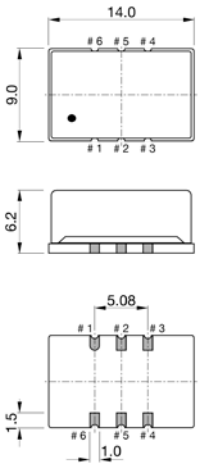
VTX 14F-LG

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

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 (FMAX+FMIN)/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	1st 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∗Vcc / V_{OL} < 0.1∗Vcc	
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 @ 10 Hz < -100 dBc/Hz @ 100 Hz < -125 dBc/Hz @ 1 kHz < -155 dBc/Hz @ 10 kHz < -170 dBc/Hz @ 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.		

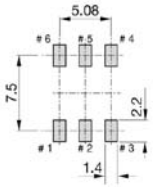
(∗) See available options on page #2 **Note: Unless otherwise specified conditions are @+25 °C**



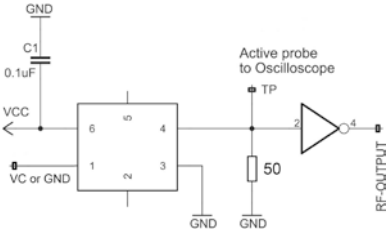
Pin function

# 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

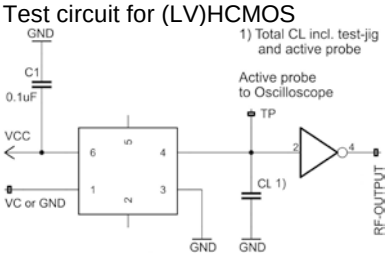
Solder pattern



Test circuit for Sine wave



Test circuit for (LV)HCMOS



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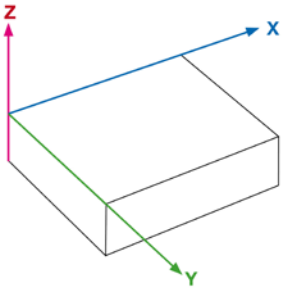
G-Sensitivity performance

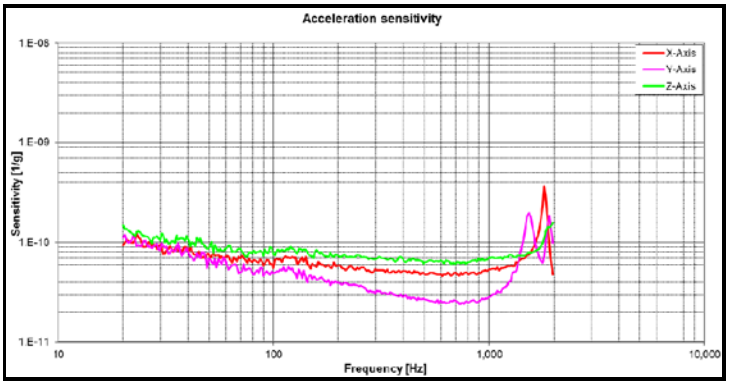
Noise shape vibration from 20-2'000 Hz
with 0.1 g²/Hz (G_{RMS} = 14.11g) for the axis

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:* ***TX14F-S3-NNu50-GC-100.000MHz***

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

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

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From design to production in Switzerland