P.O. Box 630 100 Douglas Ave. Yankton, SD 57078 USA
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# Specification for an HCMOS Thru-Hole OCXO
# MtronPTI P/N: XO5166-004R

## Electrical Specifications:

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| Nominal Frequency | $F_O$ | | 10.000000 | | MHz | |
| **Frequency Stabilities** | | | | | | |
| vs Temperature | $\Delta F_T/F$ | -250 | | +250 | ppb | Over operating temp |
| Frequency vs Supply | | -50 | | +50 | ppb | Per 5% of supply change |
| Frequency vs Load | | -10 | | +10 | ppb | Per 5% of load change |
| Overall Stability(5 years) | | -2.0 | | +2.0 | ppm | After 30 days continuous operation |
| **Frequency Tuning (EFC)** | | | | | | |
| Tuning Voltage | $V_{TUNE}$ | 0 | | 3.3 | V | |
| Range | $V_{TUNE}$ | +/-4.8 | | | ppm | |
| Linearity | | | | 10 | % | |
| Slope | | | Positive | | | |
| **RF Output** | | | | | | |
| Output Type | | | HCMOS Compatible | | | |
| Output Load | | | 30 | | *pF* | |
| Symmetry (duty cycle) | $T_{DC}$ | 40 | 50 | 60 | % | Ref. to ½ $V_{DD}$ |
| Rise/Fall Time | $T_R/T_F$ | | | 6 | *nsec* | From 10% to 90% $V_{OUT}$ |
| Logic "1" Level | $V_{OH}$ | 90% $V_{DD}$ | | | V | HCMOS Load |
| Logic "0" Level | $V_{OL}$ | | | 10% $V_{DD}$ | V | HCMOS Load |
| **Temperature and Supply Voltage** | | | | | | |
| Operating Temperature | $T_A$ | -30 | | +75 | °C | |
| Storage Temperature | $T_S$ | -55 | | +125 | °C | |
| Operating Voltage | $V_{DD}$ | | 3.3 | | V | |
| Operating power | | | | 3.3 | *W* | During warmup |
| | | | | 1.5 | *W* | Steady State@ 25°C; no airflow |
| Warm-up Time | | | | 180 | Seconds | Time for frequency to be within ±100 ppb of the frequency after 1 hour of operation @ 25°C following 24-hour off time |
| **Additional Parameters** | | | | | | |
| Phase Noise (static) | | | | -80 | dBc/Hz | 10Hz offset |
| | | | | -110 | dBc/Hz | 100Hz offset |
| | | | | -130 | dBc/Hz | 1kHz offset |
| g-sensitivity | | | 2 | | ppb/g | Worst case axis |

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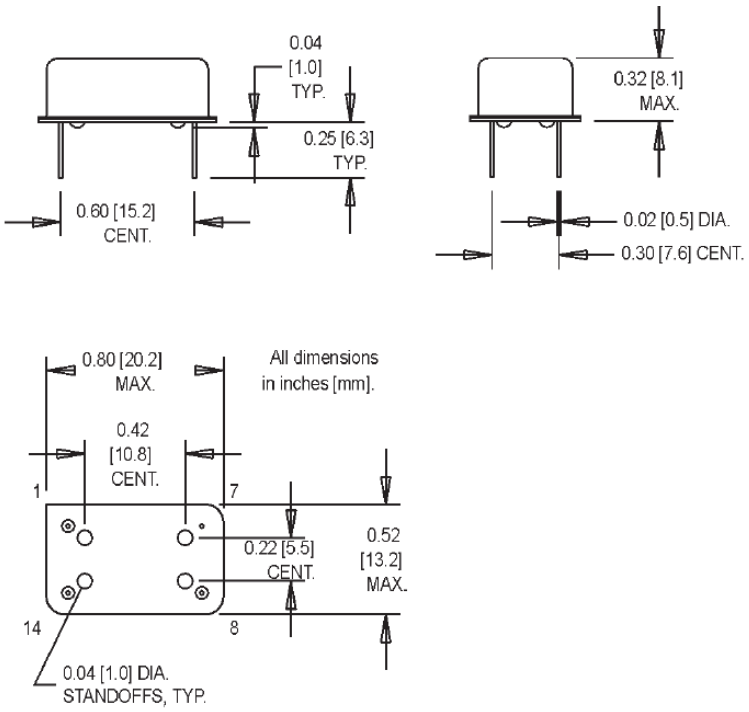
## Environmental Conditions:

| | |
|---|---|
| Mechanical Shock | MIL-STD-202, Method 213, Condition J, 30g 11ms |
| Sine Vibration | MIL-STD-202, Method 201 and 204, Condition A, except 5g to 500Hz, 1 sweep each axis |
| RoHS | YES |

## Mechanical and Marking Information:

| Part Marking | |
|---|---|
| Line 1 | XO5166-004R |
| Line 2 | 10.000000MHz |
| Line 3 | MtronPTI |
| Line 4 | yyww |

| Legend | |
|---|---|
| yy | Year |
| ww | Work Week |




**Pin Connections**

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

**Figure 1 – Outline Drawing**

## Data Sheet Revision Table:

| Date | Rev. | Orig. | Details of Revision |
|---|---|---|---|
| 05-13-16 | A | DPD | Original Release |