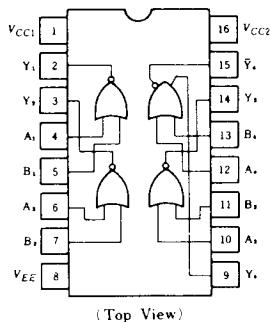


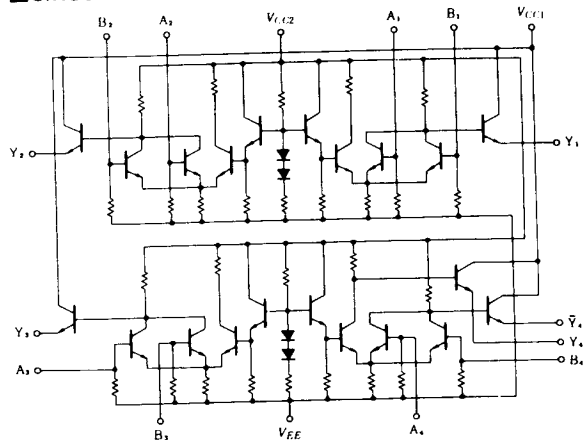
HD10102

Quadruple 2-input NOR Gates

■PIN ARRANGEMENT



■CIRCUIT SCHEMATIC



■DC CHARACTERISTICS ($V_{EE} = -5.2V$, $T_a = -30 \sim +85^\circ C$)

Item	Symbol	Test Condition	min	typ	max	Unit	
Supply Current	I_{EE}	25°C	—	20	26	mA	
Input Current	I_{IH}	$V_{IH} = -0.810V$	25°C	—	265	μA	
	I_{IL}	$V_{IL} = -1.850V$	25°C	0.5	—	μA	
Output Voltage	V_{OH}	$V_{IH} = -0.890V$ or $V_{IL} = -1.890V$	-30°C	-1.060	—	-0.890	V
		$V_{IH} = -0.810V$ or $V_{IL} = -1.850V$	25°C	-0.960	—	-0.810	
		$V_{IH} = -0.700V$ or $V_{IL} = -1.825V$	85°C	-0.890	—	-0.700	
	V_{OL}	$V_{IL} = -1.890V$ or $V_{IH} = -0.890V$	-30°C	-1.890	—	-1.675	V
		$V_{IL} = -1.850V$ or $V_{IH} = -0.810V$	25°C	-1.850	—	-1.650	
		$V_{IL} = -1.825V$ or $V_{IH} = -0.700V$	85°C	-1.825	—	-1.615	
Output Threshold Voltage	V_{OHA}	$V_{IHA} = -1.205V$ or $V_{ILA} = -1.500V$	-30°C	-1.080	—	—	V
		$V_{IHA} = -1.105V$ or $V_{ILA} = -1.475V$	25°C	-0.980	—	—	
		$V_{IHA} = -1.035V$ or $V_{ILA} = -1.440V$	85°C	-0.910	—	—	
	V_{OLA}	$V_{ILA} = -1.500V$ or $V_{IHA} = -1.205V$	-30°C	—	—	-1.655	V
		$V_{ILA} = -1.475V$ or $V_{IHA} = -1.105V$	25°C	—	—	-1.630	
		$V_{ILA} = -1.440V$ or $V_{IHA} = -1.035V$	85°C	—	—	-1.595	

■AC CHARACTERISTICS ($V_{EE} = -3.2V$, $V_{CC} = +2.0V$, $T_a = -30 \sim +85^\circ C$)

TAC CHARACTERISTICS ($V_{EE} = -3.2V$, $V_{CC} = +2.0V$, $I_A = 50\mu A$, $f = 1000Hz$)							
Item	Symbol	Test Condition		min	typ	max	Unit
Propagation Delay Time	t_{PLH}	$R_L = 50\Omega$	-30°C	1.0	—	3.1	ns
			25°C	1.0	2.0	2.9	
			85°C	1.0	—	3.3	
	t_{PHL}		-30°C	1.0	—	3.1	ns
			25°C	1.0	2.0	2.9	
			85°C	1.0	—	3.3	
Rise/Fall Time	t_{TLH}		-30°C	1.1	—	3.6	ns
			25°C	1.1	2.0	3.3	
			85°C	1.1	—	3.7	
	t_{THL}		-30°C	1.1	—	3.6	ns
			25°C	1.1	2.0	3.3	
			85°C	1.1	—	3.7	

Note: Please refer to test circuit and waveform of common item.

