

CMOS QUAD BUFFER-DRIVER

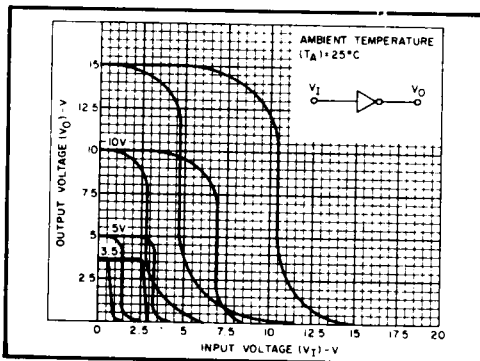
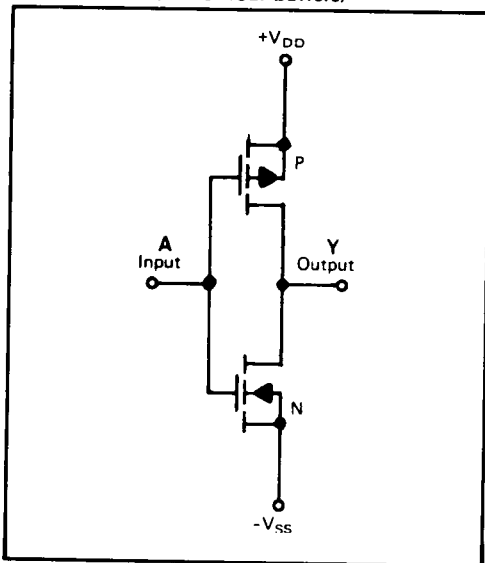
FEATURES

- ◆ Symmetrical High-Current Outputs
- ◆ High-Speed Operation with Large Capacitive Loads
- ◆ Low Output Impedance
- ◆ Diode Protection on all Inputs

DESCRIPTION

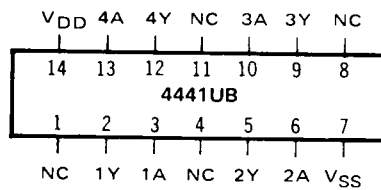
The 4441UB is a monolithic N-channel and P-channel enhancement-mode integrated circuit consisting of four large buffers for very high current capability. This device is useful as a line driver, low-power resistor-network driver for A/D and D/A conversion, display and clock drivers.

SCHEMATIC DIAGRAM
(one of four buffers)



Minimum and maximum transfer characteristics.

CONNECTION DIAGRAM
(all packages)



Add suffix for package:

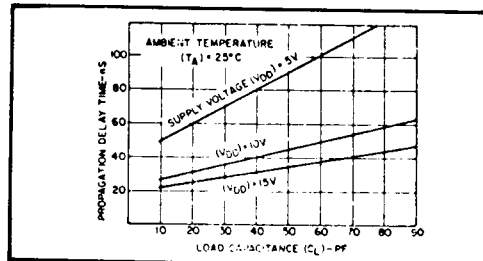
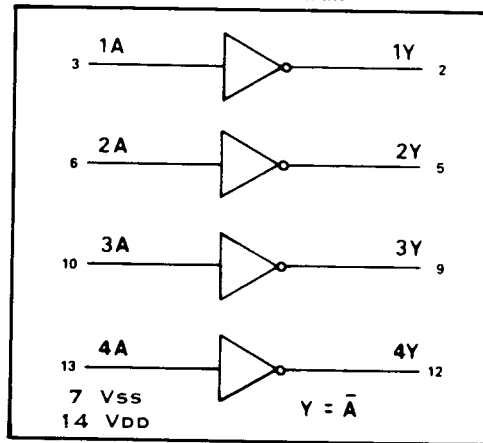
- C 14-pin Cerdip
- D 14-pin Ceramic
- E 14-pin Epoxy
- F 14-pin Flat
- H Chip

RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

- DC Supply Voltage $V_{DD} - V_{SS}$ 3 to 15 Vdc
- Operating Temperature T_A
- C, D, F, H Device -55 to +125 °C
- E Device -40 to +85 °C

LOGIC DIAGRAM



Typical propagation delay time vs. C_L

ELECTRICAL CHARACTERISTICS

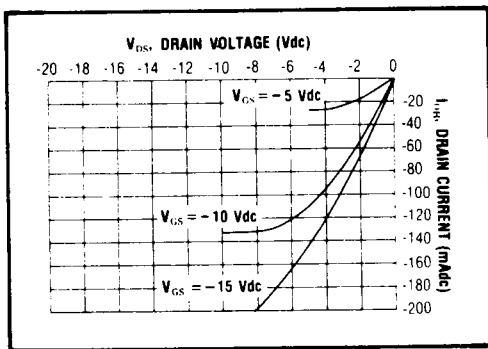
STATIC CHARACTERISTICS ¹

PARAMETER	V _{DD} (Vdc)	CONDITIONS	T _{LOW} ²		+25°C			T _{HIGH} ²		Units
			Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
QUIESCENT DEVICE CURRENT	I _{DD}	V _{IN} = V _{SS} or V _{DD} All valid input combinations	—	1.0	—	0.005	1.0	—	30	μA _{dc}
			—	2.0	—	0.01	2.0	—	60	
			—	4.0	—	0.02	4.0	—	120	
OUTPUT HIGH (SOURCE) CURRENT	I _{OH}	V _{OH} = 4.6V V _{OH} = 9.5V V _{OH} = 13.5V V _{IN} = V _{SS}	-2.5	—	2.0	-4.5	—	-1.4	—	mA _{dc}
			-7.3	—	-5.8	-14.0	—	-4.0	—	
			-23.1	—	-18.5	-45	—	-13.0	—	
OUTPUT LOW (SINK) CURRENT	I _{OL}	V _{OL} = 0.4V V _{OL} = 0.5V V _{OL} = 1.5V V _{IN} = V _{DD}	2.4	—	2.4	4.5	—	1.7	—	mA _{dc}
			7.0	—	7.0	14.0	—	4.9	—	
			22.2	—	27	45	—	19	—	

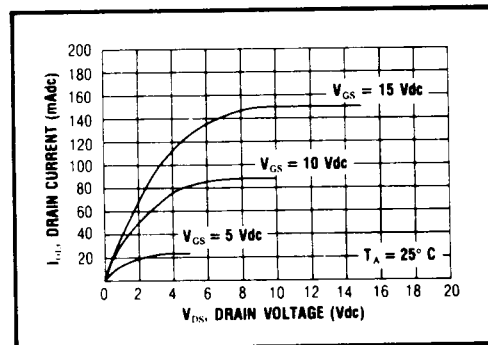
NOTES: ¹ Remaining Static Electrical Characteristics are listed under "4000B Series Family Specifications".
² T_{LOW} = -55°C for C, D, F, H device.
 = -40°C for E device.
 T_{HIGH} = +125°C for C, D, F, H device.
 = + 85°C for E device.

DYNAMIC CHARACTERISTICS (C_L = 50pF, T_A = 25°C)

PARAMETER	V _{DD} (Vdc)	Min.	Typ.	Max.	Units
PROPAGATION DELAY TIME	t _{PLH} , t _{PHL}	—	90	180	ns
		—	45	90	
		—	35	70	
OUTPUT TRANSITION TIME	t _{TLH} , t _{THL}	—	90	180	ns
		—	45	90	
		—	35	70	



Typical P-Channel Source Current Characteristics



Typical N-Channel Sink Current Characteristics