STMicroelectronics Applies Advanced Miniaturization Expertise for Better 4G Smartphone Experiences

Tiny antenna-sharing IC enables sleeker designs offering best and fastest GPS performance

STMicroelectronics has revealed a highly miniaturized IC for 4G smartphones for even more attractively sized designs offering high GPS performance.

By design, 4G smartphones will use multiple cellular connections to deliver mobile broadband services at speeds of more than 100 Mbps. With Bluetooth, Wi-Fi and GPS also built in, some of the handset's receivers must share an antenna to save space. ST has used its advanced packaging expertise to create a tiny 1.14 mm2 antenna-sharing IC, the DIP1524, capable of delivering high signal strength to several RF receivers simultaneously.

Achieving such an efficient antenna connection is especially important for handset GPS functionality, since the received satellite signals are relatively weak. Users of smartphones featuring the DIP1524 will experience advantages including faster GPS startup time (time to first fix), more accurate position detection and, as a result, even more reliable location-based services that benefit from strong connections to several satellites.

The DIP1524 diplexer utilizes ST's Integrated Passive Device (IPD) technology, fabricated on a glass substrate that minimizes insertion losses compared to the ceramic substrates used by other manufacturers. Its flip-chip package has a footprint the same size as the chip itself, thereby occupying 65% less pc-board area than competing devices in conventional packages with a total footprint larger than 3 mm2. The DIP1524 enables handset designers to connect receivers for GPS/GLONASS satellites, Bluetooth, Wi-Fi and LTE band 7 to the same antenna.

Major features of DIP1524:
• GPS insertion loss: 0.65 dB (max.)
• GLONASS insertion loss: 0.75 dB (max.)
• Zero performance drift
• High channel isolation
• No value dispersion between components

The DIP1524-01D3 is sampling now in a 4-bump flip-chip package, and will be available in high volumes priced from $0.129 for orders over 1000 pieces. Alternative higher-volume pricing options are available on request.

For more information, please visit www.st.com [1].

Posted by Ron M. Seidel, Editorial Intern

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