

Midterm #2 Review

- Decibels
- Bode Plots
 - Magnitude Response
 - Phase Response
 - Superposition of LPF and HPF
- Op-Amps
 - Model
 - Summing Point Constraints
 - Different Configurations
 - Arithmetic operations
 - A-D conversion
 - Active Filters
- Semiconductor Devices
 - Silicon Atom, crystal structure

Midterm #2 Review Cont'd

- Semiconductor Devices
 - Dopants
 - Charge Concentration
 - Conductivity and resistivity
 - Scattering, drift velocity
 - Sheet resistance
- Diodes
 - Semiconductor Physics
 - Built-in Potential Barrier
 - Junction width
 - Junction Capacitance
 - I-V Characteristics
 - Zener Diodes
 - Load Line Analysis
 - Models (Ideal vs. Large signal)

Midterm #2 Review Cont'd

■ Diode Applications

- ☐ Rectifiers
- ☐ Diode Logic
- ☐ Photoelectric effect
 - Solar cells
 - Photodetectors
 - LEDs

■ MOSFET

- ☐ Semiconductor Structure
- ☐ NFET and PFET
- ☐ I_g vs. V_{gs}
- ☐ I_d vs. V_{gs}

Midterm #2 Review Cont'd

■ MOSFET

- ☐ I_d vs. V_{gs}
 - Saturation vs. Triode
- ☐ I_d vs. V_{ds}
 - Saturation vs. Triode
- ☐ Non-Ideal effects
 - Channel Length modulation
 - Velocity Saturation
- ☐ V_T variations and subthreshold conduction
- ☐ Large Signal Equivalent resistance of a MOSFET
- ☐ Load Line analysis
 - Finding the Q-point