



**Description**

**MR74033 – Flexible Crystal Oscillator**  
65nm CMOS 10-27MHz Crystal Oscillator

**Part Number:**  
MR74033

**Features:**

- High performance
- Low Cycle-Cycle & Period Jitter (max 2 ps)
- Low Mark Space Ratio (45% to 55%)
- Low Start Up Time (less than 1ms)
- Low power consumption (max 540uA)

**Technology:**  
TSMC 65nm LP 1.2V, 2.5V Standard CMOS

**Deliverables:**  
GDSII  
Abstract  
Design Report  
Verilog- A Models  
Verilog Models

**Circuit Status:**  
Silicon Proven

**Design rights:**  
Customer owned.

**Overview:**

- An amplifier cell configured with external components as a crystal oscillator (Pierce Oscillator).
- Drives 10MHz to 27MHz crystals and operates from a single 1.2V power supply.
- Operates in 10MHz to 16MHz or 16MHz to 27MHz under the control of the mode pin.
- Can be operated as a differential input clock buffer for frequencies of 4MHz to 160MHz under the control of the buff pin.
- Can be placed in to a low power mode, when the jitter is significantly below 2ps under the control of the gain\_ctrl pin.
- Output is buffered providing a square wave suitable for internal clocks.
- Can be powered down using the enb pin when a clock input is not required. This pin can also be used for IDDQ testing.
- Feedback resistor Rf is included internally with the amplifier circuit.
- Uses two adjacent I/O pins.

**Symbol View:**

