AD20msp400-HF HANDSFREE CHIPSET

Analog Devices' AD20msp400-HF Handsfree Chipset offers state-of-the-art handsfree performance for all digital mobile phones.

HIGH-PERFORMANCE FULL-DUPLEX SOLUTION CUTS DESIGN TIME AND COST

The AD20msp400-HF Handsfree Chipset offers a complete, cost-effective solution for in-car noise and echo cancellation during mobile phone use.

Designed for digital cellular systems such as GSM, PCS1900, CDMA and PDC, this algorithm-specific mixed signal processing chipset is optimized to meet the exacting performance, size and power requirements of mobile applications. It interoperates smoothly with all digital mobile phones — including those using Analog Devices' industry-leading AD20msp4xx series of baseband processing chipsets.

Pairing an application-specific digital signal processor with a single-chip audio codec, the AD20msp400-HF implements advanced echo cancellation for full-duplex conversation, and advanced noise suppression for maximum near-end to far-end speech quality.

The chipset comes complete with performance-proven software and a time-saving, work-saving Evaluation Kit.

FEATURES

- Comprehensive handsfree solution — includes algorithm signal processor (ASP) and codec, plus proven software
- Market-leading performance — full-duplex capabilities; echo cancellation to 50 dB; noise suppression to 15 dB
- Reduces design and manufacturing costs — comes ready to run with Analog Devices' AD20msp4xx GSM chipsets; minimal external componentry required
- Extended battery life — intelligent power-down features; low power consumption
- Compact design — small overall form factor for mobile applications
- Support from Analog Devices — includes Evaluation Kit to help shorten time-to-market

CUTTING-EDGE IN-CAR CAPABILITIES

The AD20msp400-HF tightly couples Analog Devices' ADSP-2176 application-specific algorithm signal processor and AD1845 dual audio codec. A 4-kbit serial EEPROM provides for storage of calibration data.

ROM-coded firmware enables full-duplex handsfree conversation; acoustic echo cancellation by up to 50 dB; noise cancellation by up to 15 dB; and optional line signal switching for damping echoes on analog phone systems.

The AD20msp400-HF efficiently removes acoustic coupling from the loudspeaker to the microphone, as well as minimizing residual echo reflections emanating from the car cabin.

Static noise signals from the car environment (e.g., engine and wind noise) are canceled without significant degradation of the car-cabin speech signal. The noise cancellation algorithm is adaptive. The echo canceler needs to be calibrated only once (for 5 seconds) after installation.

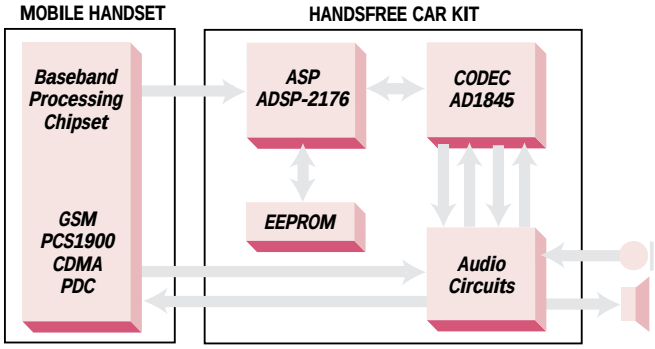
The AD20msp400-HF operates from a single low-power supply. Intelligent power-down features prolong battery life.

COMPLEMENTS ANALOG DEVICES' LEADING-EDGE GSM HANDSET SOLUTIONS

Built for fast, easy design-in, the AD20msp400-HF is readily interfaced with Analog Devices' AD20msp4xx family of GSM baseband processing chipsets.

All family members — including the new AD20msp415 — are built on the same system architecture and support the same software as the Type-Approved AD20msp410.

AD20msp400-HF Handsfree Chipset System Diagram



COMPLETE EVALUATION KIT

The AD20msp400-HF Evaluation Kit helps accelerate time-to-market by giving designers advanced understanding of chipset functions and performance.

The kit features an evaluation board that combines all components and algorithms required to evaluate and demonstrate the chipset. Also included are a full set of reference schematics and layout plots.

ANALOG DEVICES IN COMMUNICATIONS

Analog Devices is committed to supplying the communications industry with the highest-performance solutions at the lowest possible cost. We meet the needs of today's broadband wired and wireless markets with leadership capabilities in analog, digital and mixed-signal processing, RF signal processing, data conversion, interfaces and total system design.

THE AD20msp400-HF CHIPSET IS COMPRISED OF:

- ADSP-2176 Algorithm Signal Processor (ASP)

The ADSP-2176 is an application-specific digital signal processor (DSP) optimized for digital cellular applications. It implements the complete handsfree algorithm. All memory needed to run the algorithm resides on-chip; the only external memory required is a 4-kbit serial EEPROM for calibration data storage. The ADSP-2176 is delivered fully preprogrammed (ROM-coded); no user programming is required. It is packaged in a 100-lead Thin Quad Plastic Flatpack (TQFP).

- AD1845 Dual Audio Codec

The AD1845 is a highly integrated single-chip codec that includes stereo audio converters; complete on-chip filtering; analog mixing; programmable gain, attenuation and mute; a variable sample frequency generator; and FIFOs. Advanced power-down modes are supported. The codec is packaged in a 68-lead PLCC or 100-lead TQFP.

- Software

The chipset comes with all software necessary for executing its advanced functionality; no further software development is required.