

# XO5164 Series

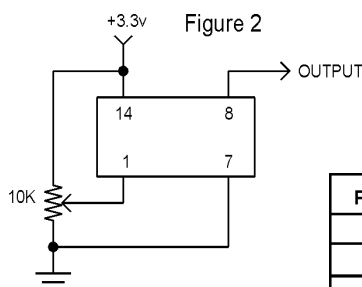
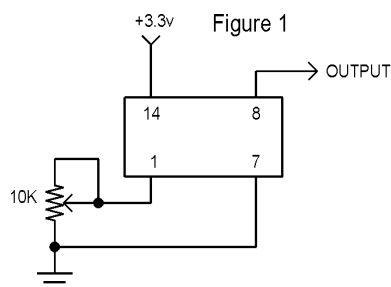
## 14 pin DIP, 3.3 Volt, HCMOS, OCXO



- Standard DIP/DIL package offering tight stabilities, fast warm-up, and low current
- Ideal for PCS base stations, cellular base stations, phase locking, and SAR/SAT applications
- 3.3V Operation

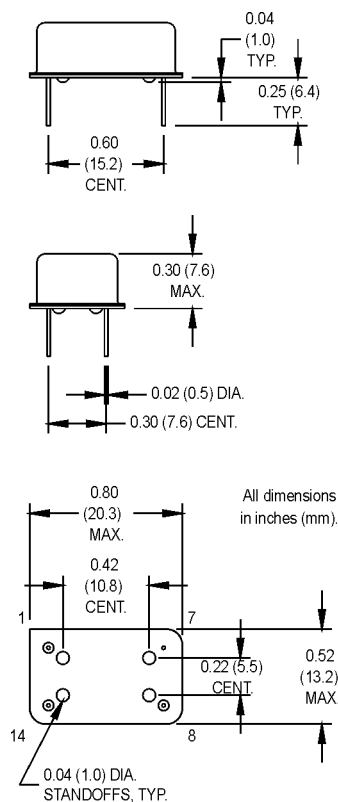
### Ordering Information

|                                                                   | XO5164 | A | R1 | -R | 00.0000 |
|-------------------------------------------------------------------|--------|---|----|----|---------|
| Product Series                                                    |        |   |    |    |         |
| Stability/Temperature                                             |        |   |    |    |         |
| A: $\pm 0.075$ ppm, $0^{\circ}\text{C}$ to $+60^{\circ}\text{C}$  |        |   |    |    |         |
| B: $\pm 0.15$ ppm, $-20^{\circ}\text{C}$ to $+70^{\circ}\text{C}$ |        |   |    |    |         |
| Frequency Adjustment Method                                       |        |   |    |    |         |
| R1: External Resistor Adjust (See Figure 1)                       |        |   |    |    |         |
| V5: Voltage Adjust (See Figure 2)                                 |        |   |    |    |         |
| RoHS Compliance                                                   |        |   |    |    |         |
| Blank: non-RoHS compliant part                                    |        |   |    |    |         |
| -R: RoHS compliant part                                           |        |   |    |    |         |
| Frequency (Customer Specified)                                    |        |   |    |    |         |



### Pin Connections

| PIN | FUNCTION                    |
|-----|-----------------------------|
| 1   | Frequency Adjust            |
| 7   | Case ground & supply return |
| 8   | R.F. Output                 |
| 14  | Supply (+)                  |



|                           | PARAMETER                    | Symbol                         | Min.                                            | Max.                     | Units              | Condition                          |
|---------------------------|------------------------------|--------------------------------|-------------------------------------------------|--------------------------|--------------------|------------------------------------|
|                           |                              |                                |                                                 |                          |                    |                                    |
| Electrical Specifications | Frequency Range              | F                              | 10                                              | 20                       | MHz                |                                    |
|                           | Operating Temperature        | T <sub>A</sub>                 | (See Ordering Information)                      |                          | $^{\circ}\text{C}$ |                                    |
|                           | Stability Over Temperature   | $\Delta F/F$                   | (See Ordering Information)                      |                          | ppm                |                                    |
|                           | Short Term Stability         |                                |                                                 | $5 \times 10^{-10}$      |                    | 0.1 to 30 secs.                    |
|                           | Aging (First Year)           |                                |                                                 | $\pm 0.7$                | ppm                |                                    |
|                           | Aging (10 Years)             |                                |                                                 | $\pm 4.0$                | ppm                |                                    |
|                           | Frequency Vs. Supply         |                                |                                                 | $\pm 0.1$                | ppm                |                                    |
|                           | Frequency Vs. Load           |                                |                                                 | $\pm 0.01$               | ppm                |                                    |
|                           | Supply Voltage               | V <sub>CC</sub>                | +3.15                                           | +3.45                    | Volts              |                                    |
|                           | Warm-Up Time                 |                                | To spec after 60 secs.                          |                          |                    | $0^{\circ}\text{C}$                |
|                           | Warm-Up Current              |                                |                                                 | 250                      | mA                 | After 10 secs.                     |
|                           | Supply Current               | I <sub>CC</sub>                |                                                 | 100                      | mA                 | $+30^{\circ}\text{C}$              |
|                           |                              |                                |                                                 | 160                      | mA                 | $-20^{\circ}\text{C}$              |
|                           | Output Signal                |                                | HCMOS Compatible                                |                          |                    |                                    |
|                           | Rise/Fall Time               | T <sub>r</sub> /T <sub>f</sub> |                                                 | 7                        | ns                 | Ref. 10% and 90%                   |
|                           | Logic "0" Level              | V <sub>OL</sub>                |                                                 | 0.4                      | Volts              |                                    |
|                           | Logic "1" Level              | V <sub>OH</sub>                | V <sub>CC</sub> - 0.5                           |                          | Volts              |                                    |
|                           | Symmetry                     |                                |                                                 | 40/60                    | %                  | Ref. To 1/2 V <sub>CC</sub>        |
|                           | Output Load                  |                                |                                                 | 15 pf HCMOS<br>10 LS TTL |                    |                                    |
|                           | Frequency Adjustment (Pin 1) |                                | $\pm 4$                                         |                          | ppm                | See Figure 1 or 2                  |
|                           | Tuning Slope                 |                                | Positive                                        |                          |                    |                                    |
|                           | Input Impedance (Pin 1)      |                                | 4.7K                                            |                          | ohms               |                                    |
| Environmental             | Phase Noise                  |                                |                                                 |                          |                    | (BW = 1 Hz)<br>Offset from carrier |
|                           | 1 Hz                         |                                |                                                 | -80                      | dBc/Hz             |                                    |
|                           | 10 Hz                        |                                |                                                 | -110                     | dBc/Hz             |                                    |
|                           | 100 Hz                       |                                |                                                 | -135                     | dBc/Hz             |                                    |
|                           | 1 kHz                        |                                |                                                 | -145                     | dBc/Hz             |                                    |
|                           | Mechanical Shock             |                                | 2000 g, 0.3 mS, 1/2 sine                        |                          |                    |                                    |
| Environmental             | Vibration                    |                                | 2000 Hz, 10 g                                   |                          |                    |                                    |
|                           | Storage Temperature          |                                | $-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ |                          |                    |                                    |
|                           | Hermeticity                  |                                | Per MIL-STD-202, Method 112                     |                          |                    |                                    |
|                           | Solderability                |                                | EIAJ-STD-002                                    |                          |                    |                                    |

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