

## CMOS HEX BUFFERS/CONVERTERS

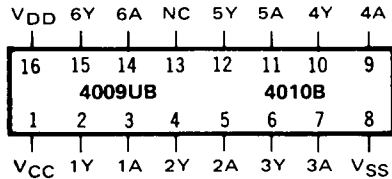
### FEATURES

- ◆ Direct Drive of 2 TTL/DTL Loads
- ◆ Operation from Single or Dual Supplies
- ◆ All Inputs Diode-Protected

### DESCRIPTION

The 4009UB and 4010B are single-chip monolithic silicon integrated circuits containing eighteen N-Channel and twelve P-Channel enhancement-mode MOS transistors connected to form six independent buffer/converter configurations. These devices are designed for use as hex CMOS-to-DTL or TTL logic level converters or hex CMOS current drivers. Conversion ranges are from CMOS logic operating at 3Vdc to 18Vdc supply levels to DTL or TTL logic operating at 3Vdc to 6Vdc supply levels. Conversion to logic output levels greater than 6Vdc is permitted providing  $V_{CC} \leq V_{DD}$ .

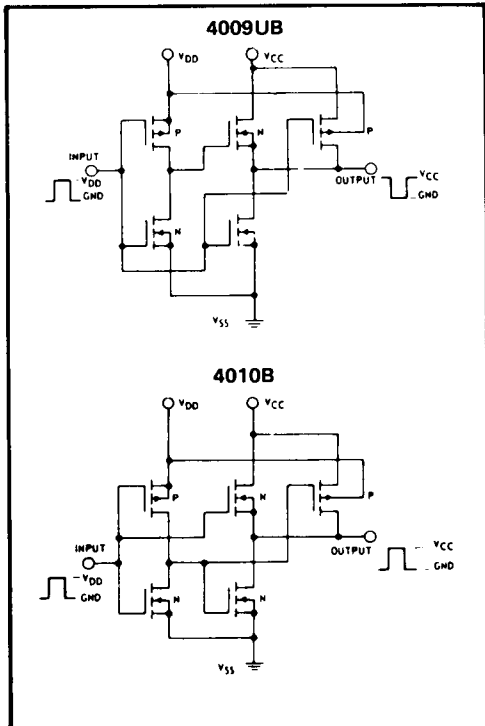
### CONNECTION DIAGRAM (all packages)



#### Add Suffix for Package:

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

### SCHEMATIC DIAGRAMS



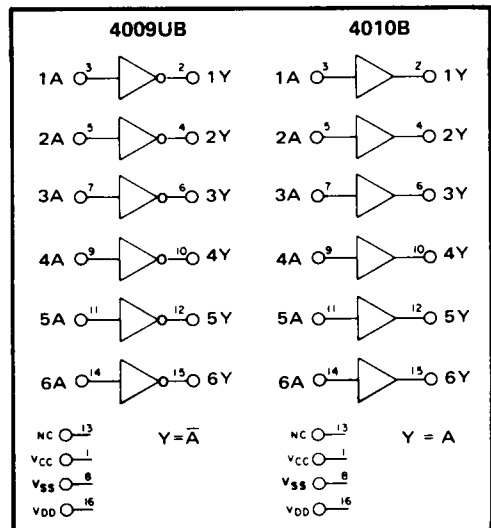
### RECOMMENDED OPERATING CONDITIONS

For maximum reliability:

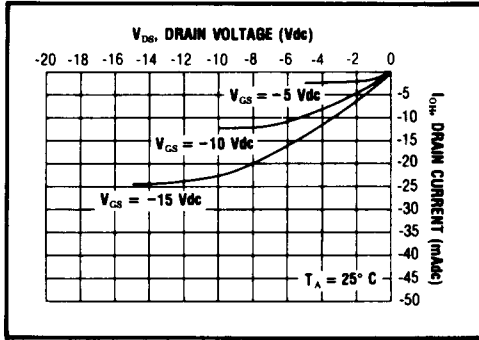
DC Supply Voltage  $V_{DD} - V_{SS}$  3 to 15 Vdc  
 $V_{CC} - V_{SS}$  3 to 15 Vdc  
 $V_{CC} \leq V_{DD}$

Operating Temperature  $T_A$   
 C, D, F, H Device -55 to +125 °C  
 E Device -40 to +85 °C

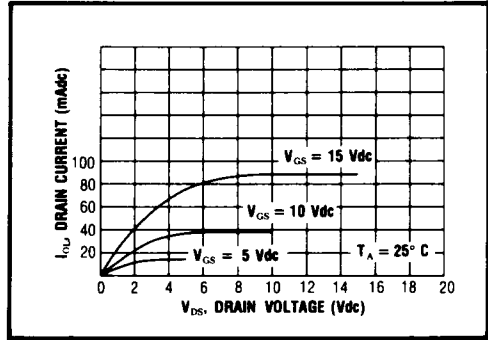
### LOGIC DIAGRAMS



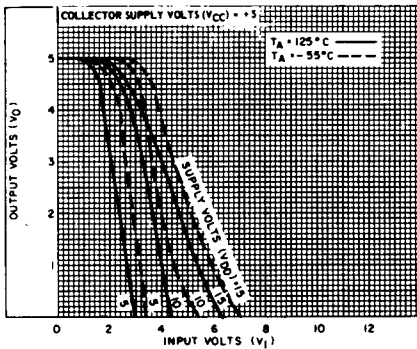




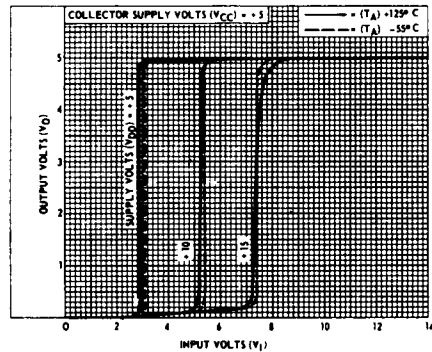
Typical P-Channel Source Current Characteristics



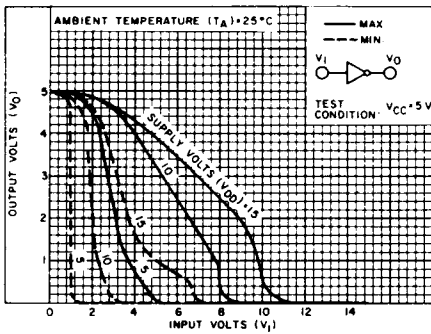
Typical N-Channel Sink Current Characteristics



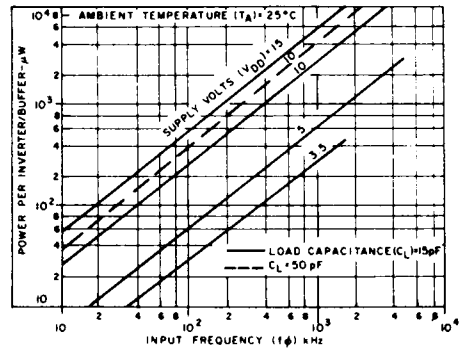
Typ. voltage transfer characteristics as function of temperature – 4009UB



Typ. voltage transfer characteristics as function of temperature – 4010B



Min. & max. voltage transfer characteristics – 4009UB



Typ. dissipation characteristics – 4009UB, 4010B