KC Technology

KC 6101

Overview

All hosted Bluetooth application can benefit from the unique features of the KC6101 family of Bluetooth single-chip solutions. The low power and small form factor attributes of the KC6101 are ideal for the following applications

KC6101 is a family of complete Bluetooth single-chip solutions integrating a 2.4 GHz radio transceiver and the Bluetooth Baseband. Aiming to provide completely Bluetooth functionality in an ultra-small package, the KC6101 family of Bluethooth single-chip controllers is ideal for the latest Bluetooth applications in personal computing, telecommunication and consumer electronics. Constructed with the latest System-in-Package (SiP) technology, the KC6101 is a sophisticated yet cost-effective Bluetooth solution that offers the best of both **CMOS** and **BiCMOS** technologies in a single package. Combining the Baseband and Radio, each manufactured in process technologies best suited for its function and design, the KC6101 offers a compelling solution that addresses the key requirements of low power, low cost, and small footprint of any Bluetooth system.

- ❑ **Bluetooth**
- ❑ **Modules**

- ❑ **Personal Computers**

- ❑ **PC Add-ons**
  (USB dongles, PC cards, etc.)

- ❑ **PDAs**

- ❑ **Mobile Phones**

- ❑ **Printers**

- ❑ **Digital Cameras**

- ❑ **Access Points And Gateways**

Features

The Radio

- ❑ Qualified to Bluetooth Specification 1.1
- ❑ Integrated VCO, synthesizer, LNA, PA, and channel filters
- ❑ Class 2 and 3 (up to 10 meters) operation
- ❑ Greater than +2dBm RF output power
- ❑ Better than –80dBm RF sensitivity
- ❑ Crystal independent Fractional-N synthesizer
- ❑ Digital frequency error compensation
- ❑ RSSI RF output power control
- ❑ Supports Class 1 operation with external PA

The Baseband

- ❑ Qualified to Bluetooth Specification 1.1
- ❑ Supports all ACL and SCO packet types
- ❑ Maximum 723 Kbps data transfer rate
- ❑ Point-tomultipoint Piconet and Scatternet
- ❑ Built-in hardware CVSD audio codec
- ❑ PCM interface for external linear, A-Law and μ-Law codec
- ❑ Park, Sniff, and Hold modes
- ❑ Full-speed USB I/F at 12 Mbps
- ❑ 4-Wire UART I/F from 2.4 to 921 Kbps

KC
KC6101

RF µPAX
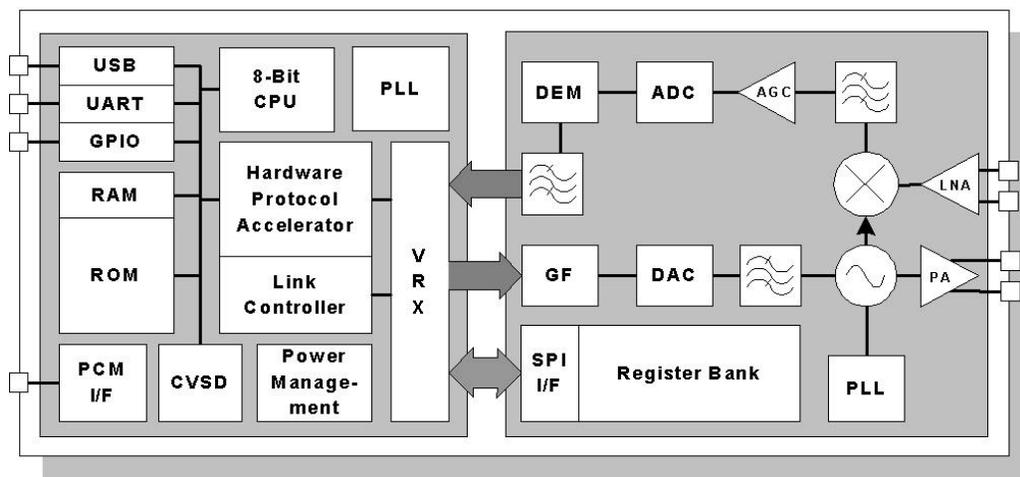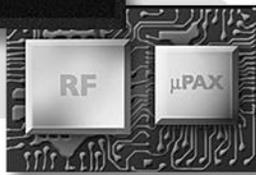
SiP

• System-in-Package Technology •

Fusion of Technologies - Constructed with the latest System-in-Package (SiP) technology, the KC6101 is a sophisticated, yet cost-effective Bluetooth solution that offers the best of both CMOS and BiCMOS technologies in a single package. Combining the Baseband and Radio, each manufactured in process technologies best suited for its function and design, the KC6101 offers a compelling solution that addresses the key requirement of low power, low cost and small foot print of any Bluetooth system.

Low Power
RF Die
µPAX
Baseband Die

Wirebonds
Molding Compound
Laminate Substrate
Via Solder Ball

Optimum Performance -
Overall superior performance is attributed to the inherent properties of CMOS and BiCMOS technologies. With the combination of CMOS Baseband and BiCMOS (SiGe or SOI) Radio, KC6101 achieves the lowest power consumption in the industry while maintaining the highest RF performance. Electrical performance enhancements come from the close proximity of dice within the package and the sophistication of substrate design. By placing the Baseband and Radio closer together on the same substrate, major improvements on timing skews and inductance can be achieved over individually packaged ICs. Spatial allocation and performance-tuned routing built into the multi-layer substrate further help the KC6101 in reducing crosstalk and interference while preserving signal integrity.
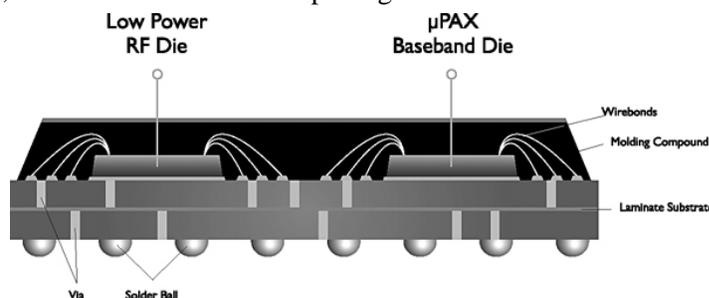
Low Cost Integration - SiP technology helps reducing the total cost of ownership in both manufacturing and design. The SiP process is based on existing high-volume high-yield, and low-cost assembly technologies that are widely available in the industry. All equipments and materials are industry standard that have been proven to produce consistent quality. To help reduce cost on system integration, SiP moves the signal routing complexity into the substrate of the KC6101, thus reducing high layer count and design complexity of the system board. Not only can system boards be signed smaller and manufactured economically, performace tuning and design changes can be made to the SiP without changing the system board.

Fast Time to Market - By fine-tuning the design and process of the Baseband and Radio in parallel, SiP does not suffer from the long development cycle and high cost associated with a SoC design. SiP gives KC6101 maximum design flexibility and faster revision cycle that directly translate to shorten time-to-market of our customers' products. With most of the complexity built into the substrate, KC6101 is an ideal solution for Bluetooth modules, it reduces the revision cycles of module design and accelerates production readiness.

KC
Technology

World Headquarters
1900 McCarthy Blvd., Suite 300
Milpitas, California 95035
Tel: 408-232-9828
Fax: 408-232-9829

Taiwan Branch
Suite 209, 4F, No.75, Sec 1
Hsin Tai Wu Rd.
Hsi-Chih
Taipei Hsien, Taiwan
Tel: 886-2-26982525
Fax: 886-2-26982851

www.kctechnologyinc.com

Bluetooth™