

# Integrated RF down-converters



## STW8210 integrated RF down-converter series with embedded synthesizer offers top performance, reduces BOM and footprint

With 8 dB gain, 10.5 dB NF and +25.5 dBm IIP3, the STW8210 series meets the high-performance and low-cost demands of equipment makers, by providing higher integration.

The STW8210 series integrates a high-linearity passive down-mixer and IF amplifier, together with an integer-N PLL and two wideband self-calibrated low-noise VCOs. Its suitability for demodulation stages of wireless equipment (such as 3G/LTE cellular base stations) has already been proven.

The STW8210 series covers all key cellular bands with four frequency variants.

### KEY FEATURES

- High IIP3: 25.5 dBm
- Noise figure: 10.5 dB
- Conversion gain: 8 dB
- RF frequency range: 698 MHz to 2690 MHz
- Wide IF amplifier frequency range: 70 MHz to 400 MHz
- Low noise Integer-N synthesizer: -155 dBc/Hz noise floor
- Integrated DAC with dual current output
- Dual digital bus interface: SPI & I<sup>2</sup>C
- 44-lead exposed pad VFQFPN package 7x7x1.0 mm

### KEY BENEFITS

- High level of integration: reduced BOM, footprint and increased reliability
- Full coverage of the cellular infrastructure standards spectrum
- Leading edge RF performances
- Compliance with the requirements of cellular base stations
- Cost-effective solution

### TARGETED APPLICATIONS

- Cellular 3G/4G infrastructure equipment
- Other wireless communication systems



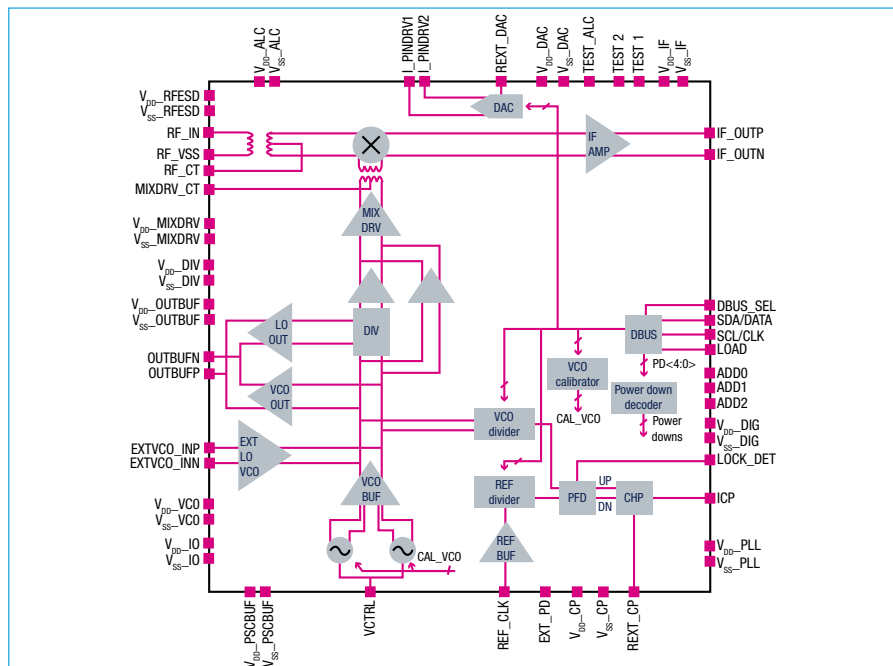
## HIGH-PERFORMANCE, FLEXIBLE AND INTEGRATED

Highly integrated, and demonstrating high-performance wideband capabilities, the STW8210 RF down-converter series are single-chip alternatives to discrete, expensive and bulky mixer, PLL and VCO solutions. This series has been designed in ST's proprietary BiCMOS technology which has proven itself in challenging RF applications.

The STW8210 series provide flexibility for designers by supporting different modes of operation:

- When used in the receiver section it can be configured to offer a dedicated LO (local oscillator) frequency generator for each antenna path.
- Alternatively it can be used in a more traditional antenna-diversity receiver scheme.
- In transmitter loop-back circuits, designers can profit from its excellent gain flatness and the integrated 10-bit DAC.

## STW8210 SERIES BLOCK DIAGRAM



## EVALUATION KITS

Evaluation kits for the STW8210 series include:

- Evaluation board
- GUI (graphical user interface) software to program the device
- PLLSim software to simulate PLL performances and loop filter design
- PC connection cable

Evaluation kit order codes:

- STW82100B-EVB
- STW82101B-EVB
- STW82102B-EVB
- STW82103B-EVB

## DEVICE SUMMARY

Part number	RF frequency range [MHz]	LO frequency range [MHz]	Gain [dB]	NF [dB]	IIP3 [dBm]	PN floor @ 40 MHz [dBc/Hz]
<b>STW82100B</b>	1620-2400	1650-1950 2050-2370	8	10.5	+25.5	-155
<b>STW82101B</b>	698-960	850-1025 1025-1185	8	10.5	+25.5	-155
<b>STW82102B</b>	1425-1910	1500-1800 1900-2200	8.5	9.5	+24.5	-156
<b>STW82103B</b>	2300-2700	2200-2550 2500-3000	8	10.5	+25.5	-156



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