

CMOS HEX INVERTER

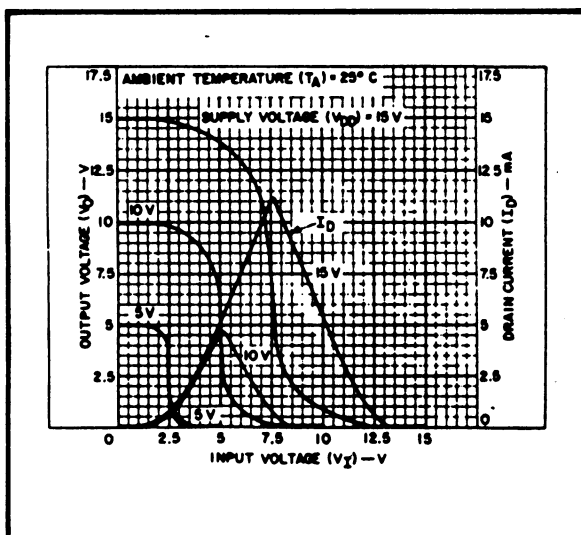
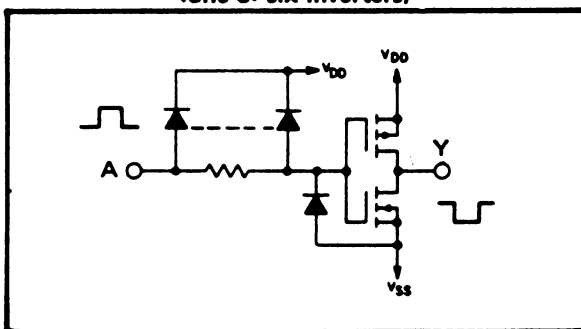
FEATURES

- ◆ All Inputs Fully Diode-Protected
- ◆ Pin Compatible with 4009B, 4049B
- ◆ Fully "B"-Series Compatible

DESCRIPTION

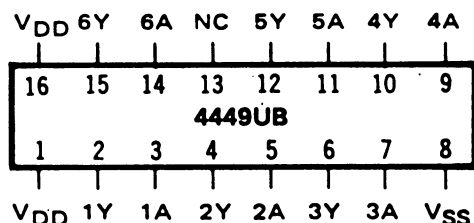
The 4449UB consists of six CMOS inverter circuits. It is pin-compatible with the 4009UB, 4049UB, and equivalent device types. In systems which do not require the high output current and level-shifting capabilities of the buffers, the 4449 can be substituted directly with no change in board layout. The device is particularly useful for quasi-linear circuits, such as oscillators and multivibrators.

SCHEMATIC DIAGRAM (one of six inverters)



Typical current and voltage transfer characteristics.

CONNECTION DIAGRAM (all packages)

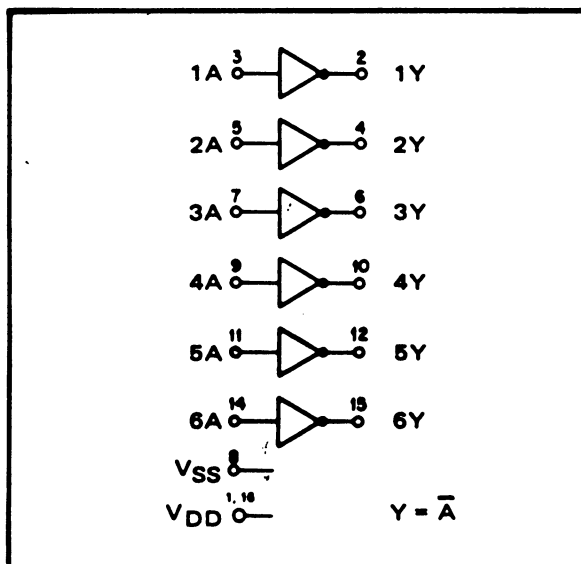


RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

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

LOGIC DIAGRAM



ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS ¹

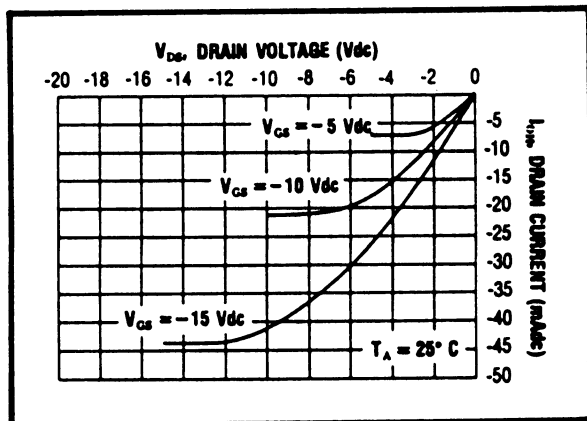
PARAMETER	V _{DD} (Vdc)	CONDITIONS	T _{LOW} ²		+25°C			T _{HIGH} ²		Units
			Min.	Max.	Min.	Typ.	Max.	Min.	Max.	
QUIESCENT DEVICE CURRENT	I _{DD}	V _{IN} = V _{SS} or V _{DD} All valid input combinations	—	0.05	—	0.0005	0.05	—	1.5	μAdc
			—	0.10	—	0.001	0.10	—	3.0	
			—	0.20	—	0.002	0.20	—	6.0	

NOTES: ¹ Remaining Static Electrical Characteristics are listed under "4000B Series Family Specifications".

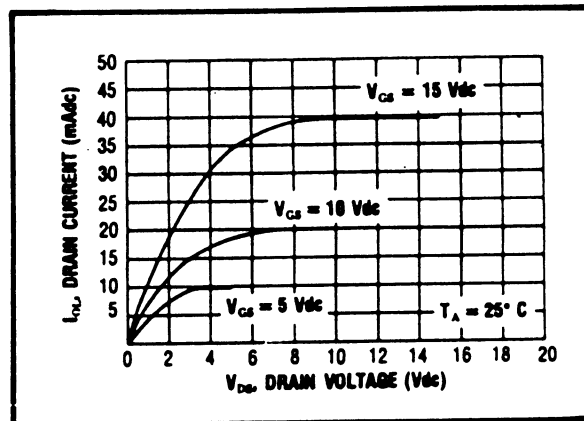
² T_{LOW} = -55°C for C
 = -40°C for E
 T_{HIGH} = +125°C for C
 = + 85°C for E

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	—	60	ns
		10	—	30	
		15	—	25	
OUTPUT TRANSITION TIME	t _{TLH} , t _{THL}	5	—	100	ns
		10	—	50	
		15	—	40	

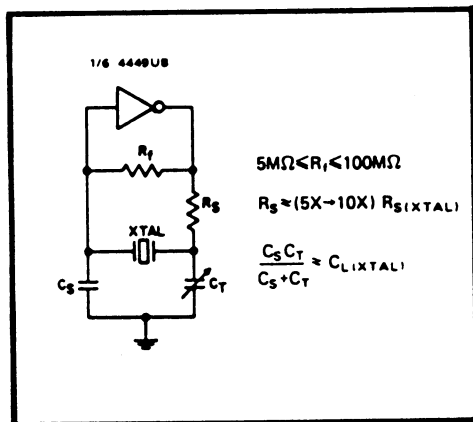


Typical P-Channel Source Current Characteristics

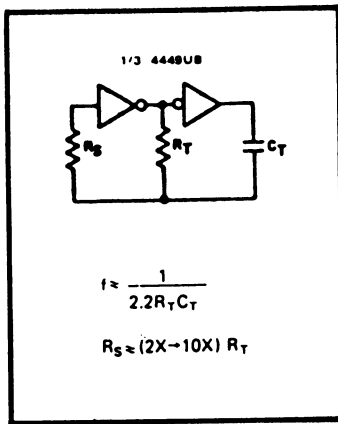


Typical N-Channel Sink Current Characteristics

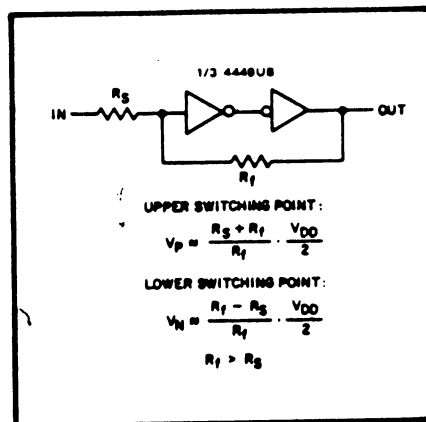
APPLICATIONS INFORMATION



Typical crystal oscillator circuit



Typical RC oscillator circuit



Input pulse shaping circuit (Schmitt trigger)