



GENERAL DESCRIPTION

The M2004-01 and its variants are VCISO (Voltage Controlled SAW Oscillator) based clock generator PLLs designed for clock frequency translation and jitter attenuation in a high-speed data communications system. The clock multiplication ratio and output divider ratio are pin selectable and also configurable through serial programming. External loop components allow the tailoring of PLL loop response. Variants of the device add the feature Hitless Switching with Phase Build-out (HS/PBO) to ensure that reference clock reselection does not disrupt the output clock. A fixed Narrow Loop Bandwidth feature (Fixed NBW) is included in the some of the device variants.

FEATURES

- Ideal for OC-48/192 data clock
- Integrated SAW (surface acoustic wave) delay line
- VCISO frequency from 300 to 700MHz **
- Low phase jitter of < 0.5ps rms, typical (12kHz to 20MHz or 50kHz to 80MHz)
- Pin-selectable or serially programmed configuration
- Hitless Switching with Phase Build-out (HS/PBO) added to all but the M2004-01 to ensure SONET/SDH MTIE and TDEV compliance during reference clock reselection
- Fixed Narrow Loop Bandwidth feature (Fixed NBW) added to some of the product variants (see Table 2)
- Reference clock inputs support single-ended LVCMOS, LVTTTL
- Industrial temperature available
- Single 3.3V power supply
- Small 9 x 9 mm SMT (surface mount) package

PIN ASSIGNMENT (9 x 9 mm SMT)

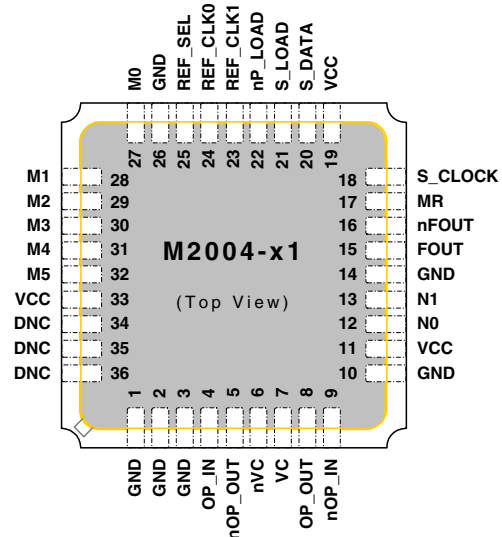


Figure 1: Pin Assignment

Example Input / Output Frequency Combinations

| Input (MHz) | VCISO ** (MHz) | Output (MHz) | Application |
|-------------|----------------|--------------|------------------|
| 19.44 | 622.08 | 77.76 | OC-12 / 48 / 192 |
| 77.76 | | 311.04 | |
| 155.52 | | 622.08 | |

Table 1: Example Input / Output Frequency Combinations

Device Variants and Corresponding Functions

| Variant | Hitless Switching / Phase Build-out Triggered by | | Fixed NBW |
|----------|--|-----------------|-----------|
| | Phase Transient | Mux Reselection | |
| M2004-01 | no | | no |
| M2004-11 | ✓ Yes | ✓ Yes | no |
| M2004-21 | no | no | ✓ Yes |
| M2004-31 | ✓ Yes | ✓ Yes | ✓ Yes |
| M2004-41 | no | ✓ Yes | no |
| M2004-51 | no | ✓ Yes | ✓ Yes |

Table 2: Device Variants and Corresponding Functions

* Series of parts numbered M2004-01, -11, -21, -31, -41, and -51.

** Specify VCISO center frequency at time of order.

SIMPLIFIED BLOCK DIAGRAM

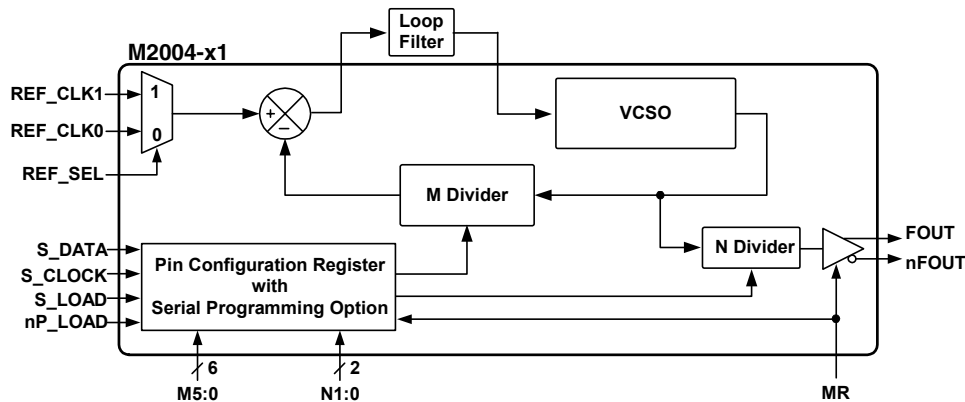


Figure 2: Simplified Block Diagram