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NTE7491 Integrated Circuit TTL- 8-Bit Shift Register

Description:

The NTE7491 is a monolithic serial-in, serial-out, 8-bit shift register in a 14-Lead DIP type package that utilizes transistor-transistor logic (TTL) circuits and is composed of eight R-S master-slave flip-flops, input gating, and a clock driver. Single-rail data and input control are gated through inputs A and B and an internal inverter to form the complementary inputs to the first bit of the shift register. Drive for the internal common clock line is provided by an inverting clock driver. This clock pulse inverter/driver causes the circuit to shift information one bit on the positive edge of an input clock pulse.

Applications:

- Digital Computer Systems
- Data-Handling Systems
- Control Systems

Absolute Maximum Ratings: ($T_A = 0^\circ$ to $+70^\circ\text{C}$ unless otherwise specified)

Supply Voltage (Note 1)	7V
Input Voltage	5.5V
Power Dissipation	175mW
Operating Free-Air Temperature Range	0° to $+70^\circ\text{C}$
Storage Temperature Range	-65° to $+150^\circ\text{C}$

Note 1. Voltage values are with respect to network ground terminal.

Recommended Operating Conditions:

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	4.75	5.0	5.25	V
HIGH Level Output Current	I_{OH}	-	-	-400	μA
LOW Level Output Current	I_{OL}	-	-	16	mA
Width of Clock Input Pulse	t_w	25	-	-	ns
Setup Time	t_{su}	25	-	-	ns
Hold Time	t_h	0	-	-	ns
Operating Free Air Temperature	T_A	0	-	70	$^\circ\text{C}$

DC Electrical Characteristics: (Note 2, Note 3)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
HIGH Level Input Voltage	V_{IH}		2	-	-	V
LOW Level Input Voltage	V_{IL}		-	-	0.8	V
Input Clamp Voltage	V_{IK}	$V_{CC} = \text{MIN}, I_I = -18\text{mA}$	-	-	-1.5	V
HIGH Level Output Voltage	V_{OH}	$V_{CC} = \text{MIN}, V_{IL} = 0.8\text{V}, V_{IH} = 2\text{V}, I_{OH} = -400\mu\text{A}$	2.4	3.4	-	V
LOW Level Output Voltage	V_{OL}	$V_{CC} = \text{MIN}, V_{IH} = 2\text{V}, V_{IL} = 0.8\text{V}, I_{OL} = 4\text{mA}$	-	0.2	0.4	V
Input Current	I_I	$V_{CC} = \text{MAX}, V_I = 5.5\text{V}$	-	-	1	mA
HIGH Level Input Current	I_{IH}	$V_{CC} = \text{MAX}, V_I = 2.4\text{V}$	-	-	40	μA
LOW Level Input Current	I_{IL}	$V_{CC} = \text{MAX}, V_I = 0.4\text{V}$	-	-	-1.6	mA
Short-Circuit Output Current	I_{OS}	$V_{CC} = \text{MAX}, \text{Note 4}$	-18	-	-57	mA
Supply Current	I_{CC}	$V_{CC} = \text{MAX}, \text{Note 5}$	-	35	58	mA

Note 2. For conditions shown as MIN or MAX, use the appropriate value specified under “Recommended Operating Conditions”.

Note 3. All typicals are at $V_{CC} = +5\text{V}, T_A = +25^\circ\text{C}$.

Note 4. Not more than one output should be shorted at a time.

Note 5. I_{CC} is measured after the eighth clock pulse with the output open and A and B inputs grounded.

Switching Characteristics: ($V_{CC} = +5\text{V}, T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Maximum Clock Frequency	f_{max}	$R_L = 400\Omega, C_L = 15\text{pF}$	10	18	-	MHz
Propagation Delay Time	t_{PLH}		-	24	40	ns
	t_{PHL}		-	27	40	ns

Function Table:

Inputs at t_n		Outputs at t_{n+8}	
A	B	Q_H	\bar{Q}_H
H	H	H	L
L	X	L	H
X	L	L	H

t_n = Reference bit time, clock low

t_{n+8} = Bit time after 8 low-to-high clock transitions

Pin Connection Diagram

