ANALOG DEVICES

12-Bit, 150 MSPS TxDAC+® D/A Converter

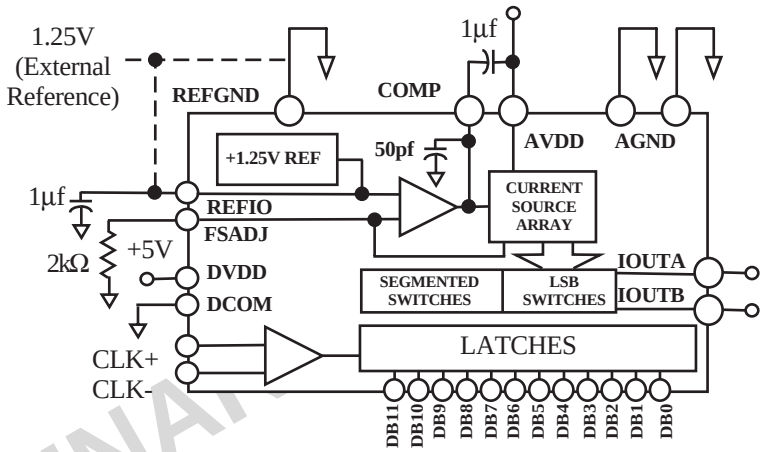
Preliminary Technical Data 7-19-00 AD9742

FEATURES

12-Bit Resolution
150 MSPS Conversion Rate
2's Complement or Straight Binary format
SFDR @ 2 to 40MHz: ~77dBc
Differential/Single Ended Clock Input
LVDS or +3V Compatible CMOS Inputs
Single +3 V Supply Operation
Power Dissipation: ~65 mW @ 3V
On-chip 1.2 V Reference
28 pin SOIC/TSSOP packages

APPLICATIONS

Wideband Communications Transmit Channel:
Direct IF
Digital Quadrature Modulation Architectures
W-CDMA, Multi-Carrier GSM, TDMA, CDMA Systems
Instrumentation:
ATE, Signal Synthesis



BLOCK DIAGRAM

PRODUCT DESCRIPTION

The AD9742 is a high precision 12-bit TxDAC+ with state of the art distortion and noise performance. The AD9742 was developed to meet the demanding performance requirements of the most stringent multi-carrier and 3rd generation basestations. The flexible clock interface can accept a variety of input types such as 1V p-p sine wave LO inputs, CMOS clock inputs, single ended or differential inputs.

The DAC utilizes a segmented current-source architecture combined with a proprietary switching technique to reduce glitch energy and to maximize dynamic accuracy. The DAC provides differential current output thus supporting single-ended or differential applications. The AD9742 differential current output is identical to that of the entire TxDAC and TxDAC+ family and provides a nominal full-scale current from 2 to 20mA. The AD9742 is manufactured on an advanced low cost 0.35micron CMOS process. It operates from a single supply of 2.7 V to 3.6 V and consumes ~65 mW of power.

Targeted at ultra-wide dynamic range, multi-carrier and multi-standard systems, desiring unmatched distortion and noise performance.

PRODUCT HIGHLIGHTS

1. The AD9742 is a 12 bit TxDAC+ with excellent INL and DNL performance..

2. 2's complement or straight binary data coding.

3. High Speed 150 MSPS conversion rate.

4. Flexible clock input with single-ended or differential input, CMOS or 1V p-p LO sinewave input capability.

5. Low Power: Complete CMOS DAC function operates on ~65mW from a 2.7 V to 3.6 V single supply. The DAC full-scale current can be reduced for lower power operation, and a sleep mode is provided for low-power idle periods.

6. On-chip Voltage Reference: The AD9742 includes a 1.20 V temperature-compensated bandgap voltage reference.

7. Small 28 pin SOIC/TSSOP packages.

TxDAC+ is a registered trademark of Analog Devices, Inc.
*Patent pending

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