

VFTX100

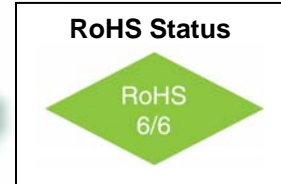
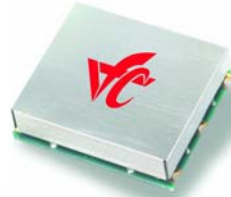
TCXO Low Noise to 1.0 GHz

25.4x22mm SMD, PECL/LVPECL



Features

- 200MHz to 1.0 GHz Frequency Range
- Ultra Low Jitter and Phase Noise: -118 dBc/Hz @ 1KHz
- Excellent frequency stability < 1ppm
- Low Power: <220mW typical



Applications

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

Description

The VFTX100 is a low noise TCXO capable of providing an 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 220 mW. The device contains an internal voltage regulator for improved stability and noise performance. The output is configured as a differential LVPECL signal and requires external termination resistors. The VFTX100 is available in a 25.4mm x 22 mm surface mount package.

Replaces Valpey Fisher Part Number: VFT7H

Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|-----------------------------|-----------------|---|---------------|---------------------------------|--------------|---------------------|------------------------------|
| Frequency Range | F | | 200 | | 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 | T | | 0° -40° | | +70° +85° | °C | Order Code B Order Code G |
| Output | | Signal | PECL / LVPECL | | | | |
| Supply Voltage | V _{cc} | | 4.75 3.15 | 5.00 3.30 | 5.25 3.45 | V | Order Code D Order Code E |
| Voltage Control | V _c | | 0 0 | | 5 3.3 | V | |
| Input Impedance | | | 50K | | | Ω | |
| APR | | | ± 5 | | | ppm | |
| Deviation slope | | Monotonic positive | | | | | |
| Linearity | | | -10 | | +10 | ppm/V | |
| Modulation BW | | | 10 | | | Hz | 3dB BW |



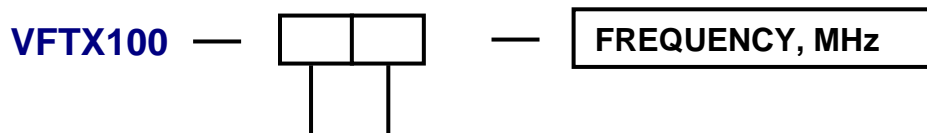
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Electrical Specifications

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|---------------------------|---|----------------------------------|-----------------------|-----------------------------|-----------------------|--------|--------------------|
| Input Current | I _{cc} | 50 Ohm Load | | 62 | 75 | mA | |
| Load | 50 Ohm to V _{cc} -2V or Thevenin Equivalent | | | | | | |
| Duty Cycle | | @ 50% | 45 | 50 | 55 | % | |
| Rise / Fall Time | T _r /T _f | 20% to 80% | | | 0.6 | ns | |
| Logic "1" Level | V _{oh} | | V _{cc} -0.96 | | V _{cc} -0.81 | V | |
| Logic "0" Level | V _{ol} | | V _{cc} -1.85 | | V _{cc} -1.65 | V | |
| Start up time | | | | 2 | 10 | ms | |
| Phase Jitter | | 12KHz to 20MHz | | 0.25 | 0.5 | ps | |
| SSB Phase Noise | | 100Hz 1KHz 10KHz 100KHz | | -90 -118 -142 -145 | | dBc/Hz | @ 622.08 MHz |
| Setability | | | | | 0.1 | ppm | |
| Setability Voltage | | | 1.3 | | 1.7 | V | |
| Enable / Disable Function | Input HIGH (>2.5V): DISABLED Input LOW (<0.5V) or floating: ACTIVE | | | | | LVCMOS | |
| Enable / Disable Time | T _e /T _d | | | | 100 | ns | |

How to Order



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

| Supply Voltage | |
|----------------|---------------|
| Code | Specification |
| D | 5V ± 5% |
| E | 3.3V ± 5% |



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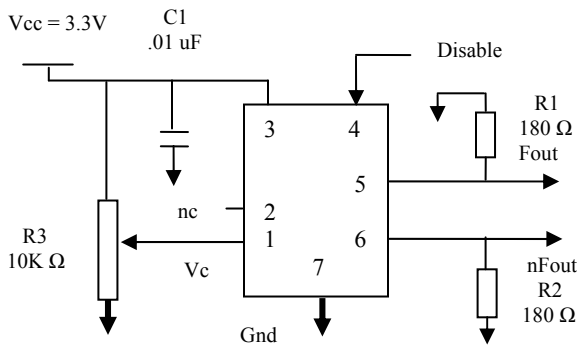
Absolute Maximum Ratings

| Parameter | Symbol | Condition | Min | Typ | Max | Unit | Note |
|---------------------------|--------|-----------|------|-----|-------|------|------|
| Supply Break Down Voltage | Vcc | | -0.5 | | 5.5 | V | |
| Storage Temperature | Ts | | -55 | | +105° | °C | |
| Control Voltage | Vc | | -0.5 | | 6 | 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 5×10^{-8} atm.cc/s of helium (crystal only) |

Connection Diagram



| Pin # | Connection |
|-------|------------|
| 1 | Vc |
| 2 | N/C |
| 3 | Vcc |
| 4 | N/C |
| 5 | Output |
| 6 | Output |
| 7 | GND |

Mechanical Outline

