Bluetooth Module

Murata Electronics North America introduced Blue Module&#153, the world's smallest Bluetooth&#153 module. Developed using unique Low Temperature Co-Fired Ceramics (LTCC) technology, Murata integrates both active devices (IC's) and passive components onto a single surface mount ceramic chip that supports Universal Serial Bus (USB), Universal Asynchronous Receiver Transmitter (UART), and Pulse code Modulation (PCM) interfaces. The newest and most advanced wireless technology, Bluetooth allows electronic devices to communicate without wires or cables. Cellular phones, Personal Digital Assistants (PDAs), notebook and desktop PC's, wireless printers, mouses and keyboards all benefit from Murata's Bluetooth module.
To achieve the smallest Bluetooth module, the passive components and matching circuits are integrated within the substrate of the chip, making it both a carrier of the IC and a functional device. Traditionally, most design engineers place the IC in a Printed Circuit Board (PCB) and mount eh supporting passives, memory and matching elements. With Murata's product, all the components are already integrated into a single surface-mount ceramic chip. Aside from the benefit of a smaller size, reduced burden to the design engineer, and reduced inspection time, sourcing and inventory costs can be reduced because the all-in-one device eliminates the line item cost of managing several part numbers on a bill of materials.
In total, approximately 60 components are embedded in the 14.5 &#215 11.9 &#215 2.3 mm module &#151 including a RF/Baseband IC that is mounted in a cavity on the bottom surface of the substrate. Murata mounts a Power Amplifier (PA) to increase the output power and a Low Noise Amplifier (LNA) to improve sensitivity on the surface of the substrate as well. Additionally, there are several parts and functions that are integrated within the substrate such as Band Pass Filter, a Balun and other passives. Lastly, a switching diode, flash memory and crystal oscillator pieces are arranged on the substrate.

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