

TDA8769

High IF sampling

12-bit ADC 105 Msps

Reinforcing Philips' commitment to high-performance IF sampling architectures, the new TDA8769 12-bit analog-to-digital converter provides direct IF conversion with the highest analog sensitivity. Simplifying PCB layout and reducing overall system costs, it is ideal for a wide range of mobile communication infrastructure, high data rate radio receivers and imaging applications.



Key features

- 12-bit resolution
- Sampling rate up to 105 Msps
- Maximum analog input frequency of 250 MHz
- 5 V power supply
- 3.3 V CMOS digital output
- TTL, AC sinewave, PECL clock input
- Programmable Conversion Complete Signal output
- External amplitude range control
- Integrated voltage-controlled regulator
- Industrial temperature range (-40°C to +85°C)

Key benefits

- Direct High IF conversion
- Highest analog performance
- Programmable full scale functionality
- Best-in-class Adjacent Channel Selection (ACS)
- Extremely small footprint
- Easy system integration
- High input impedance and low analog input capacitance

Highest analog sensitivity from the smallest size

Philips' new TDA8769 12-bit BiCMOS analog-to-digital converter (ADC) is optimized to reduce architecture complexity and overall system cost. Thanks to both its direct IF conversion capabilities and leading sensitivity in multi-carrier support, this highly integrated converter greatly simplifies PCB layout, and being housed in a HTQFP48 package means it is the smallest ADC of its type currently available.

With a sampling rate up to 105 Msps, maximum input analog frequency as high as 250 MHz and support for various Nyquist and High IF sampling operating points, the TDA8769 is an extremely competitive solution for W-CDMA, CDMA2000 and GSM / EDGE transceivers, as well as high data rate radio services (WLL, LMDS, BWA). Supporting up to 80 dB Adjacent Channel Selectivity (ACS) for multi-carrier input signals, the TDA8769 delivers improved analog performance over its predecessor – the TDA8768B, which was already the leading ADC in terms of sensitivity.

Capable of converting differential analog input signals into 12-bit binary or two's complement data words, the TDA8769 offers CMOS compatible outputs and all its static digital inputs (SH, CEN, OTC, DEL0, DEL1) are TTL / CMOS compatible. Controllable full scale functionality allows this ADC to handle 1.5 to 1.9 V_{p-p} full scale input signals and internal regulators are incorporated to simplify its use. A further TDA8769 innovation is its programmable Conversion Complete Signal output, which guarantees the perfect output data port alignment with associated digital circuits.

Key applications

- 2.5G and 3G radio transceivers (GSM / EDGE, W-CDMA, CDMA2000)
- Nyquist and direct IF sampling sub-systems
- Wireless and wired broadband radio systems
- Wireless Local Loop (WLL)
- Local Multipoint Distribution Service (LMDS)
- Advanced FM radio
- Radar and satellite radio systems
- Cable modem
- Imaging equipment (cameras, scanners, medical systems)

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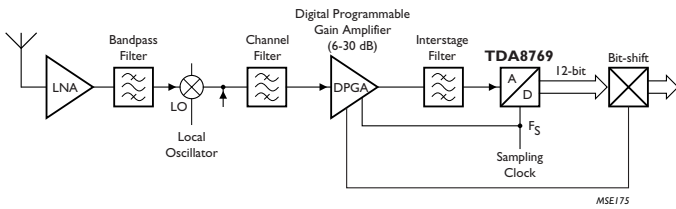
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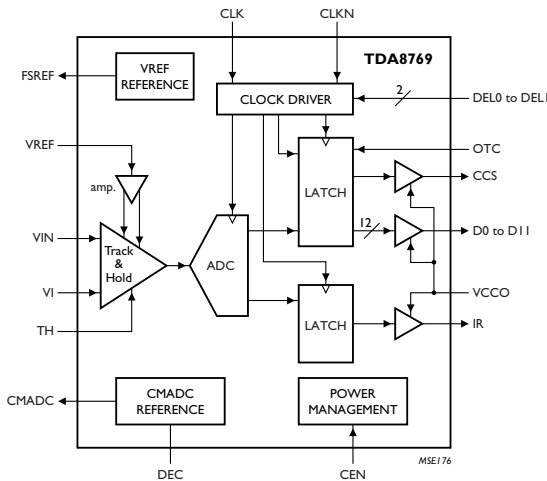
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High IF direct sampling Rx



Some examples of TDA8769 possible High IF operating points		
Fi (MHz)	FCLK (Msps)	BW (MHz)
250.00	9.60	0.20
243.95	9.60	0.20
243.95	19.20	0.20
243.95	52.00	0.20
190.00	40.00	1.25
106.00	76.80	5.00
86.00	76.80	5.00
80.00	61.44	10.00
70.00	40.00	5.00
69.99	58.98	1.25
27.00	51.20	3.50
10.80	32.50	0.30

TDA8769 block diagram



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