

HD81805

Dual Tone Multi-Frequency (DTMF) Receiver LSI

HD81805 is a CMOS single-chip digital signal processing LSI which has 4 channels pushbutton (DTMF)/dial tone (DT) receiver for PABX, Center and Terminal. Each 4 channel is selected DTMF or DT receiver by command independently.

Operation characteristics parameters are programmable for supporting each country administrations. Serial interface can be connected A-law/ μ -law PCM CODEC directly. 8 bit parallel I/F can be used for data input also.

Current analog systems can be replaced to full digital systems with smaller board size and lower price by this HD81805.

Features

- High reliability by full digital signal processing
- 4 channels pushbutton (DTMF)/dial tone (DT) receiver selected independently
- Center to End mode/End to End mode (EE)
- Operation characteristics parameters (operation signal levels, signal reception timing, and so on) are programmable
- 2 type of output data logic format
- Early steering flag is supported
- Serial interface for connecting to A-law/ μ -law PCM CODEC directly
- 8 bit microcomputer interface for parallel data input

Specifications

1. DTMF Receiver

PB(DTMF) receiver (Signal frequency low group; 697, 770, 852, 941 Hz High group; 1209, 1336, 1477, 1633 Hz)

Item	Description	
	Exchange	Terminal EE
Input sensitivity level	-3 to -24 dBm0/monotone*	-3 to -42 dBm0/monotone*
Input insensitivity level	≤ -29 dBm0/monotone*	≤ -50 dBm0/monotone*
Dial tone suppression (340 to 450 Hz)	-34 dB (Typ)	-43 dB (Typ)
Sensitive band	DTMF center frequency ±1.8%	
Dead band	DTMF center frequency ±3.0%	
Twist characteristic	±10 dB (Typ)*	
Guard time	38 ms*	

*: Modifiable by command

Note: Echo canceling is operative in terminal EE mode.

2. DT Receiver

DT (Dial Tone) Receiver (Signal frequency 300 to 480 Hz)

Item	Description
Input sensitivity level	0 to -45 dBm0*
Input insensitivity level	≥ 3 dBm0, ≤ -55 dBm0*
Sensitive band	300 to 480 Hz
Dead band	≤200 Hz, ≥540 Hz
Sensitive-band/dead-band signal ratio (S/N)	6 dB (Typ)*
Input signal level output	Output encoded in 5-dB steps
Guard time	30 ms*

*: Modifiable by command

Functional Summary

Item	Description	
Sampling frequency	8 kHz	
Input data format	8 bit A-law/μ-law PCM CODEC data format	
Serial interface (CODEC)	Connected to A-law/μ-law PCM CODEC directly	
Parallel interface (MPU)	8 bit MPU	
Process	CMOS 1.3 μm	
Power dissipation	150 mW (Typ) (Unloaded output)	
Power supply voltage	+5 V ±5%	
Others	DTMF receiver	2 type output data logic formats, early steering flag
	DT receiver	Output level of input signal, early steering flag

Block Diagram

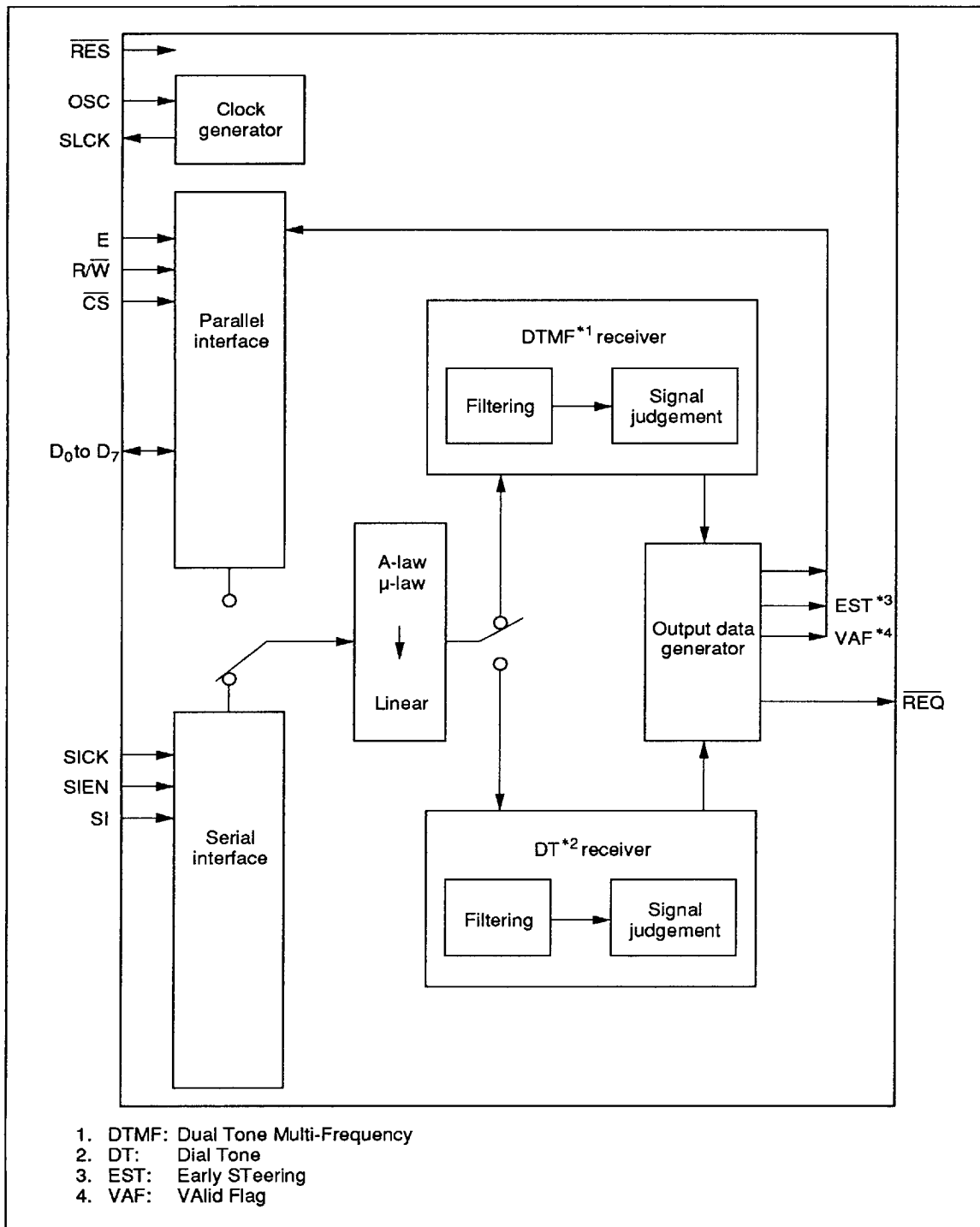


Figure 1 HD81805 Functional Block Diagram (single channel)

Functional Flow

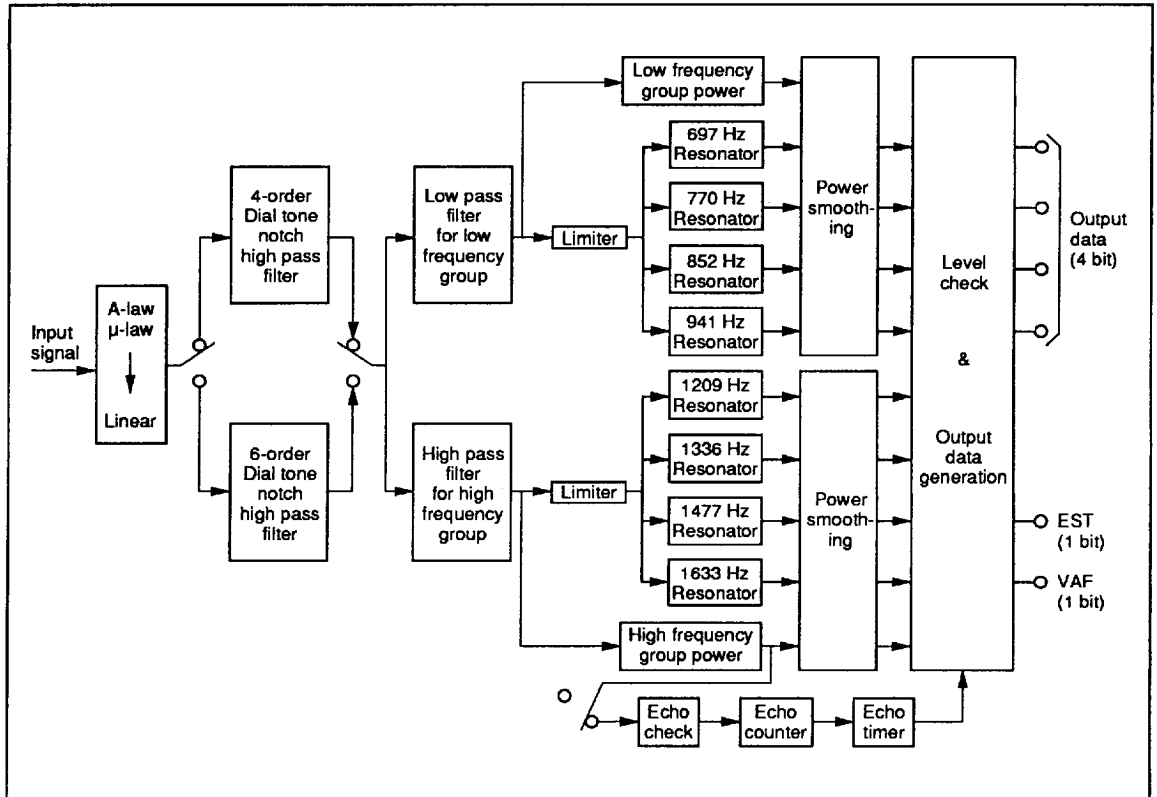


Figure 2 DTMF Receiver Functional Flow (one channel)

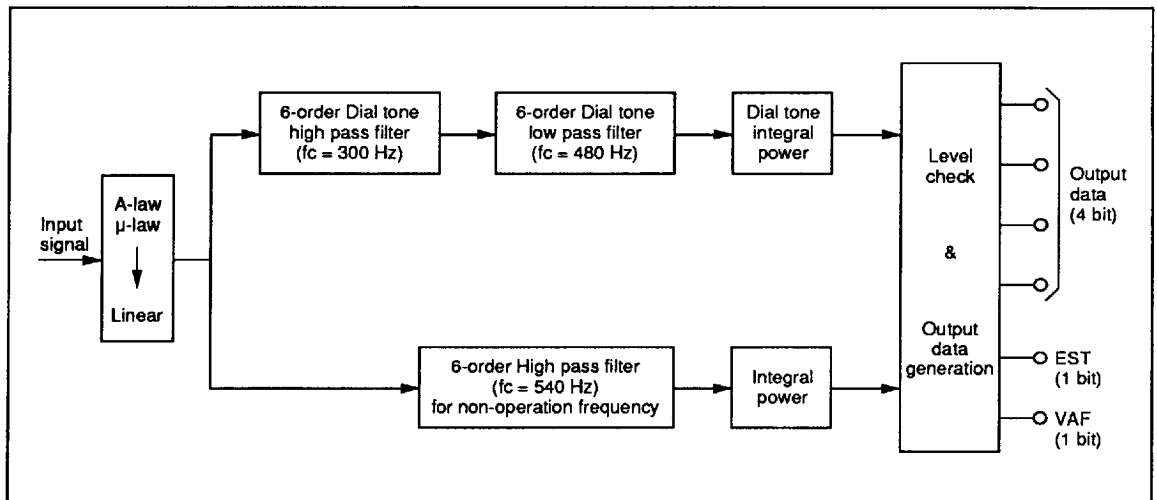


Figure 3 DT Receiver Functional Flow (one channel)