The Leader in Timing Solutions

- Largest Market Share in Silicon Timing
  - Twice as much as the next two competitors combined!
- Largest Product Portfolio
  - Over 1500 unique enterprise timing devices
  - 10 times more than nearest competitor (TI)
- Comprehensive documentation, including new Timing Solutions Guide
- New website with featured Clocks & Timing category

Innovative CrystalFree® Products for New Markets
- Solid State Oscillators
- pMEMS™ Oscillators
- XO Replacements with better power, pricing, lead times, and reliability

Largest Market Share
1500+ Unique Clocks

1.2B
IDT 26%
TI 8%
Maxim 8%
SiLabs 5%
Others

Visit the NEW IDT.com for more timing solutions

IDT FEMTOCLOCK 5X7 OSCILLATOR PRODUCT BRIEF

IDT® Programmable Frequency, Low Phase-Noise FemtoClock® NG Crystal-Oscillator Family

FEATURES/BENEFITS
- Flexible frequency configurations solve complex design problems
- Configurable to output any clock rate using two-wire PC serial interface
- Up to four user-defined, factory-programmed output frequencies stored within the device
- Short lead times compared to traditional crystal oscillators
- Reduces overall component count and inventory management
- Dynamic frequency changes usable board and system test and diagnosis by clock frequency margining

FUNCTIONS
- Fully programmable clock sources
- Programmable crystal-oscillator and VCXO
- 5mm x 7mm compatible, ceramic packages

PERFORMANCE
- Phase noise <0.5 ps RMS
- Clock frequencies up to 1300 MHz

APPLICATIONS
- Wireless infrastructure
- Serial RapidIO® 1.3 and 2.1
- Networking (Ethernet)
- PCIe® Generation 1.2 and 3
- Integrated SerDes of DSPs, microprocessors and FPGAs
- Telecommunication (SDH/SONET)
- Storage (SAS/SATA and FibreChannel)
- HDTV Video
- Instrumentation
- Clock frequency margin testing
- Phase noise sensitive reference clocks

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Programmable Frequency, Low Phase-Noise FemtoClock® NG Crystal-Oscillator Family

The programmable VCXO and XO devices support a variety of options such as the output type, number of default frequencies, internal crystal frequency, power supply voltage, ambient temperature range and the frequency accuracy. The device options, default frequencies and VCXO pull range must be specified at the time of order and are programmed by IDT before shipment.

The example order code BN3QG01FD-1014CDI specifies a programmable, quad default frequency VCXO with a voltage supply of 2.5 V, a LVPECL output, a ±0.5 ppm crystal frequency accuracy, contains a 100 MHz internal crystal as frequency source, industrial temperature range, a lead-free (6/6 RoHS) 10-lead ceramic 5.0 mm x 7 mm x 1.55 mm package and is factory-programmed to the default frequencies of 625, 1312.5, 1562.5 and 125 MHz and to the VCXO pull range of min. ±100 ppm.

The table below shows the default frequency ordering codes available today using the integer feedback PLL and 100 MHz crystal as its input. Please refer to the document, “Default Frequency and VCXO Pull Range Order Information for Ceramic 5.7 Devices” on the IDT website [http://www.idt.com/cn/products/329313], for a complete list of pre-defined frequency codes.

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Figure 1 Configurable Frequency XO

Figure 2 Configurable Frequency VCXO

Ordering Information for FemtoClock NG Crystal-Oscillator Family

The programmable VCXO and XO devices support a variety of options such as the output type, number of default frequencies, internal crystal frequency, power supply voltage, ambient temperature range and the frequency accuracy. The device options, default frequencies and VCXO pull range must be specified at the time of order and are programmed by IDT before shipment.

The example order code 8N3QV01FD-1014CDI specifies a programmable, quad default-frequency VCXO with a voltage supply of 2.5 V, a LVPECL output, a ±50 ppm crystal frequency accuracy, contains a 10 MHz internal crystal as frequency source, industrial temperature range, a lead-free source, ±50 ppm crystal frequency accuracy, and the frequency accuracy. The device options, default frequencies, internal crystal frequency, power supply voltage, ambient temperature range and the frequency accuracy. The device options, default frequencies and VCXO pull range must be specified at the time of order and are programmed by IDT before shipment.

The table below shows the default frequency ordering codes available today using the integer feedback PLL and 100 MHz crystal as its input. Please refer to the document, “Default Frequency and VCXO Pull Range Order Information for Ceramic 5.7 Devices” on the IDT website (http://www.idt.com/designguide/57 steroids), for a complete list of pre-defined frequency codes.
Programmable Frequency, Low Phase-Noise FemtoClock® NG Crystal-Oscillator Family

THE ANALOG & RF
INTERFACES & CONNECTIVITY
CLOCKS & TIMING
MEMORY & LOGIC
AUDIO
TOUCH & USER INTERFACE

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FemtoClock NG (Next Generation) based programmable crystal oscillator devices outperform existing oscillator solutions in flexibility, low phase noise and high frequency operation, and offer much shorter lead times.

Function and Flexibility
FemtoClock® NG 5mm x 7mm devices are clock frequency sources that provide frequencies from 15-48 to 1300 MHz with steps of 218 Hz or better. The devices use IDT’s 4th generation fractional-feedback PLL technology and integrate the crystal within the package. Each device features a set of up to four user defined frequencies that are pre-programmed from the factory. An additional PLL programming interface allows access to internal PLL registers for the reconfiguration of the output frequency. The VCO devices also allow configuration of the absolute pull-range (APR) from ±7.5 to ±75.75 ppm. The VCO polarity is configurable to either a positive or a negative slope. Compatible with the standard 6-pin 5mm x 7mm ceramic package, these devices are an ideal alternative to classic oscillators, SMD, VOCXO and VCSOs, with the additional benefit of a 4-pin interface for output frequency programming. The devices use standard outputs such as differential LVPECL, LVDS and single ended LVCMOS. These devices can be ordered with integrated crystals with an accuracy of ±20, ±100 or ±50 ppm.

Performance
FemtoClock NG devices are the choice of the advanced-system designer seeking a clock source with top performance and unmatched flexibility in a standard oscillator footprint. Using IDT’s new 4th generation fractional feedback synthesizer architecture, the devices offer low phase-noise characteristics (≤0.5 ps RMS) that are required for reference clocks in applications that cannot compromise in signal quality, conversion error and bit error rate. The linearity of the VCOX outperforms most existing tunable oscillators.

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Please note: All data subject to change without notice. A new generation of products for the automotive, telecommunication, industrial, consumer, medical, military, and space market can be found at www.idt.com/clocks. For more information on an IDT product, contact your local IDT sales office.

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