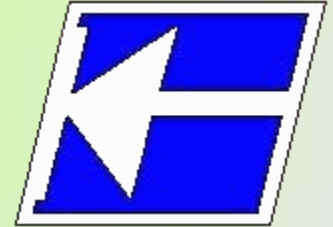


**Centro Federal de Educação Tecnológica de Santa Catarina**  
**Departamento Acadêmico de Eletrônica**  
**Conversores Estáticos**



**Conversores CC-CC Isolados**  
*Estágio de Potência dos Conversores*  
*Flyback e Forward*

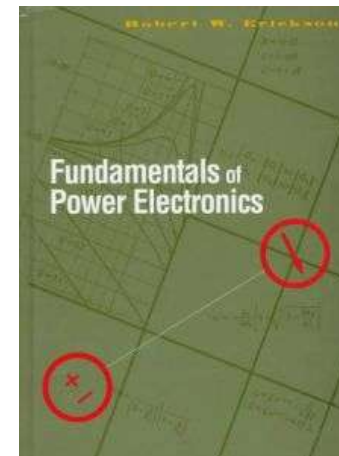
**Prof. Clóvis Antônio Petry.**

**Florianópolis, outubro de 2008.**

# Bibliografia para esta aula

## Capítulo 9: Choppers DC-DC

### 1. Conversores CC-CC isolados.

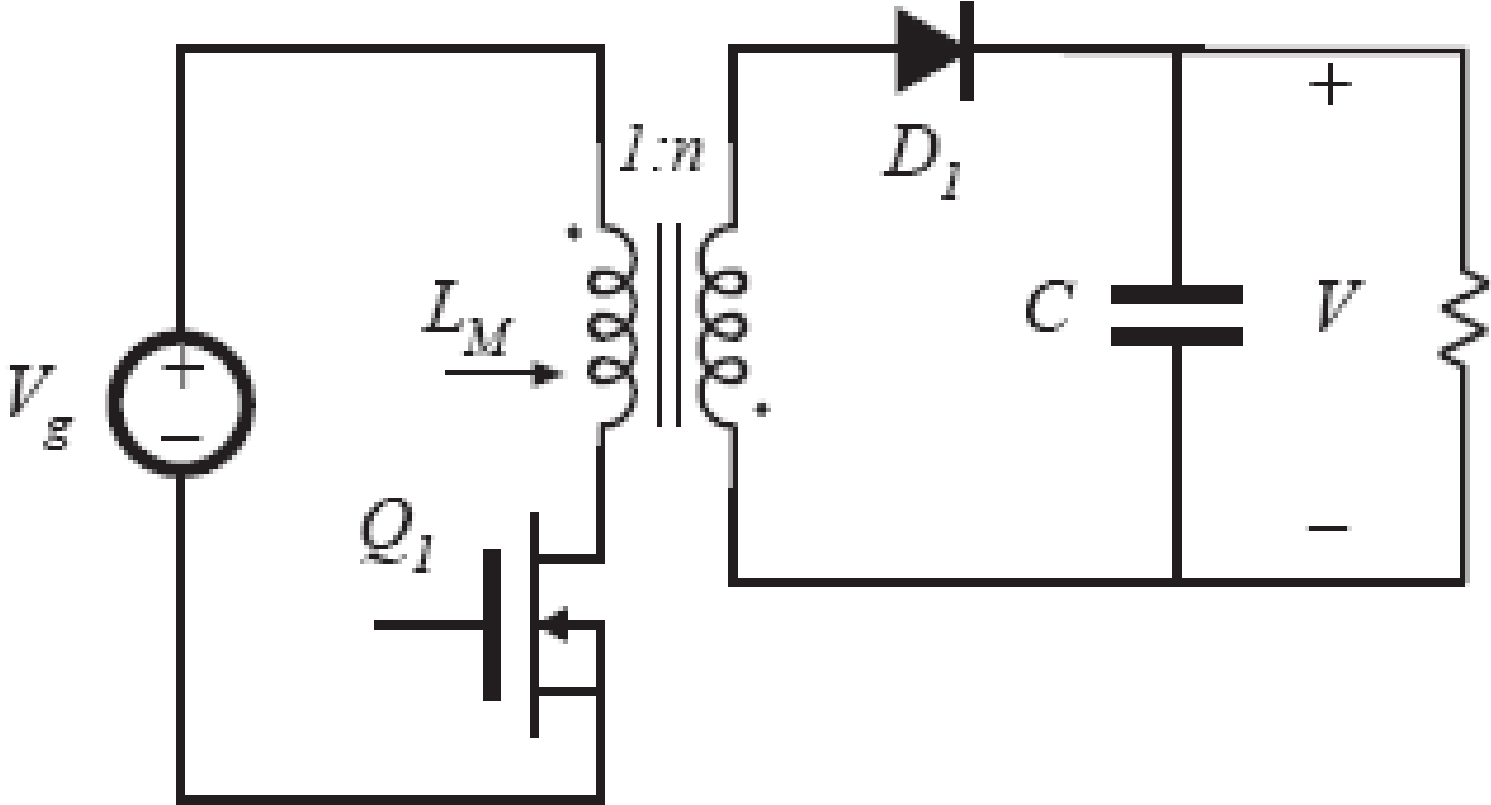


# Nesta aula

## **Conversores CC-CC:**

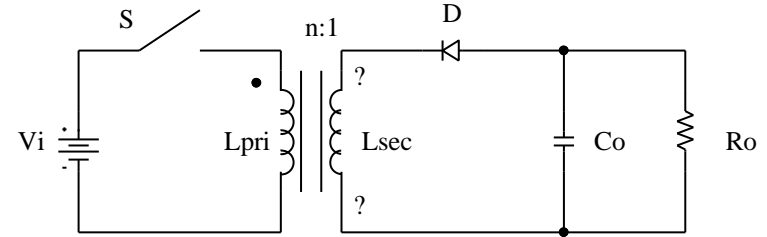
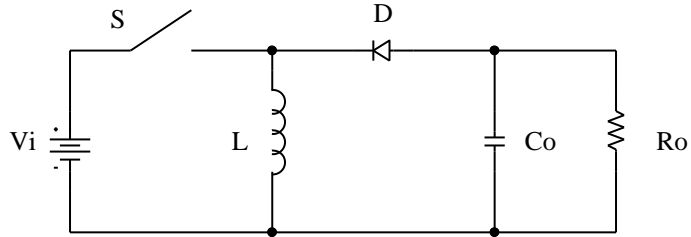
1. Conversor Flyback;
2. Conversor Forward;
3. Outros conversores isolados.

# Converter Flyback

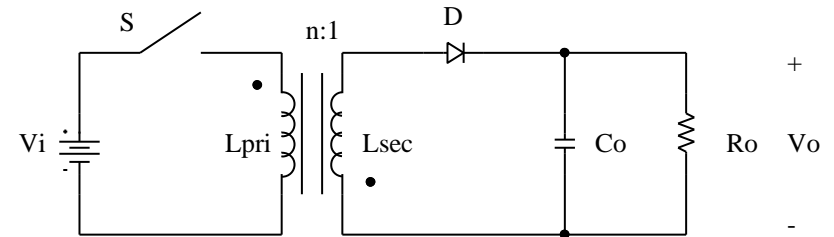
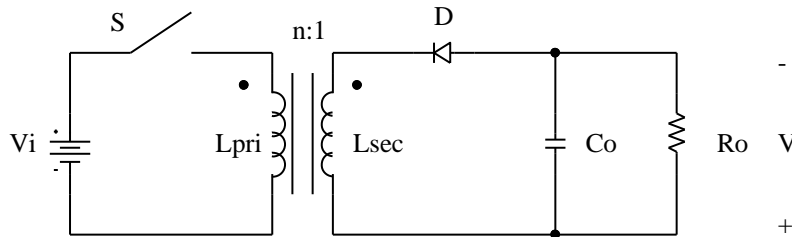


# Conversor Flyback

BUCK-BOOST



Qual a polaridade do transformador??



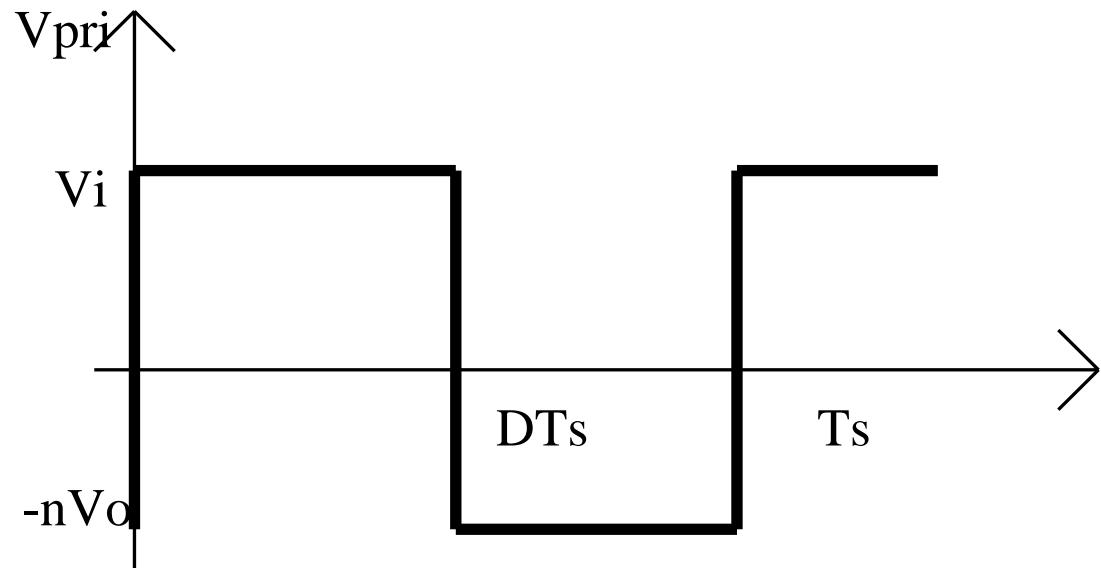
# Converter Flyback

$$V_{pri} = \frac{1}{T_s} \int_0^{D \cdot T_s} V_i \cdot dt + \frac{1}{T_s} \int_{D \cdot T_s}^{T_s} (-n \cdot V_o) \cdot dt$$

$$\frac{n \cdot V_o}{V_i} = \frac{D}{1 - D}$$

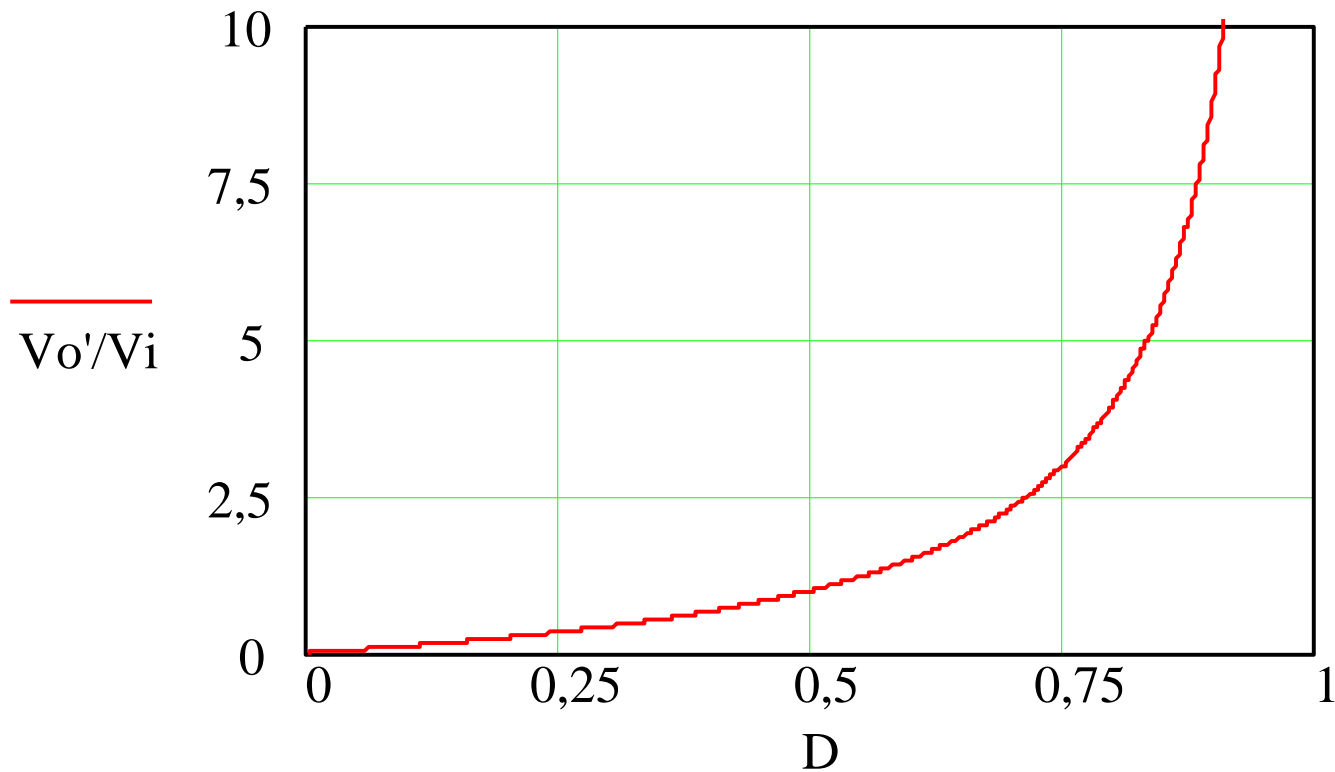
$$V'_o = n \cdot V_o$$

$$\frac{V'_o}{V_i} = \frac{D}{1 - D}$$

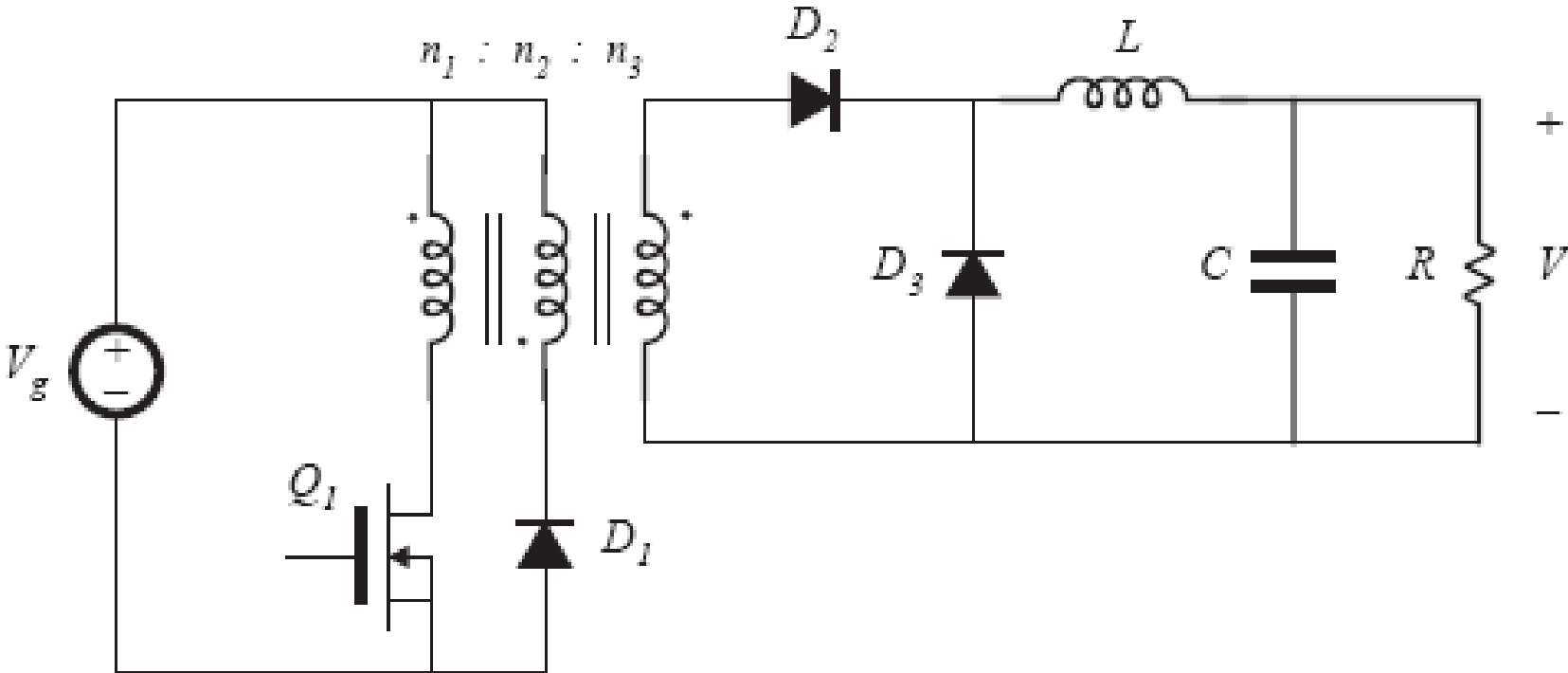


# Conversor Flyback

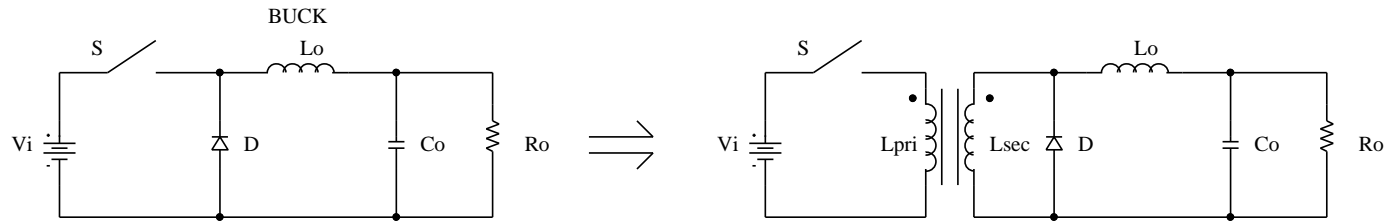
Ganho estático em função da razão cíclica:



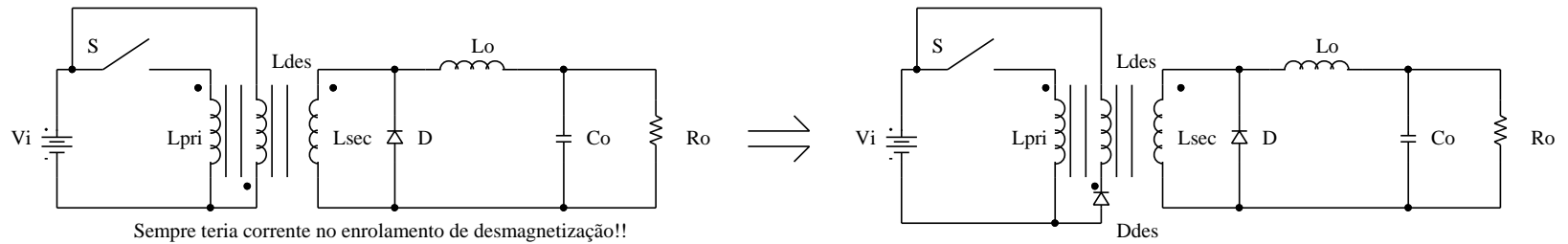
# Converter Forward



# Conversor Forward

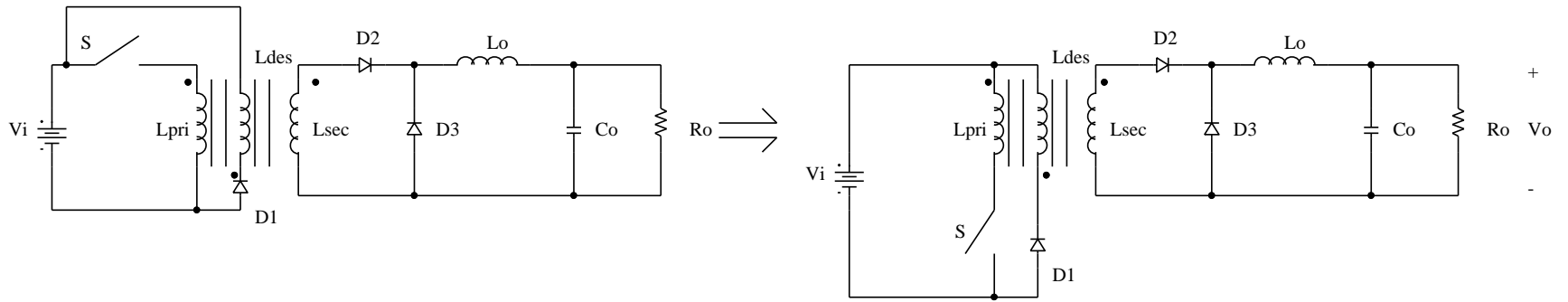


Como eliminar a energia armazenada devido à magnetizante??



Sempre teria corrente no enrolamento de desmagnetização!!

No secundário circularia uma corrente por D!!



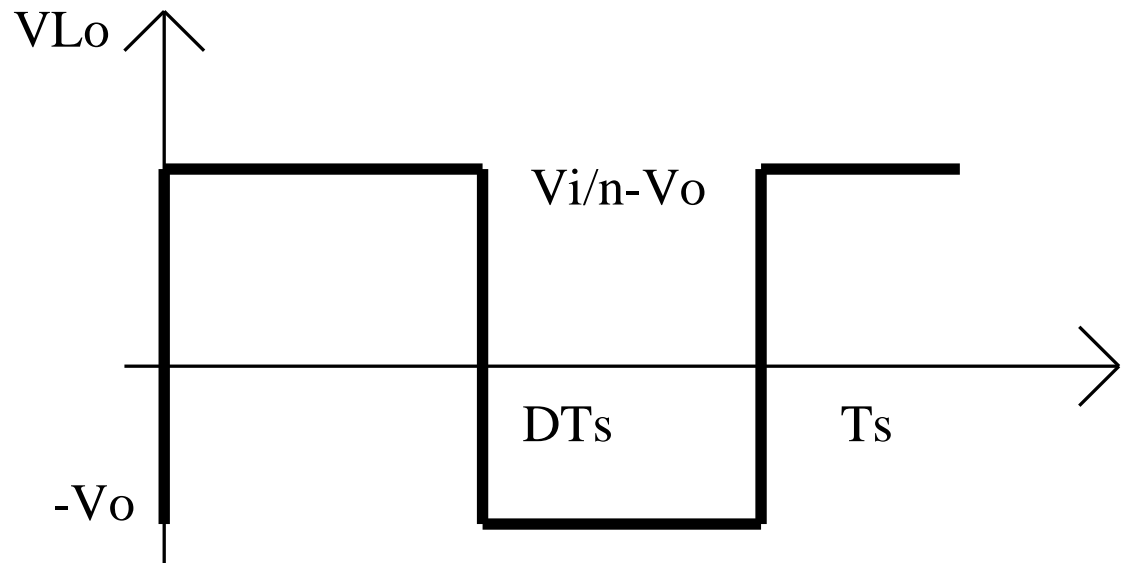
# Converter Forward

$$\frac{1}{T_s} \int_0^{DT_s} \left( \frac{V_i}{n} - V_o \right) dt = \frac{1}{T_s} \int_0^{(1-D)T_s} V_o dt$$

$$\frac{n \cdot V_o}{V_i} = D$$

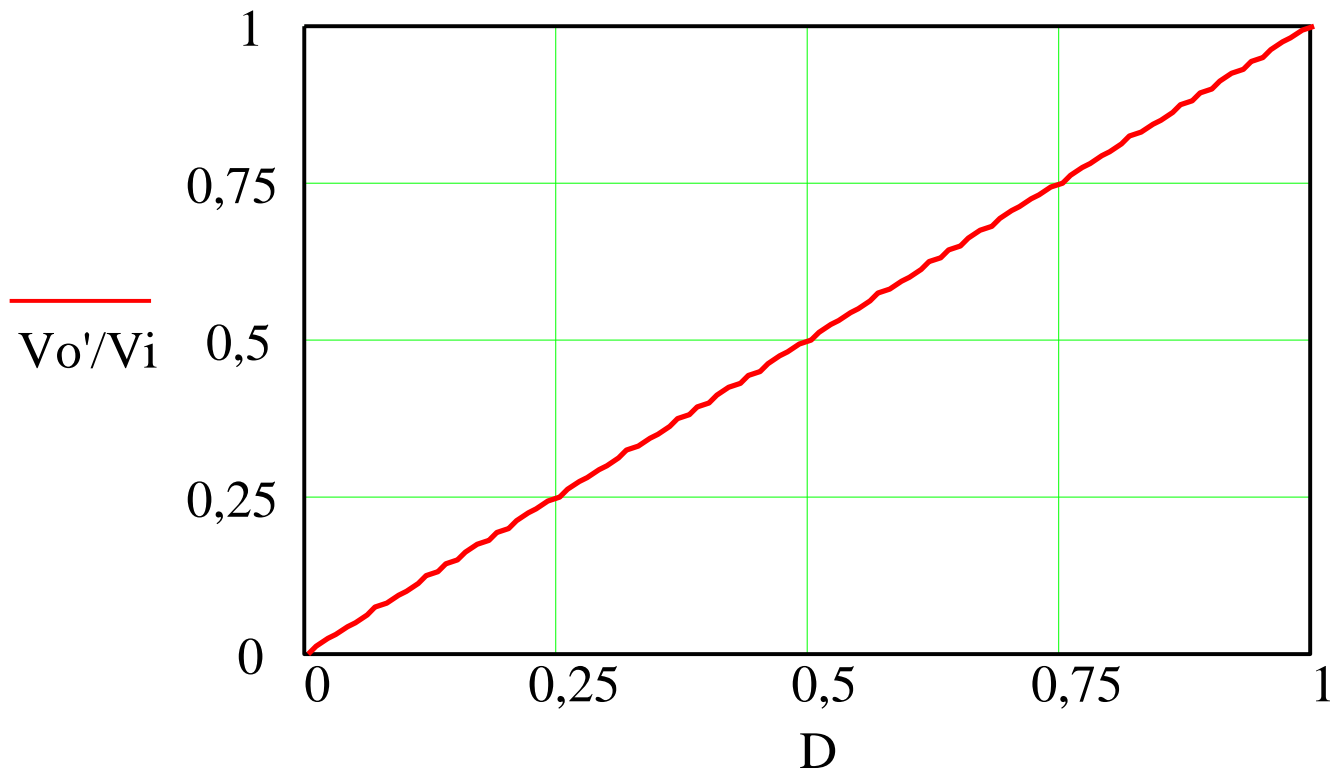
$$V'_o = n \cdot V_o$$

$$\frac{V'_o}{V_i} = D$$

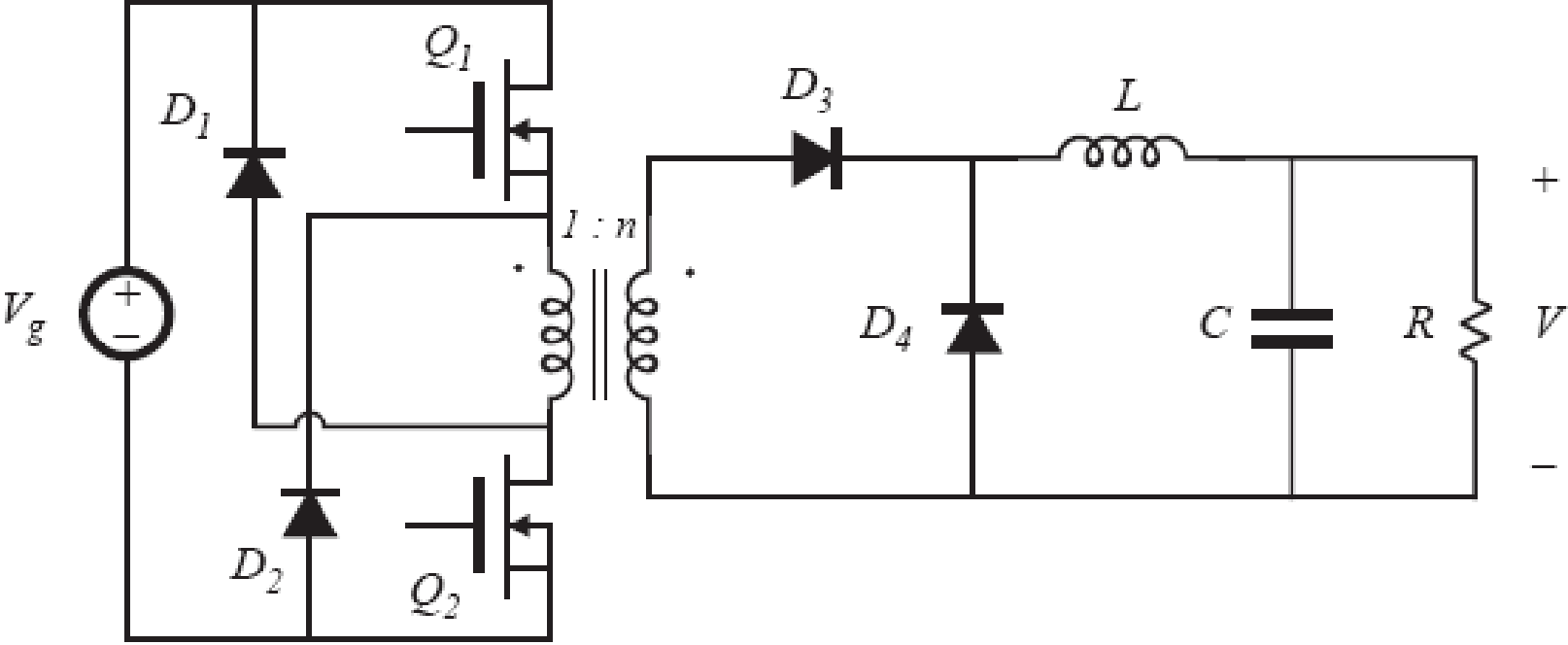


# Conversor Forward

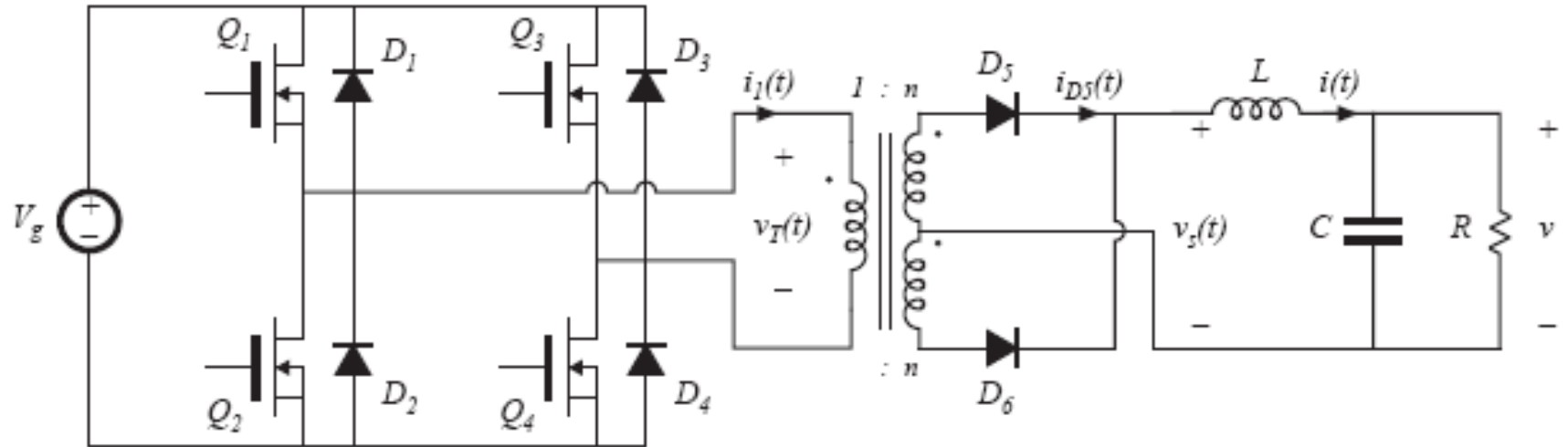
Ganho estático em função da razão cíclica:



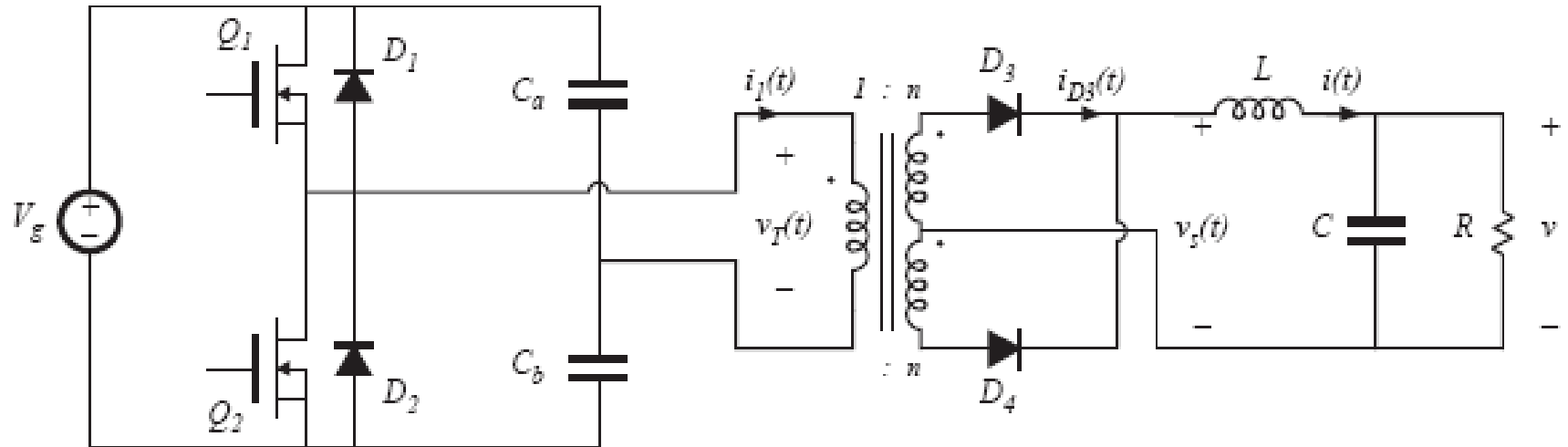
# Conversor Forward com Dois Transistores



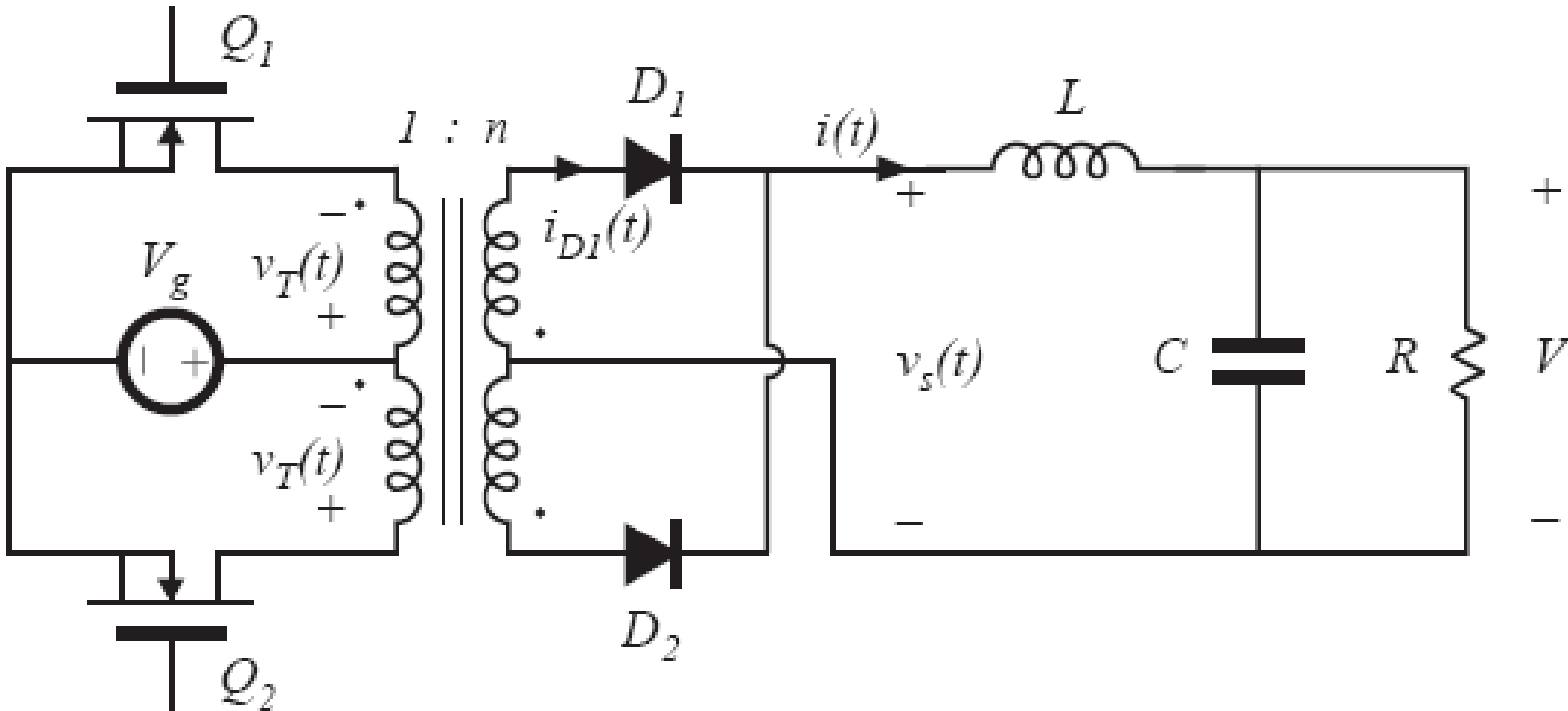
# Conversor Ponte Completa Isolado



# Conversor Meia Ponte Isolado



# Converter Push-Pull



# Próxima aula

## Capítulo 9: Choppers DC

1. Simulação de conversores CC-CC isolados e não-isolados.

