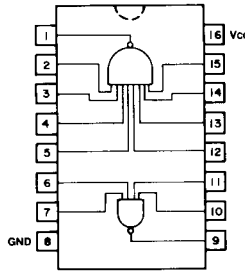


41AA(M), 41AF(L)

Dual 8-4 Input NAND Gate

The 41AA(M) and 41AF(L) devices are bipolar, NPN, sealed junction, silicon integrated circuits. They are available in wire-bonded, 16-pin plastic DIPs.



Electrical Characteristics

$V_{CC} = 5.0 \pm 0.5 \text{ V}$, $T_J = 0 \text{ to } 85^\circ \text{ C}$

Parameter	Symbol	Test Conditions	MTTL Family			LTTL Family			Unit
			41AA Device			41AF Device			
Output Voltage									
High	V_{OH}	$V_{CC}=4.5 \text{ V}$, $I_{OH}=-4.0 \text{ mA}$	2.4	3.5	—	—	—	—	V
High	V_{OH}	$V_{CC}=4.5 \text{ V}$, $I_{OH}=-0.4 \text{ mA}$	—	—	—	2.4	3.5	—	V
Low	V_{OL}	$V_{CC}=4.5 \text{ V}$, $I_{OL}=9.8 \text{ mA}$	—	0.25	0.4	—	—	—	V
Low	V_{OL}	$V_{CC}=4.5 \text{ V}$, $I_{OL}=2.4 \text{ mA}$	—	—	—	—	0.25	0.4	V
Input Voltage									
High	V_{IH}	—	1.8	—	—	1.8	—	—	V
Low	V_{IL}	—	—	—	0.8	—	—	0.8	V
Clamp	V_{IK}	$I_{IK} = -5 \text{ mA}$	—	—	-1.5	—	—	-1.5	V
Input Current									
High, $V_{IH}=2.4 \text{ V}$	I_{IH}	$V_{CC}=5.5 \text{ V}$ Pins 2,3,4,5,12,13,14,15 Pins 6,7,10,11	—	—	40	—	—	10	μA
High, $V_{IH}=5.5 \text{ V}$	I_{IH}	$V_{CC}=5.5 \text{ V}$ Pins 2,3,4,5,12,13,14,15 Pins 6,7,10,11	—	—	200	—	—	100	μA
Low	I_{IL}	$V_{CC}=5.5 \text{ V}$, $V_{IL}=0.4 \text{ V}$	—	—	-0.98	—	—	-0.24	mA
Output Current Short-Circuit	I_{OS}	$V_{CC}=5.5 \text{ V}$, $V_{OL}=0.0 \text{ V}$	-20	—	-75	-5	—	-30	mA
Power Supply Current									
Outputs Low	I_{CCL}	$V_{CC}=5.5 \text{ V}$	—	—	9.0	—	—	1.5	mA
Outputs High	I_{CCH}	$V_{CC}=5.5 \text{ V}$	—	—	2.2	—	—	0.5	mA

Timing Characteristics

$V_{CC}=5.0 \text{ V}$, $T_J=25^\circ \text{ C}$

Parameter	MTTL Family			LTTL Family			Unit
	41AA Device			41AF Device			
Propagation Delays							
t_{PLH}	—	—	13	—	—	40	ns
Transition Times							
t_{TLH}	—	—	15	—	—	160	ns
t_{THL}	—	—	15	—	—	40	ns

Maximum Ratings

Power supply voltage (V_{CC})	7.0 V
Input voltage (V_i)	5.5 V
Operating temperature range (T_J)	-25 to +125 °C
Storage temperature range (T_{stg})	-40 to +125 °C

Maximum ratings are defined as the limiting conditions that the user can apply to the device under all variations of circuit and environmental conditions. If any rating is exceeded, permanent damage to the device may result.

Bonding or soldering of the external leads of this device can be performed safely at temperatures up to 300 °C.