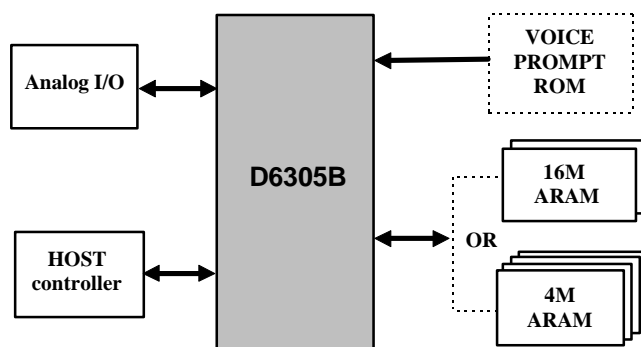# D6305B

## EASYTAD™ Chip for an All- Digital Telephone Answering Machine



**Figure 1. D6305B Block Diagram**

The D6305B chip is a digital speech/signal processing subsystem that implements all of the functions of speech compression, telephone line signal processing, memory management, and TRUESPEECH® natural sounding voice prompting for an all digital answering machine. The D6305B is fully controlled by the system host through a simple interface protocol. The host controller provides activation and control of all system functions such as speech recording and playback, DTMF and tone generation, DTMF and call progress tone detection, and voice prompting.

The fully digital solution has no moving parts, yielding high reliability. The chip's programmability enables a full range of answering device features for the end user. The D6305B is a single-chip, digital signal processor that includes all of the necessary circuitry to interface with an external HOST, memory, and an analog front end.

## FEATURES

- High-quality, variable low rate TRUESPEECH® digital speech compression allowing 14-15 minutes of recording time per each 4 MB ARAM (Audio grade DRAM)
- Flexible storage of incoming messages (ICM) and outgoing messages (OGM). Supports multiple OGMs and multiple mailboxes
- TRUESPEECH® natural-sound voice prompting, for Day/Time stamp and voice instructions
- DTMF generation and detection with near-end echo cancellation for superior performance
- Fully backwards compatible with D6305A. Host software compatible, pin-to-pin replaceable

- Uses more relaxed ARAM specifications (standard ARAM)
- Will work with 1M x 4 (4MB) or 4M x 4 (16 MB) ARAMs
- Supports "offset playback" for jumps within a message
- Programmable Tone Generation and Tone Generation from tables
- 8-bit parallel HOST interface
- Storage of 32 telephone numbers for speed dialing
- Low power consumption
- Special commands for production line testing

# EASYTAD - D6305B Product Overview

## CHIP CONFIGURATION

- D6305B-11 Digital Speech Processor (80-pin PQFP)
  - 1 each

## ADDITIONAL SYSTEM COMPONENTS
**(supplied by the customer according to DSP Group's specifications)**

- D0000-29 Analog I/O Interface (16-pin DIP)
  - 1 each
- D0000-35B 4-MB ARAM Message Memory (SOJ)   or   D0000-36B 16-MB ARAM
  - Up to four devices per chipset                    - Up to two devices per chipset

## NOTES

For Voice Prompt storage an external EPROM/ROM (access time of 400ns or less) is required.  Each 16K x 8 block will support 19.5 seconds of voice prompt, up to 64K x 8 (for up to 78 seconds of voice prompt).

| TECHNICAL SPECIFICATIONS | | | |
|---|---|---|---|
| **PARAMETERS** | **MIN/TYP/MAX** | **DATA** | **COMMENTS** |
| Voice Bandwidth | | 300-3,400 Hz | |
| Voice Recording Time | typical | 15 - 17 minutes | 4 MB of ARAM storage |
| DTMF Detection | | | |
| Signal Level | minimum | -35 dB * | |
| Accept Duration | minimum | 40 ms | |
| Reject Duration | maximum | 23 ms | |
| VOX Detection Level | minimum | -37 dB * | |
| VCC Supply | | 5V±10% | |
| ICC Supply Current, Operating Mode | typ | 45 mA | |
| Power Down Mode | typ | 3.5 mA | |
| Operating Temperature Range | | 0° C to 70° C | |
| Crystal | typical | 29.4912 MHz | |
| Package | | 80-pin PQFP | |

* $0.707 \text{ V}_{RMS}$ is defined as the 0 dB0

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