

# VF230C

## XO Low Jitter 3.3V

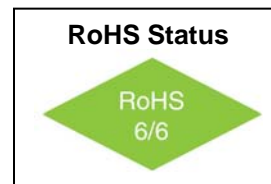
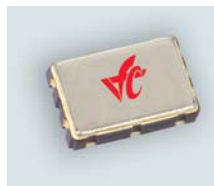
### 5x7mm SMD, LVPECL / LVDS

### 750KHz to 800MHz



#### Features

- 750KHz to 800MHz Frequency Range
- <5ps jitter over 12KHz – 20MHz
- Tristate



#### Applications

- Optical Networking, SONET / SDH
- Gigabit Ethernet
- Fibre channel
- DSL
- Extended temperature applications

#### Electrical Specifications

| Parameter                               | Symbol       | Condition   | Min        | Typ                           | Max   | Unit                  | Note                           |
|---|--------------|---|------------|-------------------------------|---|-----------------------|--------------------------------|
| Frequency Range                         | F            |   | 0.75       |                               | 800   | MHz                   |                                |
| Frequency Stability                     | $\Delta F/F$ | Vs. Operating Temperature                         |            |                               | $\pm 100$<br>$\pm 50$<br>$\pm 25$<br>$\pm 20$ | ppm                   | See "How to Order" chart       |
|   |              | Vs. Supply Voltage<br>Vs. Aging / Year            |            | $\pm 3$<br>$\pm 3$<br>$\pm 1$ |   | ppm/V<br>ppm<br>ppm/y | First Year<br>After first year |
| Operating Temperature                   | T            |   | -55<br>-55 |                               | +85<br>+125                                   | °C                    | Order Code A<br>Order Code B   |
| Output                                  |              | LVPECL<br>LVDS                                    |            |                               |   |                       | See "How to Order" chart       |
| Supply Voltage                          | Vcc          |   | 3.15       | 3.3                           | 3.45  | V                     |                                |
| Period Jitter RMS                       |              | 19.44MHz<br>77.76 MHz<br>155.52 MHz<br>622.08 MHz |            | 5<br>8<br>9<br>10             |   | ps                    |                                |
| Integrated Jitter RMS<br>12KHz to 20MHz |              | @155.52MHz  |            | 3                             | 5   | ps                    |                                |



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**Electrical Specifications**

| Parameter                   | Symbol   | Condition                             | Min   | Typ                   | Max            | Unit   | Note         |
|-----------------------------|--|---------------------------------------|-------|-----------------------|----------------|--------|--------------|
| Symmetry                    |  | $(V_{DD}-1.3) V_{DC}$<br>$1.25V_{DC}$ |       |                       | 45/55          | %      | PECL<br>LVDS |
| Phase Noise                 |  | 10Hz                                  |       | -60                   |                | dBc/Hz | @19.44MHz    |
|                             |  | 100Hz                                 |       | -90                   |                |        |              |
|                             |  | 1KHz                                  |       | -112                  |                |        |              |
|                             |  | 10KHz                                 |       | -140                  |                |        |              |
|                             |  | 100KHz                                |       | -140                  |                |        |              |
|                             |  | 10Hz                                  |       | -60                   |                | dBc/Hz | @106.25MHz   |
|                             |  | 100Hz                                 |       | -90                   |                |        |              |
|                             |  | 1KHz                                  |       | -112                  |                |        |              |
|                             |  | 10KHz                                 |       | -127                  |                |        |              |
|                             |  | 100KHz                                |       | -125                  |                |        |              |
|                             |  | 10Hz                                  |       | -60                   |                | dBc/Hz | @155.52MHz   |
|                             |  | 100Hz                                 |       | -90                   |                |        |              |
|                             |  | 1KHz                                  |       | -112                  |                |        |              |
|                             |  | 10KHz                                 |       | -125                  |                |        |              |
|                             |  | 100KHz                                |       | -123                  |                |        |              |
|                             |  | 10Hz                                  |       | -60                   |                | dBc/Hz | @622.08MHz   |
|                             |  | 100Hz                                 |       | -90                   |                |        |              |
|                             |  | 1KHz                                  |       | -109                  |                |        |              |
|                             |  | 10KHz                                 |       | -110                  |                |        |              |
|                             |  | 100KHz                                |       | -109                  |                |        |              |
| Input Current               | I <sub>CC</sub>  | 0.75 – 24MHz                          |       |                       | 25             | mA     | PECL         |
|                             |  | 24 – 160MHz                           |       |                       | 65             |        |              |
|                             |  | 160 – 800MHz                          |       |                       | 100            |        |              |
|                             |  | 0.75 – 24MHz                          |       |                       | 25             | mA     | LVDS         |
|                             |  | 24 – 96MHz                            |       |                       | 45             |        |              |
|                             |  | 96 – 800MHz                           |       |                       | 80             |        |              |
| Load                        | 50 Ohm to $V_{DD}-2V$ (PECL)<br>100 Ohm (LVDS)                                   |                                       |       |                       |                |        |              |
| Output High Voltage         | V <sub>OH</sub>  |                                       |       | $V_{DD}-1.025$<br>1.4 | 1.6            | V      | PECL<br>LVDS |
| Output Low Voltage          | V <sub>OL</sub>  |                                       | 0.9   | 1.1                   | $V_{DD}-1.620$ | V      | PECL<br>LVDS |
| Output Differential Voltage | V <sub>OD</sub>  |                                       | 247   | 355                   | 454            | mV     | LVDS         |
| Offset Voltage              | V <sub>OS</sub>  |                                       | 1.125 | 1.2                   | 1.375          | V      | LVDS         |
| Rise / Fall Time            | T <sub>r</sub> /T <sub>f</sub>   | 20% to 80%                            |       | 0.3                   | 0.35           | ns     | PECL<br>LVDS |
|                             |  |                                       |       | 0.3                   | 0.4            |        |              |
| Tristate                    | "1": On – Pin 1 may float or 2.8V min<br>"0": Tristate – Pin 1 requires 0.4V max |                                       |       |                       |                |        |              |



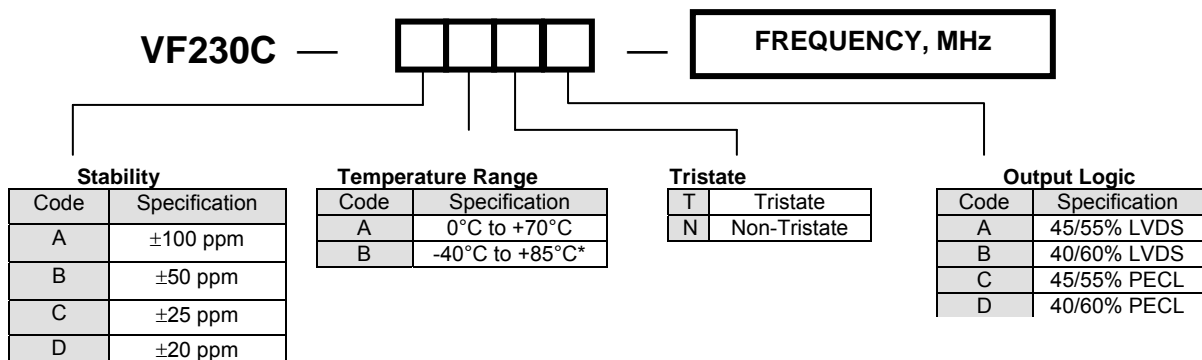
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**Testing**

|                              |   |
|------------------------------|---|
| <b>Stabilization Bake</b>    | MIL-STD-883 Method 1008, Cond. B                                    |
| <b>Temperature Cycling</b>   | MIL-STD-883 Method 1010, Cond. B                                    |
| <b>Constant Acceleration</b> | MIL-STD-883, Method 2001, Cond. A                                   |
| <b>Burn-in</b>               | MIL-STD-883 Method 1015, Cond. B<br>(125°C for 168 hours with bias) |
| <b>Fine Leak</b>             | MIL-STD-883, Method 1014, Cond. A1                                  |
| <b>Gross Leak</b>            | MIL-STD-883, Method 1014, Cond. C                                   |

**How to Order**



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**Environmental and Mechanical Conditions**

| Parameter                     | Specification   |
|-------------------------------|---|
| <b>Shock</b>                  | MIL-STD 883, Method 2002, Cond. B (1500 peak g, 0.5 ms duration, ½ sine wave, 5 shocks in 6 planes) |
| <b>Humidity</b>               | Resistant to 85° R.H. at 85°C   |
| <b>Vibration</b>              | MIL-STD 883, Method 2007, Cond. A (20-2000 Hz of 0.06" d.a. or 20 Gs, whichever is less)            |
| <b>Leak</b>                   | MIL STD 883, Method 1014, Cond. A1 and C1   |
| <b>Case</b>                   | Hermetically sealed ceramic LCC   |
| <b>Pads</b>                   | 60 microinch of gold over nickel  |
| <b>Marking</b>                | Epoxy ink or laser engraved   |
| <b>Resistance to solvents</b> | MIL STD 202, Method 215   |

| Pin # | Connection       |
|-------|------------------|
| 1     | Tristate         |
| 2     | N/C              |
| 3     | Ground           |
| 4     | Output 1: Q      |
| 5     | Output 2: Q      |
| 6     | +V <sub>DD</sub> |

