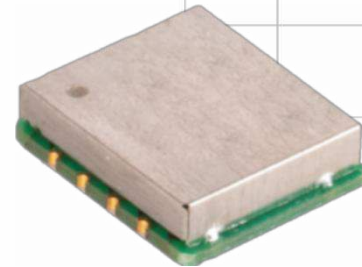


# VF901723-38.400MHz

## VCTCXO Low Noise, LVCMOS

### Features

- 5G mmWave reference design
- 14x13x3 mm SMD
- Output Frequency 38.400 MHz
- Ultra-low jitter and phase noise
- Excellent frequency stability <0.280 ppm



### Applications

- 5G Communications Reference

### Description

The VF901723 is a low noise TCXO which provides a LVCMOS output frequency at 38.400 MHz. The temperature stability is less than  $\pm 0.280$  ppm over a temperature range of  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ . The VF901723 is available in a 14 x 13 x 3 mm surface mount package.

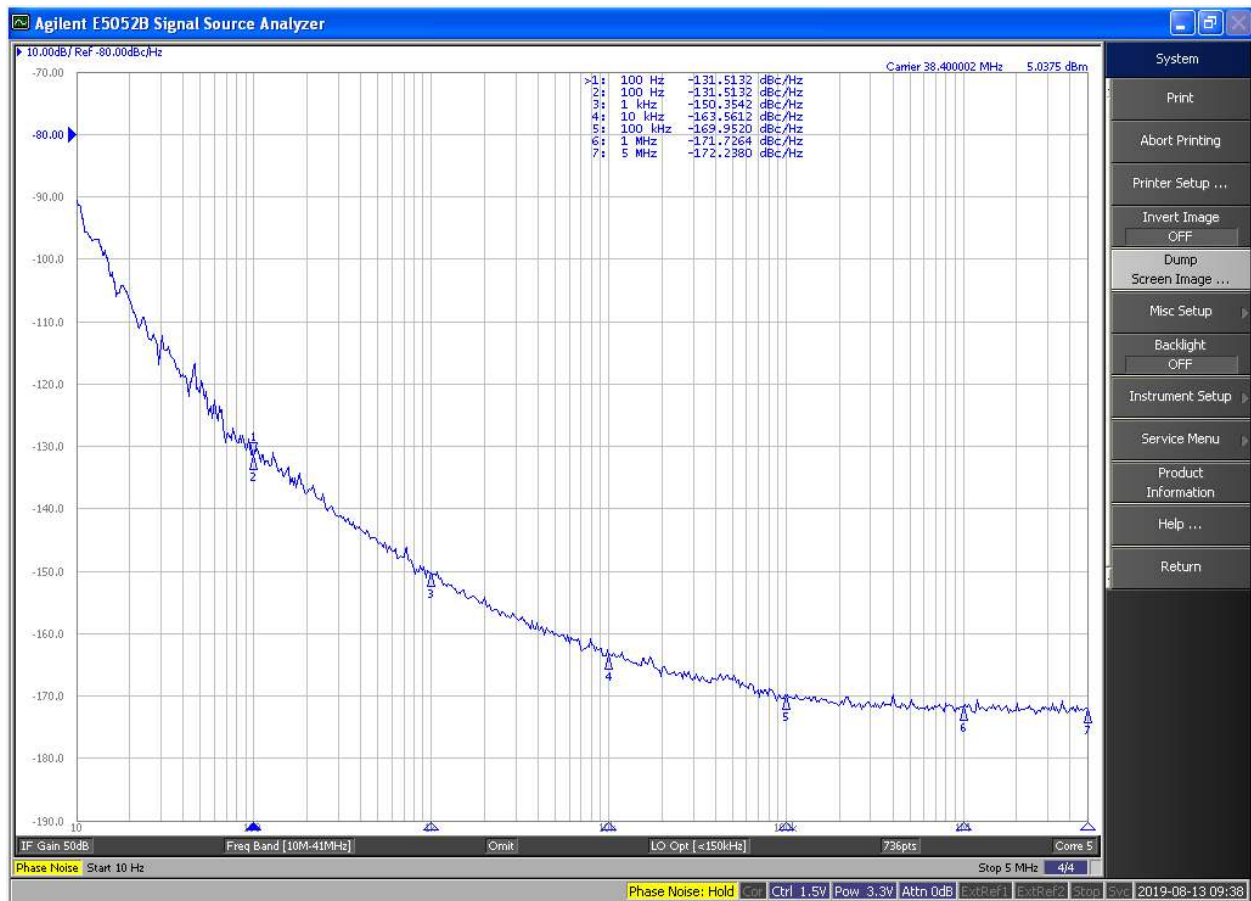
### Electrical Specifications

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Frequency	$F_{\text{NOM}}$		38.400		MHz
Freq. Stability vs. Temp	$\Delta F/F$ ; $-40$ to $+85^{\circ}\text{C}$ $(F_{\text{max}} - F_{\text{min}})/2$	-	-	$\pm 0.280$	ppm
Freq. Stability vs. Supply Voltage	$\Delta F/F_{\text{NOM}}$	-	$\pm 0.1$	-	ppm/V
Freq. Stability vs. Aging	Per year – first year	-	$\pm 1$	-	ppm
	10 years	-	$\pm 3$	-	ppm
Operating Temperature Range	$T_A$	$-40$	-	$+85$	$^{\circ}\text{C}$
Supply Voltage	$V_{\text{CC}}$	3.15	3.3	3.45	V
Voltage Control	$V_C$	0	-	3.3	V
Input Impedance	$Z_{\text{IN}}$	100	-	-	K $\Omega$
APR	Sufficient range to correct for initial calibration, 15 yrs aging, temperature, voltage, and load variations	$\pm 5$	-	-	ppm
Deviation Slope	Positive, monotonic				
Linearity		-	-	10	%
Modulation BW	3dB BW	-	6	-	Hz
Input Current	$I_{\text{CC}}$	-	-	50	mA



## Electrical Specifications

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Output – LVCMOS					
Output Level	V <sub>OH</sub>	0.9 V <sub>CC</sub>	-	V <sub>CC</sub>	V
	V <sub>OL</sub>	0	-	0.2	V
Output Load	Z <sub>L</sub> @ I <sub>out</sub> = 8 mA (max)	-	-	10	pf
Duty Cycle	@ 50% V <sub>p-p</sub>	45	50	55	%
Rise/Fall times	T <sub>R</sub> 10% - 90%	-	-	3.5	nsec
	T <sub>F</sub> 90% - 10%	-	-	3.5	nsec
Start-up time		-	2	3	sec
SSB Phase Noise (38.400MHz)	Offset = 10Hz	-	-93	-	dBc/Hz
	100Hz	-	-131	-	
	1KHz	-	-150	-	
	10KHz	-	-163	-	
	100KHz	-	-169	-	
	1MHz	-	-172	-	



Typical phase noise performance, 38.400MHz



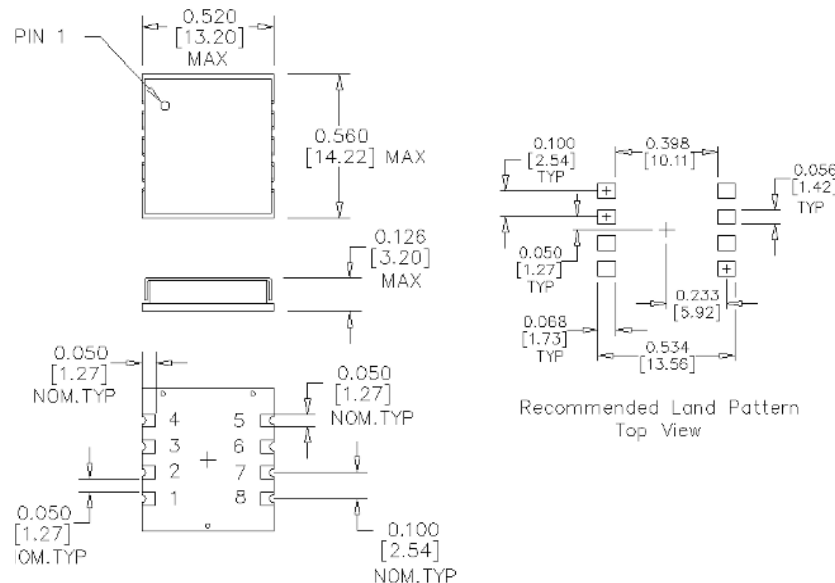
## Absolute Maximum Ratings

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Supply Breakdown Voltage	$V_{CC}$	-0.5	-	3.65	V
Storage Temperature	$T_S$	-45	-	+90	°C
Control Voltage	$V_C$	-0.5	-	3.3	V

## Mechanical and Environmental

Mechanical Shock	Per MIL-STD-202, Method 213, condition E
Thermal Shock	Per MIL-STD-883, Method 1011, condition A
Vibration	Per MIL-STD-883, Method 2007, condition A
Soldering Conditions	260°C for 10s max
Hermetic Seal	Leak rate less than $5 \times 10^{-8}$ atm.cc/s of helium (crystal only)
Markings	Laser engraved or epoxy ink

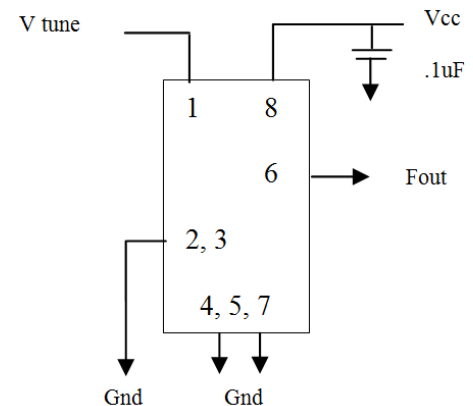
## Mechanical Specification



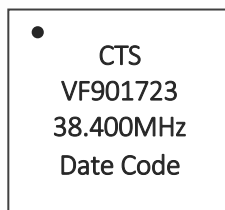
## Pin Assignments

Pin	Function
1	V tune ( $V_C$ )
2	Gnd
3	Gnd
4	Gnd
5	Gnd
6	$F_{OUT}$
7	Gnd
8	$V_{CC}$

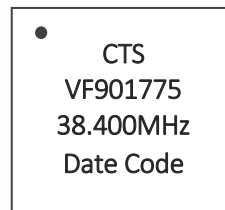
## Connection Diagram



Approved  
Marking



or



This product is specified for use only in standard commercial applications. Supplier disclaims all express and implied warranties and liability in connection with any use of this product in any non-commercial applications or in any application that may expose the product to conditions that are outside of the tolerances provided in its specification.