

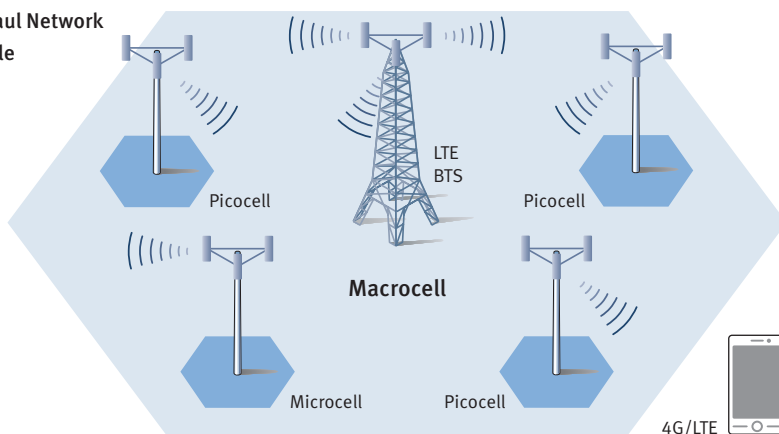
Product Brief

One-chip packaged RF Solution for E-band Radio Backhaul Transceiver Chipsets – BGT70 and BGT80

Mobile communication and especially LTE (4G) is gaining momentum these days due to the fact that all big carriers and mobile phone manufacturers are investing in the 4th generation ecosystem. The primary challenge facing this ecosystem is the fact that LTE will further enhance video and data exchange to a maximum, allowing everybody to send their latest holiday pictures and videos to friends. The bulk of today’s base station infrastructure is not equipped to support the required high data throughput.

The connection between the base station has up to now been planned for lower data rates (< 100MBit/s) and now needs increased capacity. This is where wireless backhaul technology comes into play. A solution using wireless backhaul in the E-band (71–76GHz and 81–86GHz) will enable the 10GHz frequency to support higher data rates. This enables data rates > 1Gbit/s for video and data services, sufficient for LTE.

Backhaul Network Example



Characteristics of different Base Station Sizes

Base Station	Picocell	Microcell	Macrocell
Range	10–200m	200m–2km	1–30km
No. of users	8–32	64+	200+
Typical application	SMB, enterprise, public indoor areas	Metro outdoors, city centers, capacity hotspots	Outdoor coverage
Deployment scenario	Enterprise or operator deployed	Operator deployed	Operator deployed

BGT70, BGT80 Features

Target Feature Details

- Developed for telecommunication only
- Support FDD and TDD systems (in full duplex or half-duplex mode)
- Support modulation schemes: QPSK, QAM
- Support small cell backhaul (up to 1000m)
- Support Macrocell backhaul (external PA needed depending on output power requirement)
- Direct conversion I/Q transceiver
- IF bandwidth 1000MHz
- Differential RF/IF interface for lower loss and better isolation
- Integration of VCO (Voltage Controlled Oscillator) signal generation
- PNssb (Phase Noise single side band) < -80dBc/Hz @ 100kHz offset
- 10dBm linear output power (sufficient for small cells)
- 7dB NF (Noise Figure)
- Integrated power detection function
- Integrated thermal sensor
- eWLB (embedded Wafer Level Ball Grid Array) packaged device

One-chip packaged RF Solution for E-band Radio Backhaul Transceiver Chipsets – BGT70 and BGT80

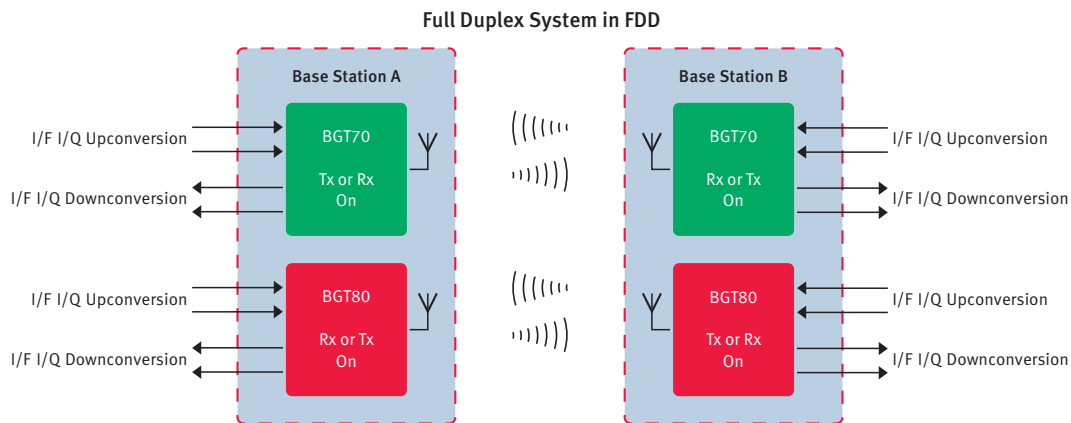
The Infineon business approach enables such a Gbit service with the latest technology. Thanks to Infineon’s advanced SiGe (Silicon Germanium) technology with a transit frequency of 200GHz, we can integrate all RF (Radio Frequency) building blocks – such as Power Amplifier (PA), Low Noise Amplifier (LNA), Mixer, Programmable Gain Amplifier (PGA), Voltage Controlled Oscillator (VCO) – into a single chip.

This technology is already proven and fully qualified for Infineon Millimeter and Microwave chipsets (e.g. 77GHz automotive radar).

Furthermore, Infineon houses this single-chip in a plastic package which makes a major difference to the market. Up to now, solutions have been bare die and require expensive tools and equipment to build up a radio system. With the Infineon packaged chipset, customers can save money and reduce the time-to-market significantly.

The E-band chipsets consists of a transceiver for 71–76GHz (BGT70) and a transceiver for 81–86GHz (BGT80), housed in an eWLB (6 x 6mm²) package.

E-Band FDD



Benefits

- Packaged solution, easy to use and standard SMT flow for mounting on customer system
- Highly integrated RF transceiver requiring no external RF discretes, thereby simplifying the customer design and time-to-market
- Architecture of Direct Conversion Zero IF eases interface to latest modem/BB designs (no external filter)
- A transceiver approach with implemented BIST (Built-In Self-Test) on the chip to enable RF testing at Infineon production
- Family concept (common architecture, package, pinning) simplifies customer designs due to modular approach

Two Transceiver Chips Solution

- BGT80 for the **High Band**, 81–86GHz
- BGT70 for the **Low Band**, 71–76GHz
- BGT70 have identical pinning and same footprint as BGT80
- Channel, Tx or Rx, selection via SPI
- Sufficient isolation between the two channels (70 and 80GHz)

Published by
Infineon Technologies AG
85579 Neubiberg, Germany

© 2013 Infineon Technologies AG.
All Rights Reserved.

Visit us:
www.infineon.com

Order Number: B132-H9767-G1-X-7600
Date: 08 / 2013

Attention please!

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office. Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.