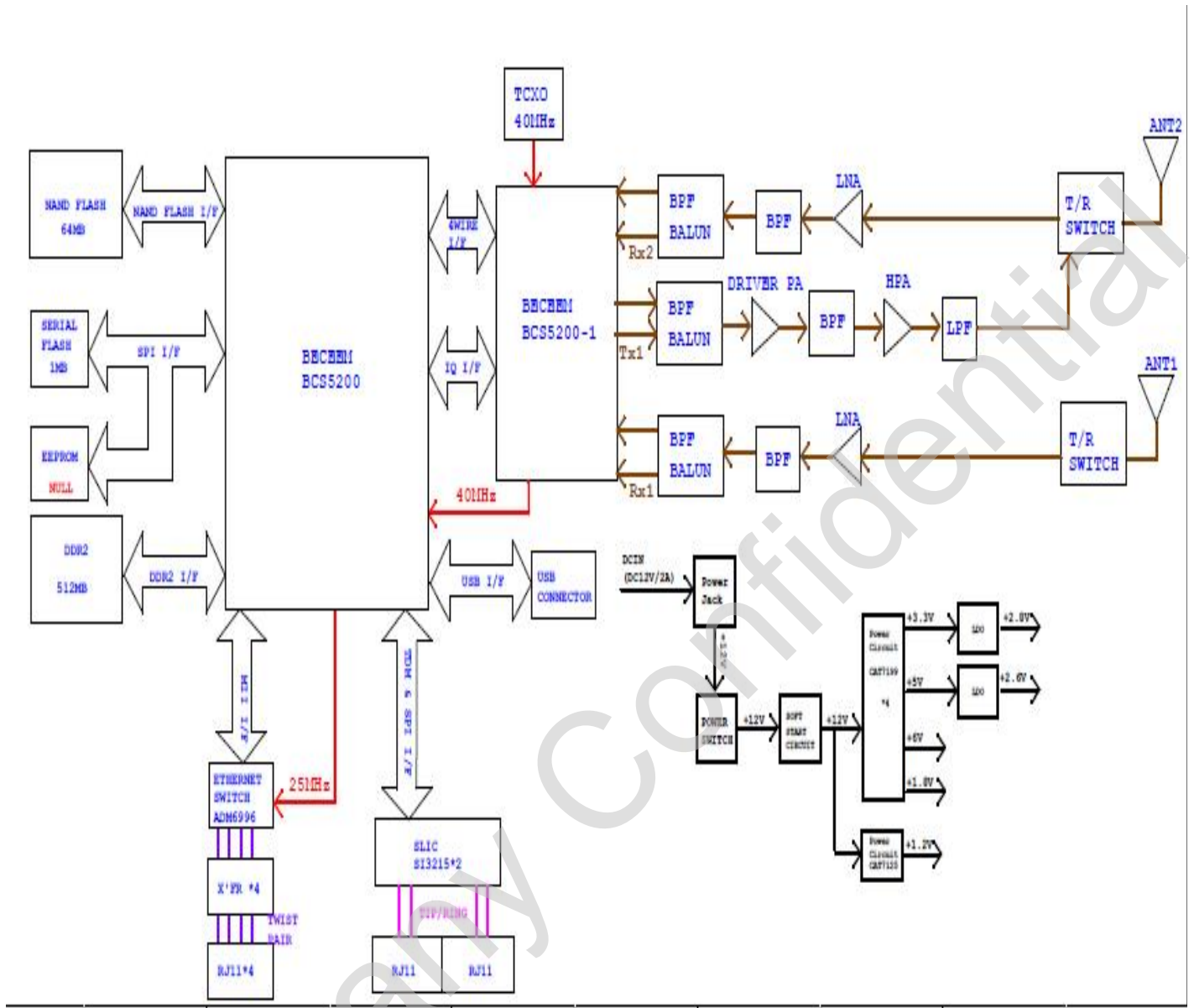


Technical Description of MAX-207HW2



Critical Components

1. Baseband SoC

The BCS5200 CPE chipset for residential, small office/home office (SOHO), small-to-midsize businesses (SMB), and enterprise networks combines high-performance Wave2 WiMAX modem functionality with a VPN/WAN router platform with a guaranteed low-latency voice subsystem.

Solution Benefits

- Industry's most advanced architecture as the base platform across multiple CPE SKUs
 - WiMAX WAN support
 - 1-port data (1xEthernet 1000/100/10) and 1-port analog voice
 - Scalable to 4-port data (Ethernet 1000/100/10; using off-chip switch IC) and 2-port analog voice
- Industry's best VoIP solution
 - Proven carrier-class voice with rich feature set and roadmap for VoIP services
- Linux 2.6.21 Kernel with BSP that allows for easy integration of custom and/or third-party software stacks
- Open-source and custom software applications support (OpenWrt)
- Open, industry-standard ARM architecture

2. RF transceiver

The BCSR200-1E is low-power, 802.16e MIMO transceiver optimized for high performance, low cost, small area, mobile WiMAX designs. The band support, flexible channel BW, low NF, high-blocker rejection, and low-peak EVM also make BCSR200-1E suitable for fixed CPE applications.

The BCSR200-1E has all of the required radio circuitry integrated into a single package, including the transmitter, two receivers, fractional-N synthesizer with VCO, and crystal oscillator. The only required external components are the RF matching, the synthesizer loop filter, crystal, a single bias resistor, and supply decoupling. Full control of the BCSR200-1E RFIC is handled with a single serial interface to the baseband IC.

Main Features

Band support

- Supports 2.5 GHz to 2.695 GHz band
- Single IC allows the design of a two Rx and one Tx band radio

Integrated channel filters with dynamically adjustable channel bandwidth (5 MHz to 20 MHz)

- External SAW no longer needed
- Allows support of the 5, 7, 8.75, and 10 MHz channels

Bandwidth as well as 5 MHz/10 MHz, 3A WiMAX band class

2.5V to 2.7V operation with very low power consumption

- 30% reduction of Rx and Tx current from previous generation

-20°C to 85°C operating temperature range

7 mm x 7 mm QFN package

Low noise MIMO receivers

Low EVM transmitter

- FCC and ETSI compliant for mobile terminals in the 2.5 GHz to 2.695 GHz band

Integrated synthesizer

- <5 Hz frequency resolution

3. DRAM

The HY5PS121621CFP-Y5-C is a 512Mb DDR2 and operating at 166.6MHz (Data rate 333MHz/b) on MAX-207HW2.

4. FLASH

There are two type of FLASH on MAX-207HW2

Serial-NOR FLASH : MX25L8005 is a 8Mb SPI FLASH, it contains boot-code , WiMAX calibration files and MAC address inside.

NAND FLASH : HY27US08121B-TPCB is a 512Mb NAND FLASH; all the application functions and configuration data inside.

5. TCXO

7Q0000010 is a thermal controlled crystal oscillator that oscillates at the frequency of 40MHz with ± 2 ppm tolerance. Supply voltage is 3.3V operating at -30 to 80°C temperature range.

6. Band-Pass Filter

Features

- ❖ Ultra small SMD type with low loss at pass-band and high attenuation at stop-band.

Applications

- ❖ 0.8 ~ 6 GHz wireless communication systems, including DECT/PACS/PHS/GSM/DCS phones, WLAN card, Bluetooth modules, Hyper-LAN, etc.

Specifications

Part Number	Freq. Range (MHz)	Insertion Loss @ BW (dB)	VSWR @ BW	Frequency	Attenuation (dB)
BF1608-L2R6DAC_	2500 ~ 2700	2.2 max. @ 25°C 2.5 max. @ -40~85°C	2.0 max.	806 ~ 915MHz	30 min.
				1710 ~ 1785MHz	30 min.
				1850 ~ 1910MHz	30 min.
				1920 ~ 1980MHz	30 min.
				3300 ~ 3900MHz	13 min.
				4900 ~ 5900MHz	20 min.

7. Balun+Filter

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.

Applications

- ❖ 0.8 ~ 6 GHz wireless communication systems, including DECT/PACS/PHS/GSM/DCS phones, WLAN card, Bluetooth modules, etc.

Specifications

Part Number	Freq. Range (MHz)	Unbalanced Impedance (ohm)	Balanced Impedance (ohm)	Insertion Loss @ BW (dB)	VSWR @ BW	Phase Diff. (degree)	Amp. Diff. (dB)	Attenuation (dB)
FB2520-05L2R6B_	2500 ~ 2690	50	50	3.2 max.	1.7 max.	180±10	1.5	45 min.@ 824~960MHz 40 min.@1650~1990MHz 25 min.@2110~2170MHz 25 min.@3300~3600MHz 28 min.@4150~4500MHz

8. Power Amplifier

Preliminary

Specifications are subject to change without notice.

MGFS39E2527A

2.5-2.7GHz HBT Integrated Circuit

B3B-090204-13

DESCRIPTION

MGFS39E2527A is a 4-stage amplifier designed for WiMAX CPE.

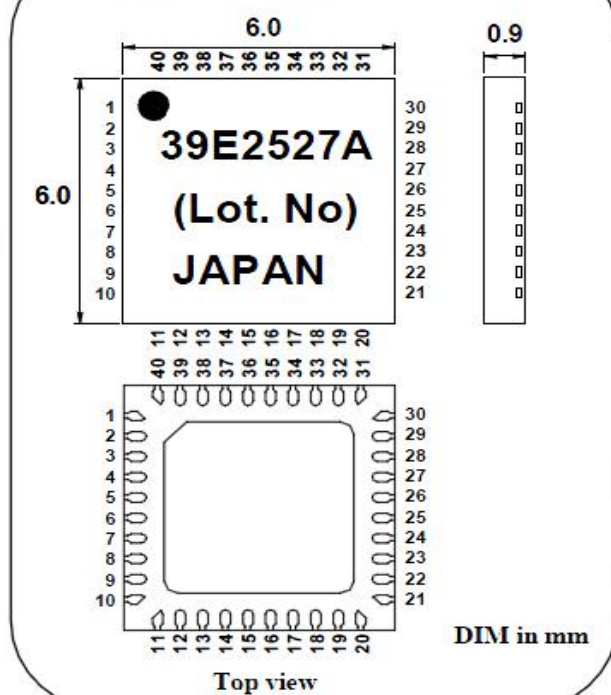
FEATURES

- InGaP HBT Device
- 6V Operation
- 30dBm Linear Output Power (64QAM, EVM=2.5%)
- 40dB Linear Gain
- Integrated Output Power Detector
- Integrated 1-bit Step Attenuator
- Surface Mount Package
- RoHS Compliant Package

APPLICATION

IEEE802.16-2004

Outline Drawing



9. Transmit/Receive Switch

DATA SHEET

SKY13299-321LF: GaAs SPDT 7 W Switch **100 MHz–4 GHz**

Features

- Positive voltage control (0/3 to 0/5 V)
- Low insertion loss 0.5 dB typical at 3.5 GHz
- High isolation >35 dB at 3.5 GHz
- High $P_{-0.1\text{ dB}}$ of 38.5 dBm at 3.3 V
- Low gate lag process for fast settling time applications
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020

Description

The SKY13299-321LF is a pHEMT GaAs FET IC high power switch packaged in a 12-lead exposed pad plastic package for low-cost commercial applications. This switch is an ideal choice for WiMax and WLAN applications where low loss, high isolation and excellent linearity are key requirements.

NEW

Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.


Functional Diagram
