HOLTEK

Preliminary

HT82T20
Clock Buffer

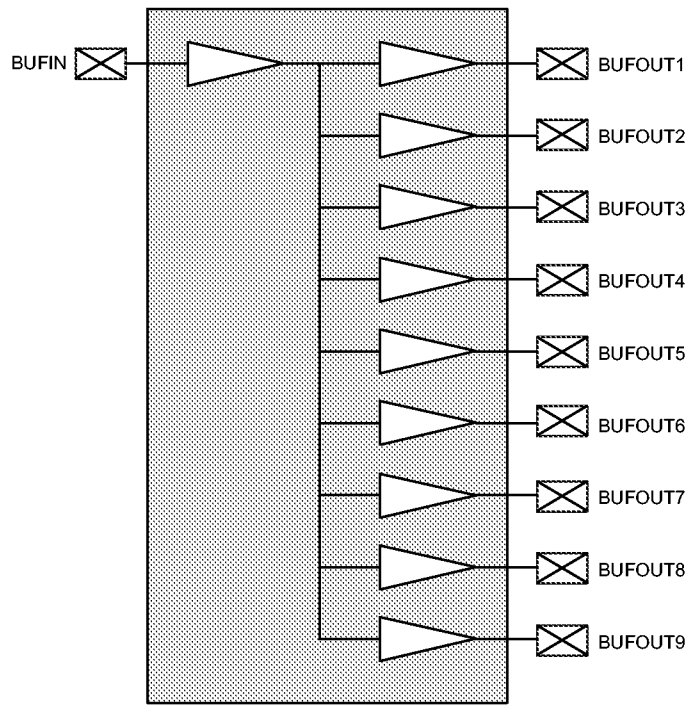
Features

- Operating voltage 3.6V~3V
- Single input to nine output buffer/driver
- 4ns Input-Output delay
- Buffer all frequencies from DC to 150MHz
- Output-output skew less than 250ps
- Output rise/fall time 1.5ns @60pf loading
- 20-pin SOP package

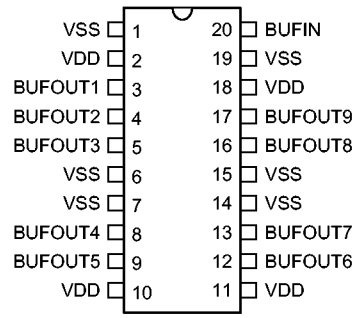
General Description

The HT82T20 is a low-cost SDRAM buffer designed to distribute high speed clocks in PC systems, with SDRAM support.

Block Diagram



Pin Assignment



HT82T20
– 20 SOP

Pin Description

Pin No.	Pin Name	Description
2,10,11,18	VDD	3.3V digital voltage supply
1,6,7,14,15,19	VSS	Ground
20	BUFIN	Clock input
3,4,5,8,9,12,13,16,17	BUFOUT[1:9]	Clock outputs

Absolute Maximum Ratings

Supply Voltage.....–0.5V to +7.0V
Input Voltage .....VSS-0.5V to VDD+ 0.5V
Storage Temperature .....–65°C to +150°C
Operating Temperature .....0°C to 70°C

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

D.C. Characteristics

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
V_{IH}	Input High Voltage	3.3V	Freq.=DC–150MHz	2	—	—	V
V_{IL}	Input Low Voltage	3.3V	Freq.=DC–150MHz	—	—	0.8	V
I_{DD}	Supply Current	3.3V	C_load=60pF at 66.8MHz	—	140	—	mA
V_{OL}	Output Low Voltage	3.3V	I_{OL}=2mA	—	0.4	—	V
V_{OH}	Output High Voltage	3.3V	I_{OH}=–2mA	—	2.9	—	V
VDD	Power	—	—	3	—	3.7	V

A.C. Characteristics

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
t_r	Output Rise Time	3.3V	@ input rise/fall time (between 0.8V and 2.0V) =1ns & C_load=60pF	—	—	1.5	ns
t_f	Output Fall Time	3.3V		—	—	1.5	ns
t_{PD}	Propagation Delay	3.3V		—	—	4	ns
t_{SK}	Output-output Skew	3.3V		—	—	250	ps
d_t	Duty Cycle	3.3V		40	—	60	%

Functional Description

The HT82T20 has nine outputs, eight of which can be used to drive 2 DIMMs or 4 SO-DIMMs, and the remaining can be used for external feedback to a PLL. The device operates at 3.3V and outputs can run up to 150MHz.

Timing Diagrams