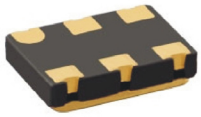
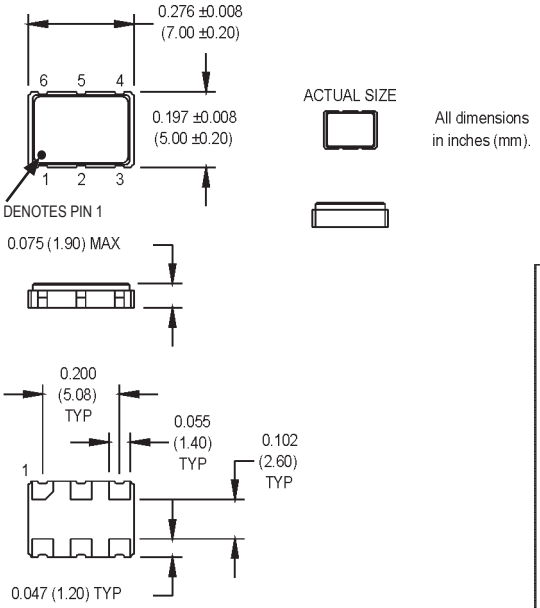
# MV3 & MV5 Series

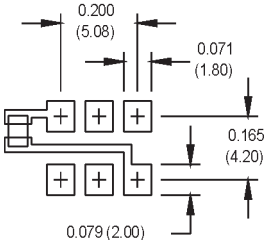
## 5x7 mm, 3.3 or 5.0 Volt, HCMOS, VCXO



- **General purpose VCXO with good performance at an affordable price**




SUGGESTED SOLDER PAD LAYOUT




## Pin Connections

| PIN | FUNCTION |
|---|---|
| 1 | Control Voltage |
| 2 | N/C or Tristate |
| 3 | Ground |
| 4 | Output |
| 5 | N/C |
| 6 | +Vdd |

**Ordering Information**

MV3/MV5 1 3 V C N 00.0000 MHz

**Product Series**
MV3 = 3.3 Volt
MV5 = 5.0 Volt

**Temperature Range**
1: 0°C to +70°C 2: -40°C to +85°C
6: -20°C to +70°C

**Stability**
3: ±100 ppm 4: ±50 ppm
6: ±25 ppm* 8: ±20 ppm*

**Output Type**
V: Voltage Controlled - no tristate
T: Voltage Controlled - tristate

**Symmetry/Logic Compatibility**
C: 45/55 CMOS G: 40/60 CMOS

**Package/Lead Configurations**
N: Leadless Ceramic

**Frequency (customer specified)**

*Consult Factory for availability
M3006Sxxx & M3008Sxxx - Contact factory for datasheets.

| | PARAMETER | Symbol | Min. | Typ. | Max | Units | Condition/Notes |
|---|---|---|---|---|---|---|---|
| Electrical Specifications | Frequency Range | F | 1.544 | | 167 | MHz | MV3 See Note 4 |
| | | | 1.544 | | 45 | MHz | MV5 See Note 4 |
| | Operating Temperature | $T_A$ | (See ordering information) | | | | |
| | Storage Temperature | $T_S$ | -45 | | +95 | °C | |
| | Frequency Stability | ΔF/F | (See ordering information) | | | | |
| | Aging | | | | | | |
| | 1st Year | | -3/-5 | | +3/+5 | ppm | < 52 MHz / ≥ 52 MHz |
| | Thereafter (per year) | | -1/-2 | | +1/+2 | ppm | < 52 MHz / ≥ 52 MHz |
| | Pullability | | ±80 | | | ppm | Over control voltage |
| | Control Voltage | Vc | 0.3 | 1.65 | 3.0 | V | MV3 |
| | | | 0.5 | 2.5 | 4.5 | V | MV5 |
| | Linearity | | | | 15 | % | Positive Monotonic Slope |
| | Modulation Bandwidth | fm | 10 | | | kHz | -3 dB bandwidth |
| | Input Impedance | Zin | 50k | | | Ohms | |
| | Input Voltage | Vdd | 3.135 | 3.3 | 3.465 | V | MV3 |
| | | | 4.5 | 5.0 | 5.5 | V | MV5 |
| | Input Current | Idd | | | | | |
| | 1.544 to 36 MHz | | | | 20 | mA | MV3 |
| | 36 to 167 MHz | | | | 50 | mA | MV3 |
| | 1.544 to 50 MHz | | | | 35 | MA | MV5 |
| | Output Type | | | | | | HCMOS |
| | Load | | | | 15 | pF | See Note 1 |
| | Symmetry (Duty Cycle) | | (See ordering information) | | | | 50% Vdd Level |
| | Logic "1" Level | Voh | 90 | | | % Vdd | HCMOS load |
| | Logic "0" Level | Vol | | | 10 | % Vdd | HCMOS load |
| | Rise/Fall Time | Tr/Tf | | | | | See Note 2 |
| | 1.544 to 60 MHz | | | | 5 | ns | MV3 |
| | 60 to 167 MHz | | | | 2 | ns | MV3 |
| | 1.544 to 50 MHz | | | | 5 | ns | MV5 |
| | Tristate Function | | Input Logic "1" or floating: output active<br>Input Logic "0": output disables to high-Z | | | | |
| | Start up Time | | | 4 | | ms | |
| | Phase Jitter | ΦJ | | | | | See Note 3 |
| | 20 – 45 MHz | | | 0.5 | 1.0 | ps RMS | Integrated 12 kHz - 20 MHz |
| | 45 – 167 MHz | | | 3.0 | 5.0 | ps RMS | Integrated 12 kHz - 20 MHz |
| | Phase Noise (Typical) | 10 Hz | 100 Hz | 1 kHz | 10 kHz | 100 kHz | Offset from carrier |
| | @ 19.44 MHz | -70 | -100 | -132 | -140 | -150 | dBc/Hz |

| | | |
|---|---|---|
| Environmental | Mechanical Shock | Per MIL-STD-202, Method 213, Condition C |
| | Vibration | Per MIL-STD-202, Method 201 & 204 |
| | Max Soldering Conditions | See solder profile, Figure 1 |
| | Hermeticity | Per MIL-STD-202, Method 112 (1 x $10^{-8}$ atm cc/s of Helium) |
| | Solderability | Per MIL-STD-883, Method 2003 |

1. HCMOS Load - See load circuit diagram #2.
2. Rise/Fall times are measured between 10% Vdd and 90% Vdd with HCMOS load.
3. Contact factory for non-standard jitter requirements.
4. Contact factory for frequencies outside of the ranges shown.

# MtronPTI Lead Free Solder Profile