Crystal oscillator with digital frequency adjustment ± 100ppm
10 to 30 Mhz

Overview:

The V-Trans VT18DCXO crystal oscillator cell provides a low phase-noise output, with a low frequency variation over temperature. Oscillation frequency can be digitally adjusted (+/- 100ppm) In power-down mode, the oscillator is bypassed. An external clock signal can be applied to "xin" pin.

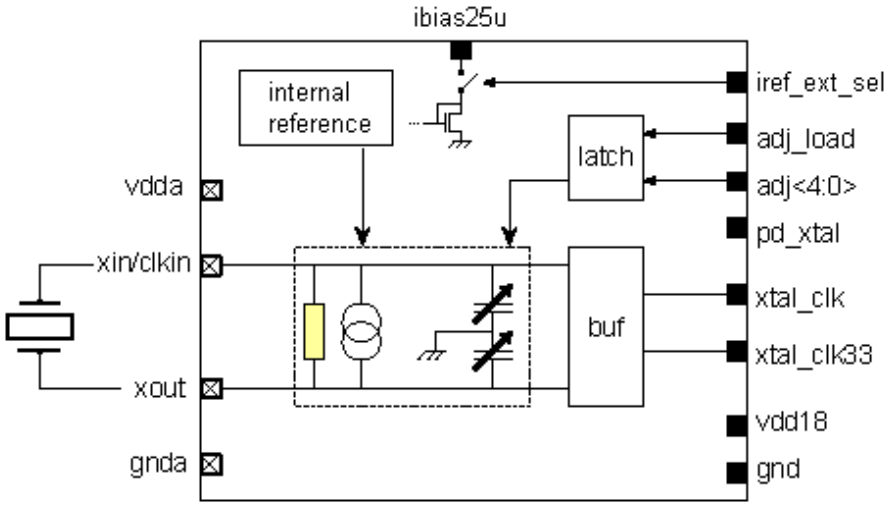
This IP can completely eliminate the need for external voltage-control crystal oscillator (VCXO) chip or on-chip VCXO block in MPEG2 clock synchronization and thus significantly reduces the system cost.

Internal current reference generator allows the cell to be used as a stand-alone.
If a more accurate current reference is desired, for better control or extended range of oscillation frequency over PVT corners, the user can apply an external current reference. (25uA typical).
A such reference current can be provided by V-Trans Irefgen (resistor-less design +/-5%) or Refgen (with external reference resistor +/- 1%) libraries or any other third party IP.

Features:

- 10 to 30Mhz crystal
- Clock synchronization with 5bits frequency adjustment (±100ppm)
- Phase noise -130dBc/Hz at 1kHz offset -134dBc/Hz at 10kHz offset
- Clock input for bypass mode
- 3.3V/1.8V ±10% supply voltage, -40/+125°C
- 1P6M layout structure based on 0.18um 1P6M 3.3V/1.8V generic logic process.
- Core cell area (I/O included) : [contact us]
- Near 50% duty cycle output.
- Antenna diodes on each digital input.
- Built in I/Os with ESD protection.
- Silicon proven.

Block Diagrar



Application:

- Low noise reference for PLL
- Video / audio synchronization

Deliverables:

V-Trans provides 2 separate kits depending on licensing agreement.
In most cases, the physical is merged on foundry site.

Design Kit

Design kit includes :

- LEF view and abstract gdsII
- Verilog HDL behavioral model
- Liberty (.lib) timing constraints for typical, worse and best corner case
- Full Datasheet /Application Note with integration guidelines document
- Silicon characterization report when available

Tapeout Kit

Tapeout kit includes the design kit plus plysical view:

- gdsII
- LVS netlist and report
- DRC/ERC/ESD/ANT report

Portfolio and Design Services:

V-Trans Microelectronics has been combining all the best practices and methodologies in analog and mixed-signal high speed interfaces design to answer the demanding market of high performance analog IPs using cheaper technologies such as 0.18um.

Our Portfolio covers a wide range of applications and can be customized on demand to answer exactly your specific needs.

Custom layout and back-end services are also available if you have a tied project schedule.
Our experience includes high integration circuit such as network SOC, CPU and FPGA which allow us to provide a full solution for even more complex chip.

Please contact us to tell us how we could help you or for any analog IP information.

- High speed interfaces (LVDS serdes, Display Interfaces, DDRII, DDR3, PCI-X, HDMI rev1.1)
- Converters (video ADC 10b 170Mhz, Triple video DAC)
- Timing circuits (Audio PLL, Video PLL, DDR memory PLL, custom PLL.)
- Low noise Crystal Oscillators
- Power management (LDO regulators, Power On Reset..)
- Video and WIMAX Analog Front end

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