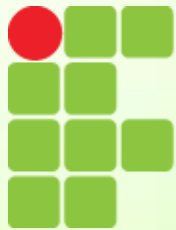


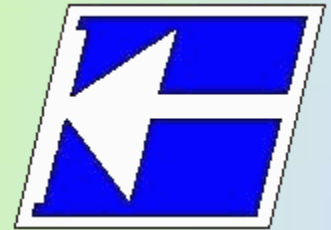
Instituto Federal de Educação, Ciência e Tecnologia de Santa Catarina

Departamento Acadêmico de Eletrônica

Projeto de Fontes Chaveadas



**INSTITUTO FEDERAL
SANTA CATARINA**



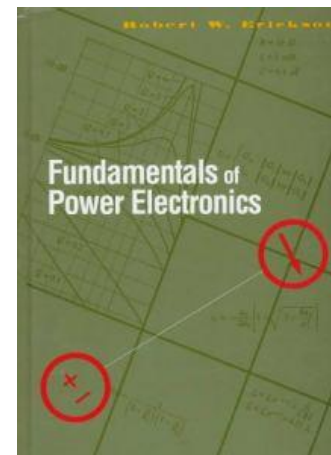
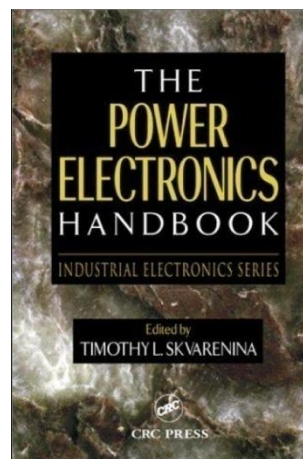
Parte 3 – Fontes Chaveadas

Conversores CC-CC Isolados

Prof. Clóvis Antônio Petry.

Florianópolis, maio de 2009.

Bibliografia para esta aula

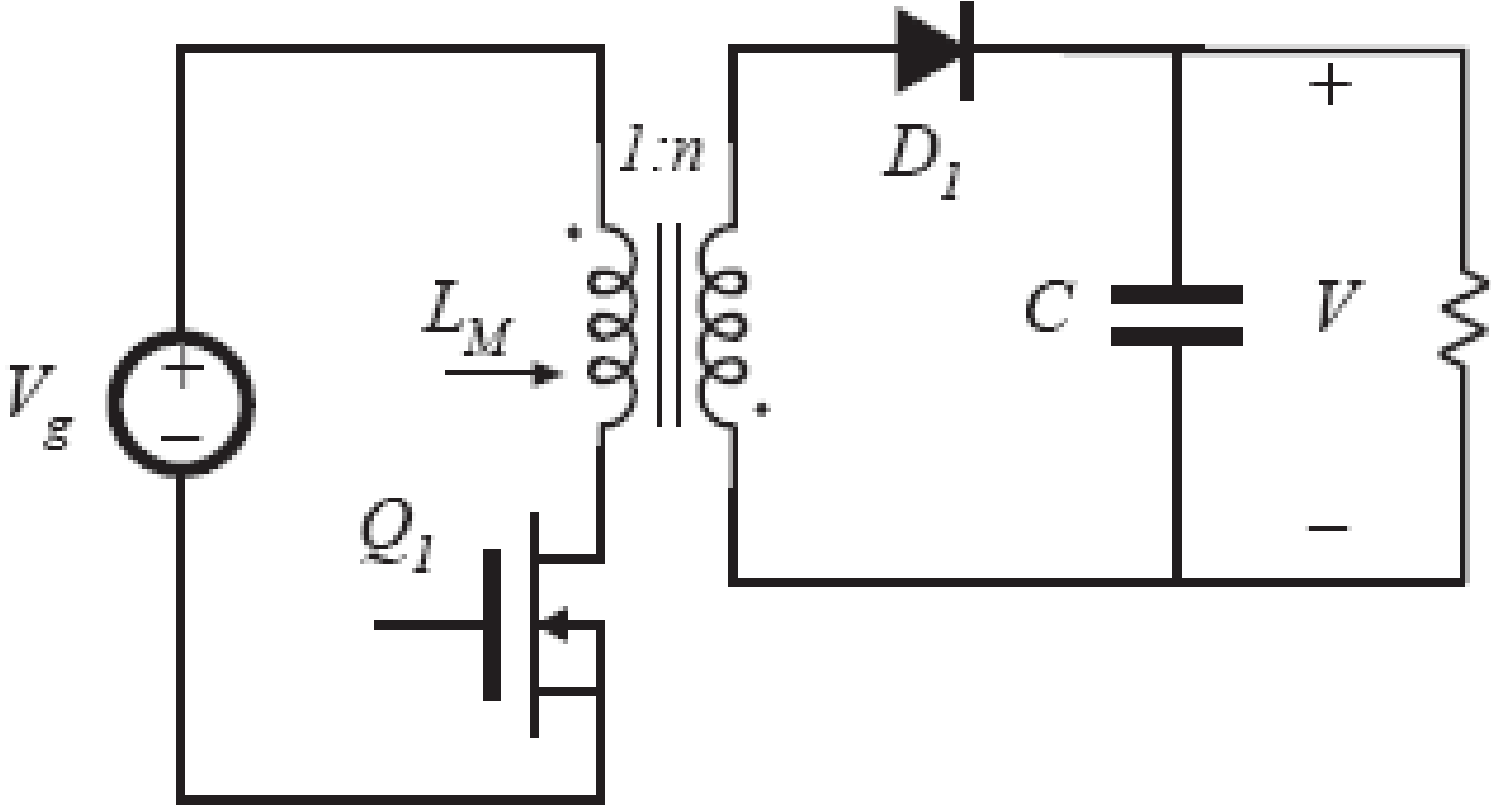


Nesta aula

Parte 3 – Fontes chaveadas:

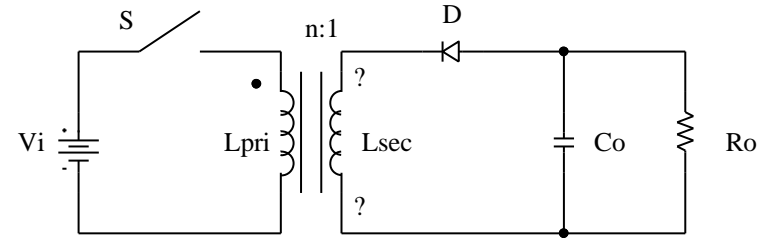
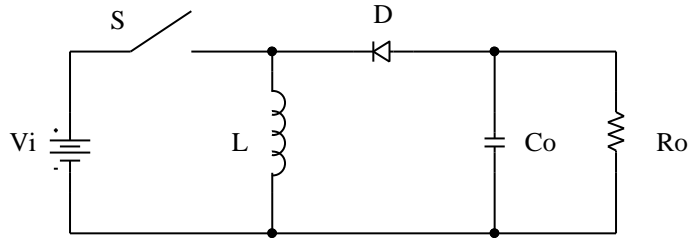
1. Conversor Flyback;
2. Conversor Forward;
3. Outros conversores isolados;
4. Conversor Flyback – detalhamento.

Converter Flyback

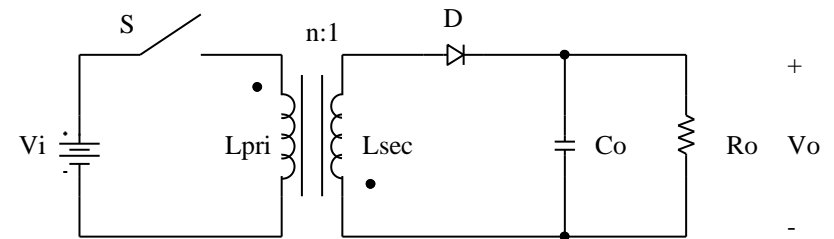
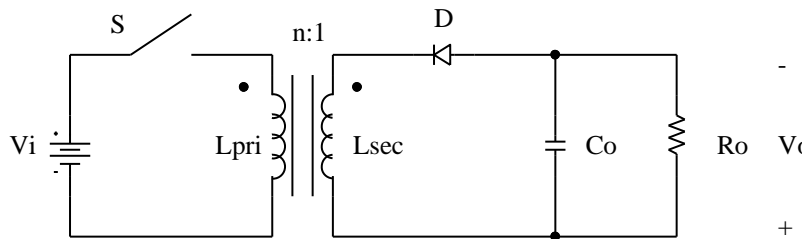


Conversor Flyback

BUCK-BOOST



Qual a polaridade do transformador??



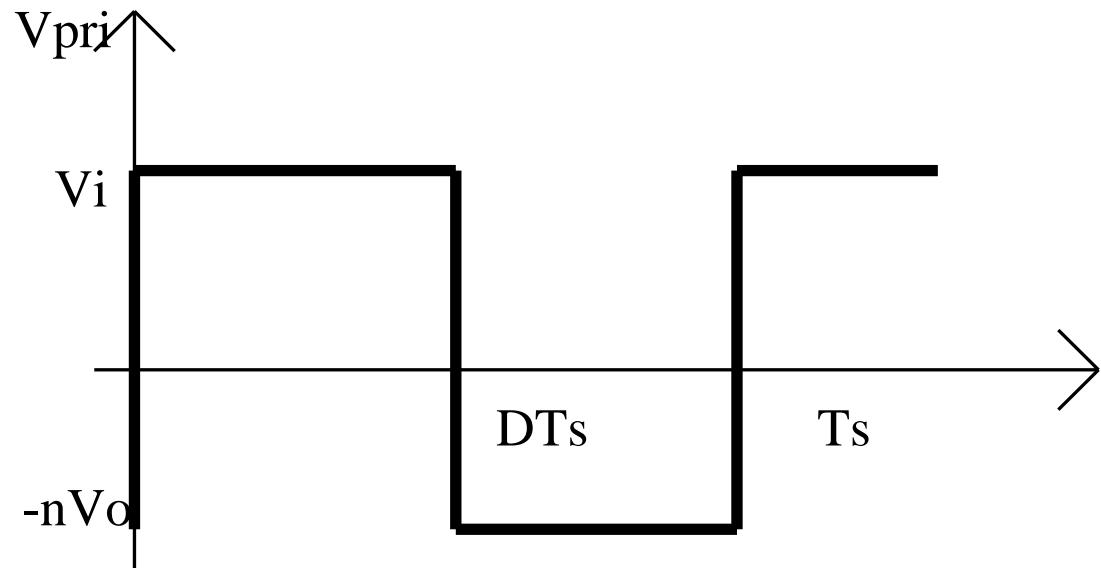
Converter Flyback

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

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

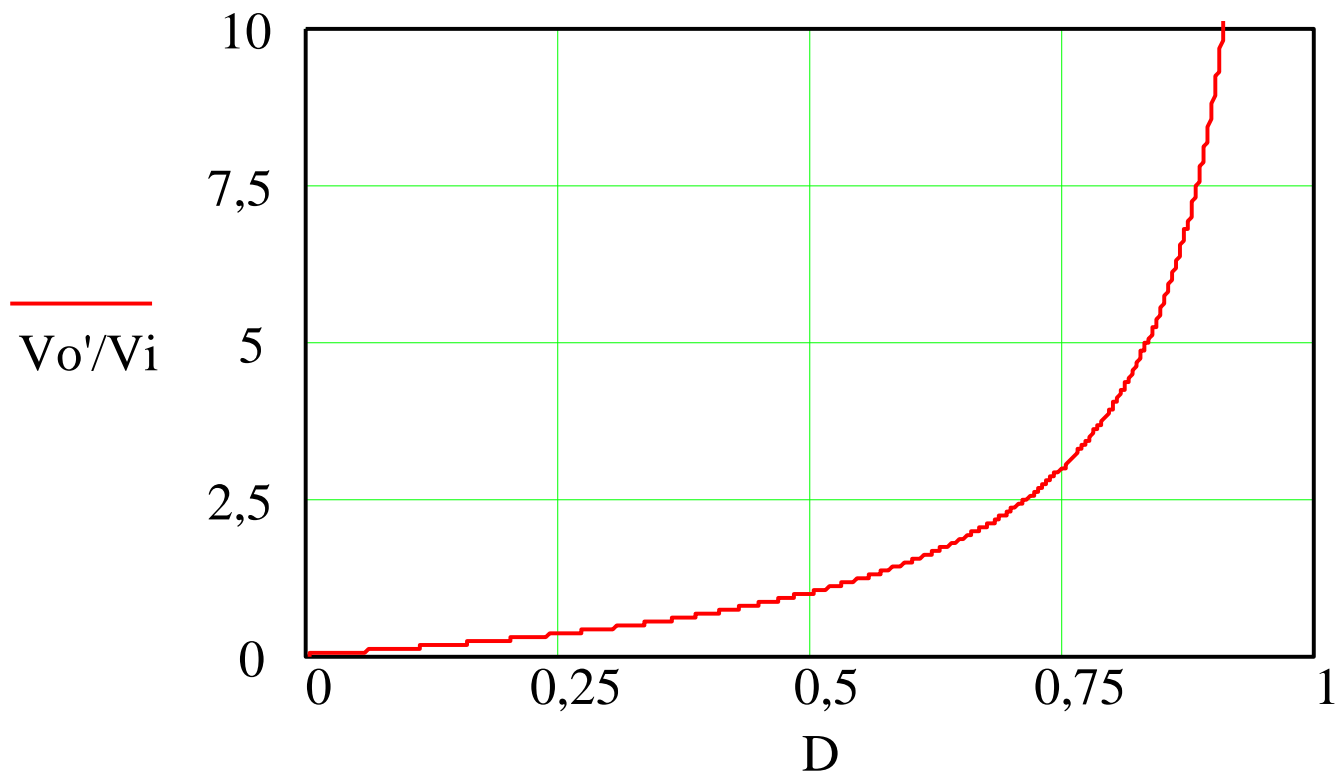
$$V'_o = n \cdot V_o$$

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

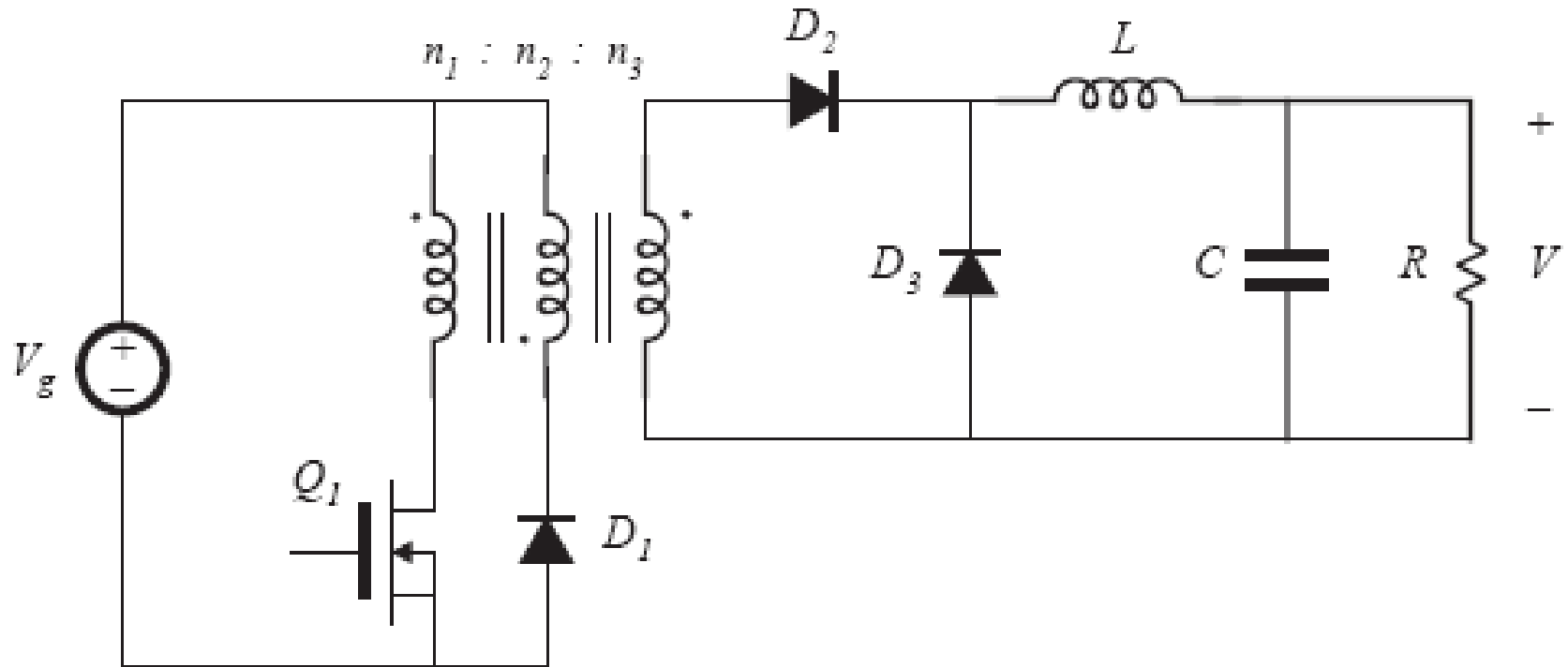


Conversor Flyback

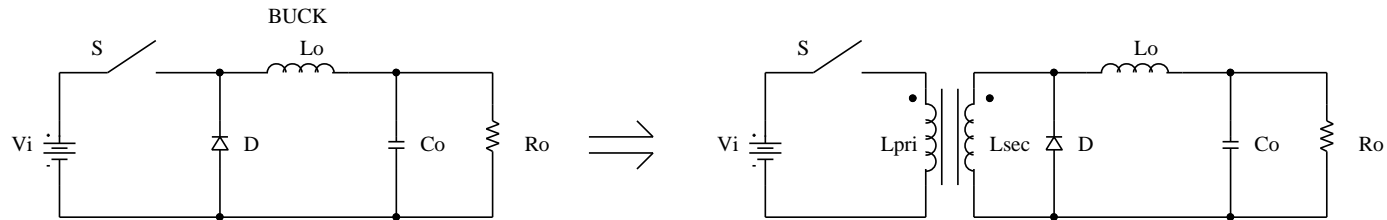
Ganho estático em função da razão cíclica:



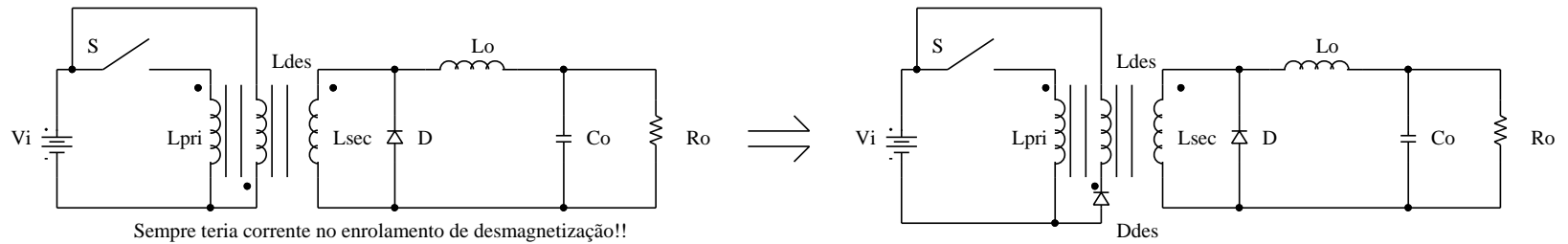
Converter Forward



Conversor Forward

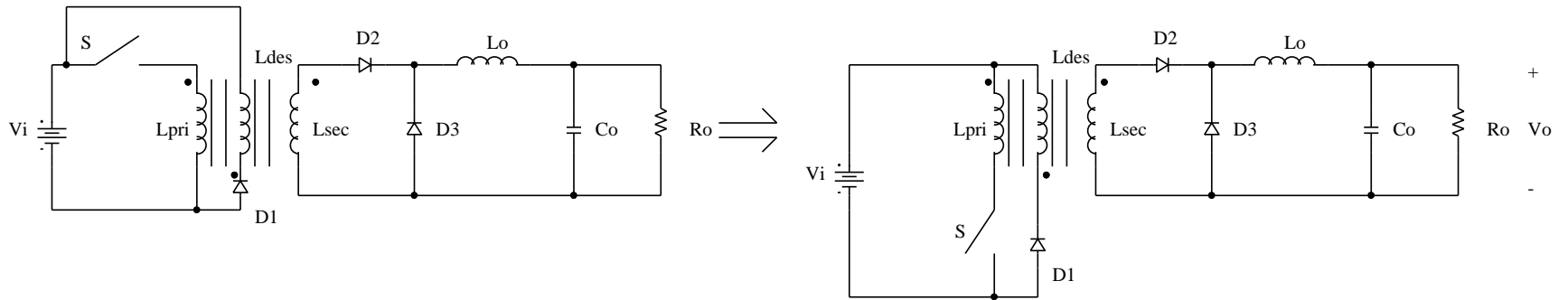


Como eliminar a energia armazenada devido à magnetizante??



Sempre teria corrente no enrolamento de desmagnetização!!

No secundário circularia uma corrente por D!!



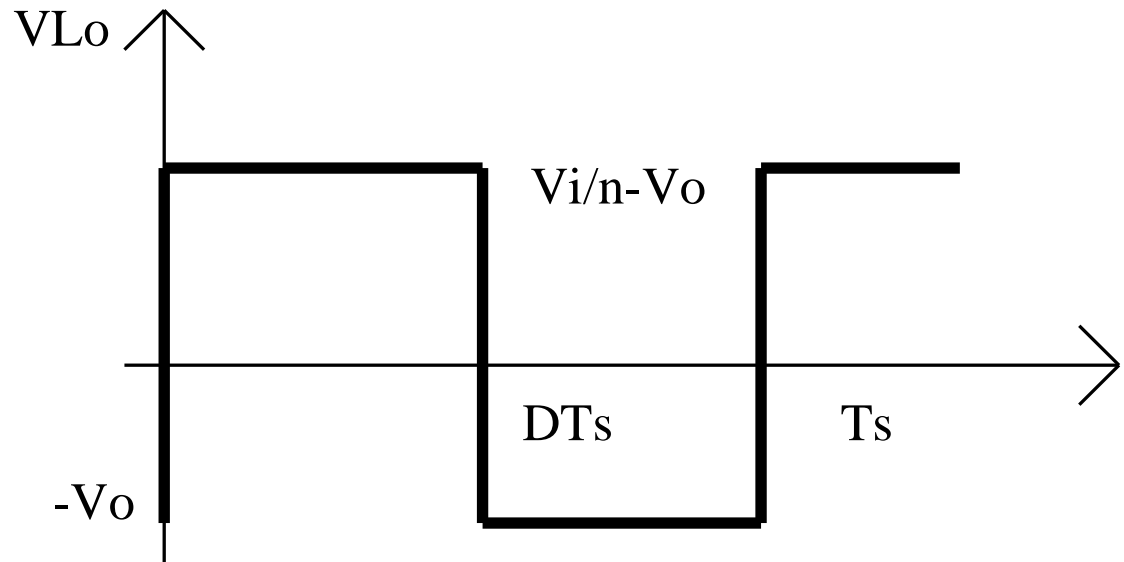
Converter Forward

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

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

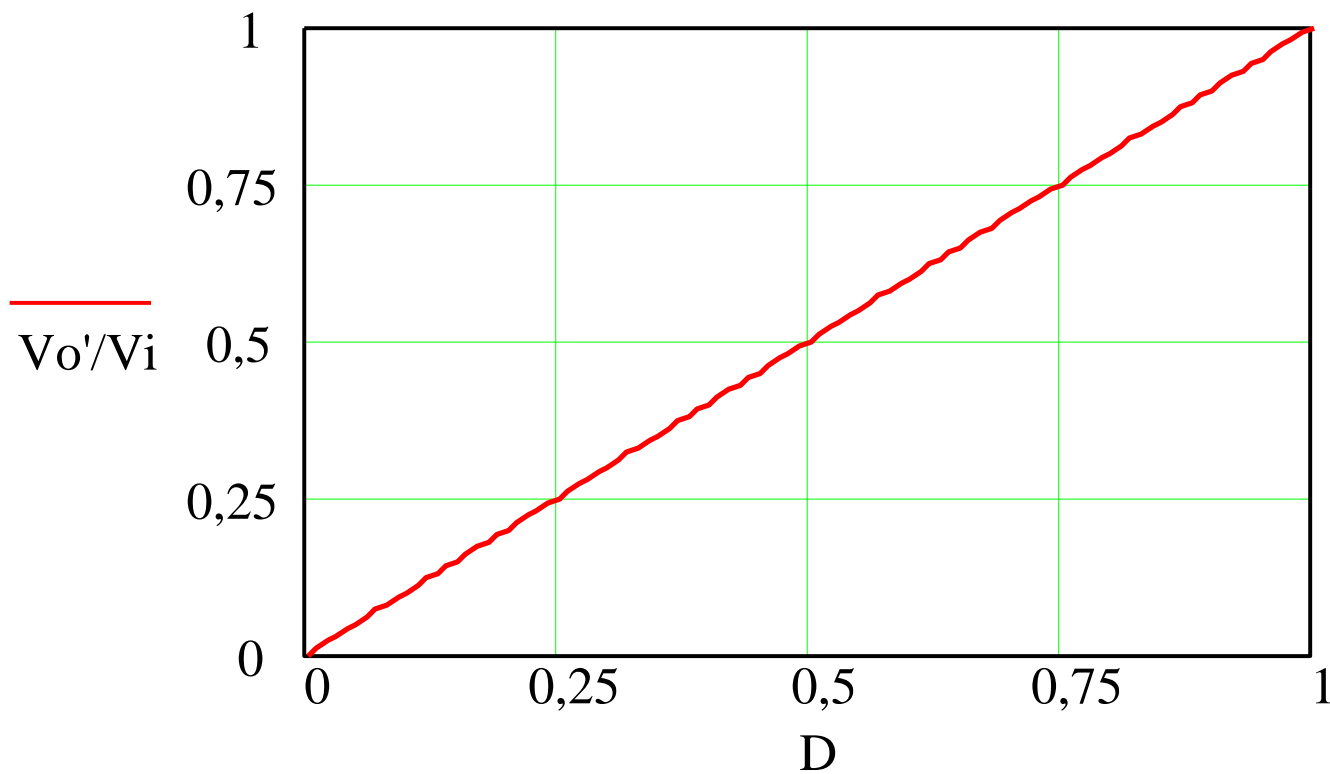
$$V'_o = n \cdot V_o$$

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

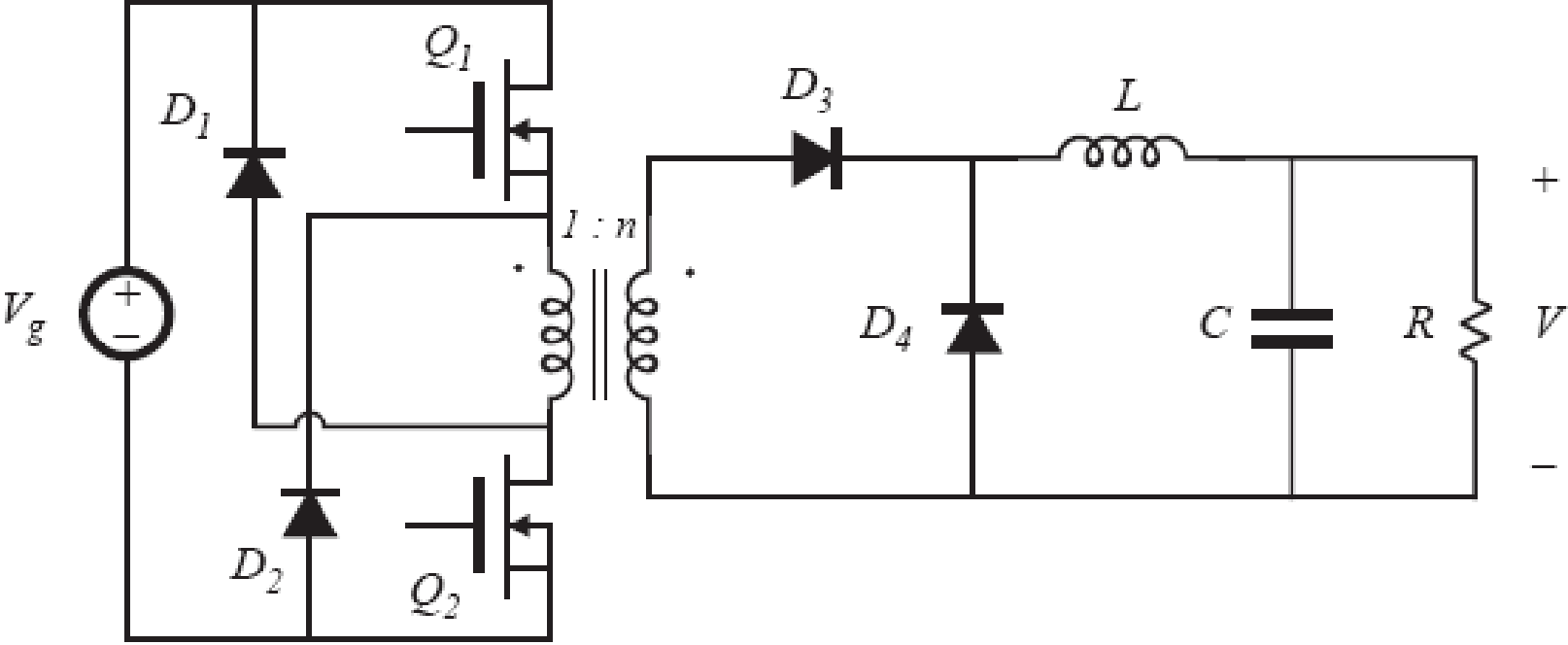


Conversor Forward

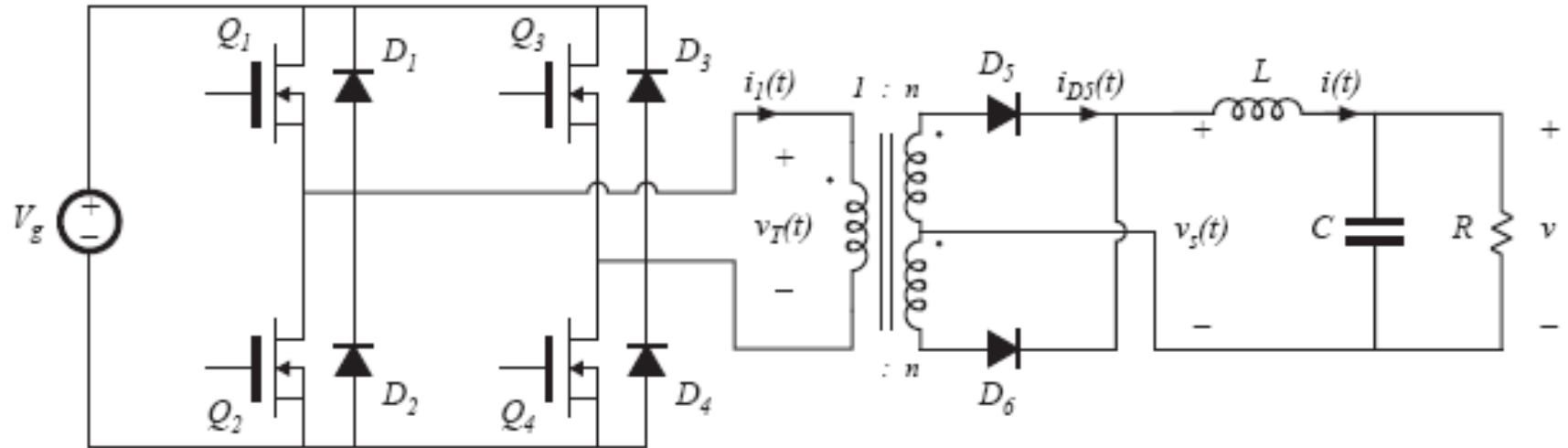
Ganho estático em função da razão cíclica:



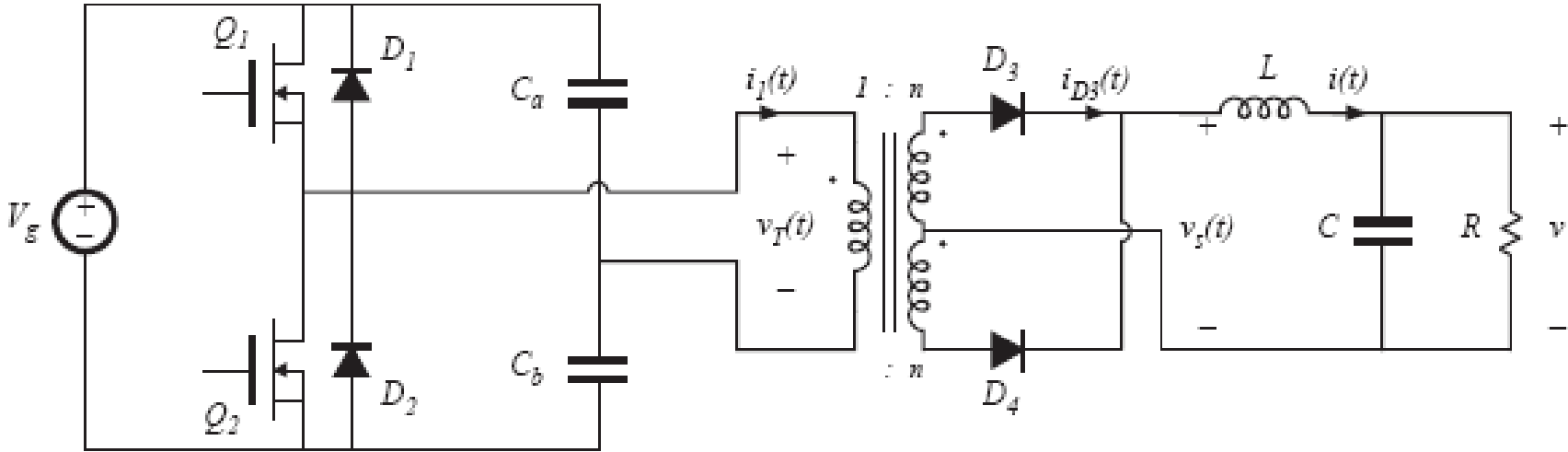
Conversor Forward com Dois Transistores



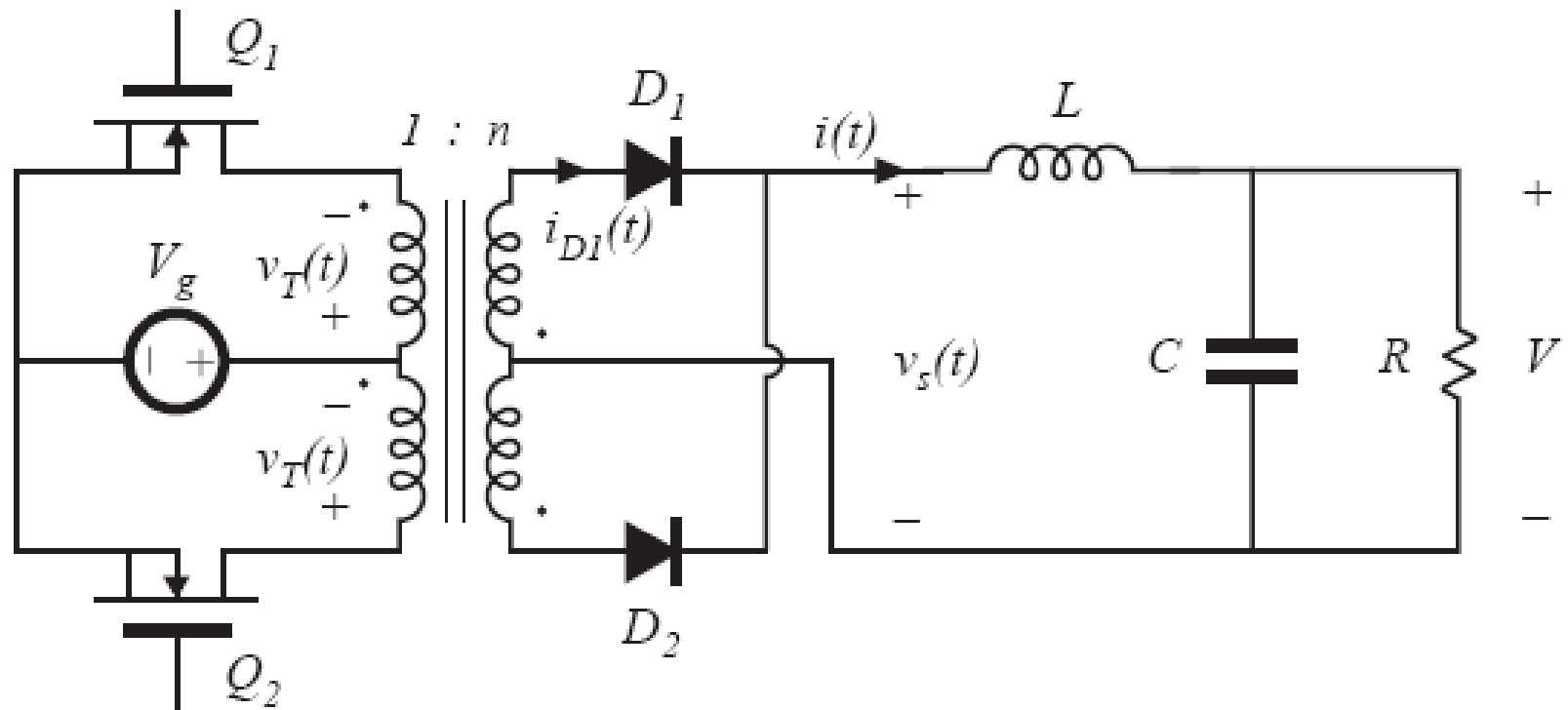
Conversor Ponte Completa Isolado



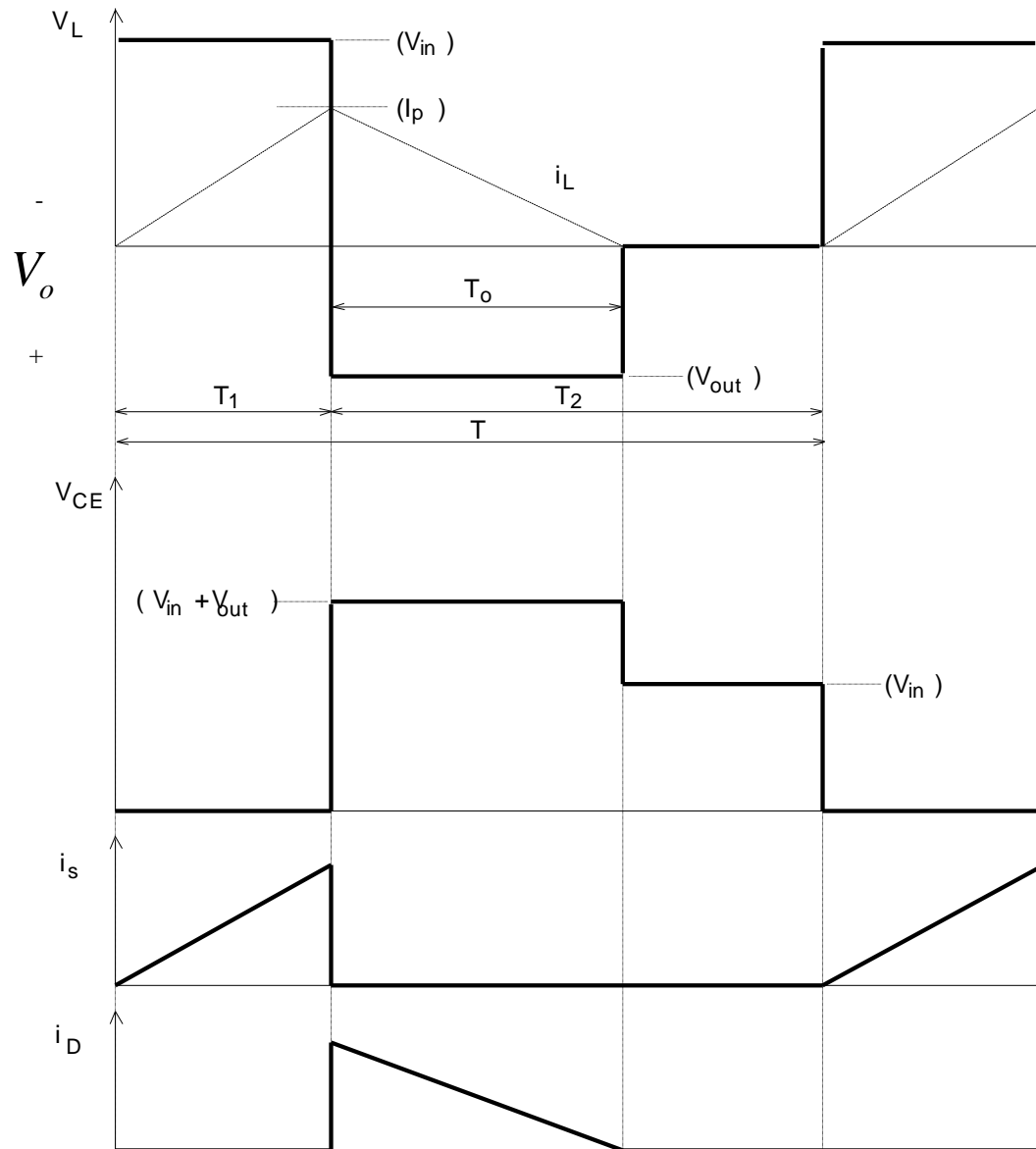
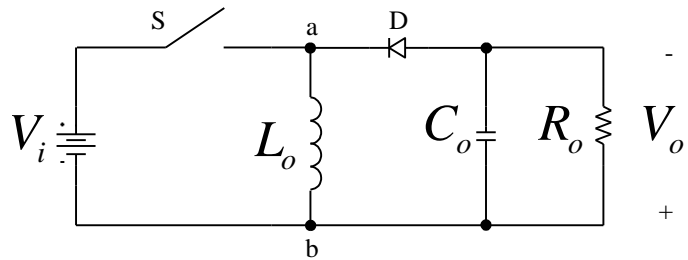
Conversor Meia Ponte Isolado



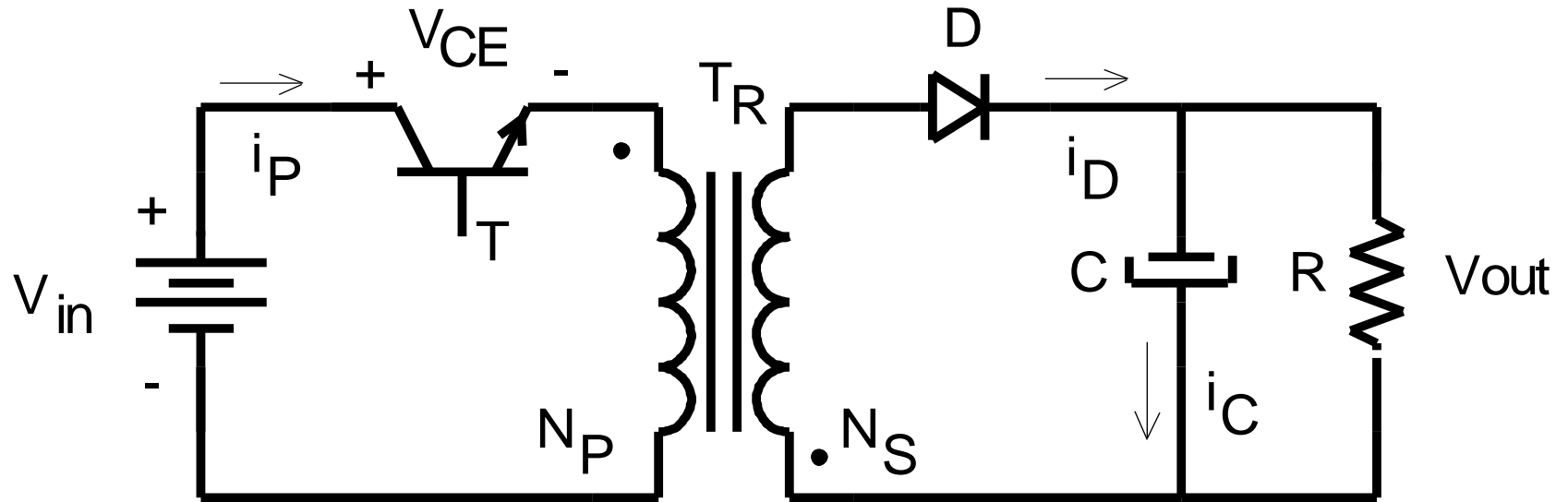
Converter Push-Pull



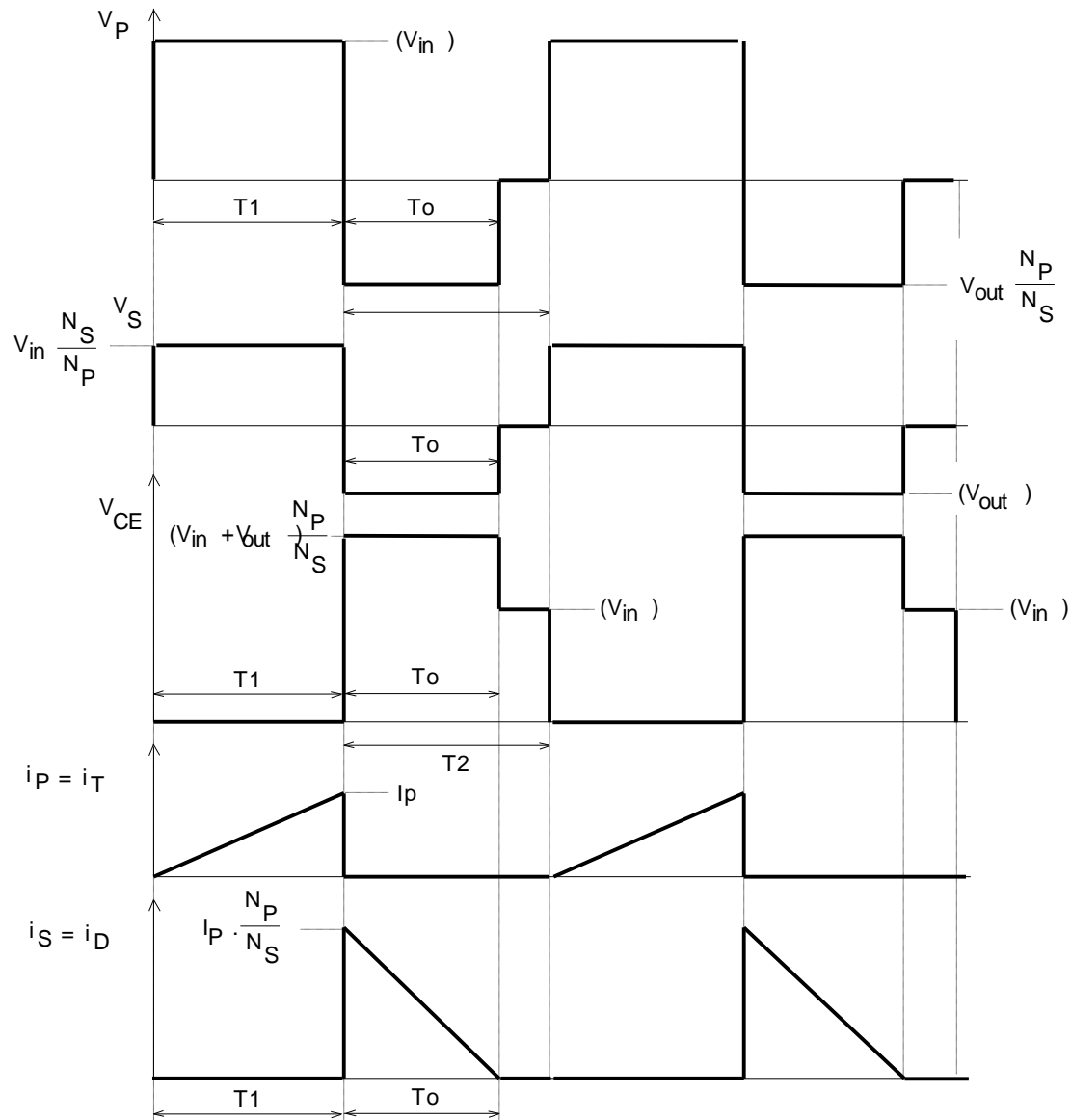
Conversor Flyback - detalhamento



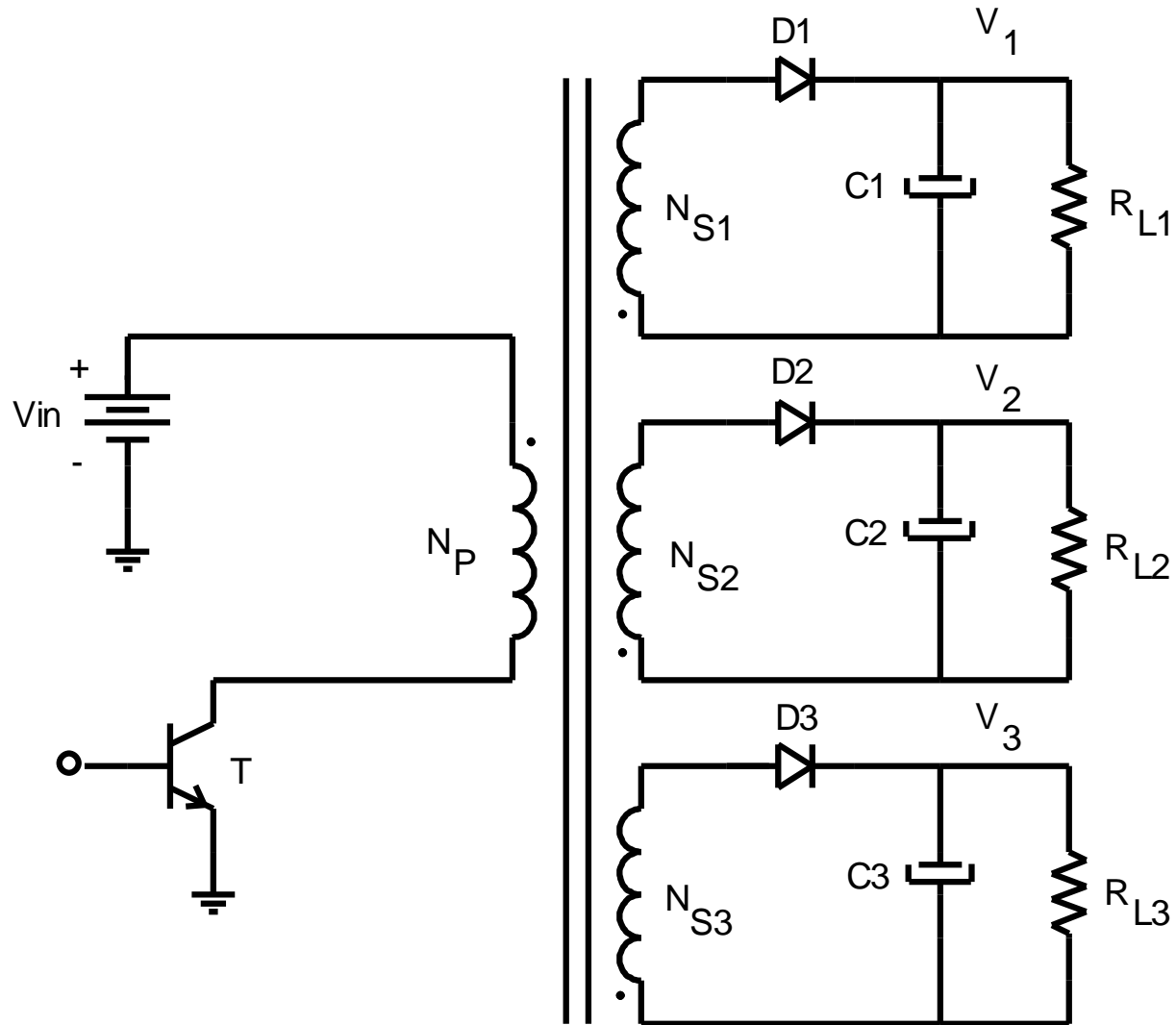
Conversor Flyback - detalhamento



Conversor Flyback - detalhamento



Conversor Flyback - detalhamento



Próxima aula

Parte 3 – Fontes chaveadas:

1. Snubber;
2. Soft-starter;
3. Alimentação auxiliar.