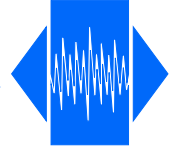


# VTX 11F



## High precision

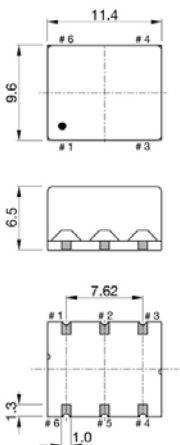
Ultra-low noise floor, low jitter (VC)TCXO

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

<b>Frequency range</b>	<b>10.000 to 160.000 MHz</b>		
<b>Standard frequencies (fundamental)</b>	<b>10, 20, 25, 27, 40, 50, 70, 80, 100, 122.880 MHz</b>		
Frequency stability:			
vs. temperature referenced to (F <sub>MAX</sub> +F <sub>MIN</sub> )/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 <sup>st</sup> year	
Short term stability ADEV	< 1*10 <sup>-10</sup>	τ = 1 sec.	
G-sensitivity	2.0 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 <sub>OH</sub> > 0.9*V <sub>CC</sub> / V <sub>OL</sub> < 0.1*V <sub>CC</sub>	
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)	-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	20 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 sec. Max.		

(\*) See available options on page #2

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



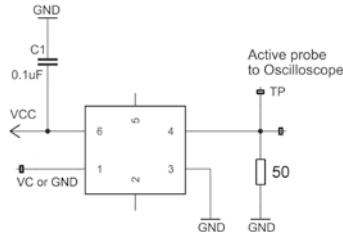
### Pin function

- # 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

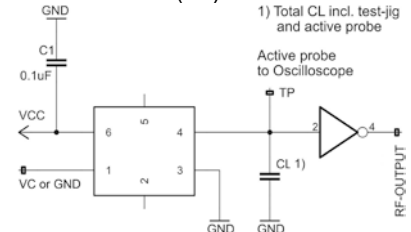
### Solder pattern



### Test circuit for Sine wave



### Test circuit for (LV)HCMOS



# VTX 11F



## High precision

Ultra-low noise floor, low jitter (VC)TCXO

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

## Ordering code

**(0)11F-(1)(2)-(3)(4)-(5)-100.000MHz**

*Example: VT11F-S33-NNu50-V10-100.000MHz*

<b>(0) Oscillator type</b> TX = TCXO VT = VC-TCXO	<b>(1) Output signal</b> H = (LV)HCMOS S = Sine wave	<b>(2) Supply voltage</b> 33 = 3.3 V 50 = 5.0 V	<b>(5) Pulling range (VT only)</b> V05 = 1.5 ± 1.0 V ±5 ppm V10 = 1.5 ± 1.0 V ±10 ppm  X05 = 2.5 ± 2.0 V ±5 ppm X10 = 2.5 ± 2.0 V ±10 ppm  Z = special spec
<b>(3) Operating temperature</b> 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	<b>(4) Frequency stability</b> u10 = ± 0.10 ppm u25 = ± 0.25 ppm u50 = ± 0.50 ppm 1u0 = ± 1.00 ppm 1u5 = ± 1.50 ppm		

### Frequency stability vs. temperature

ppm	≤± 0.10	≤± 0.25	≤± 0.50	≤± 1.00	≤± 1.50
-20 to +70 °C	Δ	O	O	O	O
-40 to +85 °C	Δ	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

### Frequency stability stability vs. temperature

