

Recommended Operating Conditions

SYMBOL	PARAMETER		MIN	NOM	MAX	UNIT
V _{CC}	Supply voltage	54	4.5	5	5.5	V
		74	4.75	5	5.25	
I _{OH}	High-level output current	54, 74			-400	μA
I _{OL}	Low-level output current	54			4	mA
		74			8	
T _A	Operating free-air temperature	54	-55		125	°C
		74	0		70	

Electrical Characteristics over recommended operating free-air temperature range (unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP (Note 1)	MAX	UNIT	
V _{IH}	High-level input voltage		2			V	
V _{IL}	Low-level input voltage		54		0.7	V	
			74		0.8		
V _{IK}	Input clamp voltage	V _{CC} =Min, I _I =-18mA			-1.5	V	
V _{OH}	High-level output voltage	V _{CC} =Min, V _{IL} =Max	54	2.5	3.4	V	
		I _{OH} =Max, V _{IH} =Min	74	2.7	3.4		
V _{OL}	Low-level output voltage	V _{CC} =Min, I _{OL} =4mA	54, 74	0.25	0.4	V	
		V _{IH} =Min, I _{OL} =8mA	74	0.35	0.5		
I _I	Input current at maximum input voltage	V _{CC} =Max, V _I =7V			0.1	mA	
I _{IH}	High-level input current	V _{CC} =Max, V _I =2.7V			20	μA	
I _{IL}	Low-level input current	V _{CC} =Max, V _I =0.4V			-0.4	mA	
I _{OS}	Short-circuit output current	V _{CC} =Max (Note 2)	-20		-100	μA	
I _{CCH}	Supply current	Total with outputs high	V _{CC} =Max		0.8	1.6	mA
I _{CCL}		Total with outputs low	V _{CC} =Max		2.4	4.4	mA

Note 1 All typical values are at V_{CC}=5V, T_A=25°C

Note 2 Not more than one output should be shorted at a time and the duration should not exceed one second

Switching Characteristics, V_{CC}=5V, T_A=25°C

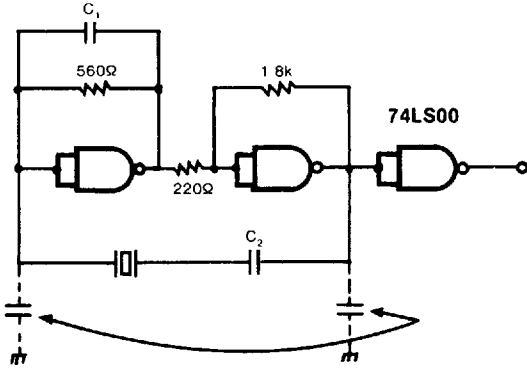
SYMBOL	PARAMETER	TEST CONDITION#	MIN	TYP	MAX	UNIT
t _{PLH}	Propagation delay time, low-to-high-level output	C _L =15pF, R _L =2kΩ		9	15	ns
t _{PHL}	Propagation delay time, high-to-low-level output			10	15	ns

#For load circuit and voltage waveforms, see page 3.11

Application Example

Crystal Clock Generator

(1) GD74LS00



Frequency (MHz)	C ₁ (pF)	C ₂ (pF)
1~ 3	47	24
3~ 4	47	22
4~ 6	22	24
6~ 8	22	22
8~10	10	20
10~13	0	20
13~16	0	18

(2) GD74LS04

