

MM54HC4075/MM74HC4075 Triple 3-Input OR Gate

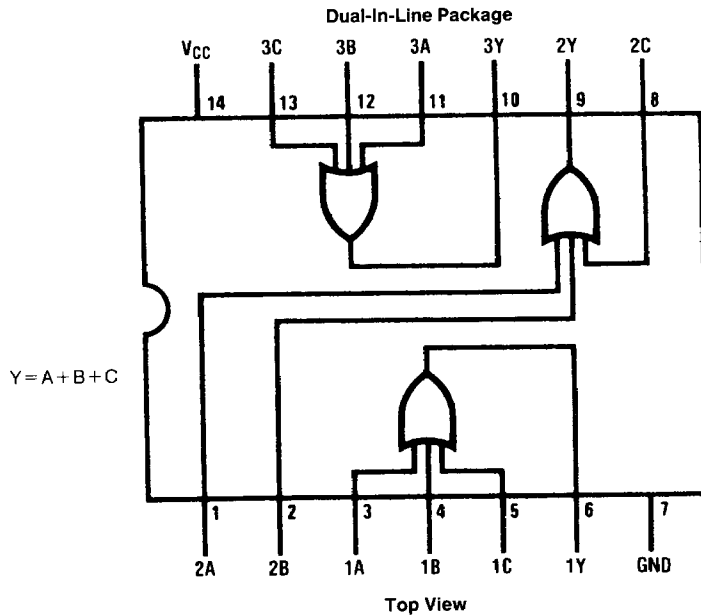
General Description

These OR gates utilize advanced silicon-gate CMOS technology to achieve operating speeds similar to LS-TTL gates with the low power consumption of standard CMOS integrated circuits. All gates have buffered outputs, providing high noise immunity and the ability to drive 10 LS-TTL loads. The 54HC/74HC logic family is functionally as well as pin-out compatible with the standard 54LS/74LS logic family. The 54HC4075/74HC4075 is functionally equivalent and pin-out compatible with the CD4075B and MC14075B metal gate CMOS devices. All inputs are protected from damage due to static discharge by internal diode clamps to V_{CC} and ground.

Features

- Typical propagation delay: 11 ns
- Wide power supply range: 2V–6V
- Low quiescent current: 20 μ A maximum (74HC Series)
- Low input current: 1 μ A maximum
- Fanout of 10 LS-TTL loads

Connection Diagram



TL/F/5155-1

Order Number MM54HC4075* or MM74HC4075*

*Please look into Section 8, Appendix D for availability of various package types.

AC Electrical Characteristics $V_{CC}=5V$, $T_A=25^\circ C$, $C_L=15\text{ pF}$, $t_r=t_f=6\text{ ns}$

Symbol	Parameter	Conditions	Typ	Guaranteed Limit	Units
t_{PHL} , t_{PLH}	Maximum Propagation Delay		11	20	ns

AC Electrical Characteristics $V_{CC}=2.0V$ to $6.0V$, $C_L=50\text{ pF}$, $t_r=t_f=6\text{ ns}$ (unless otherwise specified)

Symbol	Parameter	Conditions	V_{CC}	$T_A=25^\circ C$		74HC	54HC	Units
				Typ		$T_A=-40\text{ to }85^\circ C$	$T_A=-55\text{ to }125^\circ C$	
t_{PHL} , t_{PLH}	Maximum Propagation Delay		2.0V	40	115	145	171	ns
			4.5V	12	23	29	34	ns
			6.0V	10	20	25	29	ns
t_{TLH} , t_{THL}	Maximum Output Rise and Fall Time		2.0V	30	75	95	110	ns
			4.5V	10	15	19	22	ns
			6.0V	9	13	16	19	ns
C_{PD}	Power Dissipation Capacitance (Note 5)	(per gate)		30				pF
C_{IN}	Maximum Input Capacitance			5	10	10	10	pF

Note 5: C_{PD} determines the no load dynamic power consumption, $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$, and the no load dynamic current consumption, $I_S = C_{PD} V_{CC} f + I_{CC}$.