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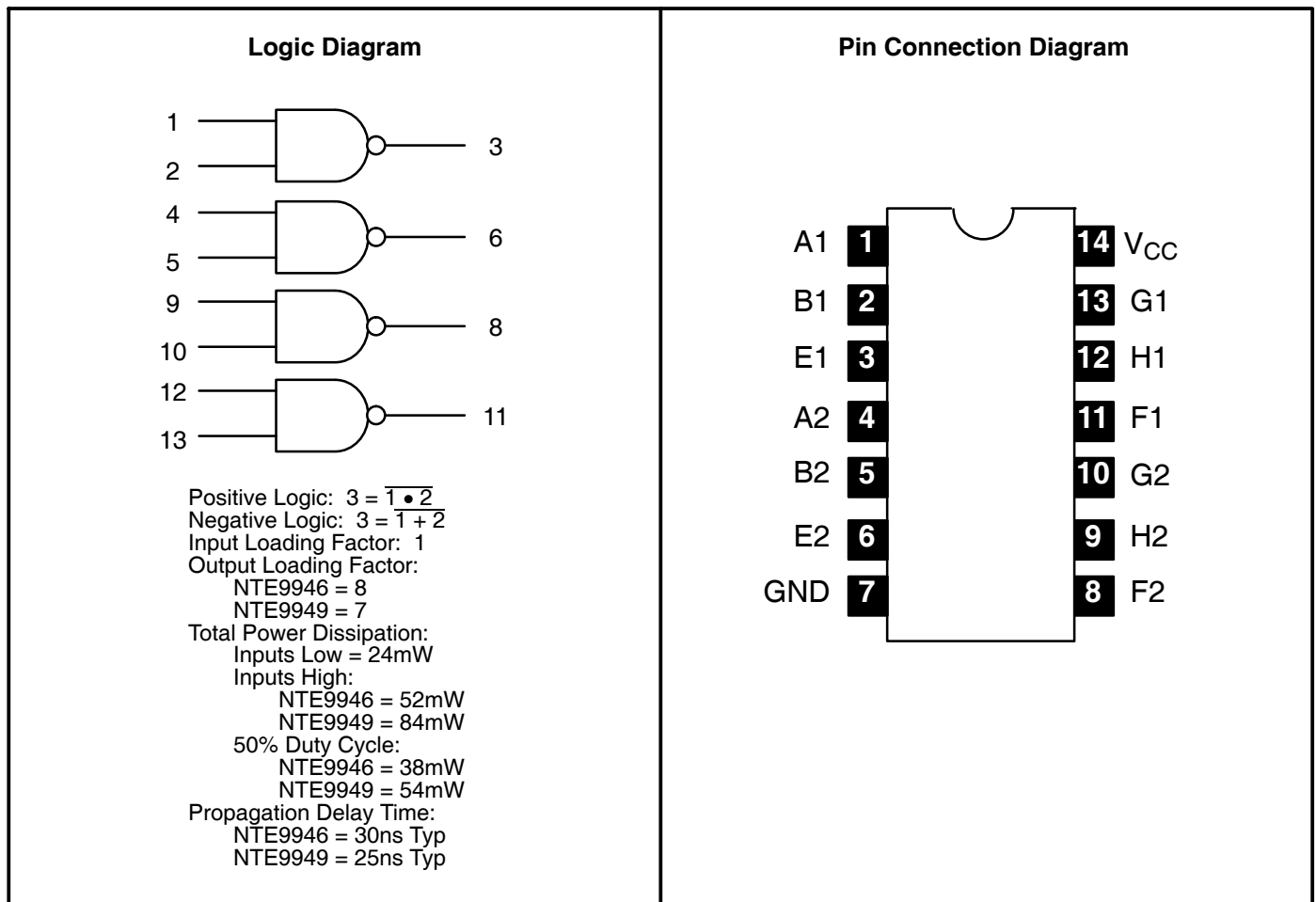
## NTE9946 & NTE9949 Integrated Circuit DTL, Quad, 2-Input NAND Gate

### Description:

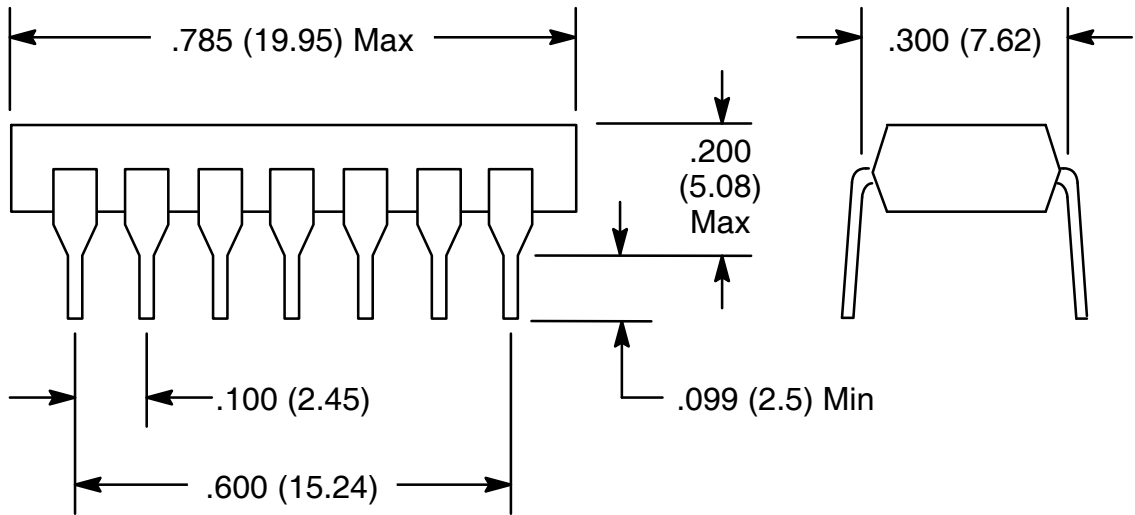
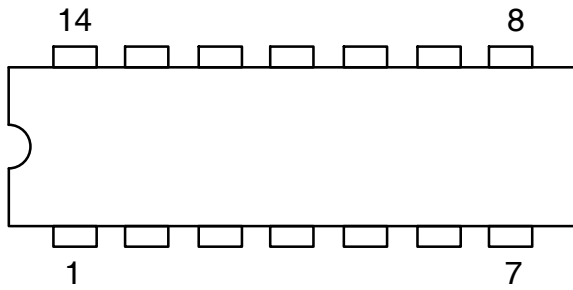
The NTE9946 and NTE9949 are DTL integrated circuits in a 14-Lead DIP type package consisting of four 2-input NAND gate circuits. These devices can be used as dual 2-input non-inverting gates or as two bistable circuits when two dual 2-input gates are cross-coupled.

### Features:

- Pull-Up Resistor:  
NTE9946 – 6k $\Omega$   
NTE9949 – 2k $\Omega$



Note 1. **NTE9946** is a **discontinued** device and **no longer available**.



**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

					Test Current/Voltage Values at $T_A = +25^\circ\text{C}$											GND		
					mA				Volts									
					$I_{OL}$		$I_{OH}$		$V_{IL}$	$V_{IH}$	$V_F$	$V_R$	$V_{CEX}$	$V_{CC}$	$V_{CCL}$		$V_{CCH}$	$V_{max}$
					9946	9949	9946	9949										
					12.0	11.0	-0.12	-0.5	1.10	1.90	0.45	4.00	5.00	5.00	5.00		5.00	8.00
Test Current/Voltage Applied to Pins Listed Below																		
Parameter	Symbol	Min	Max	Unit	$I_{OL}$	$I_{OH}$	$V_{IL}$	$V_{IH}$	$V_F$	$V_R$	$V_{CEX}$	$V_{CC}$	$V_{CCL}$	$V_{CCH}$	$V_{max}$			
Output Voltage	$V_{OL}$	-	0.45	V	3	-	-	1,2	-	-	-	-	14	-	-	7		
	$V_{OH}$	2.60	-	V	-	3	1	-	-	-	-	-	14	-	-	7		
		2.60	-	V	-	3	2	-	-	-	-	-	14	-	-	7		
Short-Circuit Current NTE9946	$I_{SC}$	-	-1.30	mA	-	-	-	-	-	-	-	-	-	14	-	1, 3, 7		
NTE9949		-	-3.90	mA	-	-	-	-	-	-	-	-	-	14	-	1, 3, 7		
Reverse Current	$I_R$	-	5.0	$\mu\text{A}$	-	-	-	-	-	1	-	-	-	14	-	2,7		
		-	5.0	$\mu\text{A}$	-	-	-	-	-	2	-	-	-	14	-	1,7		
Output Leakage Current	$I_{CEX}$	-	100	$\mu\text{A}$	-	-	-	-	-	-	3, 14	-	-	-	-	1, 7		
Forward Current	$I_F$	-	-1.40	mA	-	-	-	-	1	2	-	-	-	14	-	7		
		-	-1.40	mA	-	-	-	-	2	1	-	-	-	14	-	7		
Power Drain Current (Total Device) NTE9946	$I_{PDH}$	-	16	mA	-	-	-	-	-	-	-	14	-	-	-	7		
	$I_{max}$	-	16	mA	-	-	-	-	-	-	-	-	-	-	14	1, 4, 7, 9, 12		
	NTE9949	$I_{PDH}$	-	26.2	mA	-	-	-	-	-	-	-	14	-	-	-	7	
		$I_{max}$	-	16	mA	-	-	-	-	-	-	-	-	-	-	14	1, 4, 7, 9, 12	
Switching Times NTE9946	$t_{pd+}$	25	80	ns	Pulse In	Pulse Out	-	-	-	-	-	14	-	-	-	7		
					1	3												
	$t_{pd-}$	10	30	ns	1	3	-	-	-	-	-	14	-	-	-	7		
					1	3												
NTE9949	$t_{pd+}$	15	60	ns	1	3	-	-	-	-	-	14	-	-	-	7		
					1	3	-	-	-	-	14	-	-	-	7			

Note 1. Pins not listed are left open.