

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 52 MHz

Applications

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



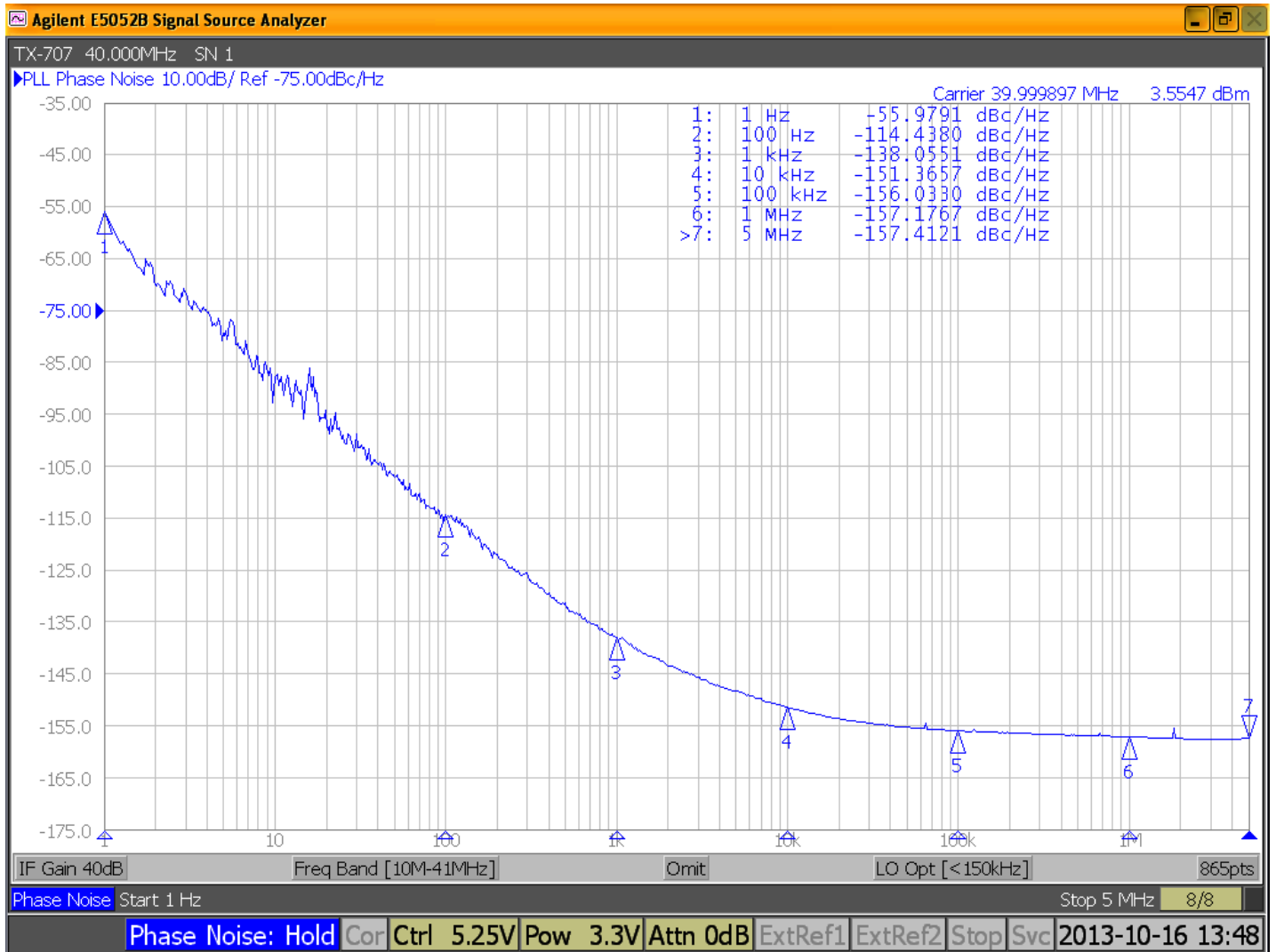
Performance Specifications

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	

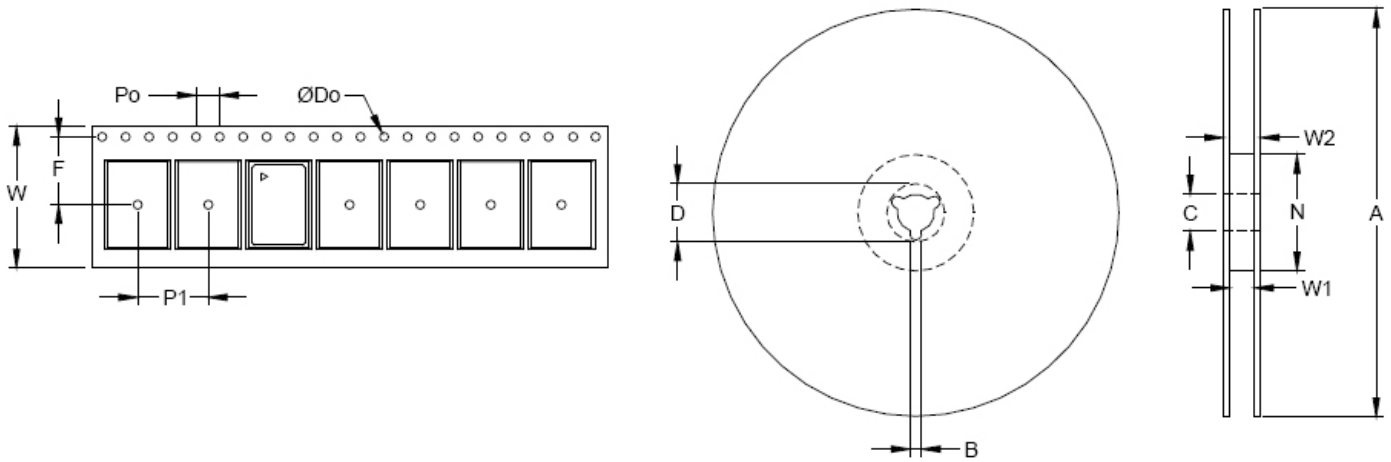
Phase Noise Plot



Standard Shipping Method

Tape and Reel Information

Tape Dimensions (mm)					Reel Dimensions (mm)							
W	F	Po	P1	Do	A	B	C	D	N	W1	W2	#/Reel
16	7.5	4	8	1.50	180	1.5	13	20.20	60	16.40	20.40	1000



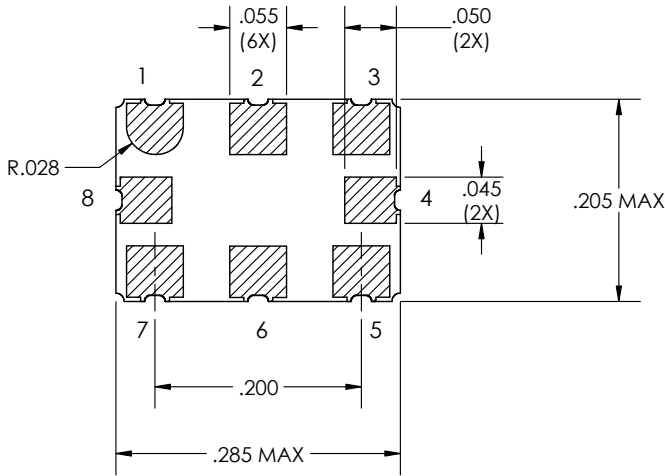
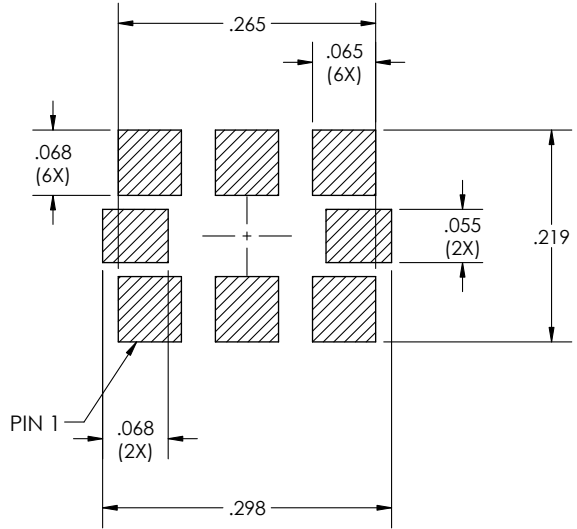
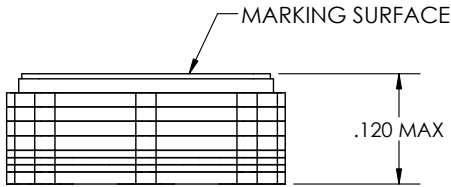
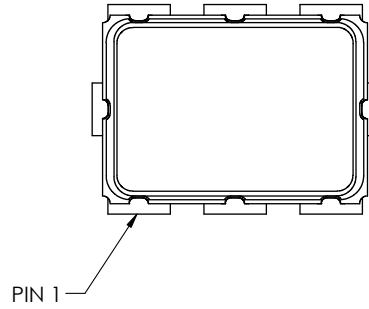
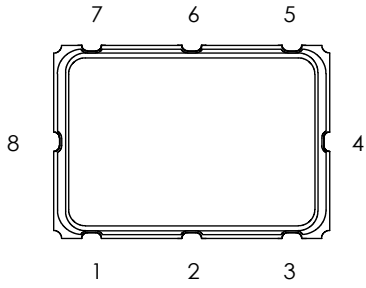
Recommended Reflow Profile

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

Additional Information:

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

Outline Drawing / Enclosure



RECOMMENDED PAD LAYOUT

Dimensions in inches

Plating Composition of TX-707 pads:

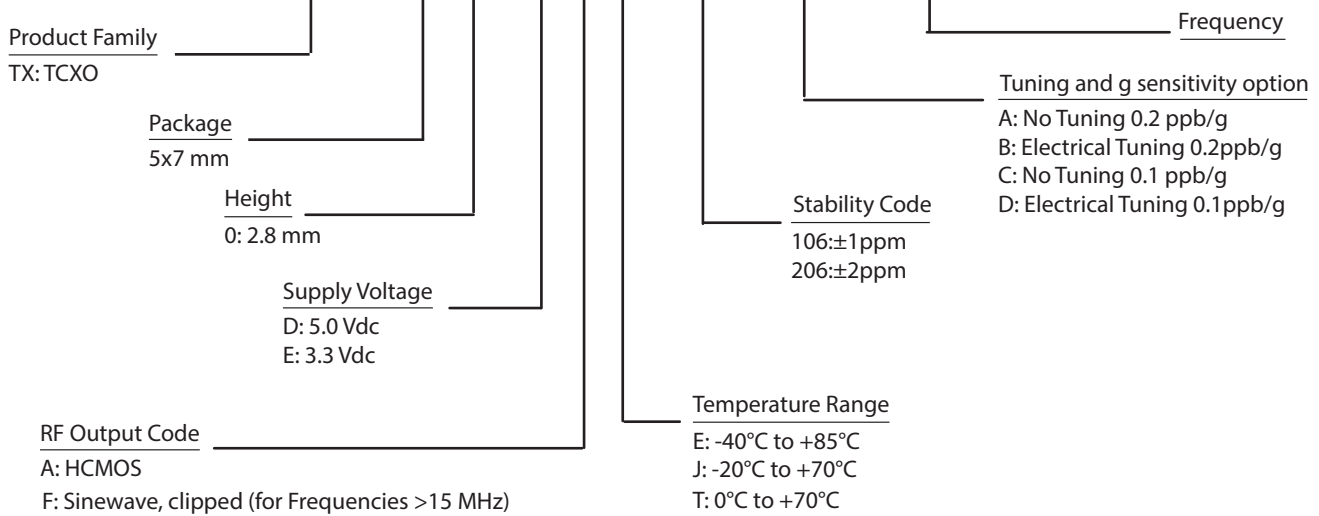
30-90 microinches electroless Gold over 50-350 microinches electroless Nickel
 Contact factory for solder dipped parts. Solder Dipping increases overall height of units to 0.130 Max

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



Available Frequencies (MHz) ⁶			
8.184	9.600	10.000	12.500
16.368	19.200	20.000	25.000
32.736	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

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

USA:

Vectron International
267 Lowell Road, Unit 102
Hudson, NH 03051
Tel: 1.888.328.7661
Fax: 1.888.329.8328

Europe:

Vectron International
Landstrasse, D-74924
Neckarbischofsheim, Germany
Tel: +49 (0) 3328.4784.17
Fax: +49 (0) 3328.4784.30

Asia:

Vectron International
68 Yin Cheng Road(C), 22nd Floor
One LuJiaZui
Pudong, Shanghai 200120, China
Tel: +86 21 6194 6886
Fax: +86 21 6194 6699

Disclaimer

Vectron International reserves the right to make changes to the product(s) and or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information. 5-15-2017 JV