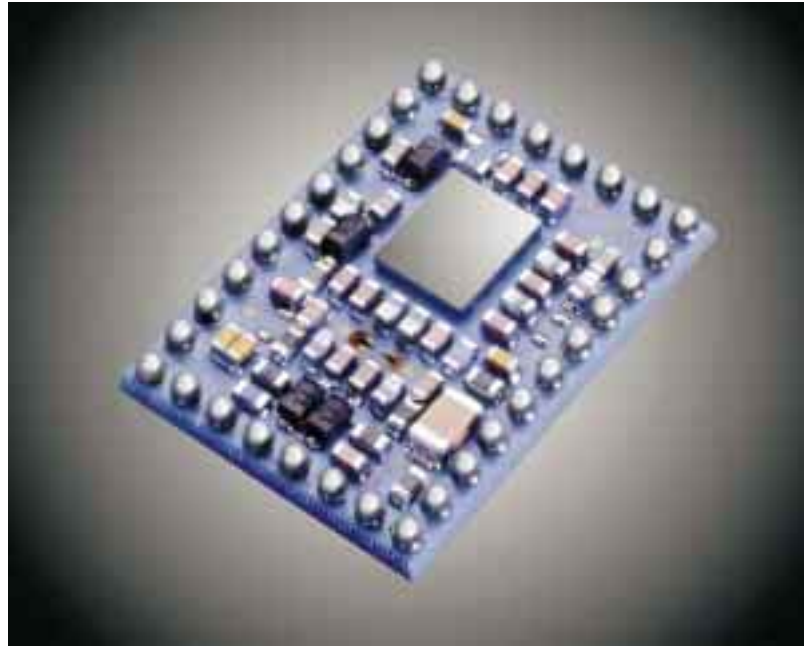


# Bluetooth™ Radio

## Key Features

- Complete Bluetooth function
- RF output power class 2 (1 mW), allowing the transceiver to communicate at distances of approx 10 m, in accordance with the Bluetooth standard
- Forms a complete radio with only:
  - an antenna
  - a reference frequency
- Small outline 34 Ceramic Ball Grid Array (CBGA) package (10.2 mm x 14.0 mm x 1.6 mm)
- Qualified to Bluetooth specification 1.1
- Requires no external shielding
- FCC and ETSI type approved at the Bluetooth module



## Description

The Bluetooth Radio from Ericsson Microelectronics (PBA 313 01) is a short-range microwave frequency radio transceiver for Bluetooth communication links.

Provided in a compact ceramic BGA package, the Bluetooth Radio is intended primarily for embedded applications and applications requiring a flexible form factor. No external shield is required due to the innovative self-shielding design. This solution enables extremely low height implementations.

With the addition of only an antenna, a 13 MHz reference frequency crystal, and digital control functionality, the PBA 313 01 forms a complete radio.

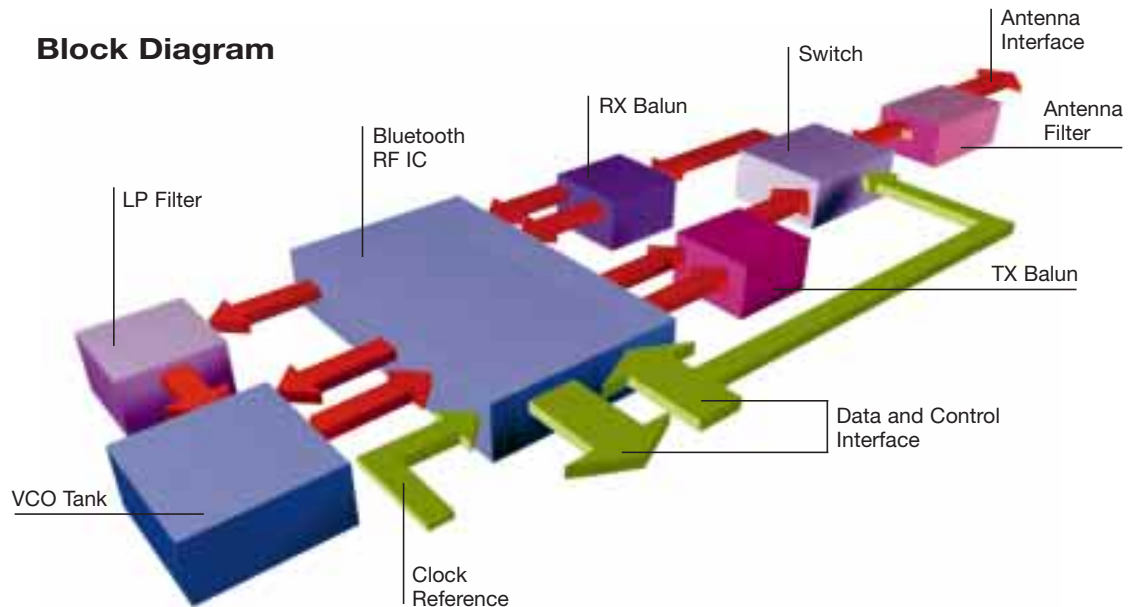
As a result, designers can avoid the hazard of building a discrete radio, with the resultant yield issues (due to the production of RF devices) in the final OEM application.

The Bluetooth Radio offers a combination of compact size, low power consumption, and cost effective assembly - with the 'flip chip' radio IC and some major components of the radio integrated into the ceramic carrier.

This makes it ideal for Bluetooth communications applications in mobile phones, modems, laptop computers and other portable equipment.

BLUETOOTH is a trademark owned by Telefonaktiebolaget L.M. Ericsson, Sweden.

## Block Diagram



## Hardware

**PBA 313 01** is a short-range microwave frequency radio transceiver for Bluetooth communication links that are designed to operate in the globally available unlicensed ISM frequency band, 2.4-2.5 GHz.

**Fast frequency hopping** (1600 channel hops/s) with 79 channels (2.402 to 2.480 GHz) and a maximum TX & RX bit rate of 1 Mbit/s.

**The implemented modulation technique** is Gaussian Frequency Shift Keying (GFSK) with a BT product of 0.5. The channel bandwidth is 1 MHz and the frequency deviation is between 140 and 175 kHz.

**The Bluetooth Radio** is built around a BiCMOS ASIC. Antenna filter, RX and TX baluns are all integrated into the ceramic carrier.

**Operating** from a 2.8 V supply voltage, the device has a typical supply current requirement of only 40 mA (receive mode) or 35 mA (transmit mode), thus helping to extend battery life for portable equipment. A standby mode provides further power savings.

## Control Interface

Operation together with a Bluetooth Baseband using the Ericsson Bluetooth Core is recommended.

## Antenna Interface

50 ohm Bluetooth ISM band antenna (2.4 -2.5 GHz)

## Bluetooth Wireless Technology

Bluetooth wireless technology is used for creating an open specification for short-range wireless connectivity. The technology allows users to make effortless, instant connections between a wide range of communication devices. Based on a radio link, facilitating fast and secure transmission of both voice and data, Bluetooth wireless technology operates in a globally available frequency band giving worldwide compatibility. Bluetooth is the global standard for wireless connectivity.

## Ordering Information

The Bluetooth Radio from Ericsson Microelectronics may be ordered as: PBA 313 01

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## Product Brief

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