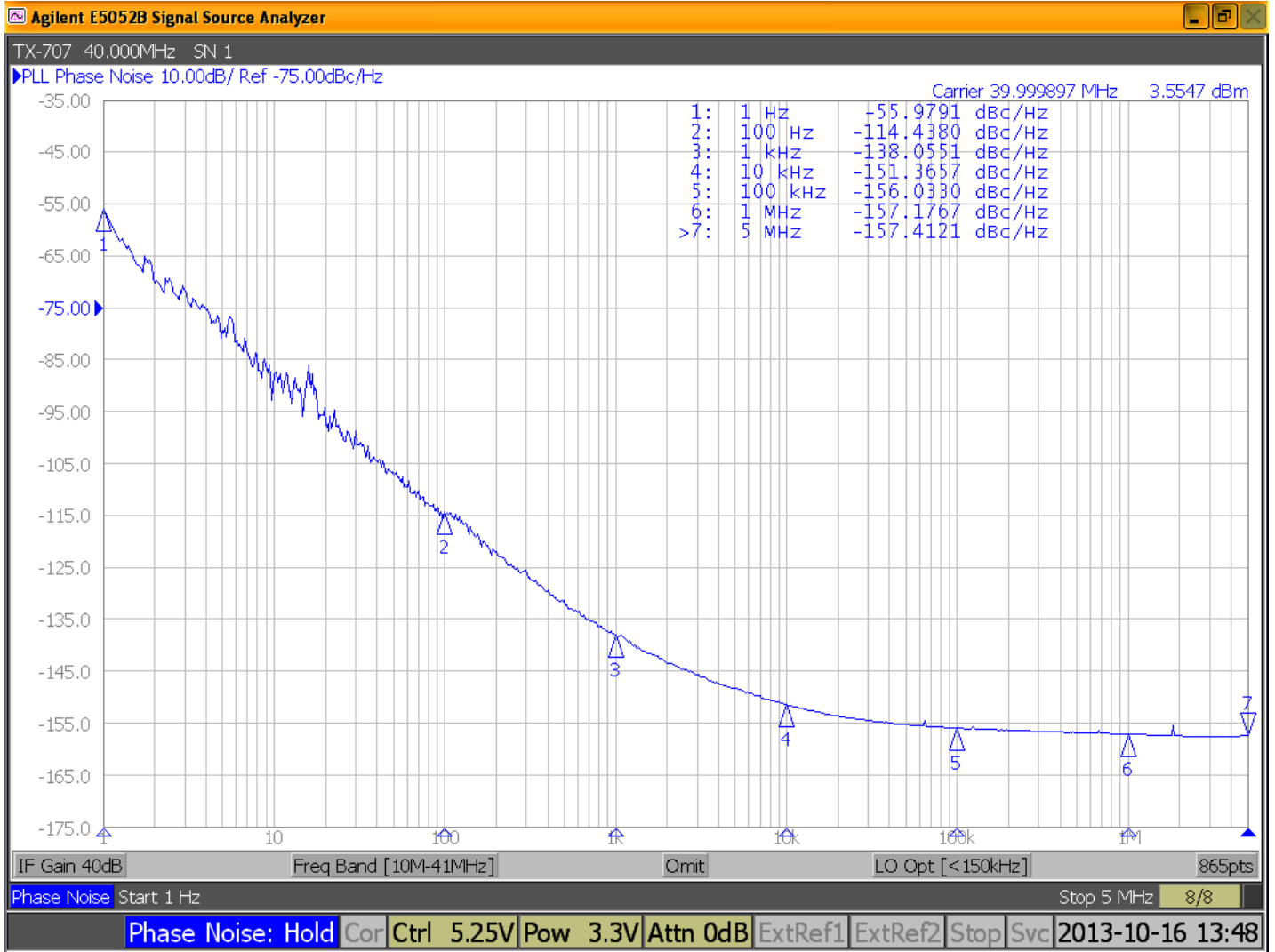
Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Frequency Stabilities¹					
vs. operating temperature range (referenced to +25°C)	-1.0		+1.0	ppm	-40... +85°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	-0.2		+0.2	ppm	
vs. load change	-0.2		+0.2	ppm	
vs. aging / 1 year		±1		ppm	
vs. aging			4.0	ppm	
Supply Voltage (Vs)					
Supply voltage	4.75	5.0	5.25	VDC	
Supply voltage	3.135	3.3	3.465	VDC	
Current consumption		5	10	mA	Increases with output frequency

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
RF Output					
Signal	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
Signal	Clipped Sinewave				Frequencies greater than 15 MHz only.
Level		1		Vpp	with Nominal Load
Load R		10		kohm	
Load C		10		pF	
Electronic Frequency Control (EFC)					
Tuning Range (options A, C)	Fixed; No adjust				
Tuning Range (options B, D)	±5.0		±12	ppm	
Tuning Slope	Positive				
Control Voltage Range	0.0		Vs	VDC	
Freq. control input impedance	10			kohm	
RF Output Enable / Disable (Pin 4)					
RF Output Enabled	Logic "1" or no connect				
RF Output Disabled	Logic "0"				
Additional Parameters¹					
Phase Noise ³ (@ 10 MHz - no vibration)		-100		dBc/Hz	10 Hz
		-128		dBc/Hz	100 Hz
		-149		dBc/Hz	1 kHz
		-158		dBc/Hz	10 kHz
		-160		dBc/Hz	100 kHz
Phase Noise ³ (@ 40 MHz - no vibration)		-84		dBc/Hz	10 Hz
		-114		dBc/Hz	100 Hz
		-134		dBc/Hz	1 kHz
		-145		dBc/Hz	10 kHz
		-150		dBc/Hz	100 kHz
g-sensitivity		0.2		ppb/g	per axis (ordering code A and B)
			0.1	ppb/g	per axis (ordering code C and D) parts 100% tested with 100 Hz sine vibration
Shock					MIL-STD-883G; Method 2002.4; Condition D
Vibration Sine					MIL-STD-202G, METHOD 204D, Test Condition D
Thermal Cycling					MIL-STD-202, METHOD 107, Test Condition A
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	

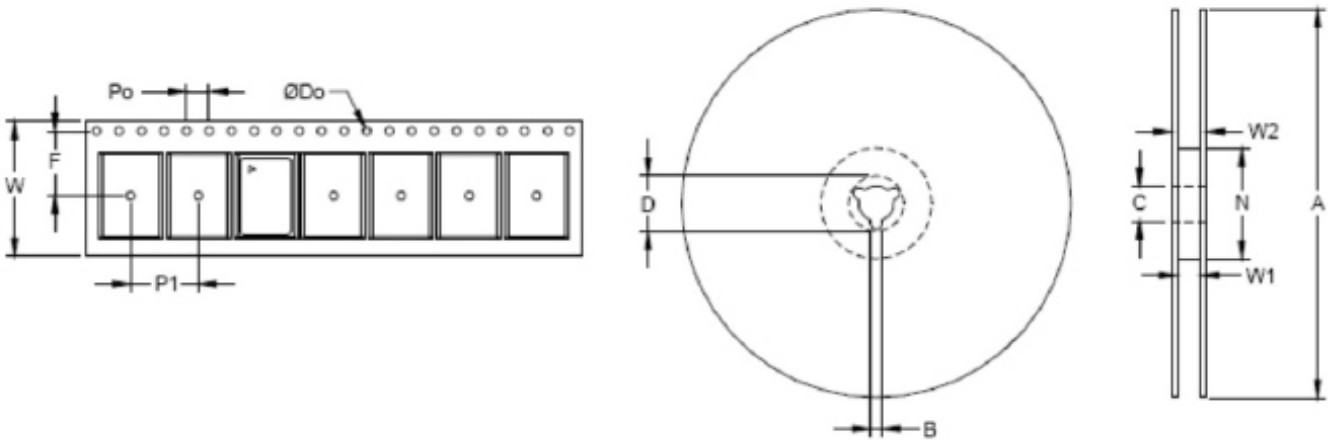
PhaseNoise Plot:



Standard Shipping Method

Tape and Reel Information

Tape Dimensions (mm)					Reel Dimensions (mm)						
W	F	Do	Po	P1	A	B	C	D	N	W1	W2
16	7.5	1.5	4	8	180	1.5	13	20.2	60	16.4	20.4



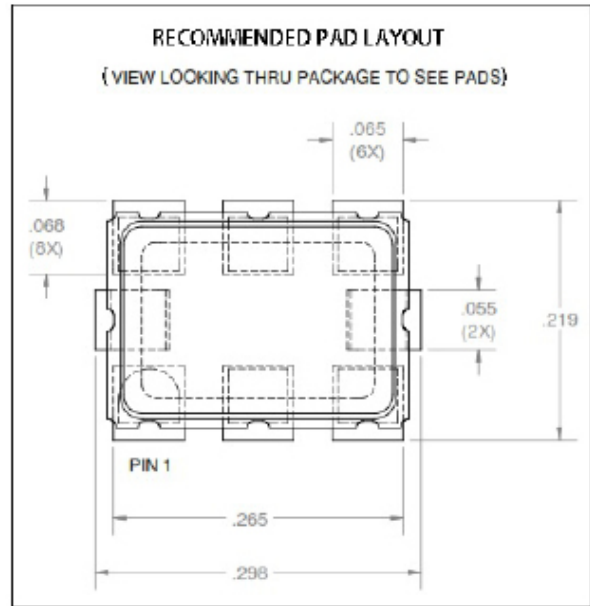
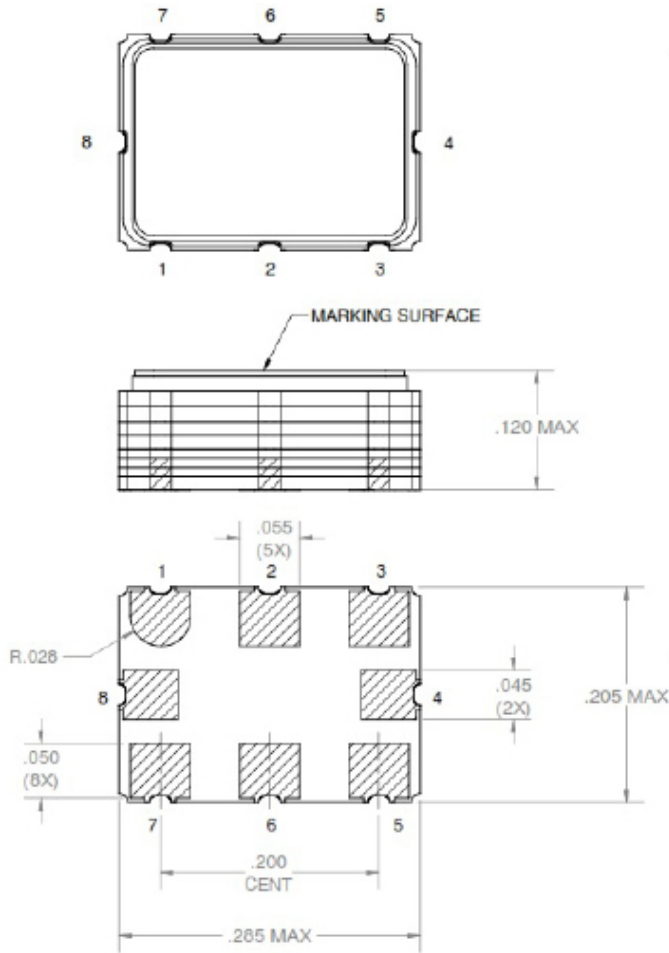
Recommended Reflow Profile

IPC/JEDEC J-STD-020 (latest revision)

Additional Information:

This SMD oscillator has been designed for pick and place reflow soldering.

Outline Drawing / Enclosure



Plating Composition of TX-707 pads:

30-90 microinches electroless Gold over 50-350 microinches electroless Nickel
Contact factory for tin dipped parts. Tinning increases overall height of units to 0.130 Max

Dimensions in inches

TX-707 Pin Connections	
1	Electronic Frequency Control (EFC) Option or No Connect*
2	No connect*
3	Ground
4	RF Output Enable / Disable Function†
5	RF Output
6	No Connect*
7	Supply Voltage
8	No Connect*

* Do not connect to this pin - Vectron reserved

+ if customer does not intend to use the enable functional tie this pin to Vcc or allow it to float.

Ordering Information

TX - 7070 - E A E - 106 A - 10M0000000

Product Family
TX: TCXO

Package
5x7 mm

Height
0: 2.8 mm

Supply Voltage
D: 5.0 Vdc
E: 3.3 Vdc

RF Output Code
A: HCMOS
F: Sinewave, clipped (for Frequencies >15 MHz)

Frequency

Tuning and g sensitivity option

A: No Tuning 0.2 ppb/g
B: Electrical Tuning 0.2ppb/g
C: No Tuning 0.1 ppb/g
D: Electrical Tuning 0.1ppb/g

Stability Code
106:±1ppm
206:±2ppm

Temperature Range
E: -40°C to +85°C
J: -20°C to +70°C
T: 0°C to +70°C

Available Frequencies (MHz) ⁶			
8.184	9.600	10.000	12.500
16.368	19.200	20.000	25.000
32.768	38.400	40.000	50.000

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

TX-7070-EAE-106D-10M0000000	TX-7070-EAE-106D-40M0000000	TX-7070-EAE-106D-50M0000000
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Notes:

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

For Additional Information, Please Contact

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