Converters

The AD977x family of dual interpolating TxDAC+&reg converters augments ADI's extensive portfolio of RF ICs, and allows simpler direct RF upconversion architectures that require fewer external components. This offers base station and broadband system designers a more cost-effective solution for multi-carrier 3G transmitters, HDTV transmitters and satellite systems.
The AD9777, AD9775 and AD9773 offer 16-, 14- and 12-bit resolution, respectively, support an input data rate of up to 160 MSPS with 1x interpolation, and support a maximum DAC update rate of 400 MSPS with 8x interpolation. The complex (I&Q) mixer rejects single sideband images, reducing the number of filtering stages, and therefore the cost of the hardware required to achieve 3G and broadband spectral emission specifications. The AD9777/75/73 are best-in0class, high-speed transmit-path DACs providing selectable 2x/4x/8x interpolation filters. Thus, they improve noise performance, reduce input data requirements, and simplify reconstruction filtering &#151 improving the overall quality of the transmitter design.
The AD9777 provides the best available dynamic performance, featuring W-CDMA (wideband code division multiple access) ACPR (adjacent channel power ratio) of -71 dBc @IF=71 MHz and IMD (intermodulation distortion) of -80 dBc up to 30 MHz. The AD9777 can be coupled with the AD8345 RF/IF Quadrature Modulator. When the pair are used for upconverting a W-CDMA carrier to 800 MHz, for example, the AD9777 can achieve greater than 40 dB of image rejection with LO (local oscillator) feedthrough of less than -80 dBm. The AD9775 and AD9773 DACs are pin-compatible, providing system designers with increased flexibility and cost effectiveness in systems where lower resolutions are adequate. The AD977x family provides the optimal solution for analog quadrature modulation architectures in 3G multi-carrier base stations, multi-level QAM modulators, and instrumentation applications.

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