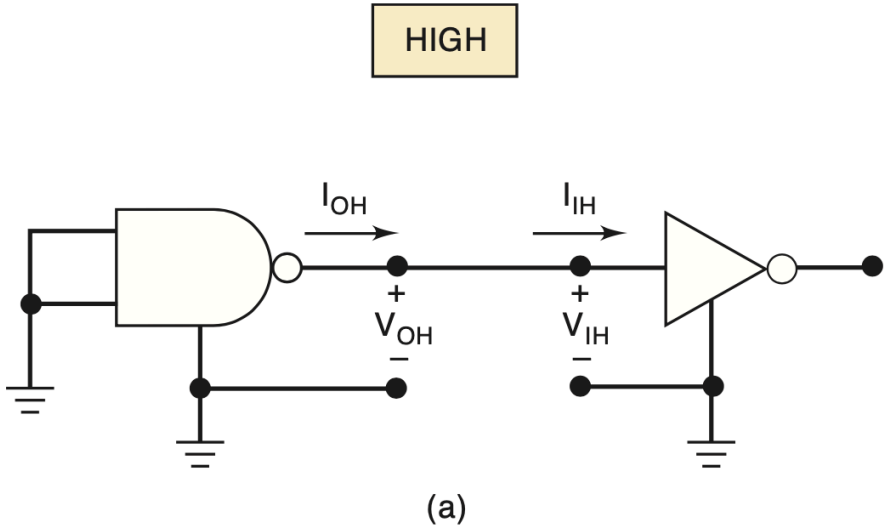
INTRODUCTION

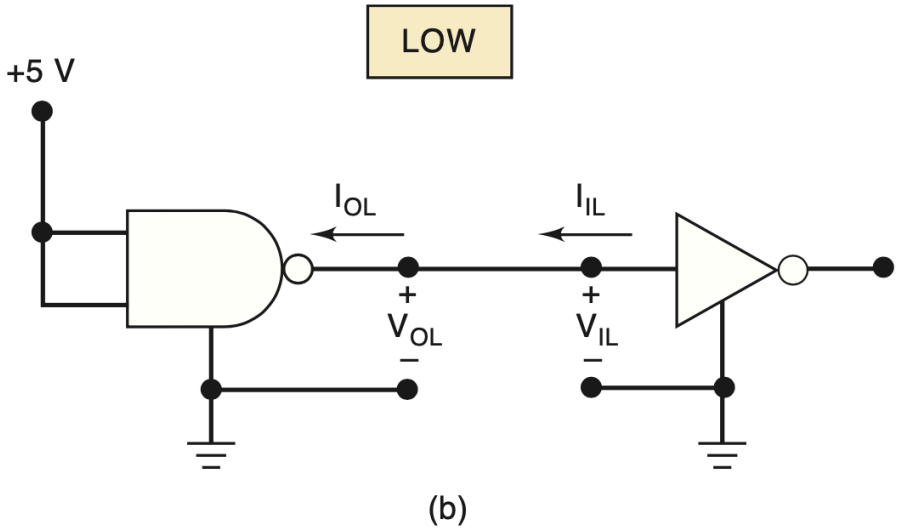
EGCO232 DIGITAL CIRCUIT DESIGN LAB.

KANAT POOLSAWASD
DEPARTMENT OF COMPUTER ENGINEERING
MAHIDOL UNIVERSITY

CURRENTS AND VOLTAGES IN LOGIC STATES

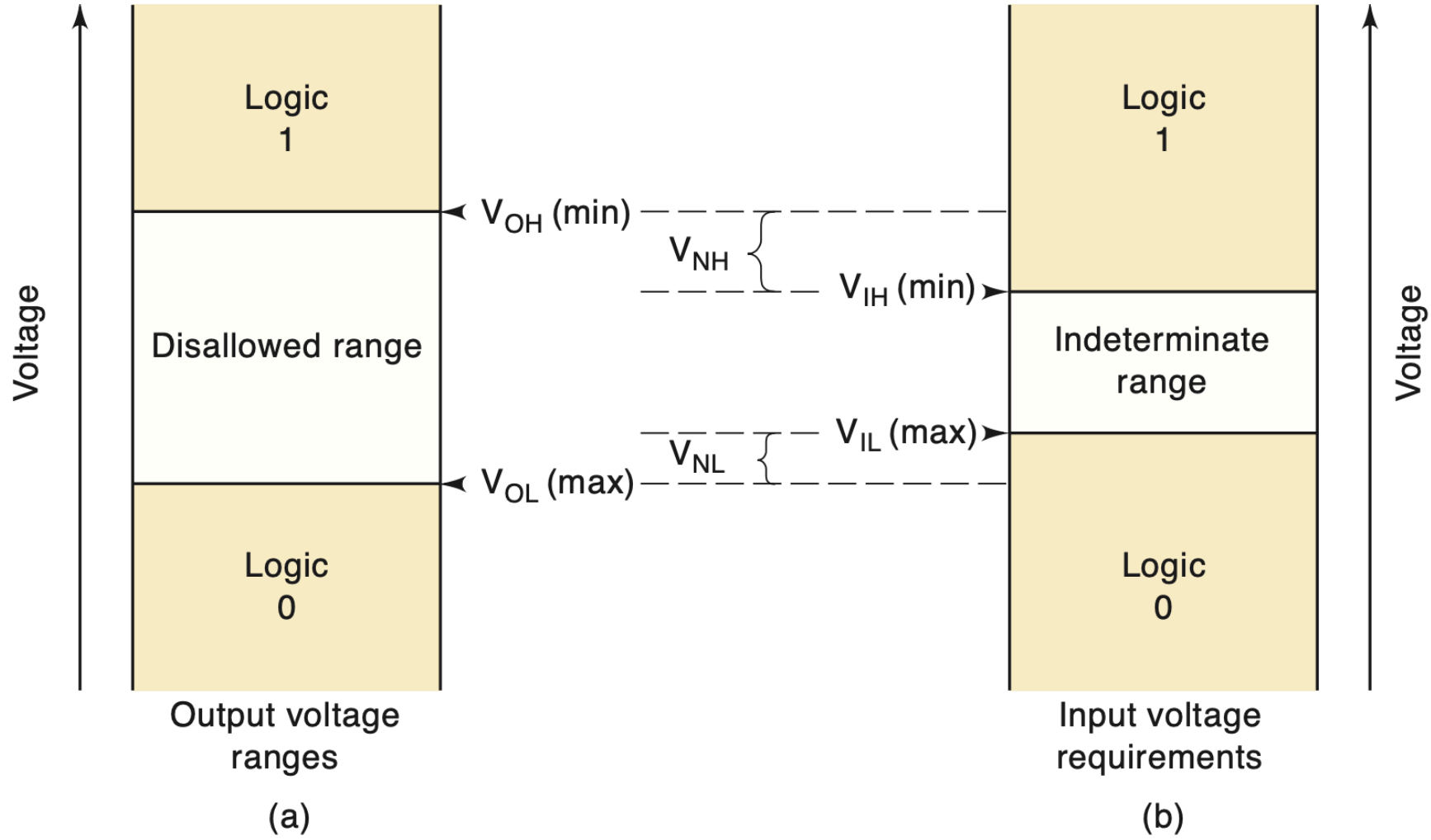


(a)

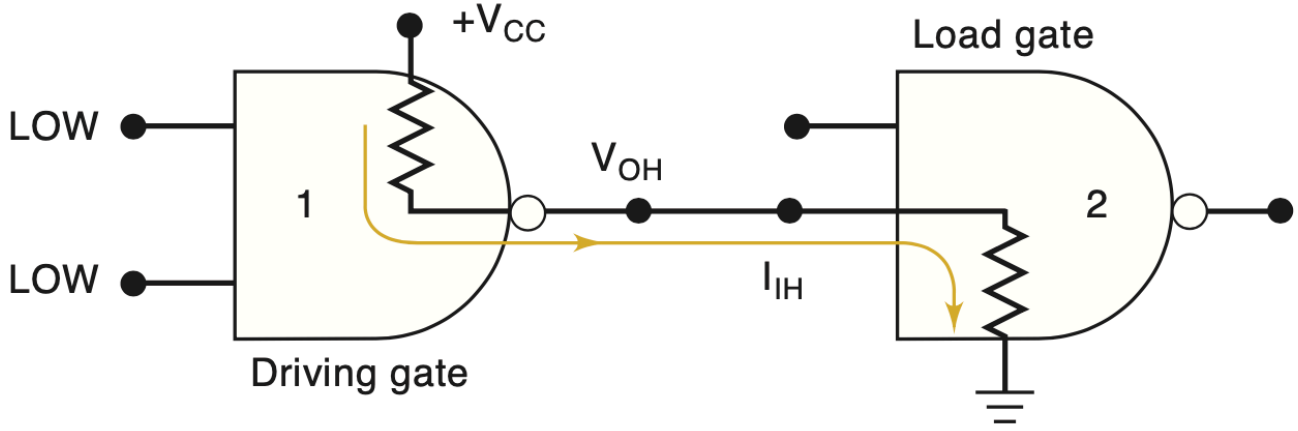


(b)

DC NOISE MARGIN



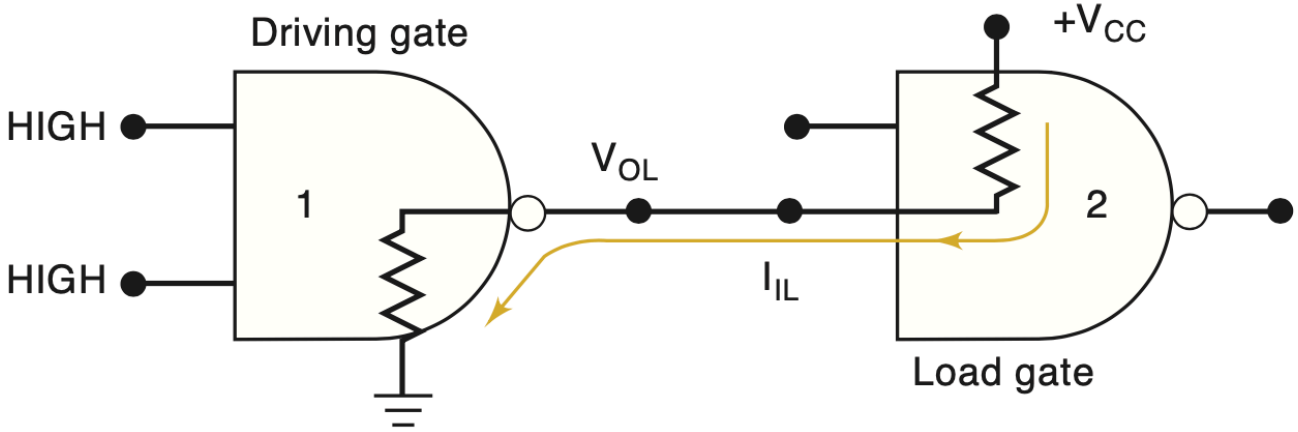
SOURCING & SINKING



(a)

Current sourcing

Driving gate supplies (sources) current to load gate in HIGH state.



(b)

Current sinking

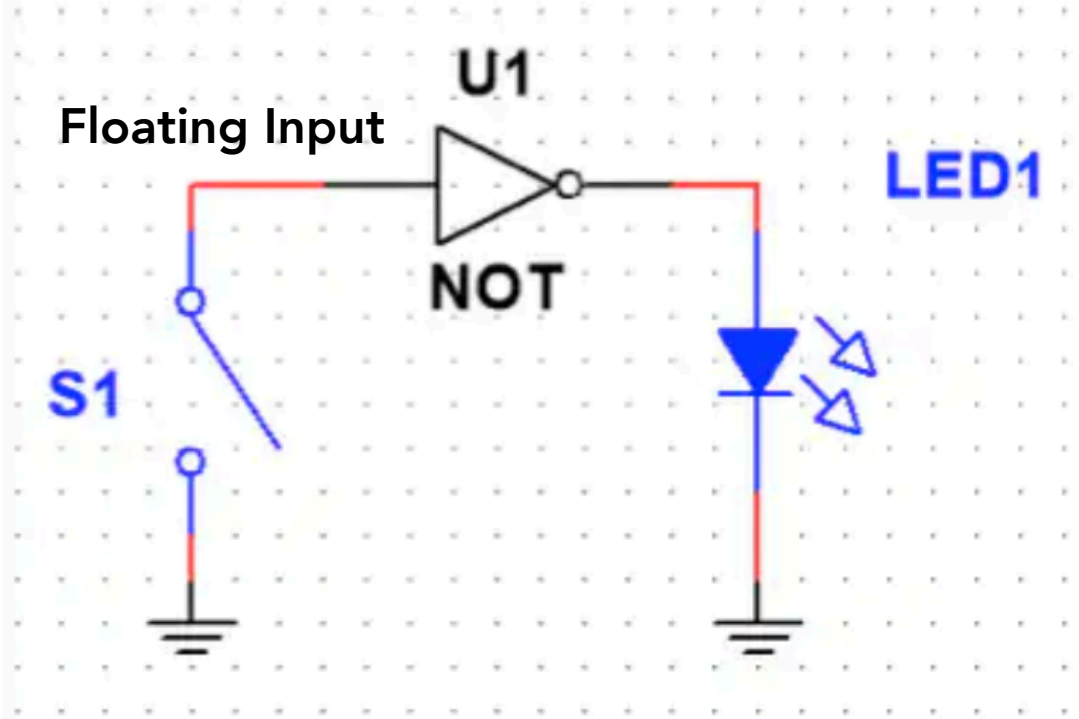
Driving gate receives (sinks) current from load gate in LOW state.

TTL NAND GATE (1)

TTL NAND GATE (2)

(b) HIGH output

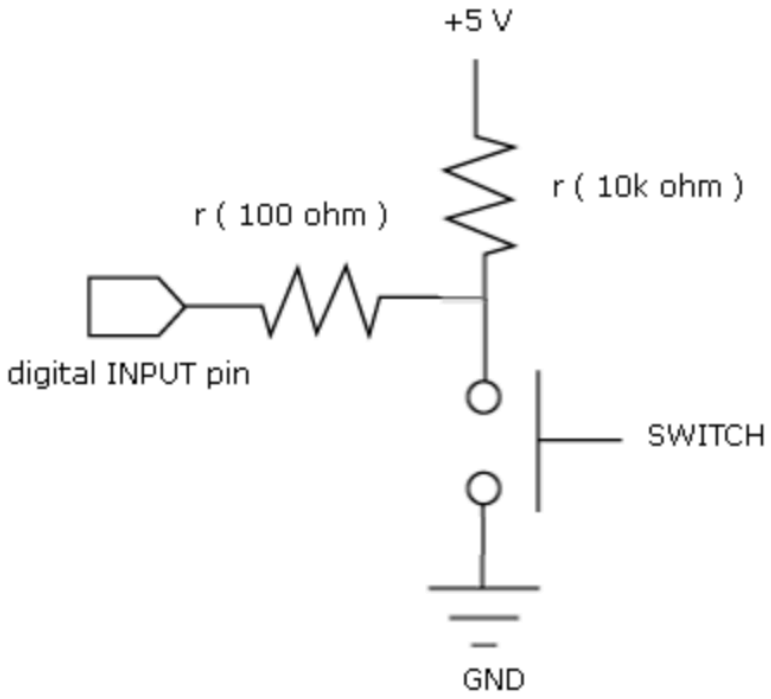
FLOATING INPUT



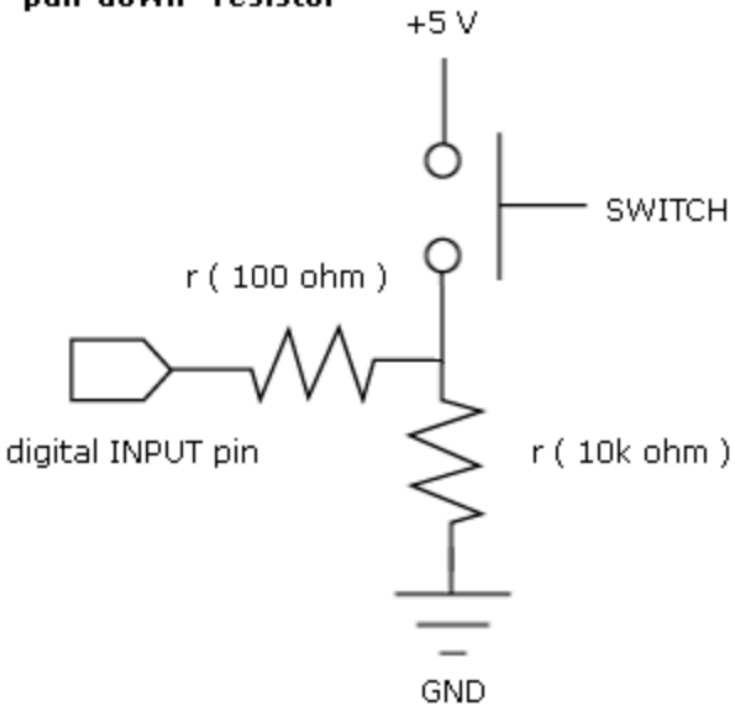
Floating Input ≠ “1”

PULL-UP & PULL-DOWN

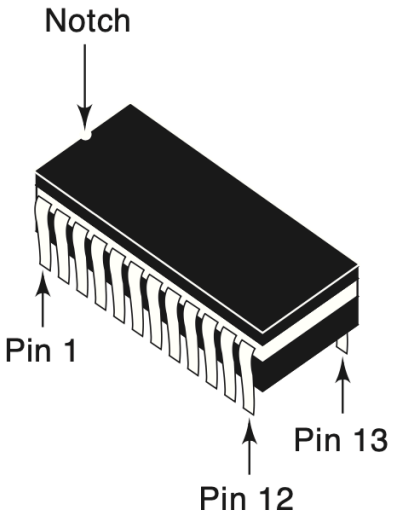
Switch with "pull-up" resistor



Switch with "pull-down" resistor

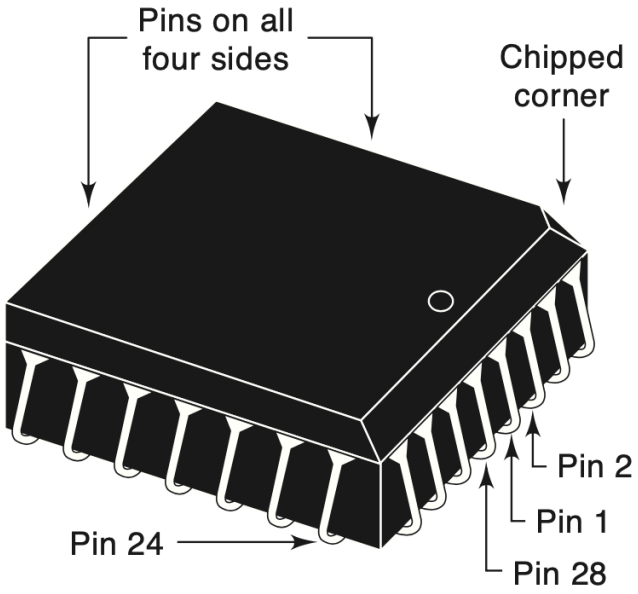


IC (INTEGRATED CIRCUIT)



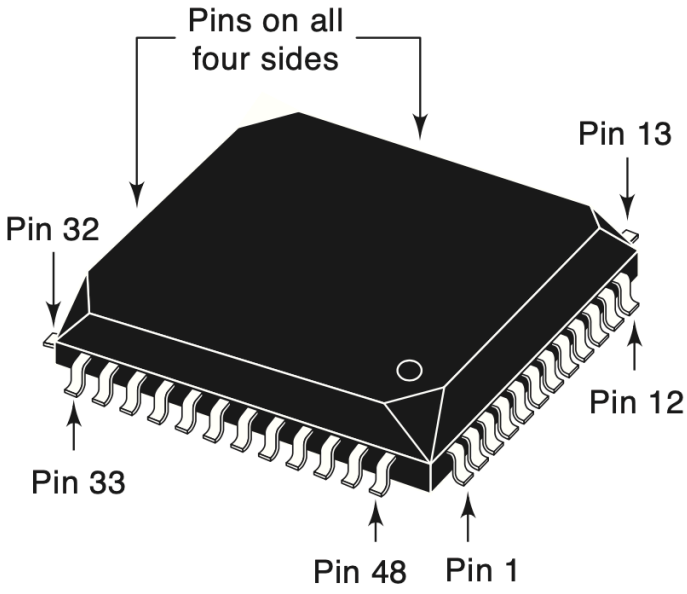
24-pin DIP

(a)



28-pin PLCC
(J-lead)
socket or surface-mount

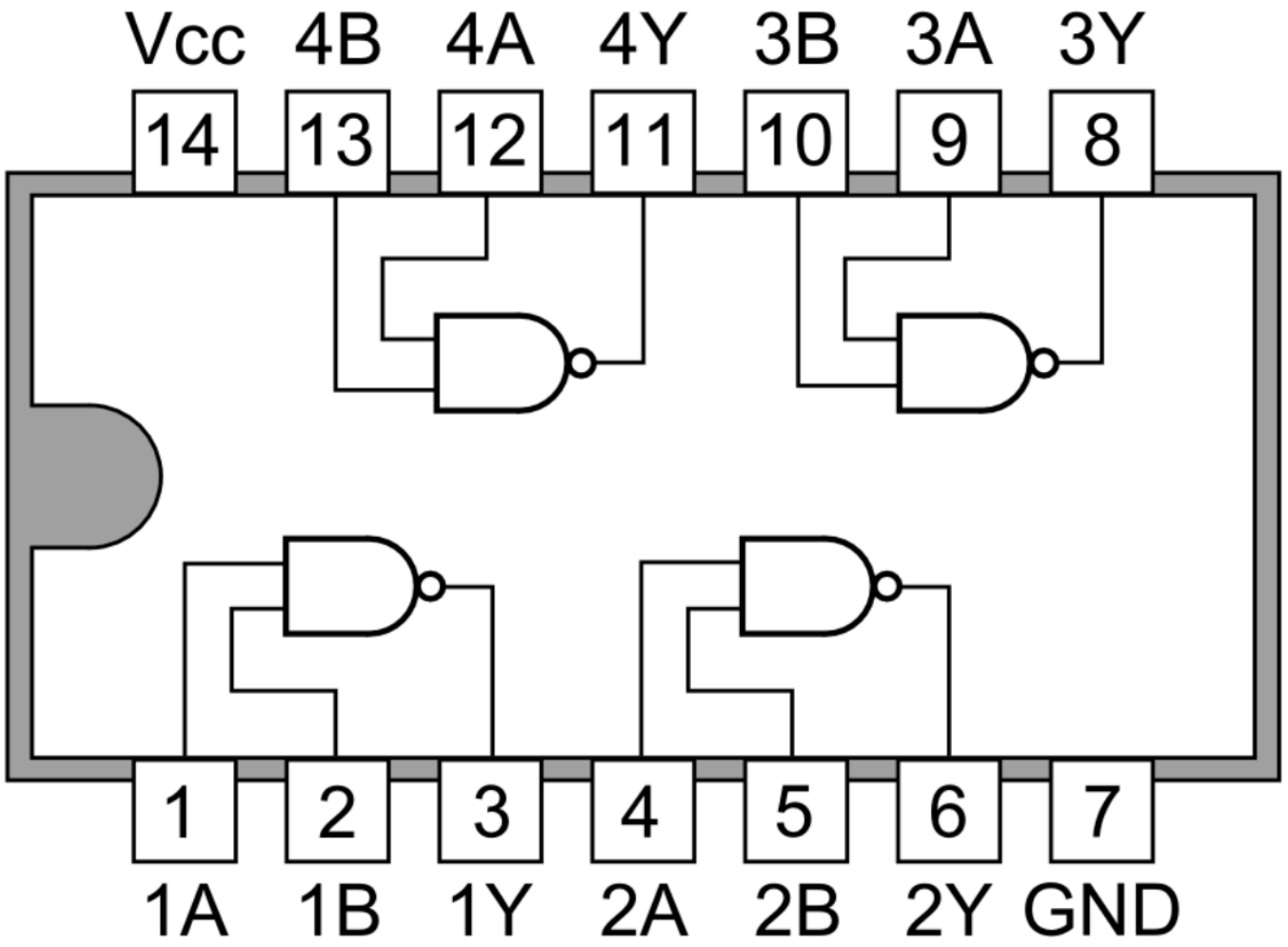
(c)



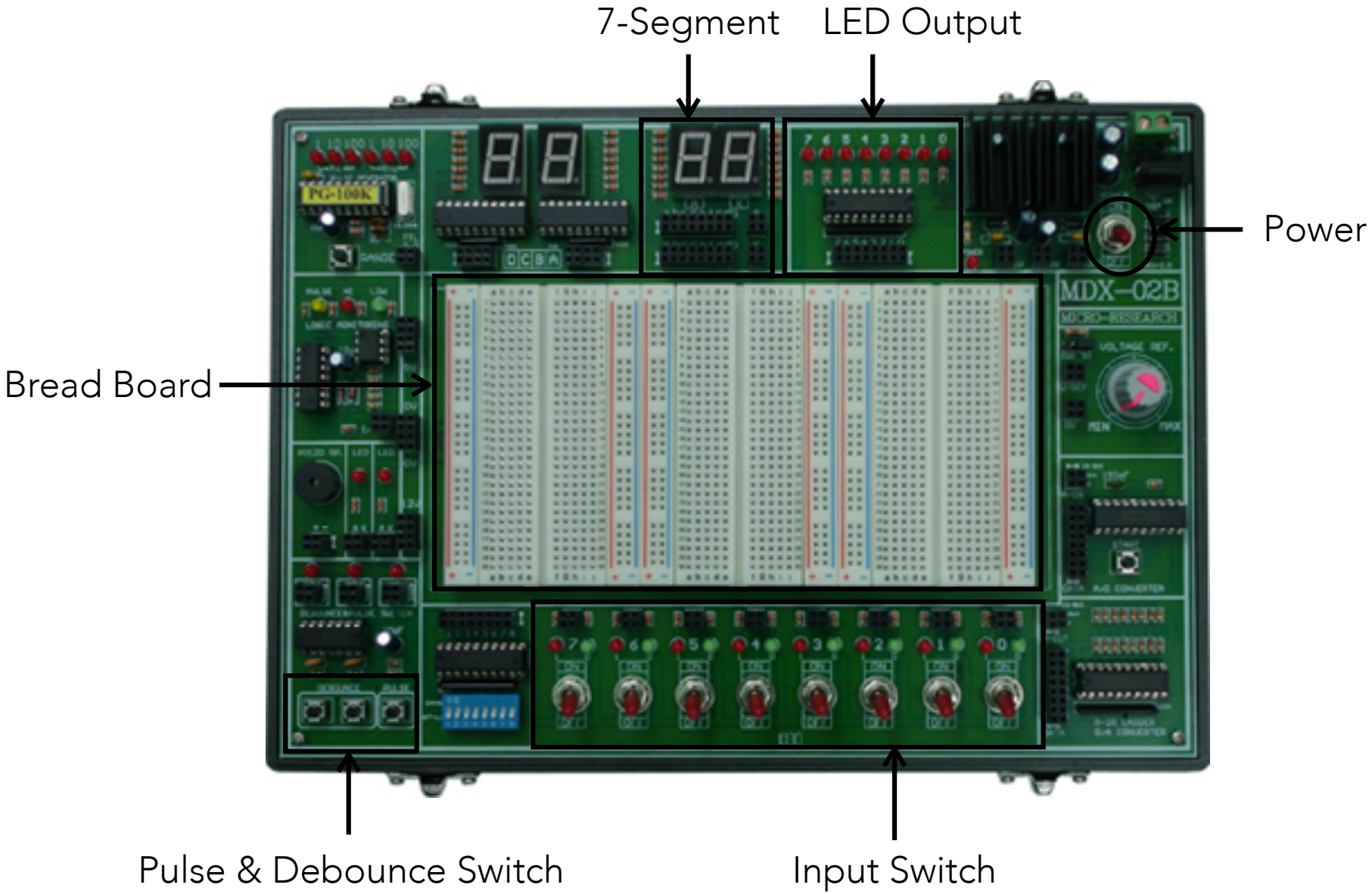
48-pin QFP
(gull-wing)
surface-mount

(d)

7400 QUAD 2-INPUT NAND GATES



MDX-02B BOARD



BREAD BOARD