

# HD6 1885 Speech Synthesiser Specifications

Hitachi have produced a speech synthesiser chip which in its stand alone mode only requires sufficient external electronics to drive a speaker.

## ■ FEATURES

- (1) Selectable bit rates : (1.25~9.9kbit/sec.)
- (2) Utterance duration : 26sec. max.
- (3) Utterance words : 63 words max.
- (4) Expansion : Utterance duration and words can be expanded easily by the addition of external ROM(HD44881).  
Adding one ROM makes utterance duration 100sec. max.  
(Expansion of words is not specified.)  
A max. of 16 ROM's can be connected.
- (5) Variable utterance speed : -25%, 0%, +25%.  
(Selectable double or half speed mode.)  
(This is determined when speech is analyzed.)
- (6) Low power dissipation by using CMOS process.  
Stand-by mode is available.
- (7) Single 5V power supply operation.  
(Operation range is min. 3.6V.)
- (8) Outline  
DILP - 28 (HD61885)  
FPP - 44 (HD61886)

The higher the bit rate the better the quality of speech.

Higher bit rates mean more memory per word spoken.

Therefore, the higher the speech quality the lower the word capacity.

## ■ SYSTEM SPECIFICATION

Description	Specifications
Process type	PARCOR
Vocal path model	10-step digital filter
Sampling frequency	10kHz
Bit rate	1.25 ~ 9.9k-bit/sec.
Bit/frame	50-bit/99-bit
Frame cycle	10ms/20ms

### Maximum Ratings

Description	Symbol	Rating	Unit	Remarks
Supply voltage	$V_{CC}$	-0.3 ~ +6.7	V	
Terminal voltage	$V_T$	-0.3 ~ $V_{CC} + 0.3$	V	
Operating temperature (1)	$T_{opr1}$	-20 ~ +75	°C	Vocalizable range
Operating temperature (2)	$T_{opr2}$	-10 ~ +55	°C	CPG $\pm$ 3% guaranteed

### Electric Characteristics ( $T_a = -20 \sim +75^\circ\text{C}$ , $V_{CC} = +5V \pm 10\%$ )

Description	Symbol	Test Condition	min	typ	max	Unit	Remarks
Input voltage	$V_{IH1}$		$V_{CC} - 1.0$	—	—	V	
	$V_{IL1}$		—	—	1.0	V	
	$V_{IH2}$		$V_{CC} - 1.0$	—	—	V	
	$V_{IL2}$		—	—	1.0	V	
Pull up MOS	$I_{PULL}$	$V_{IN} = V_{CC}$	30	—	100	$\mu\text{A}$	RST, TEST
		$V_{IN} = \text{GND}$	30	—	100	$\mu\text{A}$	ROMA1~4, ACS, PS1~PS6
Output voltage	$V_{OL}$	$I_{OL} = 1.6\text{mA}$	—	—	0.8	V	Output other than DAO
	$V_{OH1}$	$I_{OH} = 1.0\text{mA}$	2.4	—	—	V	Output other than DAO
	$V_{OH2}$	$I_{OH} = 0.1\text{mA}$	$V_{CC} - 0.8$	—	—	V	Output other than DAO
Signal generating clock frequency	$f_{CP}$	CPA terminal	194	200	206	kHz	$T_a = -10 \sim +55^\circ\text{C}$
Input leakage current	$\pm I_{IN}$	$V_{IN} = 0 \sim V_{CC}$	—	—	1	$\mu\text{A}$	Pull-up-free terminal
D/A output voltage	$V_{OS}$	$R_L = 50\Omega$	0.25	0.5	—	V <sub>p-p</sub>	
Power consumption	$P_d$		—	2.5	—	mW	Excluding consumption at D/A
Standby current	$I_{SC}$		—	—	10	$\mu\text{A}$	STRT = BUSD = $V_{CC} - 0.2V$