

CMOS HEX INVERTER

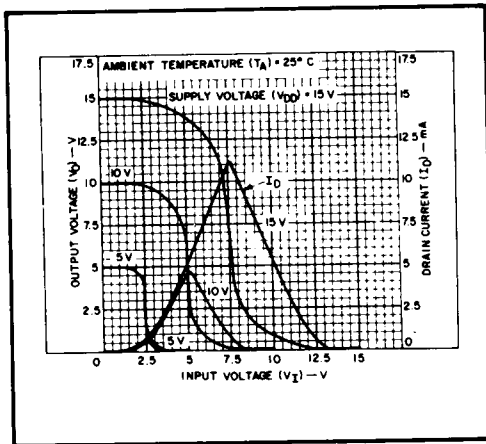
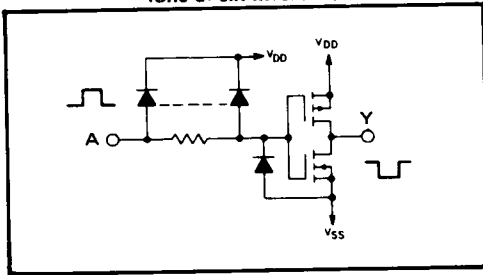
FEATURES

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

DESCRIPTION

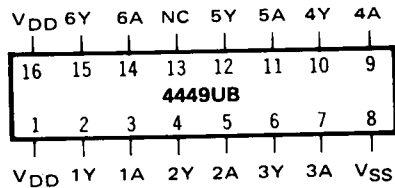
The 4449UB consists of six CMOS inverter circuits. It is pin-compatible with the 4009UB, 4049UB, and equivalent device types. In systems which do not require the high output current and level-shifting capabilities of the buffers, the less expensive 4449 can be substituted directly with no change in board 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)



Add suffix for package:

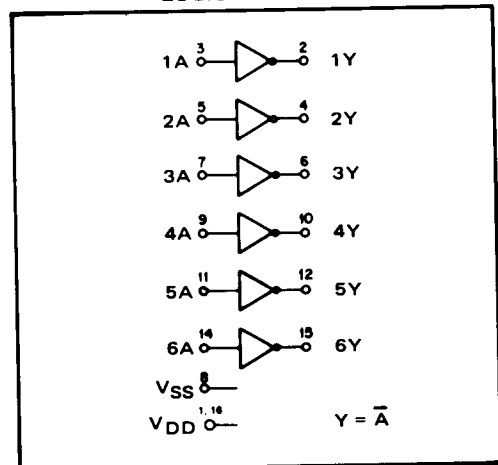
- C 16-pin Cerdip
- D 16-pin Ceramic
- E 16-pin Epoxy
- F 16-pin Flat
- H Chip

RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

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

LOGIC DIAGRAM



ELECTRICAL CHARACTERISTICS

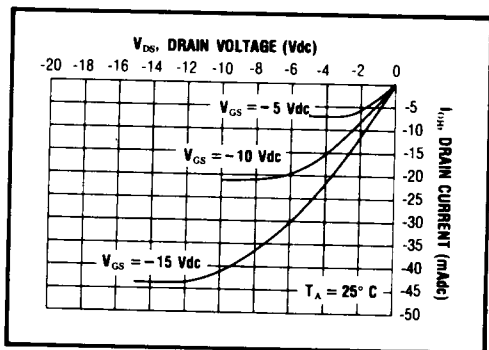
STATIC CHARACTERISTICS ¹

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	μA _{dc}
			-	0.10	-	0.001	0.10	-	3.0	
			-	0.20	-	0.002	0.20	-	6.0	

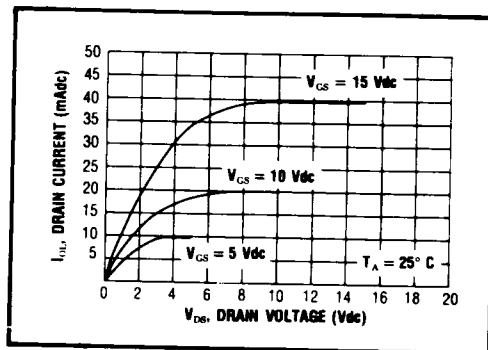
NOTES: ¹ Remaining Static Electrical Characteristics are listed under "4000B Series Family Specifications".
² T_{LOW} = -55°C for C, D, F, H device.
 = -40°C for E device.
 T_{HIGH} = +125°C for C, D, F, H device.
 = + 85°C for E device.

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

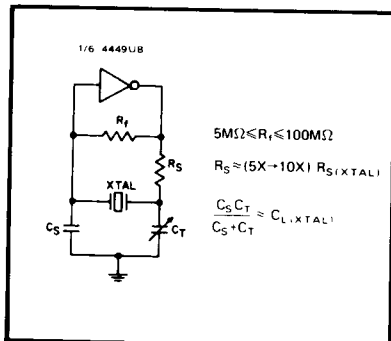


Typical P-Channel Source Current Characteristics

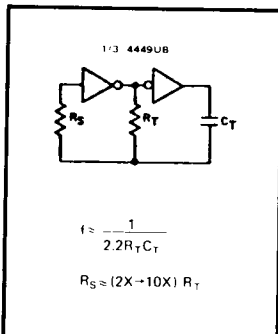


Typical N-Channel Sink Current Characteristics

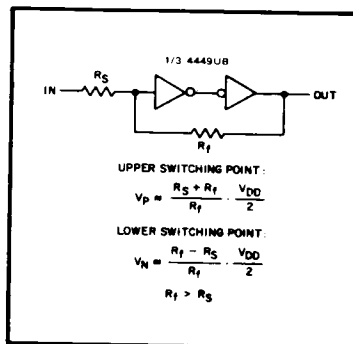
APPLICATIONS INFORMATION



Typical crystal oscillator circuit



Typical RC oscillator circuit



Input pulse shaping circuit (Schmitt trigger)