

- Quad 2, 2, 3, 3-Input (Active Pullup)
- Quad 2, 2, 3, 3-Input (Open Collector)

**Features**

Versatile Configuration

Active Pullup Outputs (306)

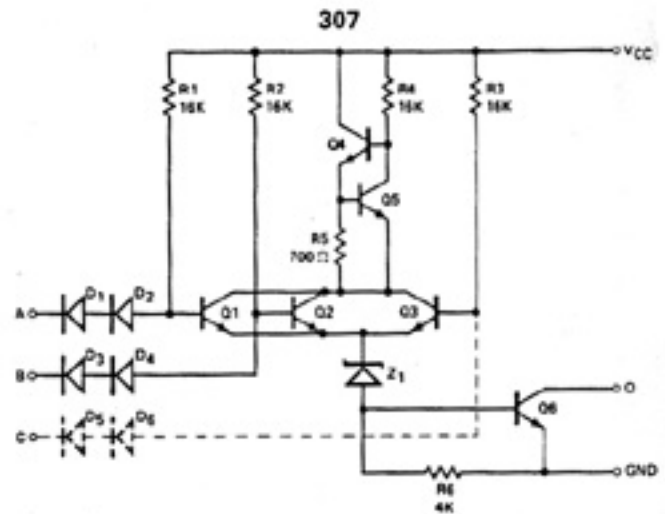
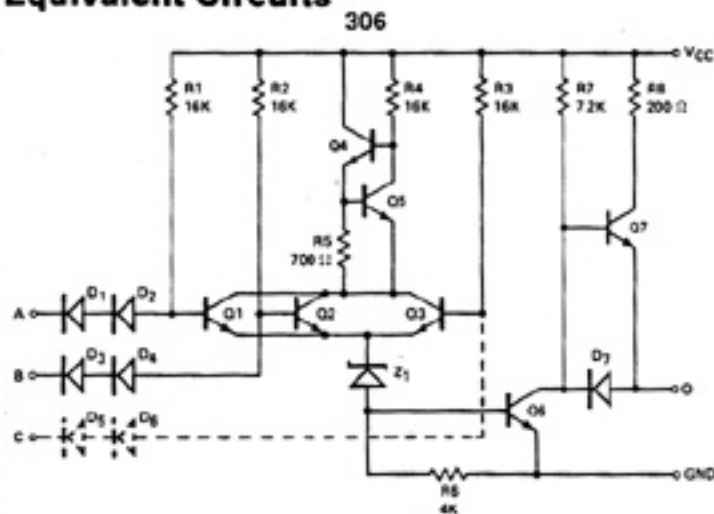
Open Collector Outputs (307) – Collector OR'able

$I_{OHL} = 10\text{mA}$  (306) – drives lines up to 10 feet

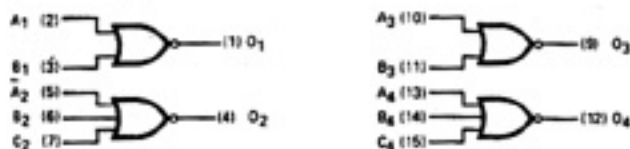
**General Description**

The HiNIL 306 and 307 each contain two 2-input NOR gates and two 3-input NOR gates. The active pullup and 10mA output drive current of the 306 allow it to drive moderately long lines with no loss of noise immunity. The 307 has open collectors, so that outputs may be collector OR'd.

**Equivalent Circuits**



**Logic Diagrams**

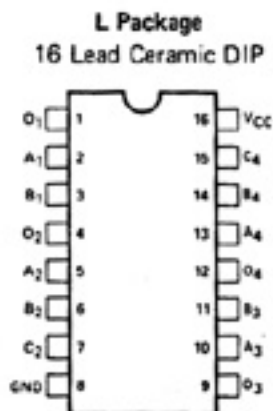


**Loading Table**

Pins	Function	Loading
A, B, C	Input	1 UL
O	Outputs	10 UL (306) 10 UL (307 with 5.6KΩ pullup resistor)

**Connection Diagrams**

Order Part Numbers:  
 306AL/CL, 307AL/CL  
 $V_{CC} = 10\text{V to }16\text{V}$ ,  
 $-30^{\circ}\text{C} \leq T_A \leq +70^{\circ}\text{C}$



## Absolute Maximum Ratings

L Package	
Continuous Supply Voltage	16.5V
Pulsed Supply Voltage (less than 100 ms)	18.0V
Input Voltage (any input)	-0.5 to +18V
Surge Sink Current (less than 100 ms at 25°C T <sub>A</sub> )	35 mA
Storage Temperature	-65°C to +150°C
Lead Temperature (1/16 inch from case, 10 sec max)	300°C

## Electrical Characteristics (Operating V<sub>CC</sub> range = 10V to 16V, -30°C ≤ T<sub>A</sub> ≤ +70°C)

Parameter	Definition	Limits			Units	Conditions
		@ V <sub>CC</sub> = 10V	@ V <sub>CC</sub> = 13V	@ V <sub>CC</sub> = 16V		
V <sub>INL</sub>	Input Threshold Voltage, Low	5.0	5.0	5.0	V min.	
V <sub>INH</sub>	Input Threshold Voltage, High	6.5	6.5	6.5	V max.	
I <sub>INL</sub>	Input Current, Low	-1.0	-1.3	-1.6	mA max.	V <sub>IN</sub> = 1.5V
V <sub>OL</sub>	Output Low Voltage	1.5	1.5	1.5	V max.	I <sub>OL</sub> = 16 mA, V <sub>IN</sub> = 6.5V I <sub>OL</sub> = 21 mA, V <sub>IN</sub> = 6.5V I <sub>OL</sub> = 26 mA, V <sub>IN</sub> = 6.5V
V <sub>OL2</sub> (307)	Output Low Voltage, Driving TTL	400	400	400	mV max.	I <sub>OL</sub> = 10 mA, V <sub>IN</sub> = 6.5V
V <sub>OH</sub> (306)	Output High Voltage	9	12	15	V min.	I <sub>OH</sub> = -100μA, V <sub>IN</sub> = 5.0V
V <sub>OH2</sub> (306)	Output High Voltage, Loaded	5	8	11	V min.	I <sub>OH</sub> = -10 mA, V <sub>IN</sub> = 5.0V
V <sub>MAX</sub> (307)	Output High Break-down Voltage	16.5	16.5	16.5	V min.	I <sub>MAX</sub> = 4 mA, V <sub>IN</sub> = 5.0V
I <sub>CEX</sub> (307)	Output High Leakage Current	25	25	25	μA max.	V <sub>CEX</sub> = 16V, V <sub>IN</sub> = 5.0V
I <sub>CC</sub> (306) (307)	Supply Current	28 18	34 23	40 28	mA max.	V <sub>IN</sub> = 6.5V, one input per gate; V <sub>IN</sub> = 1.5V, all other inputs
t <sub>PDHL</sub>	Propagation Delay, Output High to Low Transition	100	100	100	nsec max.	Input pulse = 10V, t <sub>r</sub> = t <sub>f</sub> ≤ 10 nsec F.O. = 0 to 10, 50% to 50% (5.6K pullup resistor on 307)
t <sub>PDLH</sub>	Propagation Delay, Output Low to High Transition	600	600	600	nsec max.	Input pulse = 10V, t <sub>r</sub> = t <sub>f</sub> ≤ 10 nsec F.O. = 0 to 10, 50% to 50% (5.6K pullup resistor on 307)

Note: Exceeding the absolute maximum ratings may cause permanent damage. Function of HiNIL devices at the absolute maximum ratings or beyond the conditions guaranteed is not implied.