

VTX 11M-LG



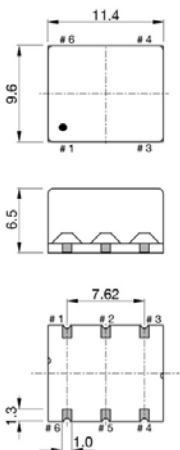
Low G-sensitive, vibration and shock resistant
Ultra-low noise floor, low jitter (VC)TCXO

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

Frequency range	50.000 to 150.000 MHz		
Standard frequencies	50, 75, 100, 122.88, 125 MHz		
Frequency stability:			
vs. temperature referenced to (F _{MAX} +F _{MIN})/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	1 st year	
Short term stability ADEV	< 1*10 ⁻¹⁰	τ = 1 sec.	
G-sensitivity	0.25 ppb/g	per axis	(*)
Frequency tolerance ex factory	0 ~ +1 ppm	@+25 °C	
Supply voltage	3.3 V or 5.0 V		(*)
Current consumption	< 45 mA	without load	
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 125 MHz)	-105 dBc/Hz -128 dBc/Hz -150 dBc/Hz -170 dBc/Hz -175 dBc/Hz	@ 100 Hz @ 1 kHz @ 10 kHz @ 100 kHz @ 1'000 kHz	
RMS phase jitter	15 fs (typ.)	12 kHz ~ 20 MHz	
Sub-harmonics	-65 dBc max.	-70 dBc typ.	
Operating temperature range	-40 ~ +85 °C		(*)
Reflow Profiles as per IPC/JEDEC J-STD-020C	≤ 245 °C over 10 sec. Max.		

(*) See available options on page #2

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



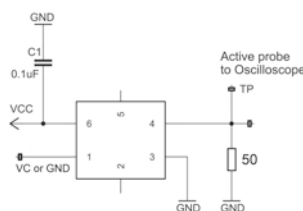
Pin function

- # 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

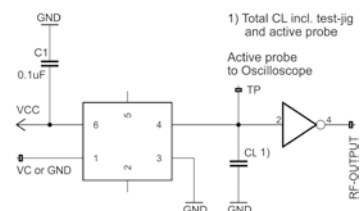
Solder pattern



Test circuit for Sine wave



Test circuit for (LV)HCMOS



2011/65/EU RoHS compliant

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From design to production
in Switzerland



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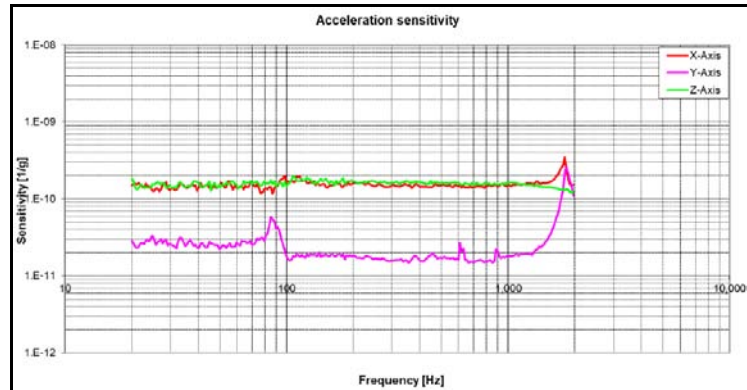
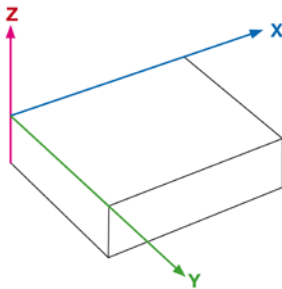
G-Sensitivity performance

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

Osc-#	X-axis [ppb/g]	Y-axis [ppb/g]	Z-axis [ppb/g]	Gamma Γ [ppb/g]
#1	0.154	0.030	0.304	0.342
#2	0.151	0.048	0.177	0.237
#3	0.151	0.022	0.161	0.221
#4	0.098	0.039	0.260	0.280

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



Ordering code

(0)11M-(1)(2)-(3)(4)-(5)(6)-100.000MHz Example: **VT11M-S33-NNu50-V05GC-100.000MHz**

(0) Oscillator type TX = TCXO VT = VC-TCXO	(1) Output signal H = (LV)HCMOS S = Sine wave	(2) Supply voltage 33 = 3.3 V 50 = 5.0 V	(5) Pulling range (VT only) V05 = 1.5 ± 1.0 V ±5 ppm V10 = 1.5 ± 1.0 V ±10 ppm
(3) Operating temperature 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	(4) Frequency stability u25 = ± 0.25 ppm u50 = ± 0.50 ppm 1u0 = ± 1.00 ppm 1u5 = ± 1.50 ppm	(6) G-sensitivity per axis GA = 0.10 ppb/g GB = 0.25 ppb/g GC = 0.50 ppb/g GD = 1.00 ppb/g GE = 1.50 ppb/g GZ = special spec	X05 = 2.5 ± 2.0 V ±5 ppm X10 = 2.5 ± 2.0 V ±10 ppm Z = 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

