

OPERATION DESCRIPTION for Access Point

Project name : 11WA-321A

1: T/R switch:

a: TX or RX multiplexing switch, TX/RX are half duplex.

B: Antenna A or B switch.

2: RF5117 : 2.4GHz Power Amplifier

RF5117 is a linear, medium-power, high-efficiency amplifier IC designed specifically for battery-powered WLAN applications. The devices manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the Final RF amplifier in 2.4GHz WLAN and other spread-spectrum transmitters. The device is provided in a 3mmX3mm, 16 pin, leadless chip carrier with a backside ground. The RF5117 is designed to maintain linearity over a wide range of supply voltage and power output.

RF5117 requires only a single positive supply of 3.0V nominal (or greater) to operate to full specifications. Power control is provided through two bias control input pins (Vreg1 and Vreg2).

External matching on the input and output. Both the input and the output of the device need a series DC-blocking capacitor.

Capacitor used as a matching component can also serve as the blocking Cap.

Features:

--Single 3.3V Power Supply

--+20.08dBm Saturated Output Power

--26dB Small Signal Gain

3: RF2948 2.4GHz SPREAD-SPECTRUM TRANSCEIVER

RF2948 is a monolithic integrated circuit specifically designed for Direct-sequence spread-spectrum systems operating in a 2.4GHz ISM band. The part include: a direct conversion from IF receiver With variable gain control; quadrature demodulator; I/Q baseband amplifier, and on chip programmable baseband filter. For the transmit side, a QPSK modulator and the upconverter are provided. The design reuses the IF SAW filter for transmit and receive deducing the number of SAW filters required. RF2948 is also designed to be of a 2.4GHz chipset consisting of the RF2494 LNA/Mixer.

Features:

- 45MHz to 500MHz IF Quad Demod
- On-chip Variable Baseband Filters
- Quadrature Modulator and Upconverter
- 2.7V to 3.6V Operation
- 2.4GHz PA Driver

4: RF2494 : HIGH FREQUENCY LNA/MIXER

RF2494 is a monolithic integrated UHF receiver front end suitable for 2.4GHz ISM band applications. The IC contains all of the required components to implement the RF functions of the receiver except for the passive filtering and LO generation. It contains an LNA, a second RF amplifier and a doubly balanced mixer. The output of the LNA is made available as an output to permit the insertion of a bandpass filter between the LNA and the RF/Mixer section. The mixer outputs can be selectively disabled to allow for the IF filter to be used in the transmit mode. The cascaded power gain of the LNA/Mixer is 29dB, which after insertion loss in the image filter(3dB) and IF SAW filter(~1-dB), still gives 16dB of gain prior to the IF Amps. Because of this, the noise figure of the IF Amps should not significantly degrade system noise figure.

Features:

- Single 2.7V to 3.6V Power Supply.
- 2400MHz to 2500MHz Operation.
- Two Gain setting: 28dB or 12dB.

- 4.5dB Cascaded NF, high Gain Mode.
- 20mA DC Current Consumption
- Input IP3: -23dBm or -8dBm

5: RF3000 : SPREAD-SPECTRUM BASEBAND MODEM

RF3000 is a monolithic CMOS baseband processor. It is suitable for use in 11Mbps IEEE802.11b wireless LNA systems and general purpose ISM band radios, and contains all functions required to convert a spread-spectrum signal to bit stream. PN code lengths up to 64 bits allows increased processing gain. The on-chip equalizer provides protection against multi-path in the data rate modes. All functions are configurable via SPI port. A complete 2.4GHz radio reference design is available from RFMD. RF300 receiver port provides a clear channel assessment(CCA) to the MAC and supports PSK and CCK DSSS mode.

Features:

- On-chip ADCs and DACs, RSSI, AGC
- BPSK/QPSK/CCK
- 250ns Dealy spread Equalizer
- Supports Antenna Diversity
- PN Sequences Up To 64Bits Long

6: AT76C510 Wireless to Ethernet Bridge (VNET-B)

VNET-B is the internetworking device for interconnecting a Wireless LAN with other Wireless LANs(WLAN) and legacy LANs. VNET-B based bridges act as Access Points(AP) to the WLAN and communicate packets that are destined outside the WLAN using IP over Ethernet. In case the WLAN user is mobile, roaming functions are also supported at the VNET-B bridges. The data transactions over this unified environment are categorized according to the type of end-to-end device:

End stations transactions

When two end stations communicate (irrespective to the type of network they belong)

Inter-networking device transactions

The VNET-B device implements all necessary communication protocols for supporting inter-networking functions, implements logical grouping of users independent of their physical location and provides secure links by implementing encryption algorithms.

7: REALTEK SINGLE CHIP SINGLE PORT 10/100M FAST ETHERNET PHYCEIVER RTL8201BL

The RTL8201BL is a single-port Phyceiver with an MII (Media Independent Interface)/SNI (Serial Network Interface). It implements all 10/100M Ethernet Physical-layer functions including the Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA), Twisted Pair Physical Medium Dependent Sublayer (TP-PMD), 10Base-Tx Encoder/Decoder and Twisted Pair Media Access Unit (TPMAU). A PECL interface is supported to connect with an external 100Base-FX fiber optical transceiver. The chip is fabricated with an advanced CMOS process to meet low voltage and low power requirements. The RTL8201BL can be used as a Network Interface Adapter, MAU, CNR, ACR, Ethernet Hub, Ethernet Switch. Additionally, it can be used in any embedded system with an Ethernet MAC that needs a twisted pair physical connection or fiber PECL interface External 100Base-FX optical transceiver module.