

KNOWLEDGE PROBE 1: METAL OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTORS (MOSFETS) AND COMMON ELECTRONIC CIRCUITS

Rationale for MOSFET Dominance

Learning Objectives

1. Explain why MOSFETs have become the most widely used type of transistor.
 2. Describe the operation of the most commonly used type of MOSFET.
 3. Explain MOSFET biasing.
 4. Describe advantages and disadvantages to using MOSFETs.
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1. What percentage of all transistors in use today are MOSFETs?
 - a. Over 50 %
 - b. Over 70 %
 - c. Over 80 %
 - d. Over 90 %
 2. Which of the following is NOT a common BJT application today?
 - a. Fiber optic circuits
 - b. High speed, high density memories
 - c. Microwave circuits
 - d. Super fast logic circuits
 3. What is the main reason why MOSFETs are used?
 - a. Higher frequency amplification
 - b. Highest speed
 - c. Lower power consumption
 - d. Smaller size, higher circuit density
 4. The smaller the MOSFET the greater its power consumption.
 - a. True
 - b. False
 5. MOSFET circuits have an input impedance that is
 - a. Infinite
 - b. Near zero
 - c. Very high
 - d. Very low
 6. MOSFET circuits can be made with no resistors.
 - a. True
 - b. False



7. The input impedance of a MOSFET appears to the driving circuit as a
 - a. Capacitor
 - b. Diode
 - c. Inductor
 - d. Resistor

8. MOSFETs cannot be used in high power circuits.
 - a. True
 - b. False

9. What is the current smallest size MOSFET?
 - a. 30 nm
 - b. 52 nm
 - c. 90 nm
 - d. 250 nm

10. The most serious limitation of MOSFETs is
 - a. Excessive size
 - b. High power consumption
 - c. Limited high frequency response
 - d. Sensitivity to static electricity