

# VOLTAGE CONTROLLED CRYSTAL OSCILLATOR

## VCXO-B

The VCXO-B series is a tight stability, voltage controlled crystal oscillator. The frequency can be altered pulled a minimum  $\pm 200$ PPM by applying a voltage between 0.5V & 4.5V to pin 1. This oscillator is designed especially to be used in phase lock loop applications requiring maximum frequency capture range.

For SMD package see page 66 for the F5000.

### FEATURES

- HCMOS/TTL Output
- Pullability
- Tight Stabilities
- Low Power Consumption
- Rugged Resistance Weld
- -40 ~ +85°C Option (R version)

| • MODEL NUMBER SELECTION |                  |                                               |
|--------------------------|------------------|-----------------------------------------------|
| Model Number             | Stability (MAX)* | Pullability(MIN)<br>V <sub>c</sub> = 2.5 ± 2V |
| VCXO-B1                  | ±100             | ±200                                          |
| VCXO-B2                  | ±50              | ±200                                          |
| VCXO-B3                  | ±50              | ±100                                          |
| VCXO-B4                  | ±25              | ±100                                          |
| VCXO-B5                  | ±20              | ±50                                           |



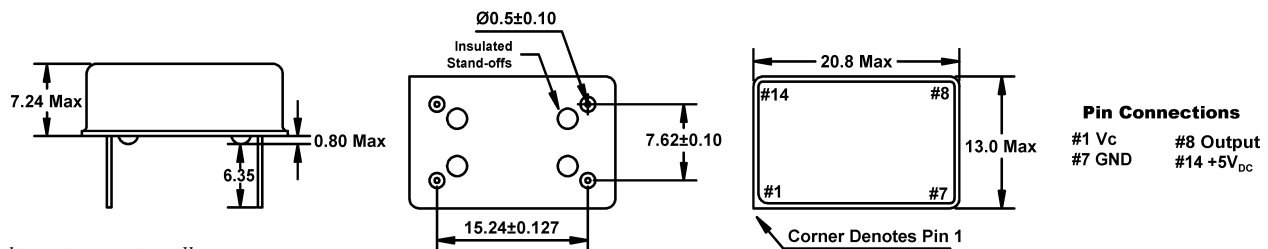
### • ELECTRICAL CHARACTERISTICS (V<sub>DD</sub> = 5.0V, C<sub>L</sub> = 15pF)

| PARAMETERS                        | FREQUENCY RANGE  | CONDITIONS                     | MIN   | MAX    | UNITS  |
|-----------------------------------|------------------|--------------------------------|-------|--------|--------|
| Frequency Range (F <sub>o</sub> ) |                  |                                | 1.000 | 45.000 | MHz    |
| Temperature Range                 | 1.000 ~ 45.000   |                                |       |        |        |
| Operating (TOPR)                  |                  |                                | -10   | +70    | °C     |
| Storage (TSTG)                    |                  |                                | -30   | +85    |        |
| Supply Voltage (V <sub>DD</sub> ) | 1.000 ~ 45.000   |                                | +4.75 | +5.25  | V      |
| Control Voltage (V <sub>c</sub> ) | 1.000 ~ 45.000   |                                | +0.5  | +4.5   | V      |
| Input Current (I <sub>DD</sub> )  | 1.000 ~ 24.000   |                                |       | 15     | mA     |
|                                   | 24.000+ ~ 30.000 |                                |       | 20     |        |
|                                   | 30.000+ ~ 45.000 |                                |       | 30     |        |
| Output Symmetry                   | 1.000 ~ 45.000   | 2.5V                           | 40    | 60     | %      |
| Rise Time (T <sub>r</sub> )       | 1.000 ~ 30.000   | 1.0V ~ 4.0V                    |       | 10     | nS     |
|                                   | 30.000+ ~ 45.000 |                                |       | 5      |        |
| Fall Time (T <sub>f</sub> )       | 1.000 ~ 30.000   | 4.0V ~ 1.0V                    |       | 10     |        |
|                                   | 30.000+ ~ 45.000 |                                |       | 5      |        |
| Output Voltage (V <sub>OL</sub> ) | 1.000 ~ 45.000   | I <sub>OL</sub> = MAX          |       | 0.5    | V      |
|                                   |                  | I <sub>OH</sub> = MAX          | 4.5   |        |        |
| Output Current (I <sub>OL</sub> ) | 1.000 ~ 30.000   | V <sub>OL</sub> = 0.5 V        |       | 3.2    | mA     |
|                                   | 30.000+ ~ 45.000 |                                |       | 12.8   |        |
| (I <sub>OH</sub> )                | 1.000 ~ 30.000   | V <sub>OH</sub> = 4.5V         |       | -0.1   |        |
|                                   | 30.000+ ~ 45.000 |                                |       | -1.0   |        |
| Output Load                       | 1.000 ~ 30.000   | TTL Load                       |       | 8      | LSTTL  |
|                                   | 30.000+ ~ 45.000 | TTL Load                       |       | 8      | TTL    |
|                                   | 1.000 ~ 45.000   | HCMOS Load                     |       | 15     | pF     |
| Start-up Time (T <sub>s</sub> )   | 1.000 ~ 45.000   |                                |       | 10     | mS     |
| Phase Noise                       | 1.000 ~ 45.000   | F <sub>o</sub> + 1 kHz         | -125  |        | dBc/Hz |
|                                   |                  | F <sub>o</sub> + 10 kHz        | -130  |        |        |
| <b>Frequency</b>                  |                  |                                |       |        |        |
| Stability vs Voltage              | 1.000 ~ 45.000   | V <sub>DD</sub> = 5.0V ± 0.25V | -1.0  | +1.0   | PPM    |
| Linearity                         |                  |                                | -10   | +10    | %      |
| Modulation Bandwidth              |                  |                                |       | 20     | kHz    |

\* Inclusive of 25°C tolerance, operating temperature range, input voltage change, load change, aging, shock, vibration and V<sub>c</sub> = 2.5V.

See page 44 for mechanical specifications, test circuits, and output waveform.

All specifications subject to change without notice. Rev. 03/02/00



All dimensions are in millimeters.