

# VF3

## XO Low Jitter

### 5x7mm SMD, HCMOS/TTL

#### Features

- HCMOS – TTL compatible
- 3.3V supply voltage
- Tight duty cycle
- Tristate control standard



#### RoHS Status



#### Electrical Specifications

| Parameter             | Symbol                                                                         | Condition                                                                                                                                                                                                                                                                                   | Min                | Typ  | Max                                 | Unit | Note             |
|-----------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------|-------------------------------------|------|------------------|
| Frequency Range       | F                                                                              |                                                                                                                                                                                                                                                                                             | 0.012              |      | 133                                 | MHz  |                  |
| Frequency Stability   | $\Delta F/F$                                                                   | Overall conditions including: calibration, temp., aging 10 yrs, shock, vibration                                                                                                                                                                                                            |                    |      | $\pm 100$                           | ppm  | See Table 1      |
| Operating Temperature | T                                                                              |                                                                                                                                                                                                                                                                                             | -40                |      | +85                                 | °C   | See How to Order |
| Input Voltage         | V <sub>CC</sub>                                                                |                                                                                                                                                                                                                                                                                             | 3.15               | 3.30 | 3.45                                | V    |                  |
| Input Current         | I <sub>CC</sub>                                                                | 0.012MHz $\leq$ F <sub>O</sub> < 0.048MHz<br>0.048MHz $\leq$ F <sub>O</sub> < 1.5MHz<br>1.5MHz $\leq$ F <sub>O</sub> < 20MHz<br>20MHz $\leq$ F <sub>O</sub> < 50MHz<br>50MHz $\leq$ F <sub>O</sub> < 70MHz<br>70MHz $\leq$ F <sub>O</sub> < 125MHz<br>125MHz $\leq$ F <sub>O</sub> < 133MHz |                    |      | 5<br>5<br>7<br>20<br>30<br>30<br>40 | mA   |                  |
| Load                  | 10 LSTTL gates or 15pF Typ, 30pF Max.                                          |                                                                                                                                                                                                                                                                                             |                    |      |                                     |      |                  |
| Duty Cycle            |                                                                                | @50% V <sub>CC</sub>                                                                                                                                                                                                                                                                        | 45                 | 50   | 55                                  | %    |                  |
| Rise / Fall Time      | T <sub>R</sub> /T <sub>F</sub>                                                 | 0.012MHz $\leq$ F <sub>O</sub> < 1.0MHz<br>1.0MHz $\leq$ F <sub>O</sub> < 20MHz<br>20MHz $\leq$ F <sub>O</sub> < 50MHz<br>50MHz $\leq$ F <sub>O</sub> < 70MHz<br>70MHz $\leq$ F <sub>O</sub> < 125MHz<br>125MHz $\leq$ F <sub>O</sub> < 133MHz                                              |                    |      | 200<br>10<br>6<br>3<br>3<br>3       | ns   |                  |
| Logic “1” Level       | V <sub>OH</sub>                                                                | Max Load                                                                                                                                                                                                                                                                                    | 0.9V <sub>CC</sub> |      |                                     | V    |                  |
| Logic “0” Level       | V <sub>OL</sub>                                                                | Max Load                                                                                                                                                                                                                                                                                    |                    |      | 0.1V <sub>CC</sub>                  | V    |                  |
| Start-up Time         | T <sub>S</sub>                                                                 |                                                                                                                                                                                                                                                                                             |                    | 3    | 10                                  | ms   |                  |
| Phase Jitter          |                                                                                | 1 $\sigma$                                                                                                                                                                                                                                                                                  |                    | 0.5  | 1                                   | ps   | fj>1KHz          |
| Tristate Function     | Input HIGH (>2.5V) or floating: Active<br>Input LOW (0.5V): Infinite Impedance |                                                                                                                                                                                                                                                                                             |                    |      |                                     |      |                  |

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#### Absolute Maximum Ratings

| Parameter                | Symbol          | Condition | Min  | Typ | Max  | Unit | Note |
|--------------------------|-----------------|-----------|------|-----|------|------|------|
| Input Break Down Voltage | V <sub>CC</sub> |           | -0.5 |     | 7.0  | V    |      |
| Storage Temp.            | T <sub>s</sub>  |           | -55  |     | +125 | °C   |      |

#### Environmental and Mechanical Conditions

| Parameter            | Condition                                                   |
|----------------------|-------------------------------------------------------------|
| Mechanical Shock     | Per MIL-STD-202, Method 213, Cond. E                        |
| Thermal Shock        | Per MIL-STD-883, Method 1011, Cond. A                       |
| Vibration            | Per MIL-STD-883, Method 2007, Cond. A                       |
| Soldering Conditions | 260°C for 10s Max., or 230°C for 90s                        |
| Hermetic Seal        | Leak rate less than 5 x 10 <sup>-8</sup> atm.cc/s of helium |
| Flammability         | UL94V-0 flame resistant                                     |
| Terminal Finish      | Gold (Au) 0.30 - 1.00 um<br>Nickel (Ni) 1.3 - 8.9 um        |

**Table 1:**  
**Available Frequency Stabilities over Operating Temperature Ranges**

| Code | Temperature Range | B      | A      | S      |
|------|-------------------|--------|--------|--------|
|      |                   | ±50ppm | ±25ppm | ±20ppm |
|      | -10°C to 70°C     | *      | *      | ○      |
| 1    | -40°C to 85°C     | *      | *      | ○      |

\* Includes aging

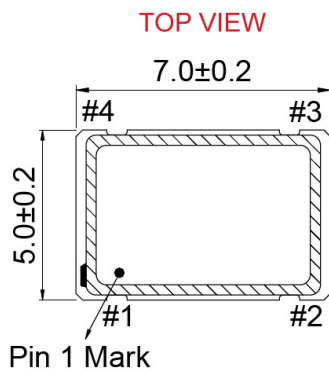
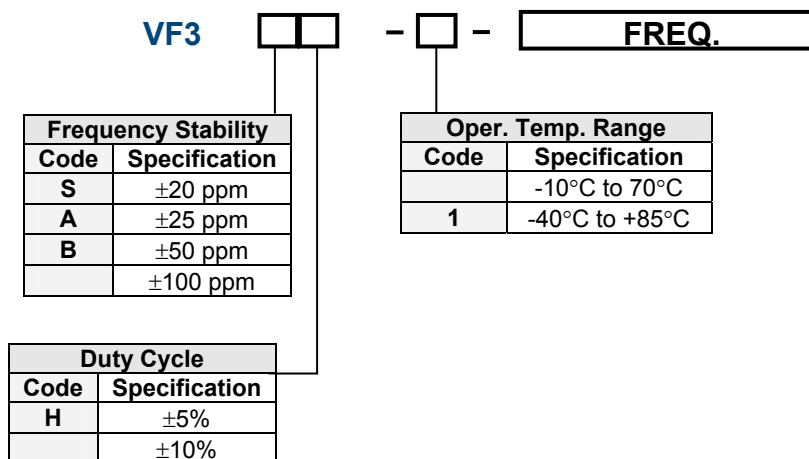
○ Does not include aging

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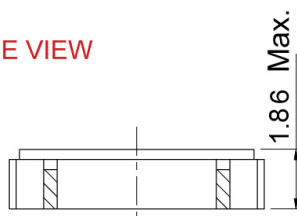
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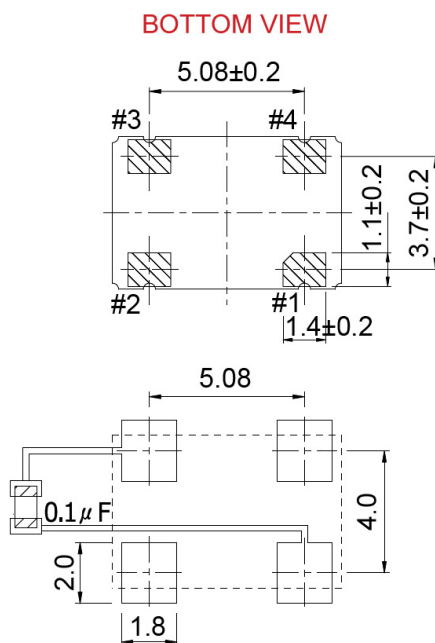
#### How to Order



**SIDE VIEW**



UNIT: mm



Recommended soldering pattern

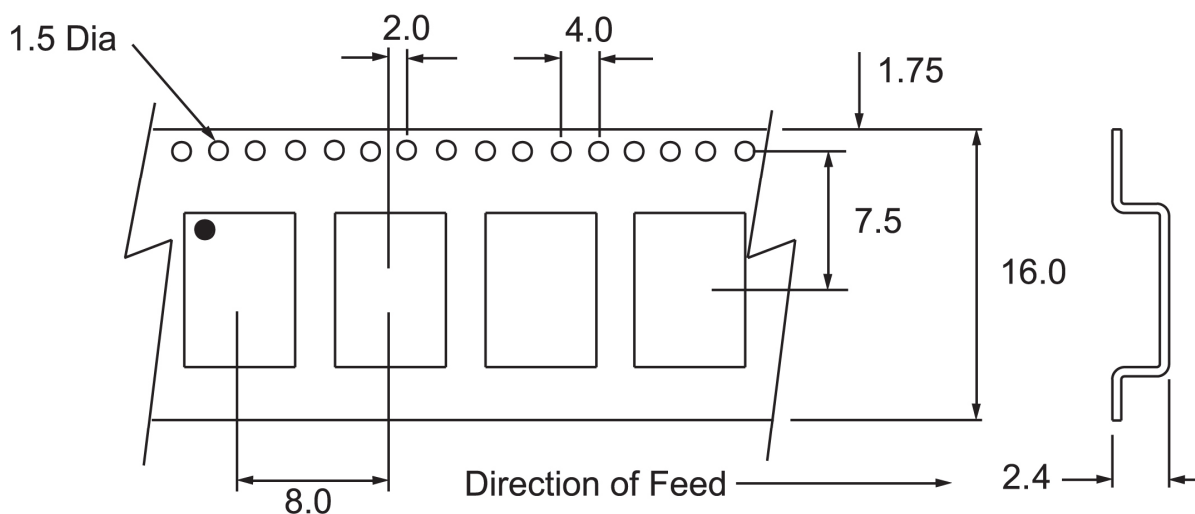
#### Pin Assignments

| Pin   | Connection       |
|-------|------------------|
| Pin 1 | Tristate Control |
| Pin 2 | Ground           |
| Pin 3 | Output           |
| Pin 4 | V <sub>CC</sub>  |

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**Tape & Reel**

**Carrier Tape Dimensions:**



Dimensions are millimeters.

**Solder Reflow Characteristics:**

