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EXP – 3: MULTISTAGE MOSFET

AIM: *To perform transient and AC analysis of a multi stage MOSFET using LTSpice software*

APPARATURS REQUIRED: *LTSpice software*

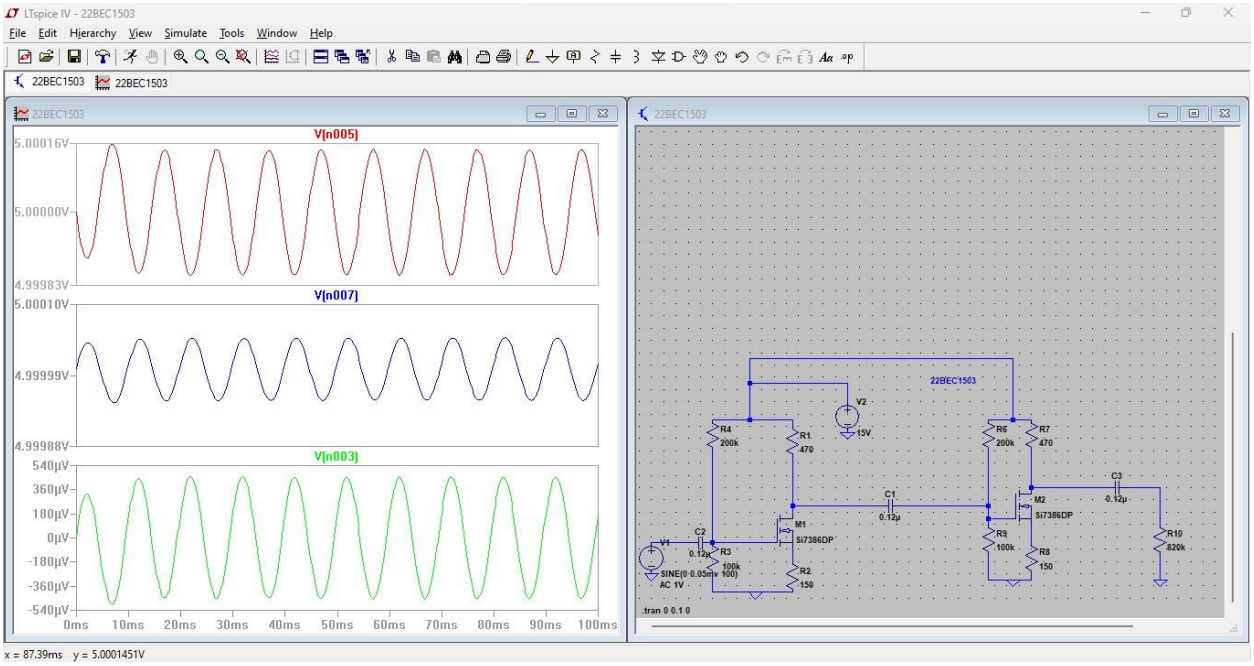
THEORY:

Multi-stage MOSFET amplifiers are a common configuration in analog integrated circuit design for amplifying signals. These amplifiers are built using multiple stages of Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs) to achieve high gain, improved bandwidth, and other desired performance characteristics. In summary, multi-stage MOSFET amplifiers are versatile circuits used for amplifying signals in various electronic systems. They offer high gain, wide bandwidth, and flexibility in design but require careful attention to biasing, component selection, and noise management for optimal performance.

PROCEDURE:

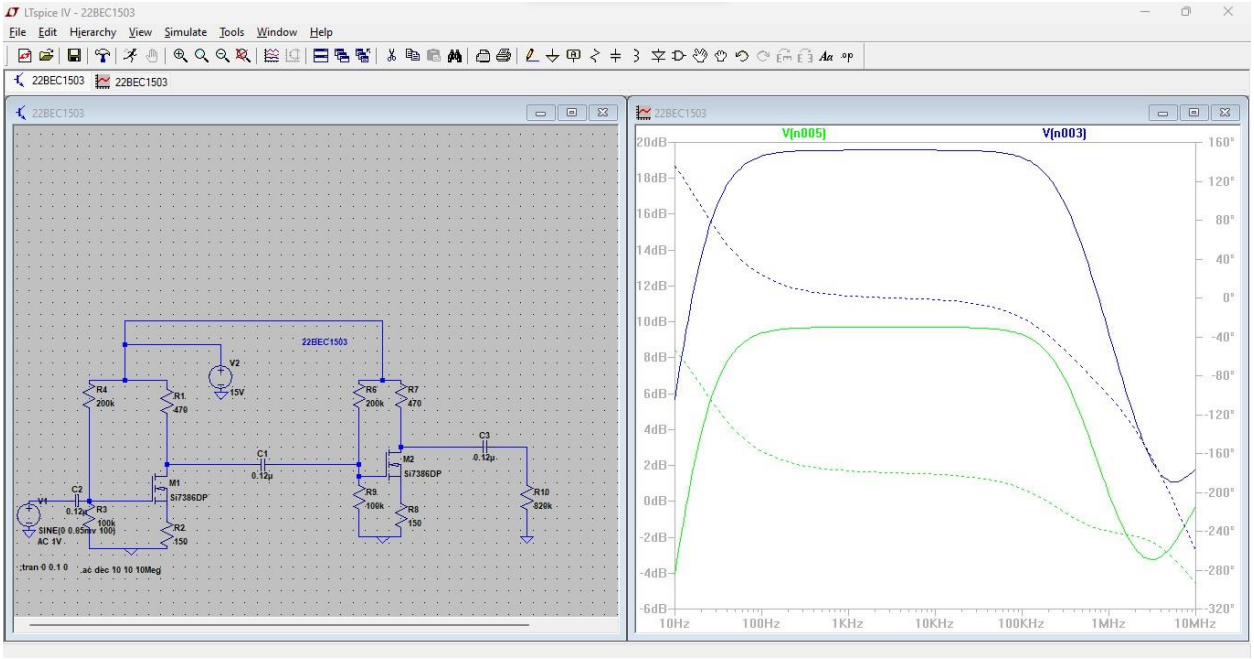
1. *Build the circuit diagram of a double stage MOSFET in LTSpice.*
2. *Do transient analysis by setting stop time as 0.1 and time to start saving data as 0. Analyse the graph between input and output.*
3. *Do AC analysis by setting type of sweep as 'Decade', no. of points in decade as 10, start frequency as 10 and stop frequency as 10Gig. Observe the output graph.*

TRANSIENT ANALYSIS:

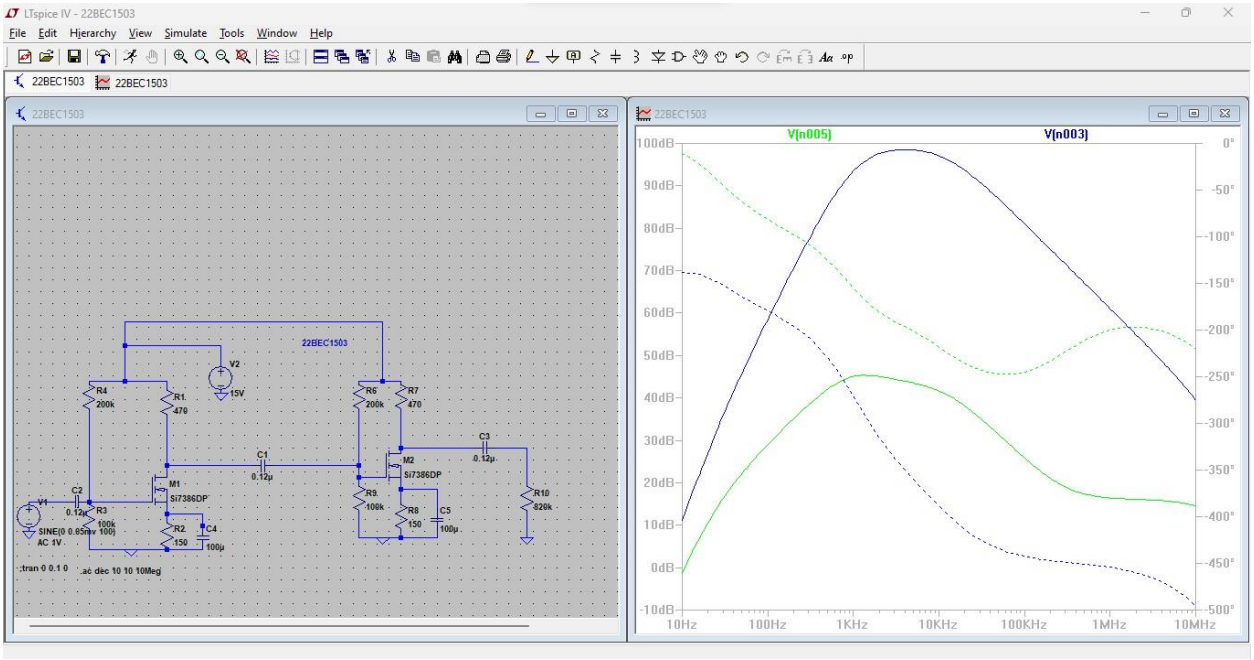


AC ANALYSIS:

WITHOUT BYPASS CAPACITOR :



WITH BYPASS CAPACITOR:



RESULT: *Hence the transient and AC characteristics of a multi stage MOSFET are analyzed.*