Synthesizer with Integrated VCO Outputs 50 to 3760 MHz

Texas Instruments Incorporated introduced a wideband frequency synthesizer with integrated voltage-controlled oscillator (VCO) that delivers the industry's lowest phase noise. Its combination of ultra-low noise phase-locked loop (PLL) and industry's highest phase detector frequency outperforms the competition in both phase noise and spurs. The LMX2581 combines the capability to drive highest system performance along with the flexibility of a wideband frequency synthesizer that outputs 50 to 3760 MHz. It allows designers to use one frequency synthesizer to support a variety of demanding applications in wireless infrastructure, radar, medical imaging, defense and aerospace, and test and measurement. For more information and to order samples, visit www.ti.com/lmx2581-pr [1].

In addition, the LMX2581 [2] improves total link power efficiency and communication channel capacity when combined with the following high-speed analog signal chain devices from TI: LMK04828 [3] or LMK04800 [4] clock jitter cleaner; AD42JB69 [5] dual-channel, 16-bit, 250-MSPS analog-to-digital converter (ADC) with JESD204B serial interface or ADC16DV160 [6] dual-channel, 16-bit, 160-MSPS ADC; DAC34SH84 [7] quad-channel, 16-bit, 1.5-GSPS digital-to-analog converter (DAC), and the TRF3705 [8] 300-MHz to 4-GHz quadrature modulator.

Key features and benefits of the LMX2581 [1]

· Industry's best phase noise improves RF sensitivity: Phase detector frequency of

200 MHz and ultra-low PLL normalized phase noise of -229 dBc/Hz provides a precision local oscillator to an RF front end for better receiver sensitivity.

· Multi-core VCO provides maximum flexibility: Integrated VCOs allow the device to output frequencies from 50 MHz to 3760 MHz, eliminating the multiple VCO/PLL combinations typically required to support a broad range of applications. The LMX2581 also gives designers the option to bypass its internal multi-core VCO in favor of an external VCO.

· Low fractional spurs for high RF spectral purity: Delta-sigma PLLatinum PLL engine with 200-MHz phase detector frequency boosts spurious performance.

· Integration reduces bill of materials (BOM) costs: Ultra-low noise, wideband frequency synthesizer integrates a delta-sigma fractional-N PLL; a multi-core VCO with tank circuit; optional frequency divider; two differential RF output buffers that can deliver 10 dBm single-ended on each side; and several low-noise, high precision low dropout regulators (LDOs).

Tools and support

The LMX2581EVAL [9] evaluation module can be purchased today for US$175. The synthesizer's companion Clock Design Tool [10] and CodeLoader [11] software help speed system design by aiding engineers with product selection, loop filter design and simulation of timing solutions. Both of these tools and other clock design software are available in the WEBENCH Design Center [12]. Support is available on the Clocks & Timers [13] Forum in the TI E2E Community, where engineers can ask questions and get answers from TI experts.

Availability, packaging and pricing

The LMX2581 [14] is available today in a 32-pin, 5-mm x 5-mm QFN package for a suggested retail price of US$7.00 in 1,000-unit quantities.

www.ti.com [15]

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