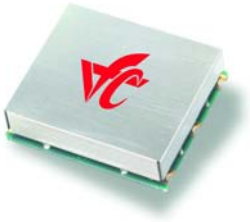
VFTX210

Low Noise TCXO to 1.0 GHz
Sine Wave Output

Valpey Fisher Corporation
High Frequency, Low Phase Noise Timing Solutions

Features

- 200MHz to 1.0 GHz Frequency Range
- Ultra Low Jitter and Phase Noise: -121 dBc/Hz @ 1KHz
- Excellent frequency stability < 1ppm
- Low Power: <240mW typical



RoHS Status

RoHS 6/6

Applications

- Sonet / SDH / ATM
- 10 Gigabit Ethernet
- Digital Wireless Reference

Description

The VFTX210 is a low noise TCXO capable of providing a sine wave output frequency up to 1 GHz. The temperature stability is less than 1ppm over a temperature range of -40ºC to + 85ºC. Operating with a +3.3 volt power supply the device typically consumes 240mW. The device contains an internal voltage regulator for improved stability and noise performance. The VFTX210 is available in a 20.0 mm x 20.0 mm surface mount package.

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Frequency Range	Fout		200		1,000	MHz	
Frequency Stability	ΔF/F	Vs. Operating Temperature B: 0°C to +70°C G: -40°C to +85°C		0.5 0.8	1.0 1.0	ppm	
		Vs. Supply Voltage Vs. Aging / Year Vs. Aging / 10 Years		± 0.1 ± 1 ± 3		ppm/V ppm ppm	First Year 10 Years
Operating Temperature Range	Ta		0° -40°		+70° +85°	°C	*Order Code B* *Order Code G*
Output		Signal	Sine Wave				
Output Level	Po	**50 Ω Load, Fout > 500 MHz**	6	8		dBm	
		50 Ω Load, Fout < 500 MHz	8	10		dBm	
Subharmonics				-42	-36	dBc	
Voltage Control	Vc		0	1.5	3.0	V	
Input Impedance	Zin		50 Ω + 1000pf // 15KΩ				
APR			± 5			ppm	
Deviation slope	ΔF/ΔVc		*Monotonic positive*				
Modulation BW	MBW			10		Hz	3dB BW

Electrical Specifications

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Voltage	Vcc		3.15	3.30	3.45	V	
Supply Current	Icc	50 Ohm Load		72	85	mA	
Start up time				3		sec	
Phase Jitter	£	12KHz to 20MHz		0.20	0.35	ps	
SSB Phase Noise	Φn	100Hz 1KHz 10KHz 100KHz 1 MHz		-92 -121 -141 -147 -150		dBc/Hz	@ 1000.0 MHz
Setability	Fnom				0.1	ppm	
Setability Voltage	Vc		1.2		1.8	V	

How to Order

VFTX210 — □ — **FREQUENCY, MHz**

Temperature Range

Code	Specification
B	0°C to 70°C
G	-40°C to 85°C

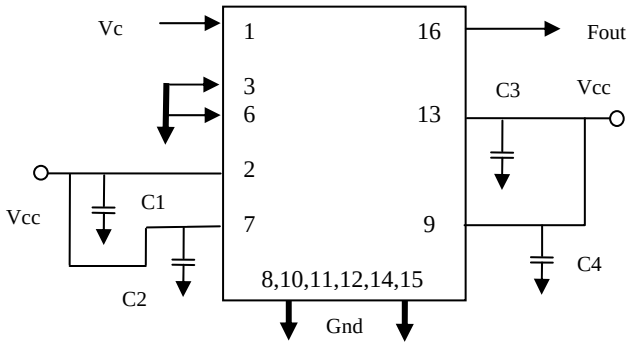
Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply Break Down Voltage	Vcc		-0.5		3.6	V	
Storage Temperature	Ts		-55		+105°	°C	
Control Voltage	Vc		-0.5		4.0	V	

Environmental and Mechanical

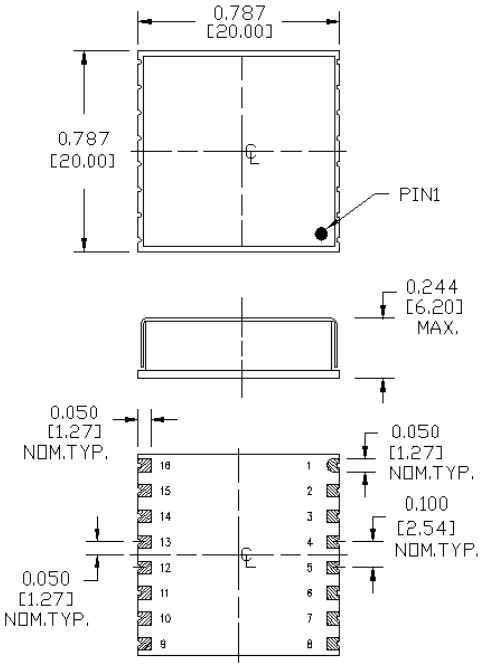
Parameter	Specification
Mechanical Shock	Per MIL-STD-202, Method 213, Condition E
Thermal Shock	Per MIL-STD-883, Method 1011, Condition A
Vibration	Per MIL-STD-883, Method 2007, Condition A
Soldering Conditions	260°C for 10s max
Hermetic Seal	Leak rate less than $5x10^{-8}$ atm.cc/s of helium (crystal only)

Connection Diagram



C1,C2,C3,& C4 = .1 uF

Mechanical Outline



Pin Assignments

Pin #	Description	Pin #	Description
1	Vc	16	Fout
2	Vcc	15	Gnd
3	Gnd	14	Gnd
4	Do Not Connect	13	Vcc
5	Do Not Connect	12	Gnd
6	Gnd	11	Gnd
7	Vcc	10	Gnd
8	Gnd	9	Vcc