

HD81803

ADPCM Transcoder Conforming to G.721

Description

The HD81803 is a single-chip ADPCM (Adaptive Differential Pulse Code Modulation) Transcoder conforming to the CCITT Recommendation G.721. It can compress and expand voice data by ADPCM transcoding, and is suitable for high-quality voice recording and playback systems. Applications include ISDN services, voice mail, and private broadcasting.

Converting data from PCM code to ADPCM code reduces the memory needed to store voice data by half the size. Also, since the HD81803 conforms to G.721, it can be used in ISDN line terminal equipment.

The HD81803 can be directly connected to a PCM CODEC, and can convert a 64-kbits/s μ -law or A-law PCM channel to and from a 32-kbits/s ADPCM channel.

Features

- Full conformity with CCITT Recommendation G.721
- ADPCM transcoding ensures speech data accuracy
- 64-kbits/s channel can be compressed to 32 kbits/s (Half-Duplex)
- Serial or parallel input/output
- Parallel input/output allows digital sequence tests specified by the CCITT
- Parallel input/output width can be selected as 4, 8, or 16 bits (suitable for a 125-, 250-, or 500- μ s microprocessor I/O cycle)
- Through functions are available to input/output specific waveforms without ADPCM transcoding
- A-law or μ -law PCM can be input/output
- Direct connection to a PCM CODEC is possible
- Built-in interface for 8- and 16-bit microprocessors
- Operating mode can be controlled by microprocessor
- +5 V power supply

HD81803

Data Flow Format

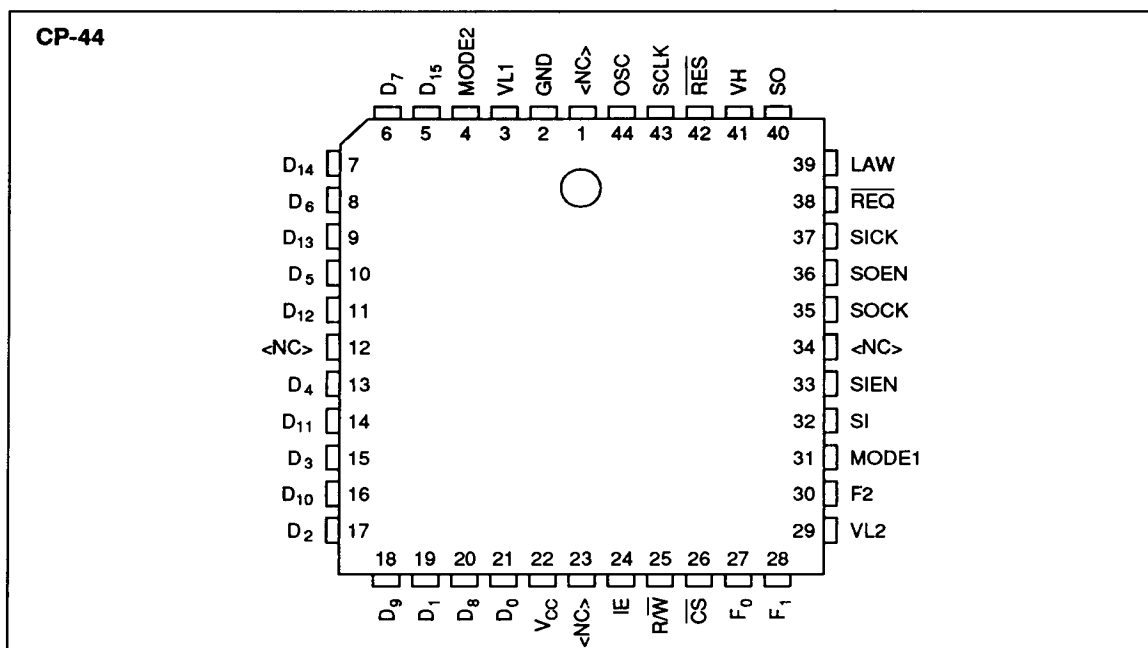
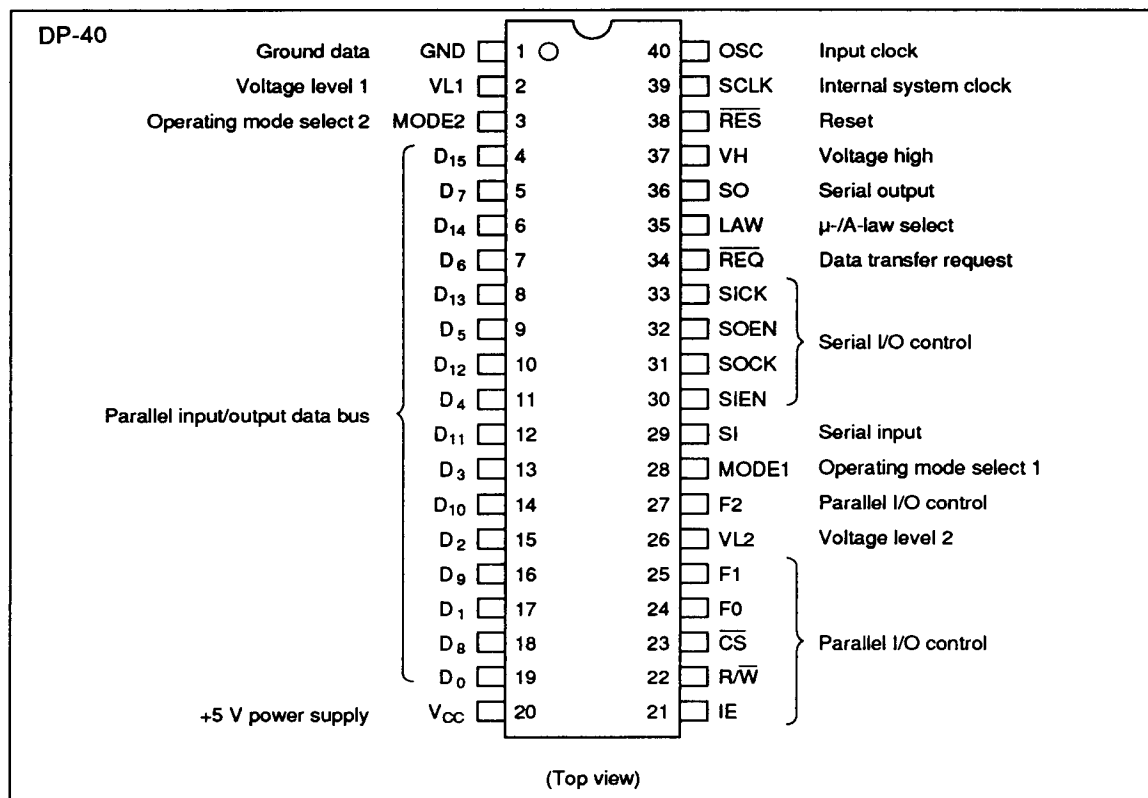
	PCM Data	ADPCM Data
Encoder	Serial input	Serial or parallel output
Decoder	Serial or parallel output	Serial or parallel input

(Through and test functions are not included.)

Specifications

Item	Description
Coding process	CCITT recommendation G.721 ADPCM
Sampling frequency	8 kHz
Code length	4 bits
Data rate	32 kbits/sec
Serial interface (PCM CODEC interface)	1. μ -law PCM CODEC (ex. HD44238P/HD44278P)
	2. A-law PCM CODEC (ex. HD44237P/HD44277P)
Parallel interface (microprocessor interface)	1. 8-bit microprocessor
	2. 16-bit microprocessor
Supplementary functions	1. Serial communication
	2. High-quality waveform input/output (through function)
	3. Digital sequence test (CCITT Recommendation G.721)
Fabrication process	CMOS 1.3 μ m
Power dissipation	150 mW (typ)
Power supply voltage	+5 V
Package	40-pin plastic DIP, 44-pin PLCC

Pin Arrangement

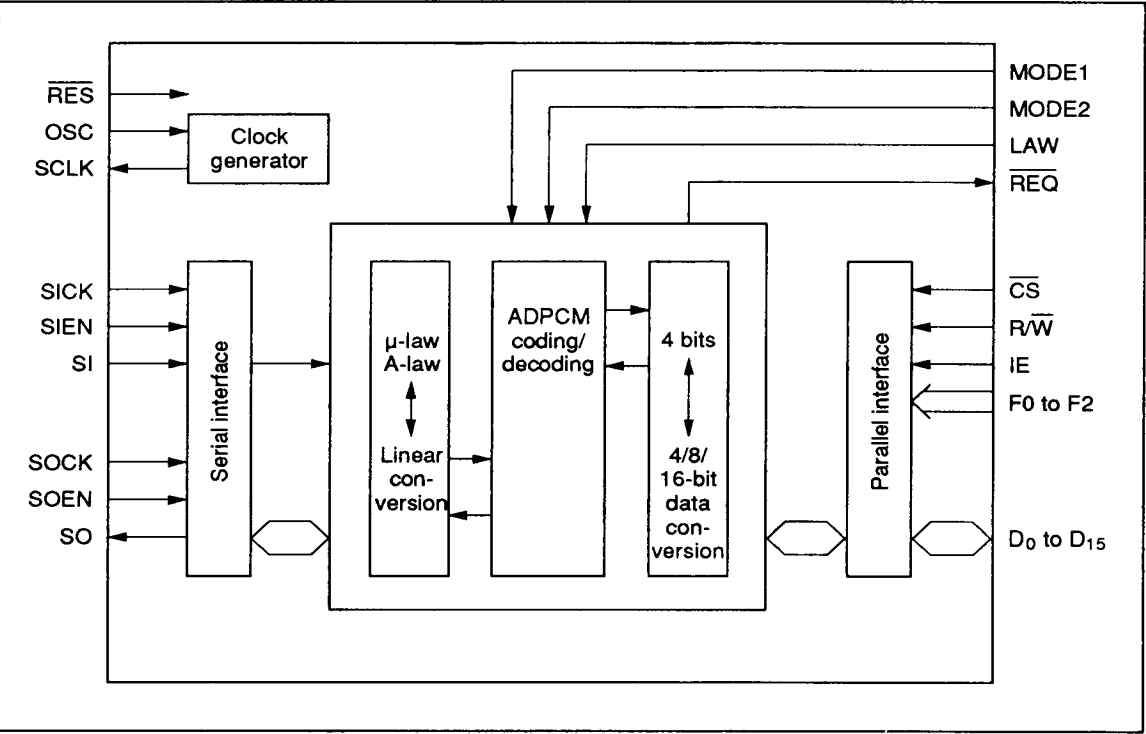


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Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Operating temperature	T_{opr}	-20	—	+75	°C	
Supply voltage	V_{CC}	4.75	5.0	5.25	V	
Input low voltage	V_{IL}	-0.3	—	0.8	V	
Input high voltage 1	V_{IH1}	2.2	—	$V_{CC} + 0.3$	V	
Input high voltage 2	V_{IH2}	2.4	—	$V_{CC} + 0.3$	V	Clock (OSC) pin
Clock (OSC) cycle time	ϕ_{cyc}	30.0	31.25	32.0	ns	
Current dissipation	I_{CC}	—	30.0	100	mA	

Block Diagram



Sample of System Composition

