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Boost Data Throughput and Efficiency with Wide Instantaneous Bandwidth Power Amplifiers

The SKYR23001 reference design integrates the key components on the RF front-end from Skyworks pre-driver amplifiers to the final stage PA on the TX path, as well as from the antenna switch to the receiver LNA modules. Customers can use the SKYR23001 to enable faster time-to-market design for low power Radio Access Network (RAN) applications such as small cell, satellite direct to cell applications, micro base stations, and macro base station applications.

The SKYR23001 reference design uses the Skyworks SKY67183-396LF as a low-noise, high-linearity TX pre-driver, plus the SKY6652x family of pin-to-pin compatible amplifiers to achieve an average output power of 1 W. This covers up to 400 MHz of carrier bandwidth, and supports the major 3GPP 4G and 5G bands. The amplifiers include active bias that optimizes performance over temperature, voltage, and process variation.

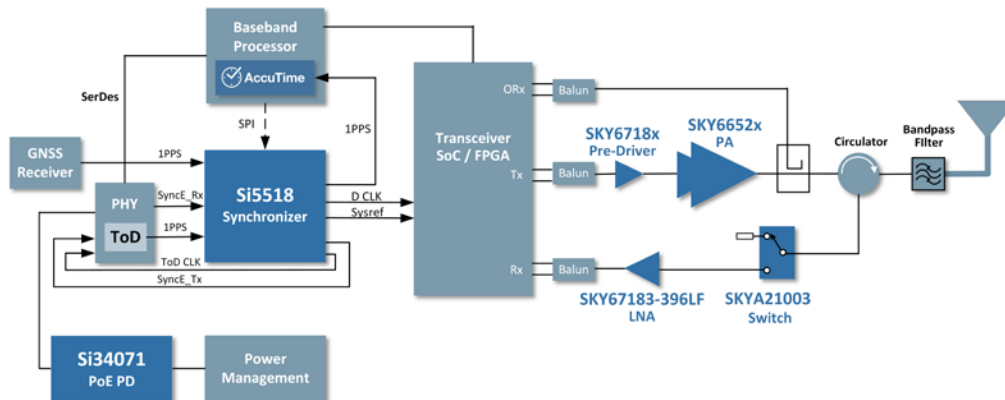
The receive side includes the dual use SKY67183-396LF low noise amplifier (LNA) covering 400 MHz to 6 GHz, with 18 dB gain, and a 0.45 dB noise figure at 3.8 GHz.



Featured Product

SKYR23001

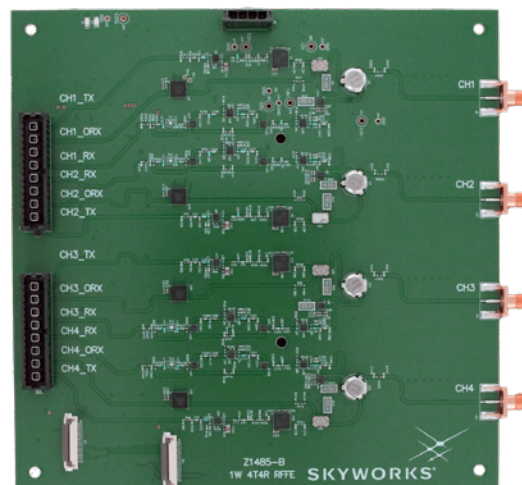
5G NR Time Division Duplex (TDD) RF Front-end Reference Design for Small Cell Base Station Radios



The reference design TX path is optimized for maximum RF performance and highest power-added efficiency, and allows the use of commercially available digital pre-distortion (DPD) at carrier bandwidths up to 400 MHz.

Features

- Covers all 5G TDD bands
- A complete end-to-end solution with 200 MHz instantaneous bandwidth
- Up to 400 MHz bandwidth when used with the SKY66524-11 or SKY66525-11
- High linearity, high gain
- Internally matched 50 Ohm input and output
- Integrated active bias optimizes performance over temperature
- Enable/disable control increases efficiency
- The SKYA21003 high-power, fast switch can be used as a failsafe or bypass to protect the LNA
- SKYR23001 bill of materials (BOM), schematics and layout are available to streamline time to market



Part Number	Description	3GPP Band	Package
SKY66522-11	2300 to 2690 MHz, 200 wide MHz instantaneous BW high-efficiency PA	n7, n30, n38, n40, n41, n53, n90	16-pin, 5 x 5 x 1.04 mm
SKY66523-11	3550 to 4200 MHz, 200 MHz wide instantaneous BW high-efficiency PA	n77, n48	16-pin, 5 x 5 x 1.04 mm
SKY66524-11	3300 to 3800 MHz, 400 MHz wide instantaneous BW high-efficiency PA	n78, B42, B43	16-pin, 5 x 5 x 1.04 mm
SKY66525-11	3450 to 4200 MHz, 400 MHz wide instantaneous BW high-efficiency PA	n77	16-pin, 5 x 5 x 1.04 mm
SKY67183-396LF	400 to 6000 MHz high linearity LNA	All sub-6 GHz bands	8-pin, 2 x 2 mm QFN
SKYA21003	100 to 8500 MHz high power handling switch	All sub-8.5 GHz bands	12-pin, 2 x 2 mm QFN
SKYR23001-11	Reference design		