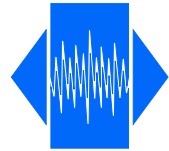


VTX 14F-LG

Low G-sensitivity, vibration and shock resistant
Ultra-low noise floor, low jitter (VC)TCXO

QuartzCom
the communications company

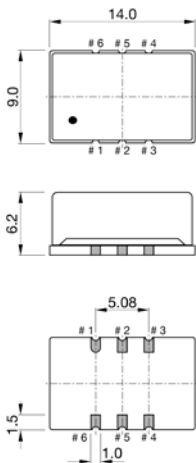


Application: 5G Repeaters, Link and micro cells, Low noise microwave

Frequency range	10.000 to 160.000 MHz		
Standard frequencies (fundamental)	10, 20, 25, 27, 40, 50, 70, 80, 100, 155.52 MHz		
Frequency stability:			
vs. temperature referenced to (F _{MAX} +F _{MIN})/2	≤ ±1.00 ppm	over -40 to +85 °C	(*)
vs. supply voltage changes referenced to frequency at nominal supply	≤ ±0.05 ppm	±5 %	
vs. load changes referenced to frequency at nominal load	≤ ±0.05 ppm	±10 %	
vs. aging @ +40 °C	≤ ±1.0 ppm	1 st year	
G-sensitivity	0.25 ppb/g	per axis	(*)
Short term stability ADEV	< 1*10 ⁻¹⁰	τ = 1.0 s	
Frequency tolerance ex factory	0 ~ +1.0 ppm	@ +25 °C	
Supply voltage	+3.3 V or 5.0 V		(*)
Current consumption	< 25 mA		
Output signal	Sine wave	(LV)HCMOS (45/55%)	(*)
Output level	+3 to +6 dBm	V _{OH} > 0.9*V _{CC} / V _{OL} < 0.1*V _{CC}	
Output load	50 Ω	15 pF max.	(*)
Electronic Frequency Control (EFC)	ΔF = ±5 to ±10 ppm	positive slope	(*)
Control voltage (Vc)	+1.50 V ±1.0 V for 3.3 V	+2.50 V ±2.0 V for 5.0 V	(*)
EFC input impedance	> 100 kΩ		
Phase noise (typical value for 100 MHz)	< -75 dBc/Hz < -100 dBc/Hz < -125 dBc/Hz < -155 dBc/Hz < -170 dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz @ 100 kHz	
RMS phase jitter	15 fs (typ.)	12 kHz ~ 20 MHz	
Sub-harmonics	No		
Operating temperature range	-40 ~ +85 °C		(*)
Reflow profiles as per IPC/JEDEC J-STD-020C	≤ 245 °C over 10 s max.		

(*) See available options on page #2

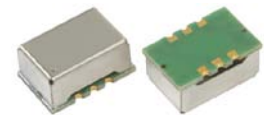
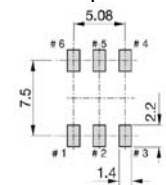
Note: Unless otherwise specified conditions are @+25 °C



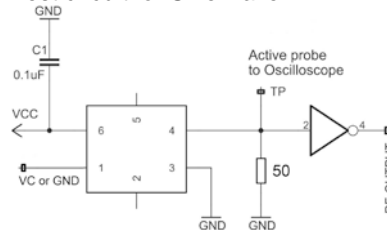
Pin function

- # 1 Vc (EFC) for VC-TCXO
GND or NC for TCXO
- # 2 NC or GND
- # 3 GND
- # 4 RF output
- # 5 NC or GND
- # 6 Vcc

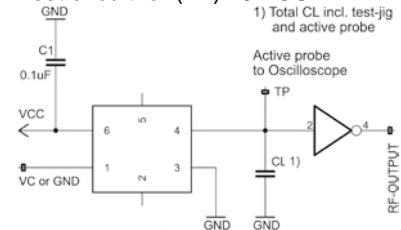
Solder pattern



Test circuit for Sine wave



Test circuit for (LV)HCMOS

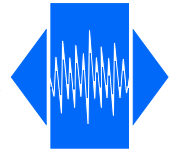


1) Total CL incl. test-jig and active probe



VTX 14F-LG

Low G-sensitivity, vibration and shock resistant
Ultra-low noise floor, low jitter (VC)TCXO



Application: 5G Repeaters, Link and micro cells, Low noise microwave

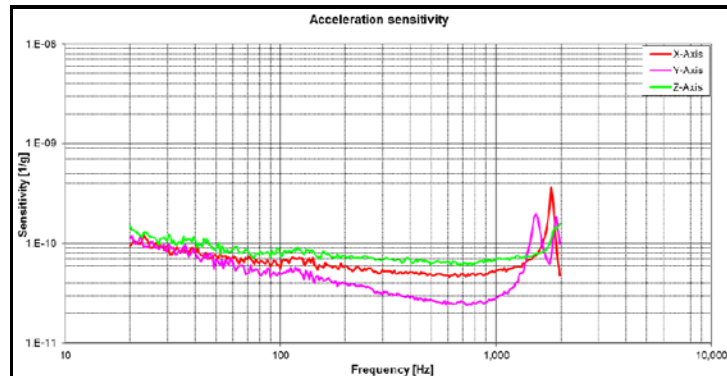
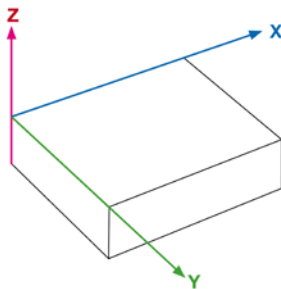
G-Sensitivity performance

Noise shape vibration from 20-2'000 Hz
with 0.1 g²/Hz (G_{RMS} = 14.11g) for the axis

The table shows the averaged values of the G-Sensitivity in the range 20 Hz to 1000 Hz.
At 1500 Hz appear resonances, which are caused by the mounting structure on the shaker.

TX14F-S3-NNu50-C-100 MHz				
Osc-#	X-axis	Y-axis	Z-axis	Gamma Γ
	[ppb/g]	[ppb/g]	[ppb/g]	[ppb/g]
#1	0.06	0.07	0.17	0.19
#2	0.06	0.05	0.08	0.12
#3	0.04	0.05	0.26	0.27
#4	0.05	0.08	0.08	0.12

Definitions of vibration axes



Ordering code

(0)14F-(1)(2)-(3)(4)-(5)(6)-100.000MHz

Example: VT14F-S33-NNu50-GC-100.000MHz

(0) Oscillator type	(1) Output signal	(2) Supply voltage	(5) Pulling range (VT only)
TX = TCXO VT = VC-TCXO	H = (LV)HCMOS S = Sine wave	33 = 3.3 V 50 = 5.0 V	V05 = 1.5 ± 1.0 V ±5 ppm V10 = 1.5 ± 1.0 V ±10 ppm
(3) Operating temperature	(4) Frequency stability	(6) G-sensitivity per axis	X05 = 2.5 ± 2.0 V ±5 ppm X10 = 2.5 ± 2.0 V ±10 ppm Z = special spec
JK = -20 to +70 °C NN = -40 to +85 °C NP = -40 to +95 °C NR = -40 to +105 °C QN = -55 to +85 °C	u25 = ± 0.25 ppm u50 = ± 0.50 ppm 1u0 = ± 1.00 ppm 1u5 = ± 1.50 ppm 2u0 = ± 2.00 ppm	GA = 0.10 ppb/g GB = 0.25 ppb/g GC = 0.50 ppb/g GZ = special spec	

Frequency stability vs. temperature

ppm	≤± 0.25	≤± 0.50	≤± 1.00	≤± 1.50	≤± 2.00
-20 to +70 °C	O	O	O	O	O
-40 to +85 °C	O	O	O	O	O
-40 to +95 °C	Δ	Δ	Δ	Δ	O
-40 to +105 °C	Δ	Δ	Δ	Δ	Δ
-55 to +85 °C	X	X	Δ	Δ	Δ

Δ Ask factory
O Available
X Not available

Absolute max. ratings

Supply voltage (Vcc)	6.0 V
Storage temperature range	-55 ~ +105 °C
Control voltage (Vc)	0 / Vcc

