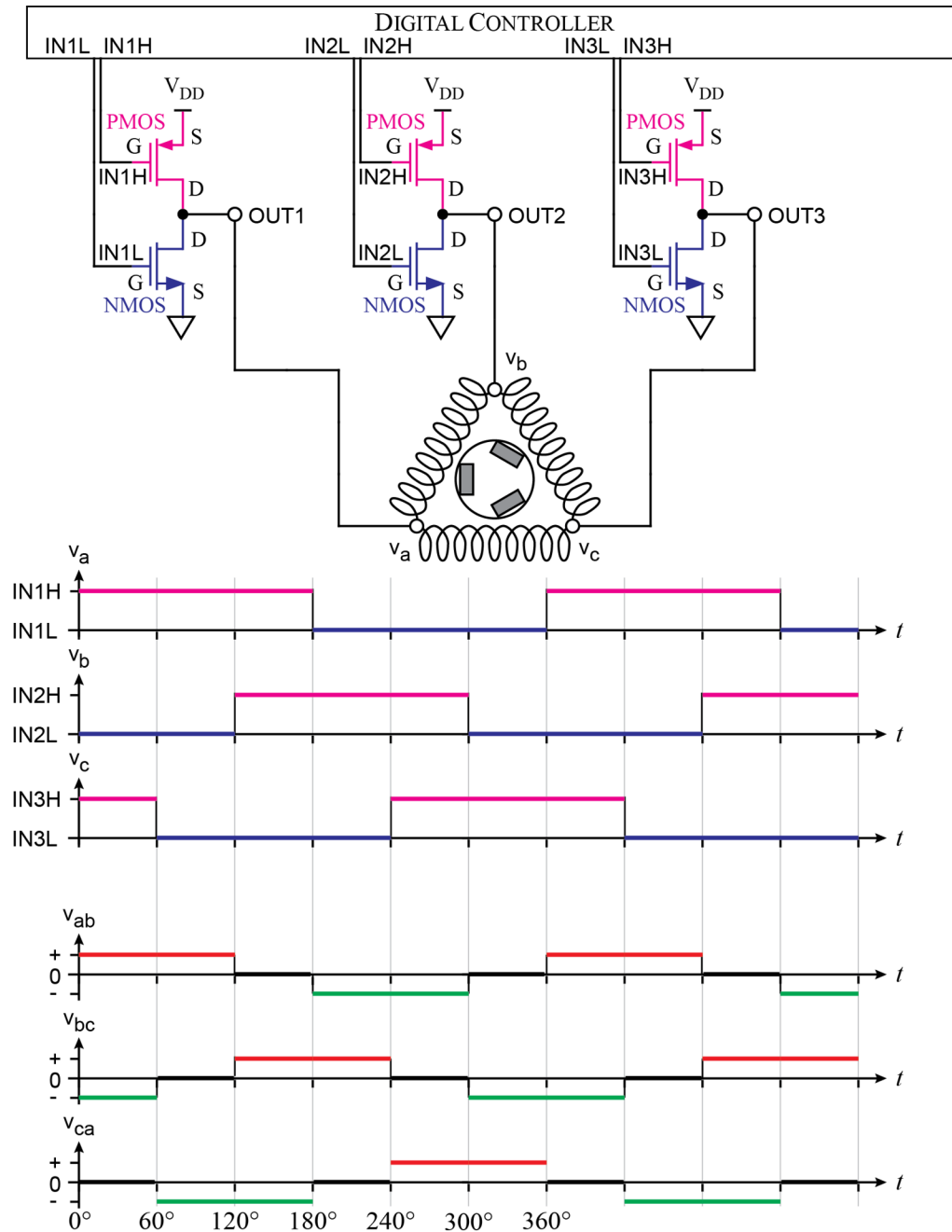

TOOL: Field Effect Transistors (FETs) may be used as switches in an H-bridge circuit that creates voltages for a 3-phase motor. The waveforms created are square wave approximations to sinusoids that are each 120° out of phase with each other and are applied to the stator windings of the motor. The stator windings act as magnets that turn on in succession and pull the rotor of the motor in a circle as it tries to align with the rotating magnetic fields of the stator.

NMOS FETs are used as pull down switches and are located at the bottom of the H-bridge circuits. The NMOS FETs turn on when the gate voltage is high relative to the source, which is at a lower voltage. PMOS FETs are used as pull up switches and are located at the top of the H-bridges. The NMOS FETs turn on when the gate voltage is low relative to the source, which is at a higher voltage.

Fig. 1 on the next page shows the H-bridge circuitry and waveforms.



REF: <https://www.youtube.com/watch?v=2DyX4XEduLY> accessed: 2025/04/07
KatKimShow: Three-Phase Inverter Switching Sequence

Fig. 1. H-bridge circuitry and waveforms.