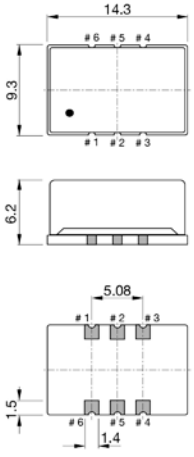
VTX 14M-LG

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

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

Frequency range	**40.000 to 200.000 MHz**		
Standard frequencies	**50, 60, 70, 80, 100, 120, 122.88, 125, 150 MHz**		
Frequency stability:			
vs. temperature referenced to (FMAX+FMIN)/2	≤ ±0.50 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	< 50 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)	-78 dBc/Hz @ 10 Hz -105 dBc/Hz @ 100 Hz -127 dBc/Hz @ 1 kHz -150 dBc/Hz @ 10 kHz -178 dBc/Hz @ 100 kHz		
RMS phase jitter	20 fs (typ.)	12 kHz ~ 20 MHz	
Sub-harmonics	-65 dBc max.	-75 dBc typ.	
Operating temperature range	-40 ~ +85 °C		(∗)
Reflow profiles as per IPC/JEDEC J-STD-020C	≤ 245 °C over 10 s max.		

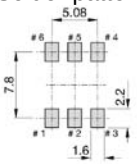
(∗) See available options on page #2 **Note: Unless otherwise specified conditions are @+25 °C**



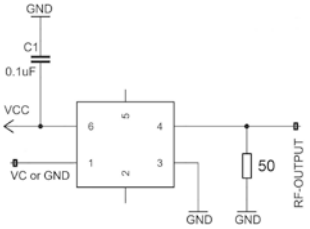
Pin function

# 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

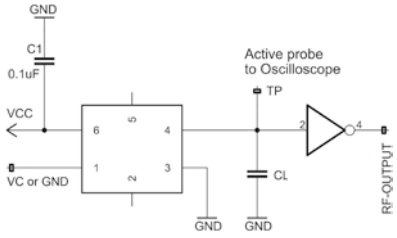
Solder pattern



Test circuit for Sine wave



Test circuit for (LV)HCMOS



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From design to production
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QuartzCom AG reserves the right to make spec changes to this product

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

Ordering code

(0)14M-(1)(2)-(3)(4)-(5)(6)-100.000MHz *Example:* ***VT14M-S33-NNu50- V05GC-100.000MHz***

(0) Oscillator type	(1) Output signal	(2) Supply voltage	(5) 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**	**(6) 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	GD = 1.00 ppb/g	
QN = -55 to +85 °C		GZ = special spec	

Frequency stability vs. temperature

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

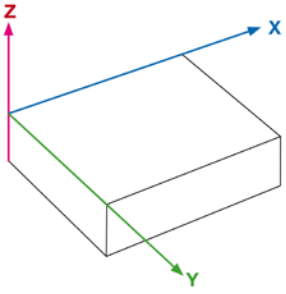
G-Sensitivity performance

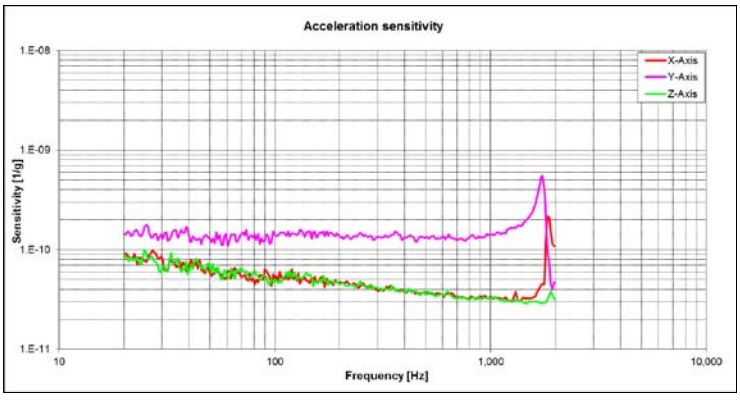
Noise shape vibration from 20-2'000 Hz
with 0.1 g²/Hz (G_{RMS} = 14.11g) for the axis

Osc-#	X-axis [ppb/g]	Y-axis [ppb/g]	Z-axis [ppb/g]	Gamma Γ [ppb/g]
#1	0.056	0.105	0.159	0.199
#2	0.052	0.137	0.052	0.156
#3	0.051	0.057	0.181	0.197
#4	0.108	0.091	0.17	0.221

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.

Definitions of vibration axes





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