

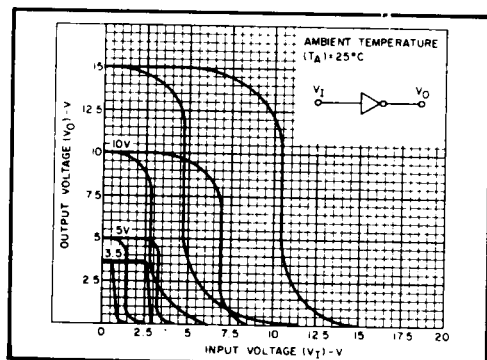
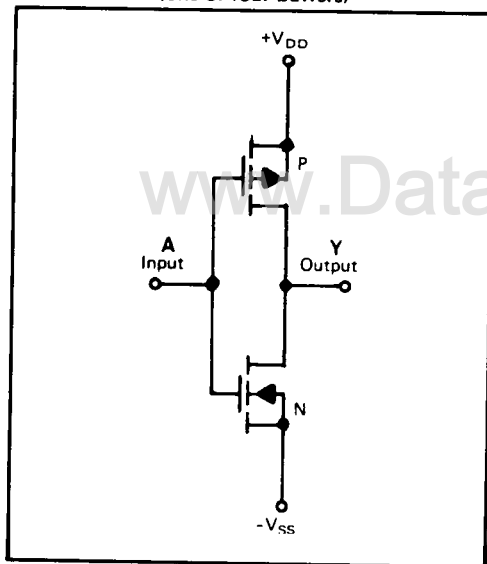
FEATURES

- ◆ 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.

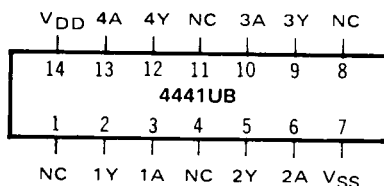
SCHEMATIC DIAGRAM
(one of four buffers)



Minimum and maximum transfer characteristics.

CMOS QUAD BUFFER-DRIVER

CONNECTION DIAGRAM
(all packages)



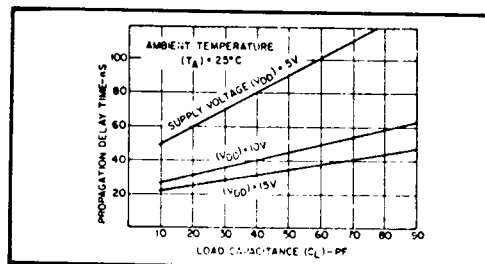
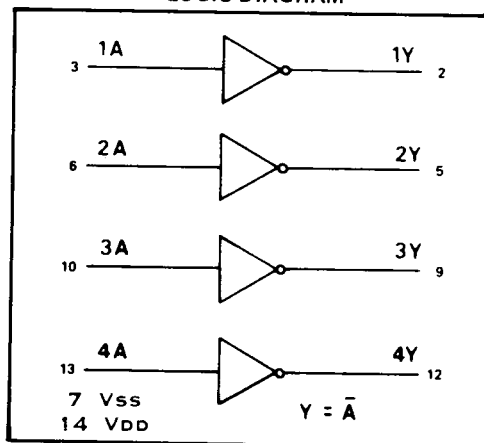
Add suffix for package:

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

RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

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

LOGIC DIAGRAM

Typical propagation delay time vs. C_L

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS¹

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	μAdc
			—	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	—	mAdc
			-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	—	mAdc
			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.

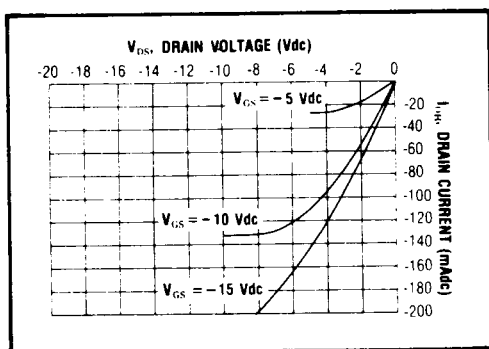
= -40°C for E device.

T_{HIGH} = +125°C for C, D, F, H device.

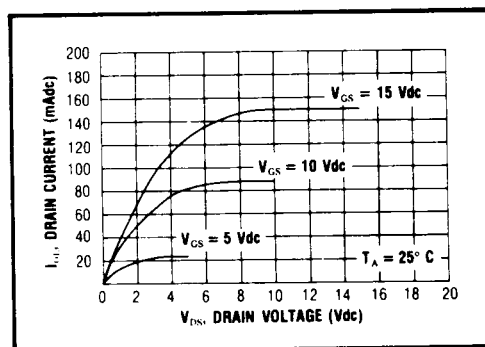
= + 85°C for E device.

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

PARAMETER		V _{DD} (Vdc)	Min.	Typ.	Max.	Units
PROPAGATION DELAY TIME	t _{PLH} , t _{PHL}	5	—	90	180	ns
		10	—	45	90	
		15	—	35	70	
		—	—	—	—	
OUTPUT TRANSITION TIME	t _{TLH} , t _{THL}	5	—	90	180	ns
		10	—	45	90	
		15	—	35	70	
		—	—	—	—	



Typical P-Channel
Source Current Characteristics



Typical N-Channel
Sink Current Characteristics