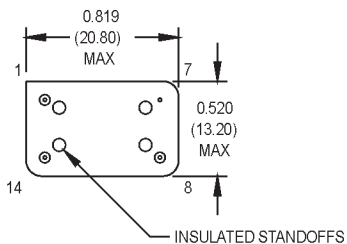
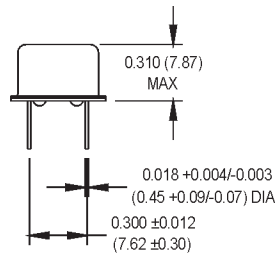
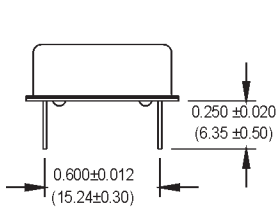


# MTXV Series

## 14 DIP, 5.0 Volt, HCMOS/TTL, TCVCXO



All dimensions  
in inches (mm).

\* See page 146 for surf board configuration.

### Ordering Information

|                                |                       |                                   |                   |                 |   |   |             |
|--------------------------------|-----------------------|-----------------------------------|-------------------|-----------------|---|---|-------------|
| Product Series                 | MTXV                  | 1                                 | H                 | 8               | A | D | 00.0000 MHz |
| Temperature Range              | 1: 0°C to +70°C       | 2: -40°C to +85°C                 | 6: -20°C to +70°C | 8: 0°C to +50°C |   |   |             |
| Stability*                     | E: ±10 ppm            | L: ±5 ppm                         | H: ±2.5 ppm       |                 |   |   |             |
| Frequency Control (Pin #1)     | 8: ±25 ppm Min.       | 9: ±35 ppm Min.                   |                   |                 |   |   |             |
| Symmetry/Logic Compatibility   | A: 40/60 CMOS/TTL     | B: 45/55 TTL (< 100.000 MHz only) | C: 45/55 CMOS     |                 |   |   |             |
| Package/Lead Configurations    | D: DIP; Nickel Header | S: Surf Board                     |                   |                 |   |   |             |
| Frequency (customer specified) |                       |                                   |                   |                 |   |   |             |

\* Referenced to 25°C reading at 2.5 VDC control voltage.

### Pin Connections

| PIN | FUNCTION        |
|-----|-----------------|
| 1   | Control Voltage |
| 7   | Ground/Case     |
| 8   | Output          |
| 14  | +Vdd            |

| PARAMETER                   | Symbol  | Min.                       | Typ.   | Max.   | Units  | Condition                |
|-----------------------------|---|----------------------------|--------|--------|--------|--------------------------|
|                             |   |                            |        |        |        |                          |
| Frequency Range             | F   | 0.5                        |        | 155.52 | MHz    |                          |
| Frequency Stability         | ΔF/F  | (See Ordering Information) |        |        |        |                          |
| Operating Temperature       | T <sub>A</sub>  | (See Ordering Information) |        |        |        |                          |
| Storage Temperature         | T <sub>s</sub>  | -55                        |        | +125   | °C     |                          |
| Input Voltage               | V <sub>dd</sub>   | 4.75                       | 5.0    | 5.25   | VDC    |                          |
| Input Current               | I <sub>dd</sub>   |                            | 15     | 25     | mA     | 0.5 MHz to 30 MHz        |
|                             |   |                            | 18     | 30     | mA     | 30.001 MHz to 70 MHz     |
|                             |   |                            | 20     | 45     | mA     | 70.001 MHz to 155.52 MHz |
| Symmetry <sup>1</sup>       |   | (See Ordering Information) |        |        |        |                          |
| Load                        |   | 5 TTL or 15 pF Max.        |        |        |        |                          |
| Rise/Fall Time <sup>2</sup> | T <sub>r</sub> /T <sub>f</sub>  |                            |        | 10     | ns     | 0.5 MHz to 30 MHz        |
|                             |   |                            |        | 5      | ns     | 30.001MHz to 155.52 MHz  |
| Logic "1" Level             | V <sub>oh</sub>   | 2.4                        |        |        | VDC    | TTL                      |
|                             |   | 90                         |        |        | %      | HCMOS                    |
| Logic "0" Level             | V <sub>ol</sub>   |                            |        | 10     | VDC    | TTL                      |
|                             |   |                            |        | 0.4    | %      | HCMOS                    |
| Cycle to Cycle Jitter       |   |                            |        | 4.2    | ps RMS | 1 Sigma                  |
| @ 19.44 MHz                 |   |                            |        | 8.7    | ps RMS |                          |
| @ 38.88 MHz                 |   |                            |        | 5.5    | ps RMS |                          |
| @ 155.52 MHz                |   |                            |        |        |        |                          |
| Phase Noise (Typical)       |   | 10 Hz                      | 100 Hz | 1 kHz  | 10 kHz | 100 kHz                  |
| @ 19.44 MHz                 | -78   | -103                       | -136   | -143   | -146   | Offset from carrier      |
| @ 38.88 MHz                 | -45   | -77                        | -100   | -89    | -88    | dBc/Hz                   |
| @ 155.52 MHz                | -42   | -66                        | -76    | -80    | -89    | dBc/Hz                   |
| Modulation Bandwidth        | f <sub>m</sub>  | 10                         |        |        | kHz    |                          |
| Input Impedance (Pin 1)     | Z <sub>in</sub>   | 50                         |        |        | KΩ     |                          |
| Control Voltage             | V <sub>c</sub>  | 0                          | 2.5    | 5.0    | VDC    |                          |
| Center Frequency            | V <sub>c0</sub>   |                            | 2.5    |        | VDC    |                          |
| Pullability                 |   | (See Ordering Information) |        |        |        |                          |
| Deviation Slope             |   |                            |        |        |        | Positive, Monotonic      |
| Mechanical Shock            | Per MIL-STD-202, Method 213, Condition C                              |                            |        |        |        |                          |
| Vibration                   | Per MIL-STD-202, Method 201 & 204                                     |                            |        |        |        |                          |
| Reflow Solder Conditions    | See Page 147  |                            |        |        |        |                          |
| Hermeticity                 | Per MIL-STD-202, Method 112 (1 x 10 <sup>-5</sup> atm.cc/s of helium) |                            |        |        |        |                          |
| Solderability               | Per EIAJ-STD-002  |                            |        |        |        |                          |

1. Symmetry is measured at 1.4 V with TTL load, and at 50% V<sub>dd</sub> with HCMOS load.

2. Rise/fall times are measured between 0.5 V and 2.4 V with TTL load, and between 10% V<sub>dd</sub> and 90% V<sub>dd</sub> with HCMOS load.

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