

VFTX210

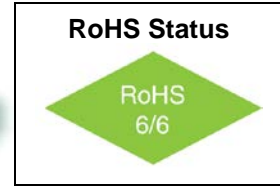
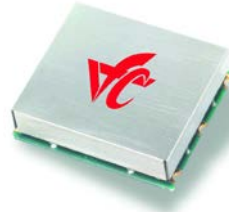
Low Noise TCXO to 1.0 GHz

Sine Wave Output



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



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 -40°C to + 85°C. 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 | | 120 | | 1,000 | MHz | |
| Frequency Stability | $\Delta F/F$ | 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 | | Fo < 800 MHz | | -44 | -36 | dBc | |
| Subharmonics | | Fo > 800 MHz | | -40 | -32 | | |
| Voltage Control | Vc | | 0 | 1.5 | 3.3 | V | |
| Input Impedance | Zin | | 50 Ω + 1000pf // 15K Ω | | | | |
| APR | | | ± 5 | | | ppm | |
| Deviation slope | $\Delta F/\Delta Vc$ | | Monotonic positive | | | | |
| Modulation BW | MBW | | | 10 | | Hz | 3dB BW |

VFTX210

Low Noise TCXO to 1.0 GHz

Sine Wave Output



Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|--------------------|------------------|---|------|-------------------------------------|------|--------|--------------------|
| Supply Voltage | V _{cc} | | 3.15 | 3.30 | 3.45 | V | |
| Supply Current | I _{cc} | 50 Ohm Load | | 80 | 95 | mA | |
| Start up time | | | | 3 | | sec | |
| Phase Jitter | ε | 12KHz to 20MHz | | 0.10 | 0.20 | ps | |
| SSB Phase Noise | Φ _n | 100Hz 1KHz 10KHz 100KHz 1 MHz | | -92 -121 -141 -147 -150 | | dBc/Hz | @ 1000.0 MHz |
| Setability | F _{nom} | | | | 0.1 | ppm | |
| Setability Voltage | V _c | | 1.2 | | 1.8 | V | |

How to Order



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 | V _{cc} | | -0.5 | | 3.6 | V | |
| Storage Temperature | T _s | | -55 | | +105° | °C | |
| Control Voltage | V _c | | -0.5 | | 4.0 | V | |

VFTX210

Low Noise TCXO to 1.0 GHz

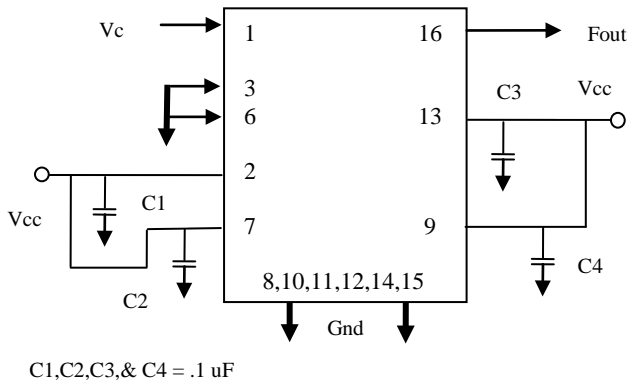
Sine Wave Output



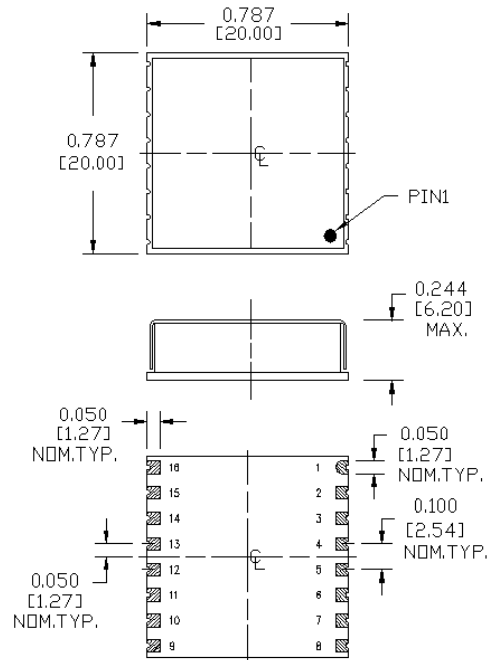
Environmental and Mechanical

| 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 5×10^{-8} atm.cc/s of helium (crystal only) |

Connection Diagram



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 |