# Synthesis of Three-Phase AC

- Applications:
  - Electric Drives
  - UPS
  - PV Systems
  - Power Systems

utility

conv1

+

−

conv2

Load

controller

V_d

+

−

i_a

a

b

c

n
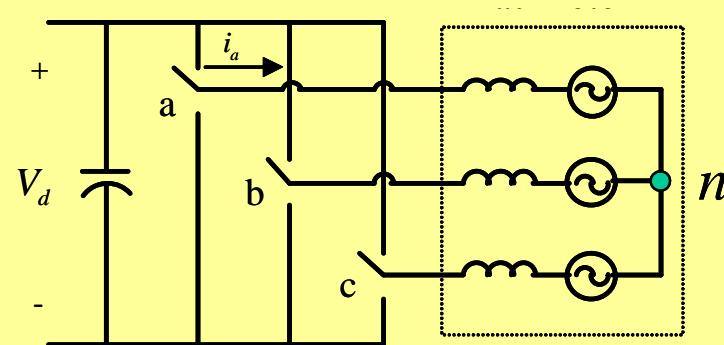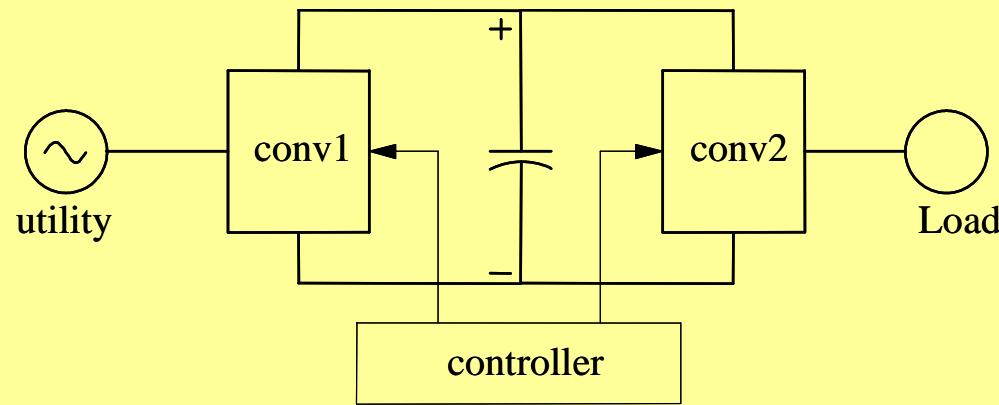
Synthesis of Low-Frequency AC:
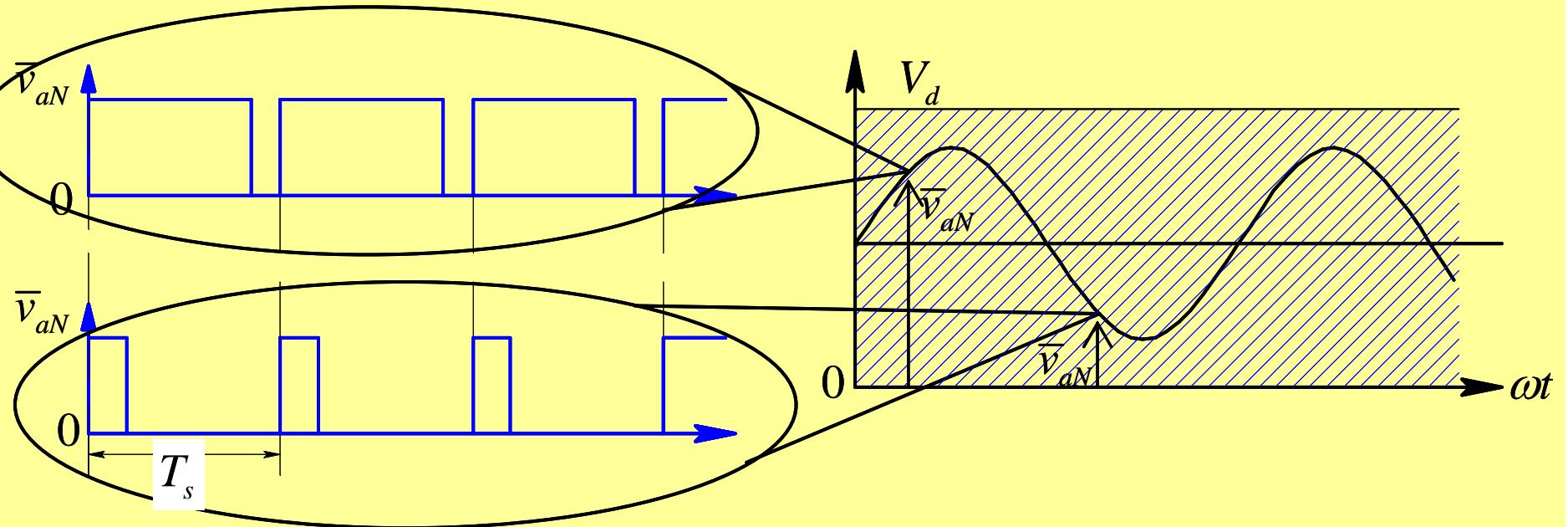
Three-Phase Inverters

(a)

(b)

Superposition -

(a)

(b)

Sine PWM

V_d

$\overline{v}_{aN}$ $\overline{v}_{bN}$ $\overline{v}_{cN}$

$\dfrac{V_d}{2}$

$\overline{v}_{an}$

0   ωt

Waveforms

$\hat{V}_{tri}$

$v_{cntrl,a}$

$v_{cntrl,b}$

$v_{cntrl,c}$

v_{aN}

$\overline{v}_{aN}$

$d_a \dfrac{T_s}{2}$

v_{bN}

$d_b \dfrac{T_s}{2}$

$\overline{v}_{bN}$

v_{cN}

$d_c \dfrac{T_s}{2}$

$\overline{v}_{cN}$

$T_s / 2$
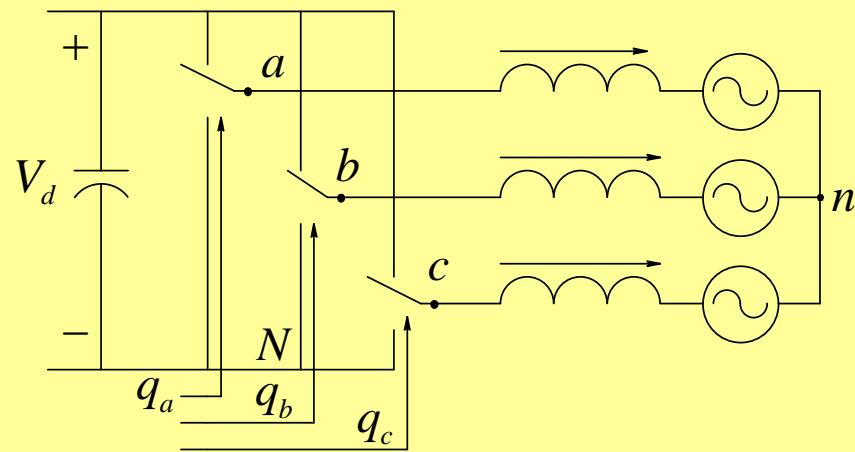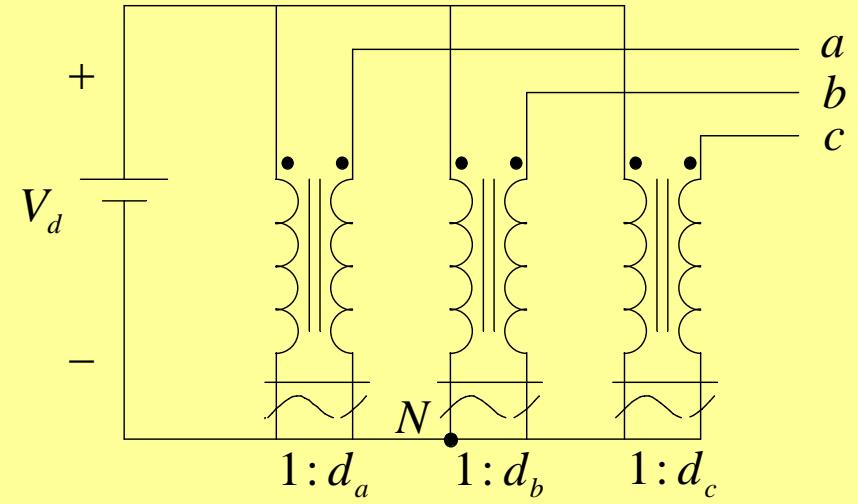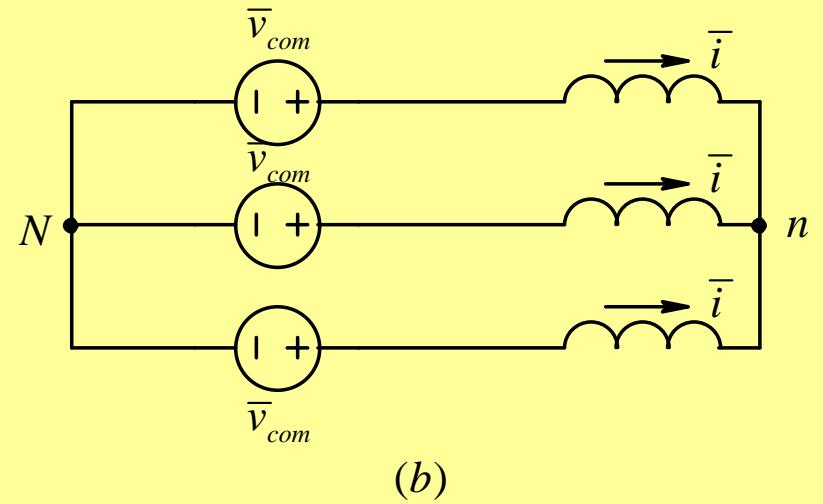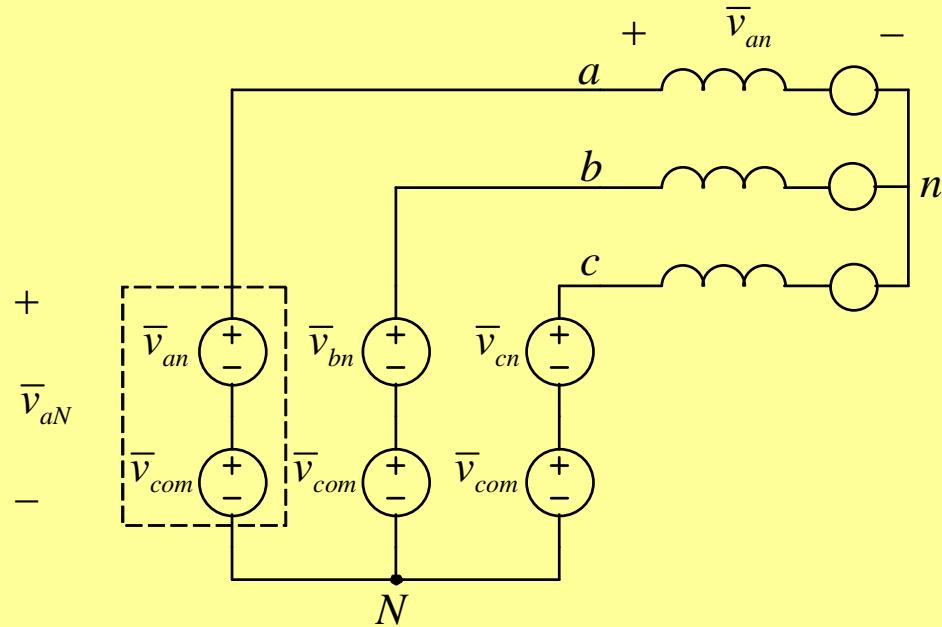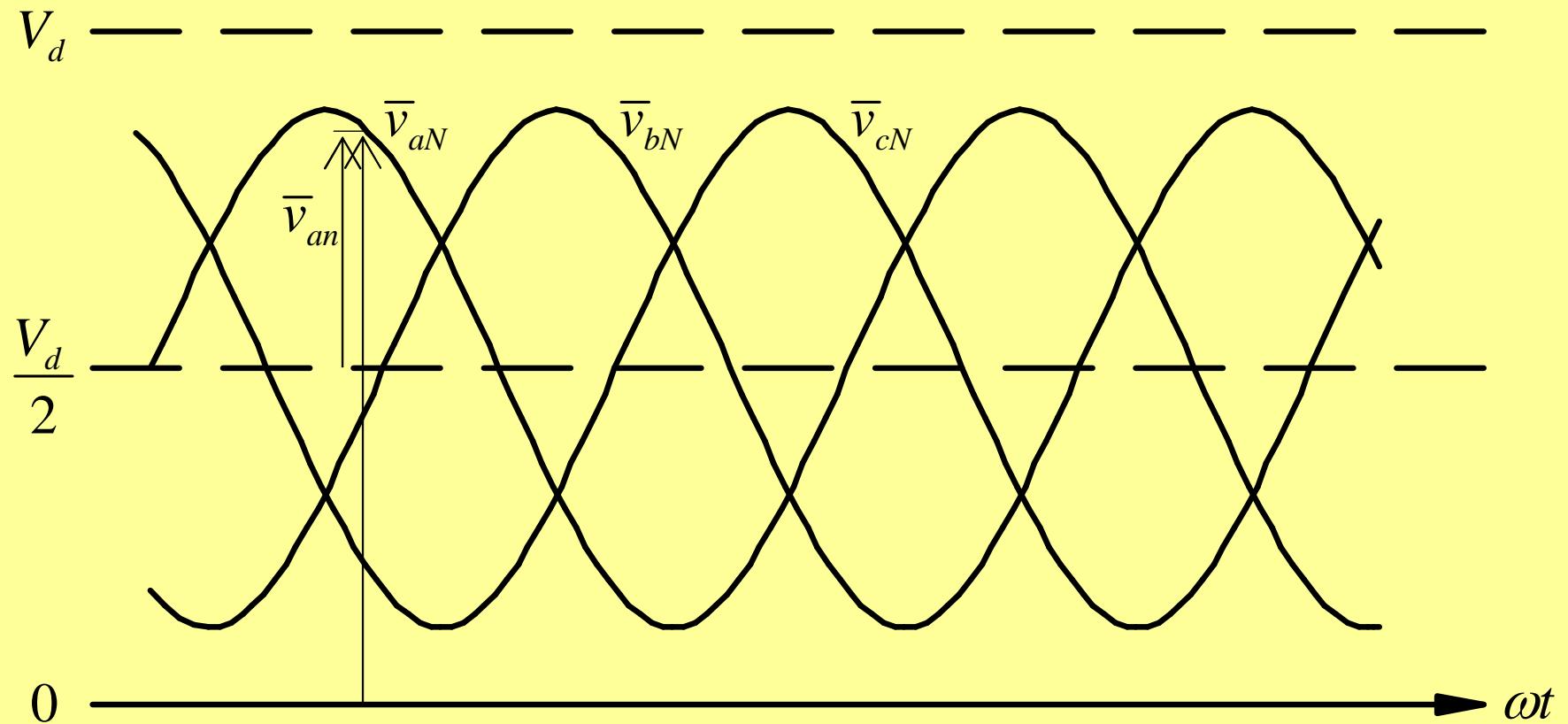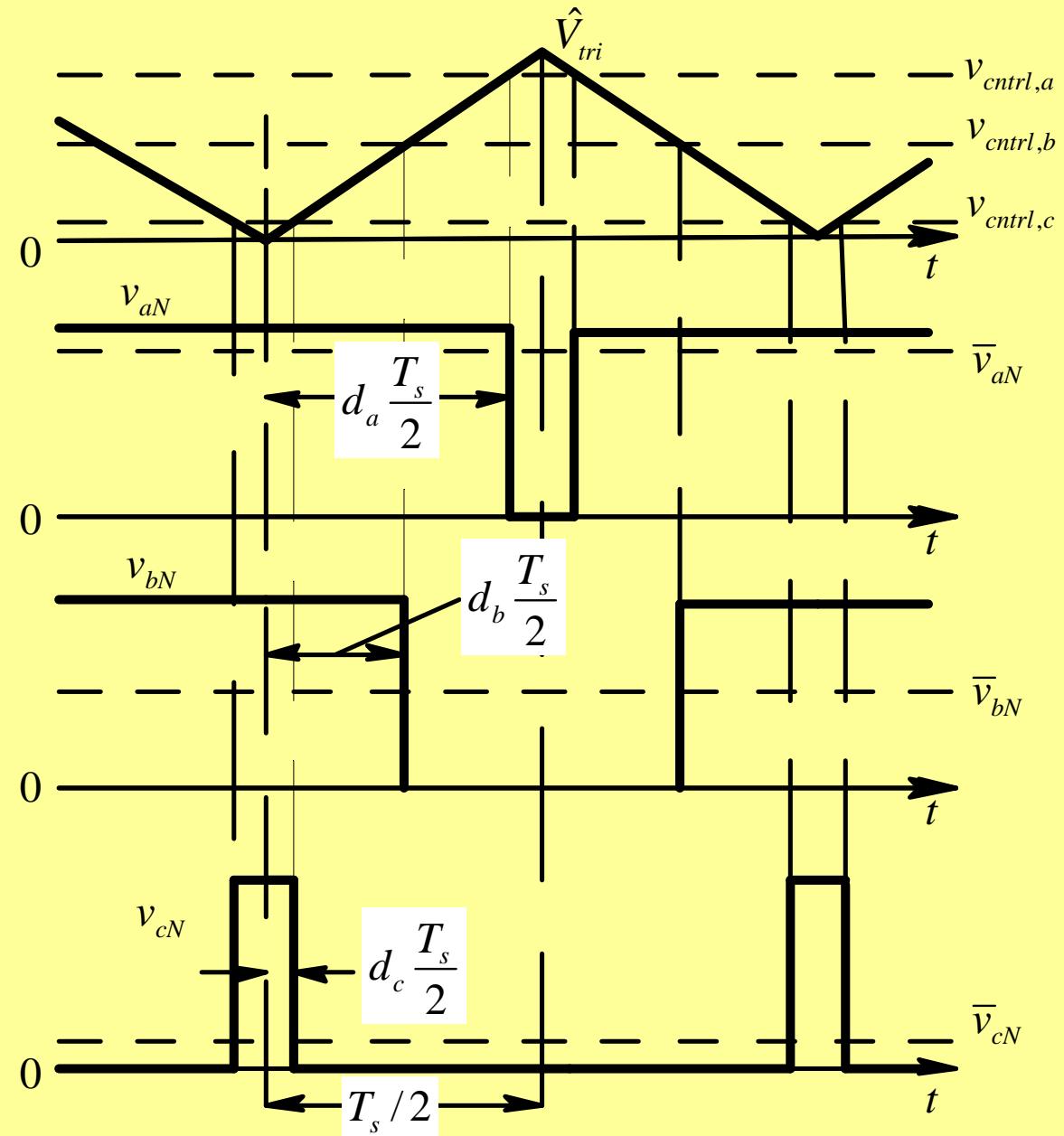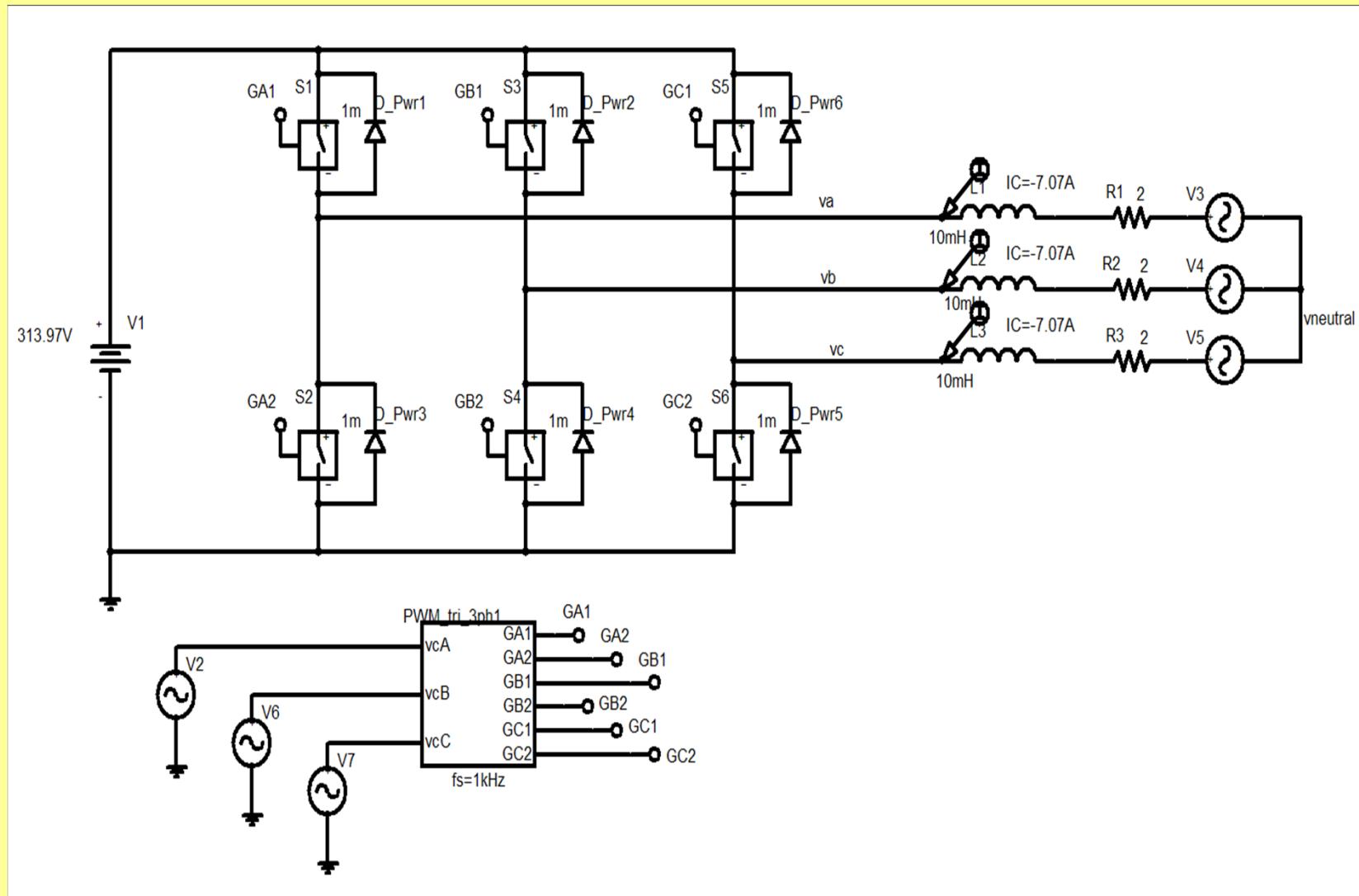
PSpice Modeling:

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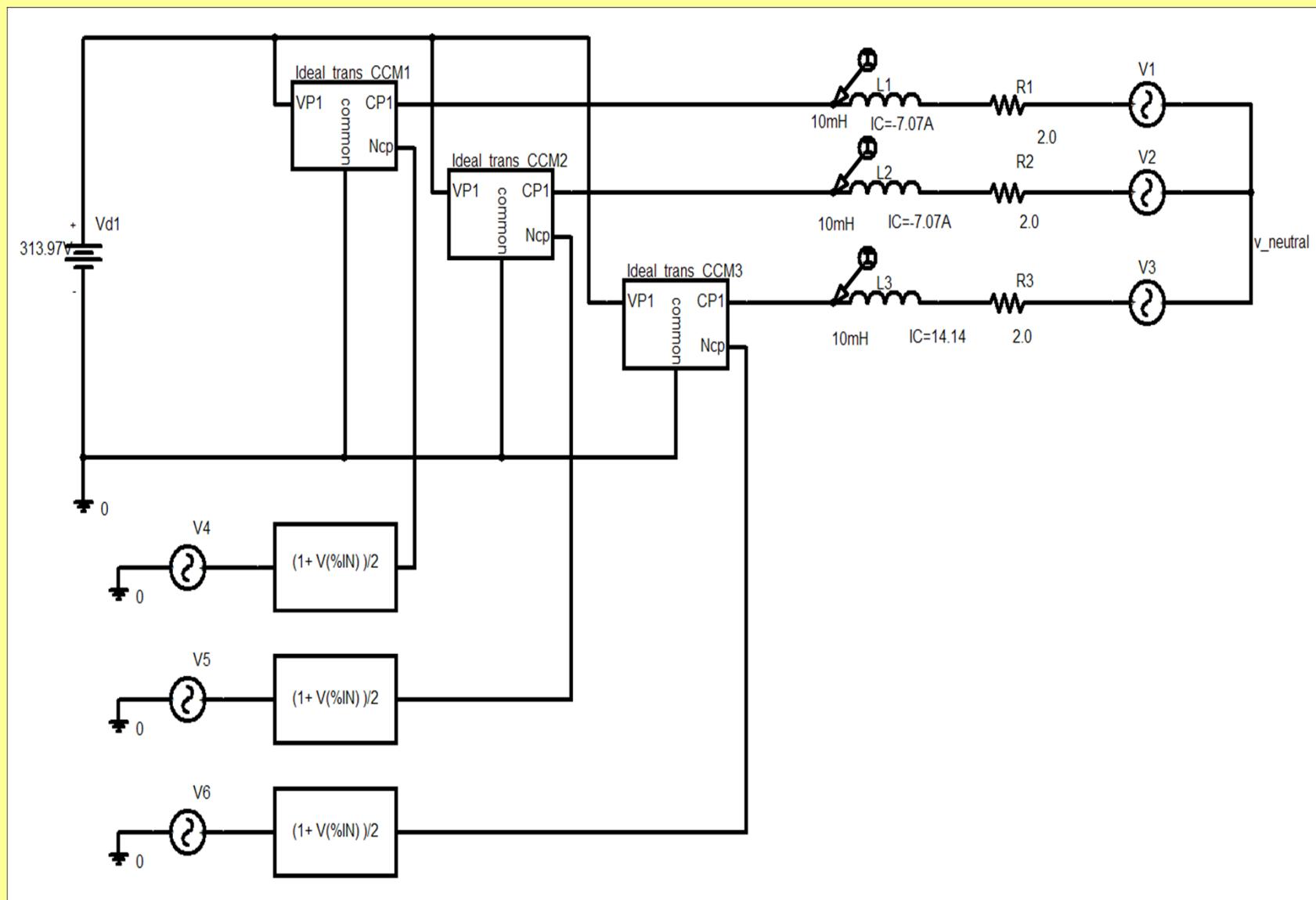
Simulation Results
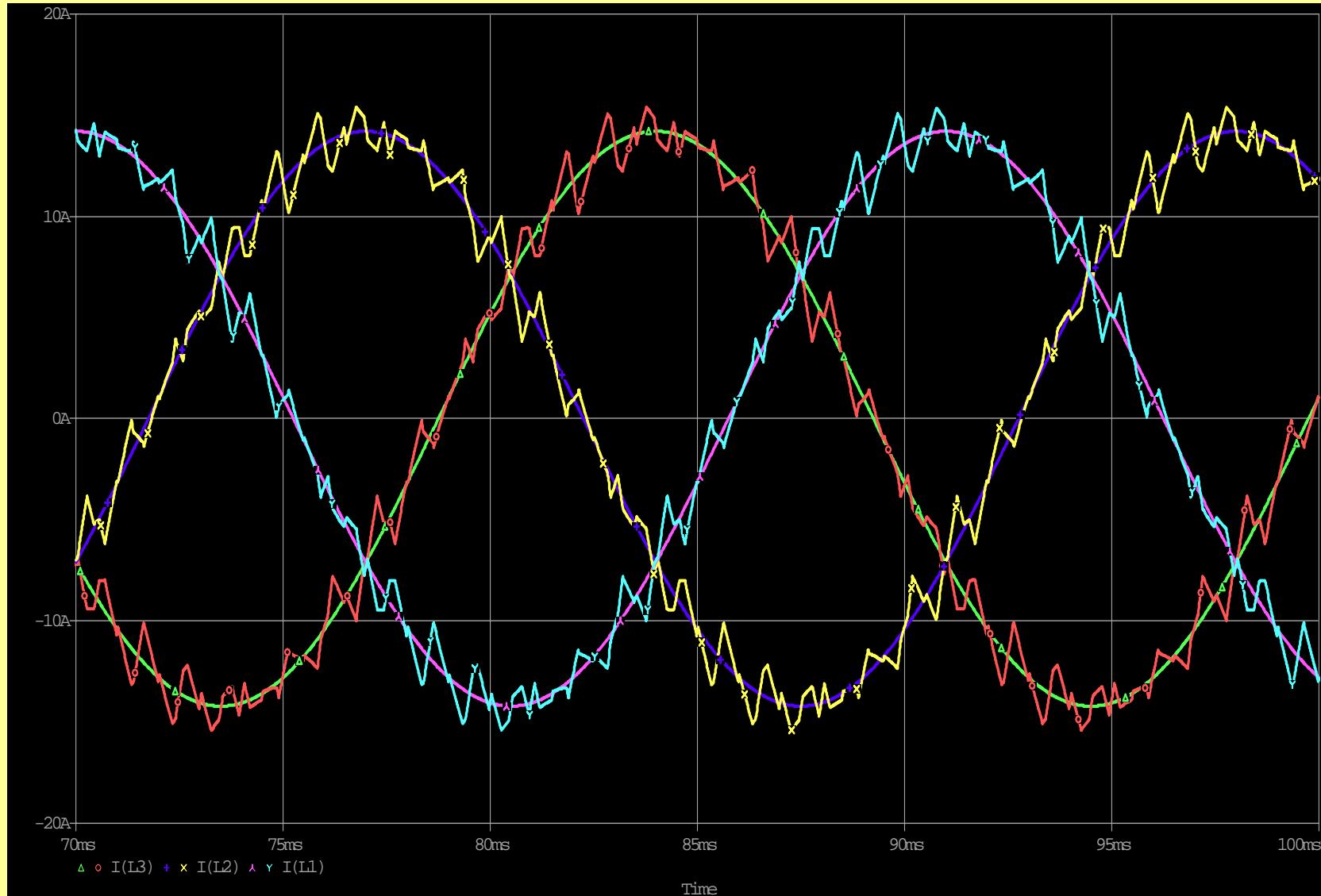
Summary

Synthesis of dc and low-frequency ac
waveforms

- Applications in DC-DC Motor Drives
- Applications in Single-Phase AC
- Application in Three-Phase AC Motor
Drives