Centro Federal de Educação Tecnológica de Santa Catarina
Departamento Acadêmico de Eletrônica

Conversores Estáticos

Aplicações de Eletrônica de Potência

Fontes Chaveadas

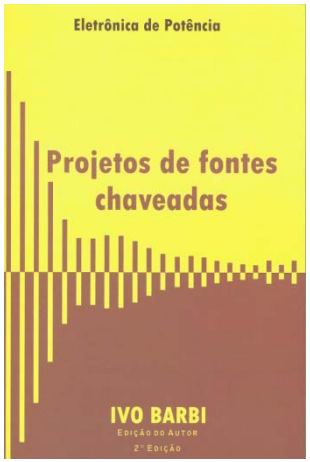
Prof. Clóvis Antônio Petry.

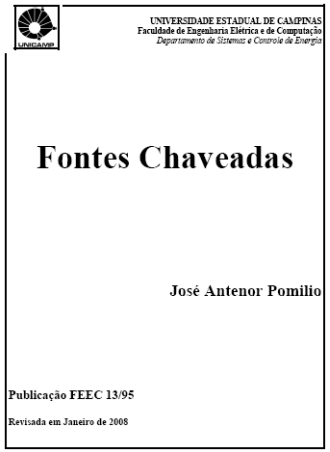
Florianópolis, junho de 2008.

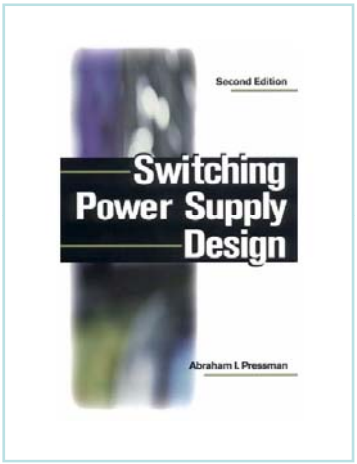
Bibliografia para esta aula

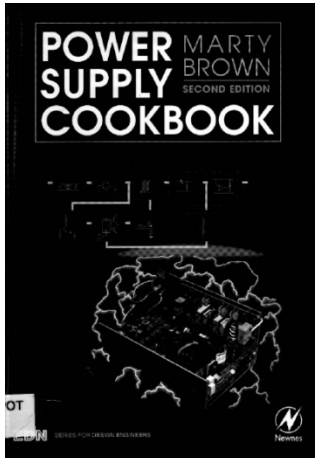
Aplicações de Eletrônica de Potência

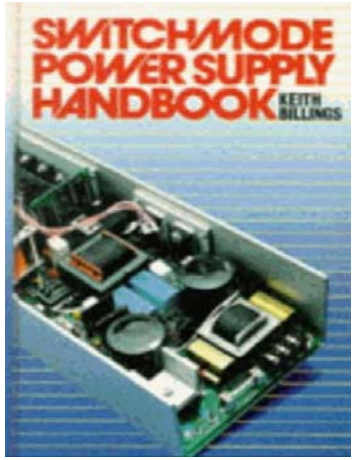
1. Fontes chaveadas.

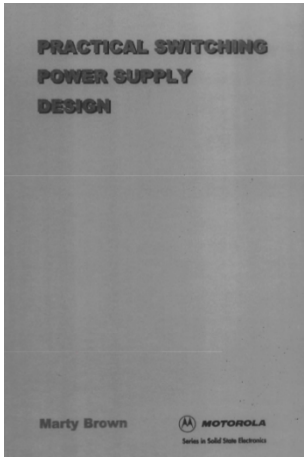












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Nesta aula

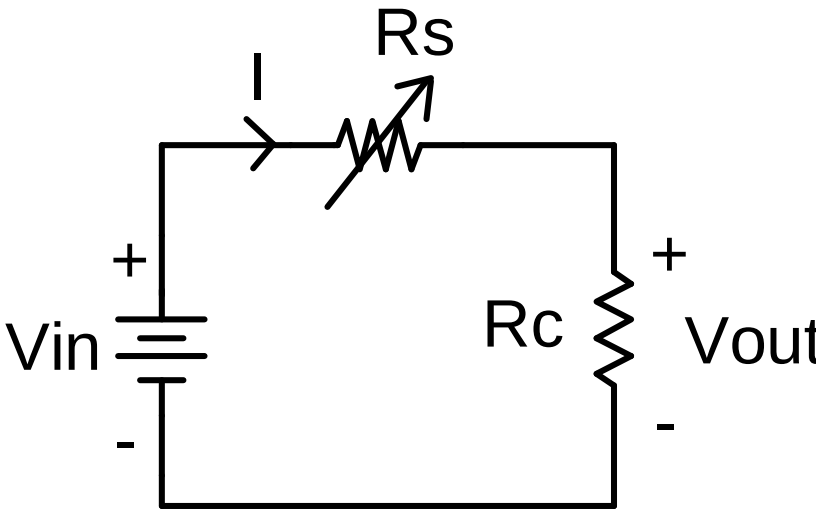
Aplicações da Eletrônica de Potência:

1. Fontes lineares x fontes chaveadas;
2. Fontes chaveadas;
3. Diagrama de blocos de uma fonte chaveada;
4. Filtro de EMI;
5. Retificador de entrada;
6. Conversores para fontes chaveadas;
7. Circuitos elétricos de fontes chaveadas;
8. Circuitos integrados para fontes chaveadas.

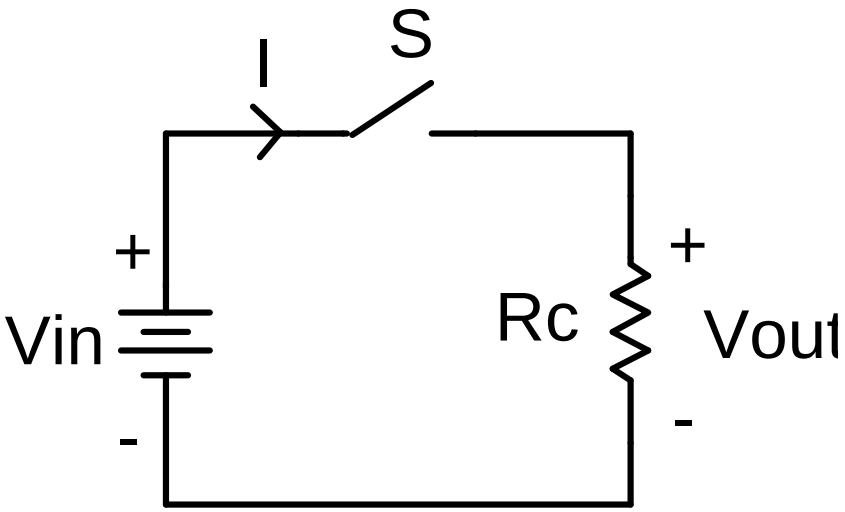
Fontes lineares x fontes chaveadas

Fontes de tensão lineares e chaveadas:

- As fontes lineares convertem a tensão alternada da rede em tensões contínuas, normalmente de baixa amplitude, sem o uso de componentes chaveados (comutados);
- Fontes chaveadas exercem a mesma função, mas utilizando componentes comutados (chaveados).



Regulador linear



Regulador chaveado

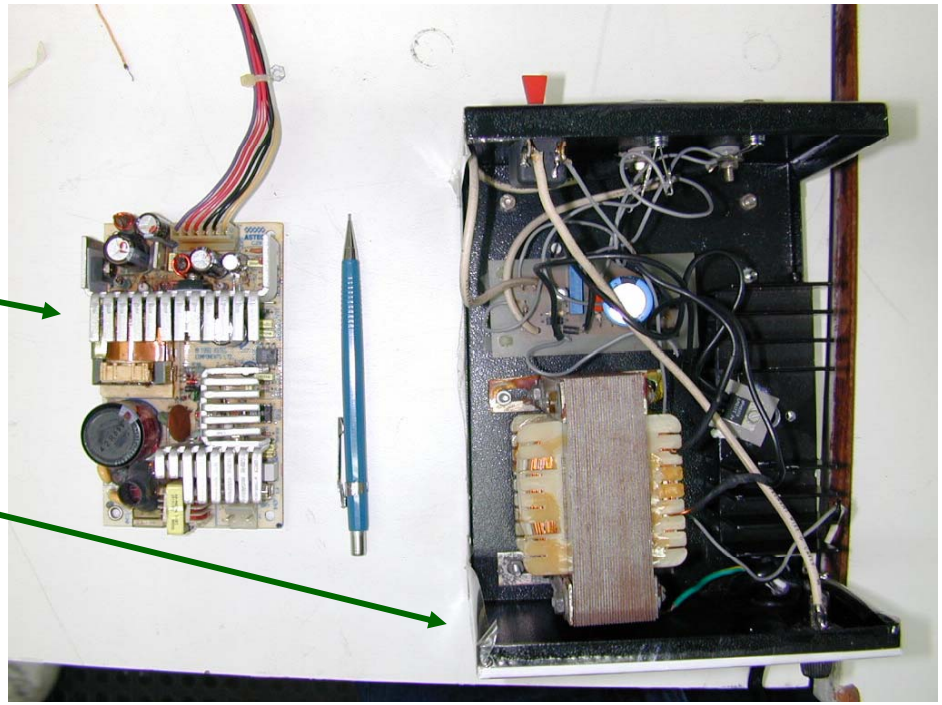
Fontes lineares x fontes chaveadas

Fontes de tensão lineares x chaveadas:

- Fontes lineares: são mais robustas, simples e fáceis de projetar, podem ser mais baratas ou não, são muito volumosas e pesadas.
- Fontes chaveadas: não são tão robustas, mais difíceis de projetar e **consertar**, podem ser mais baratas ou não, são pequenas e leves.

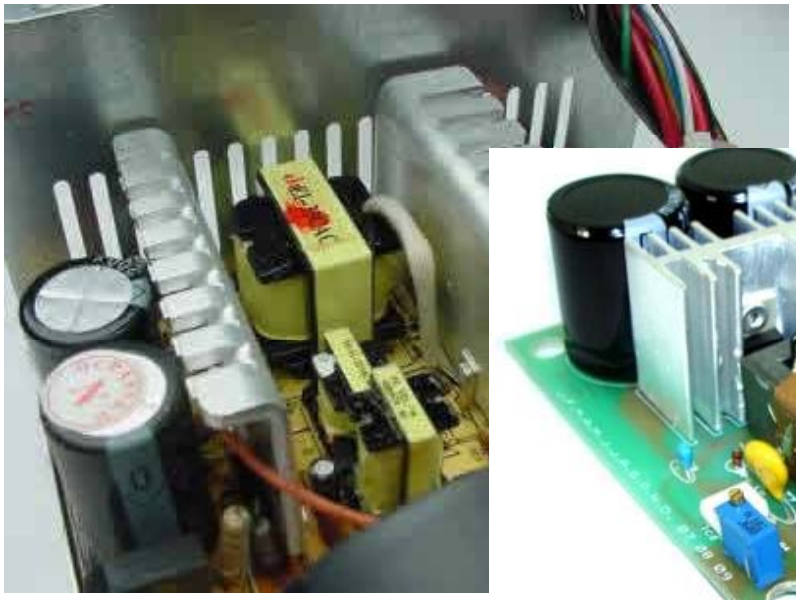
Fonte chaveada de 65 W

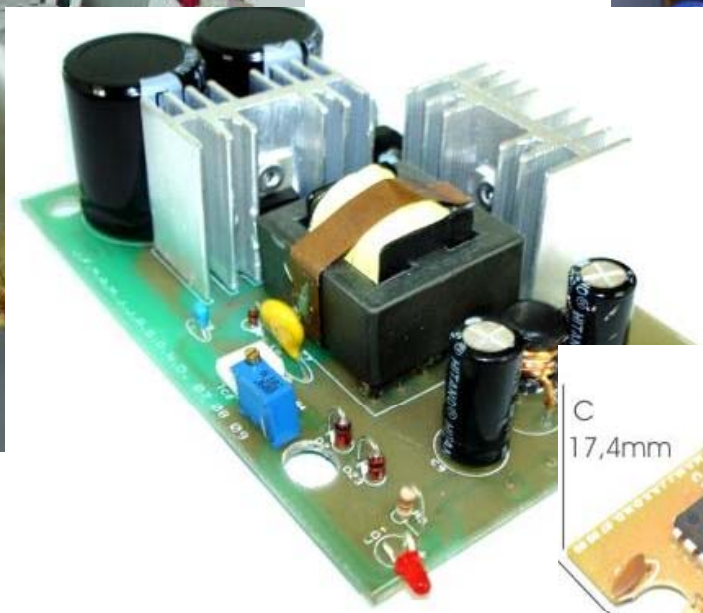
Fonte linear de 29 W



http://www.priberam.pt/

Fontes chaveadas





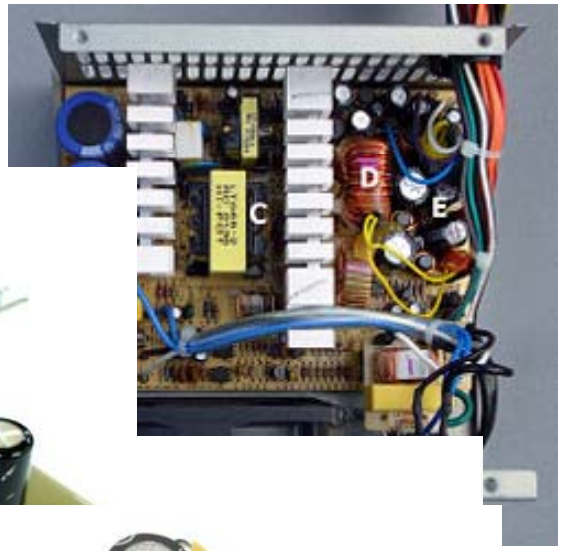


Diagrama de blocos de um conversor CC-CC

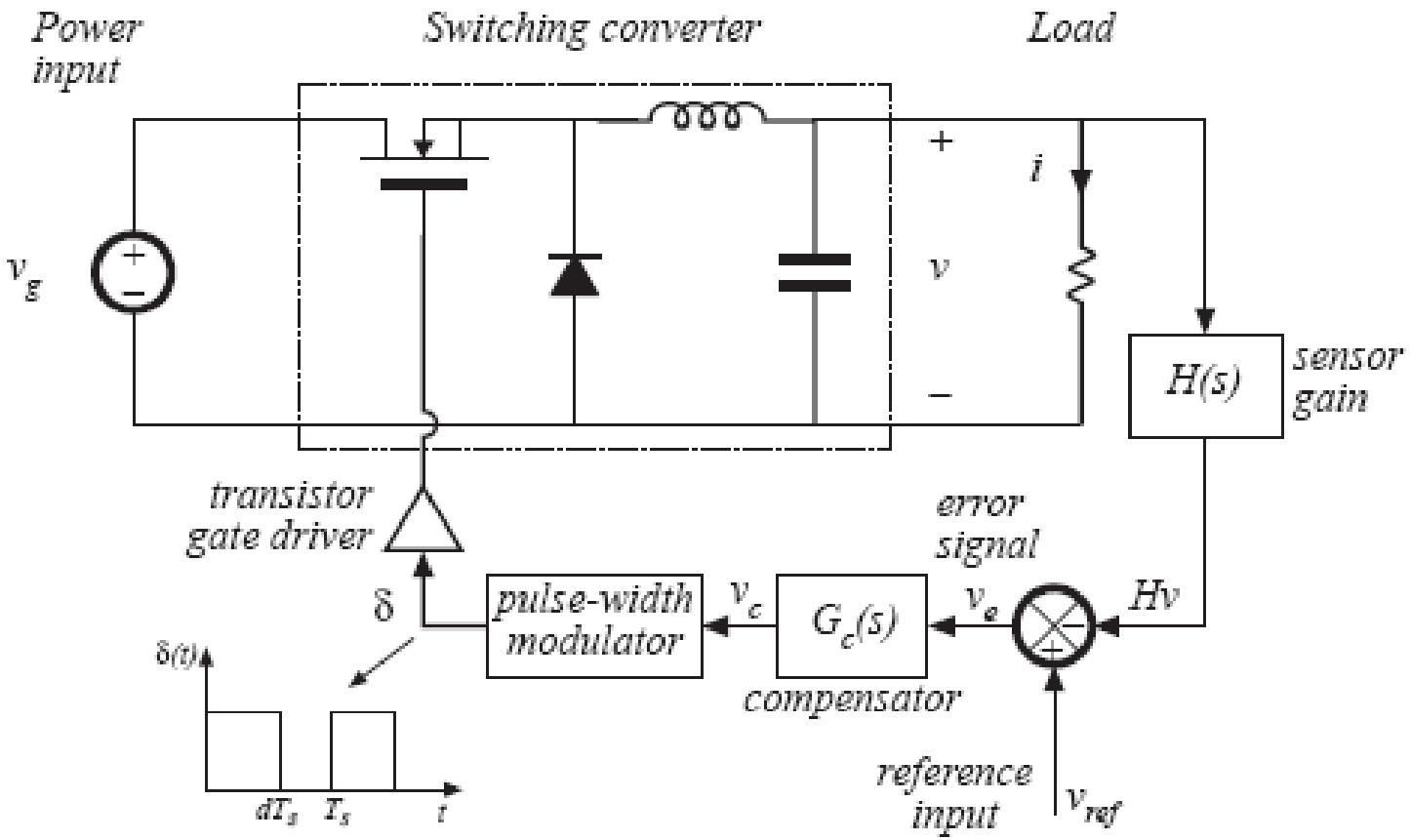
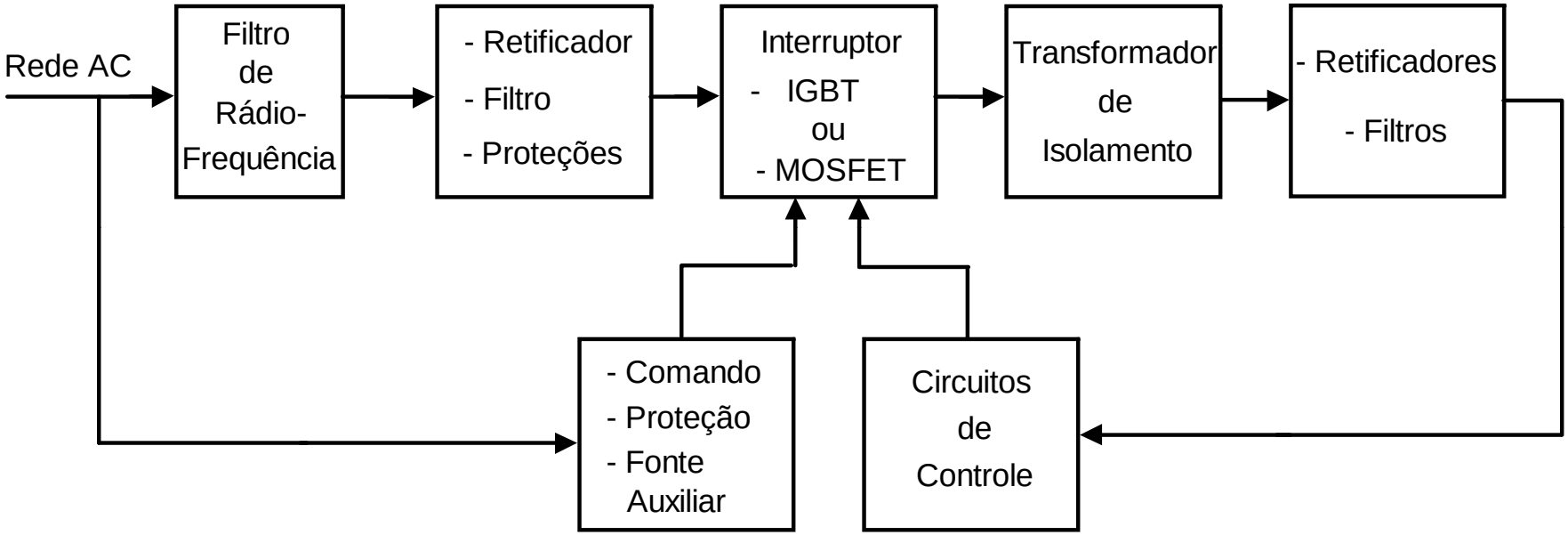
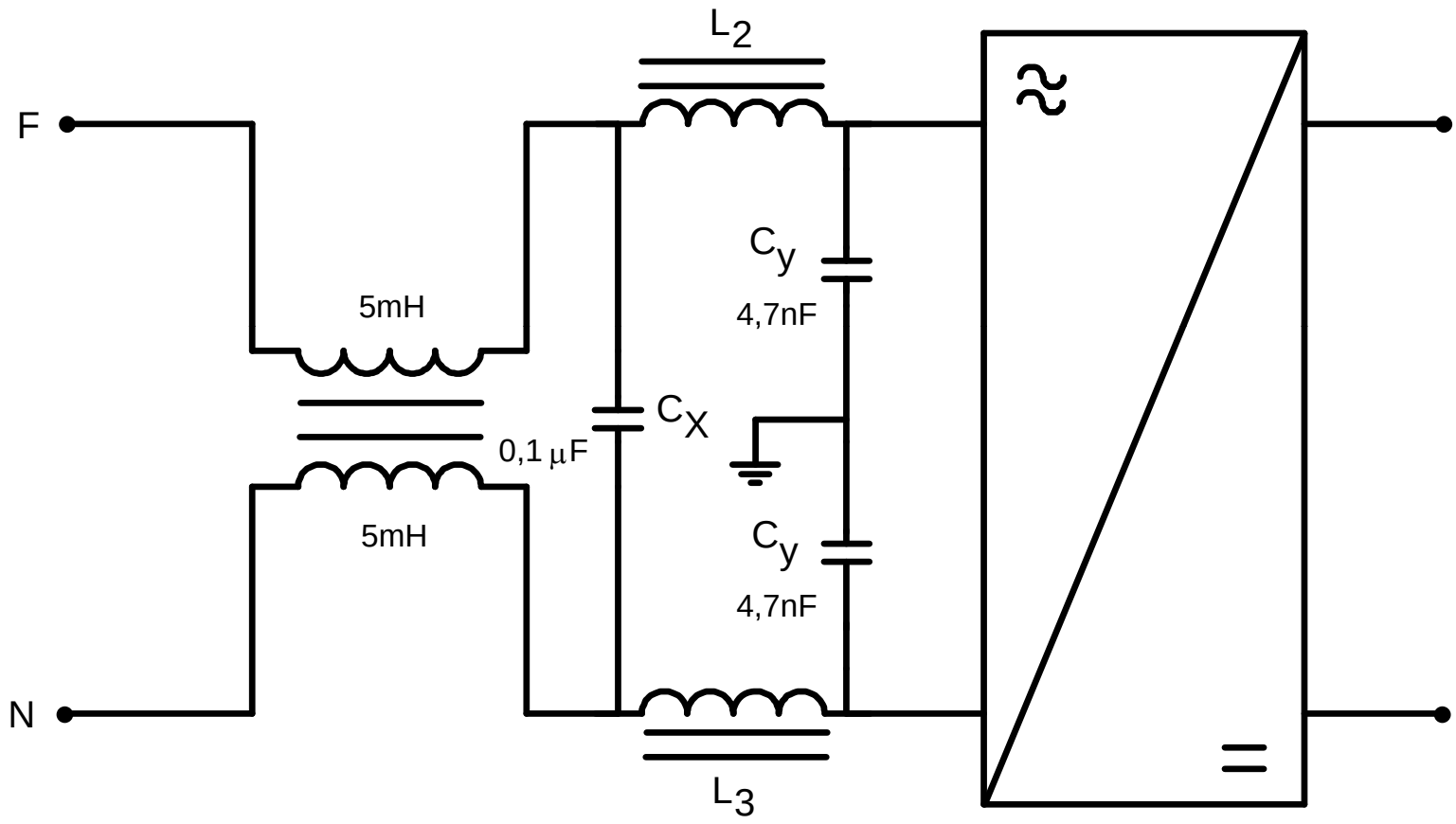


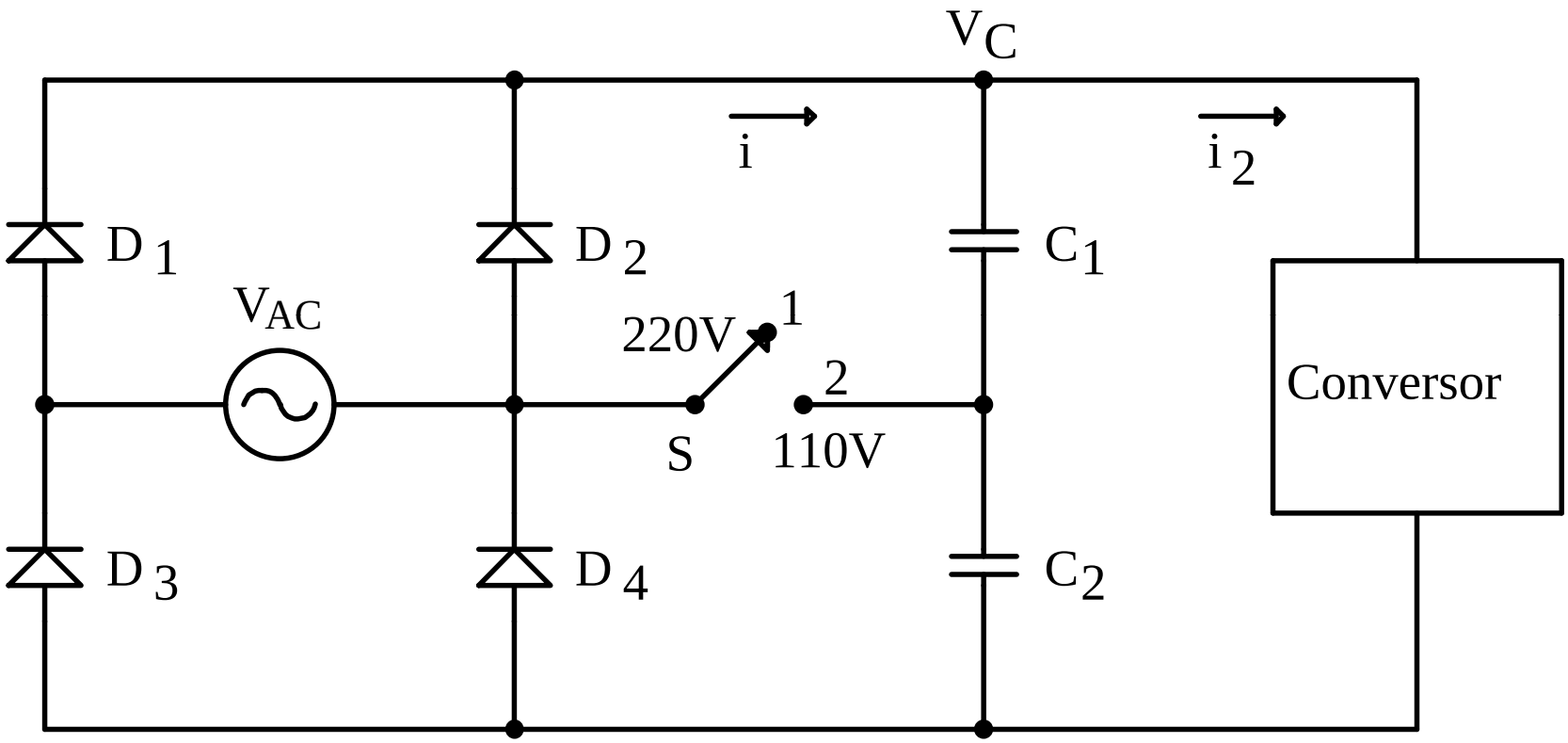
Diagrama de blocos de uma fonte chaveada



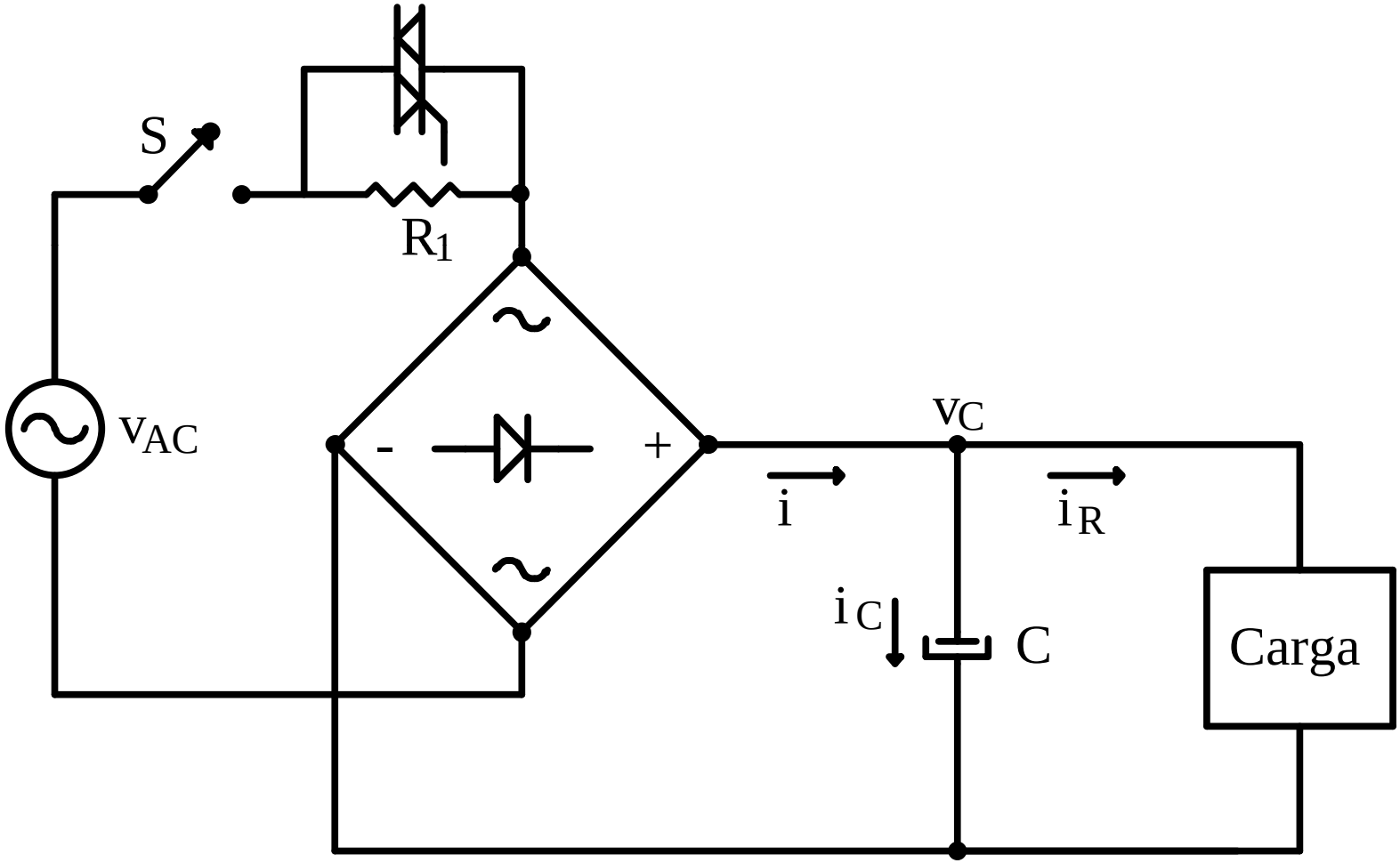
Filtro de EMI



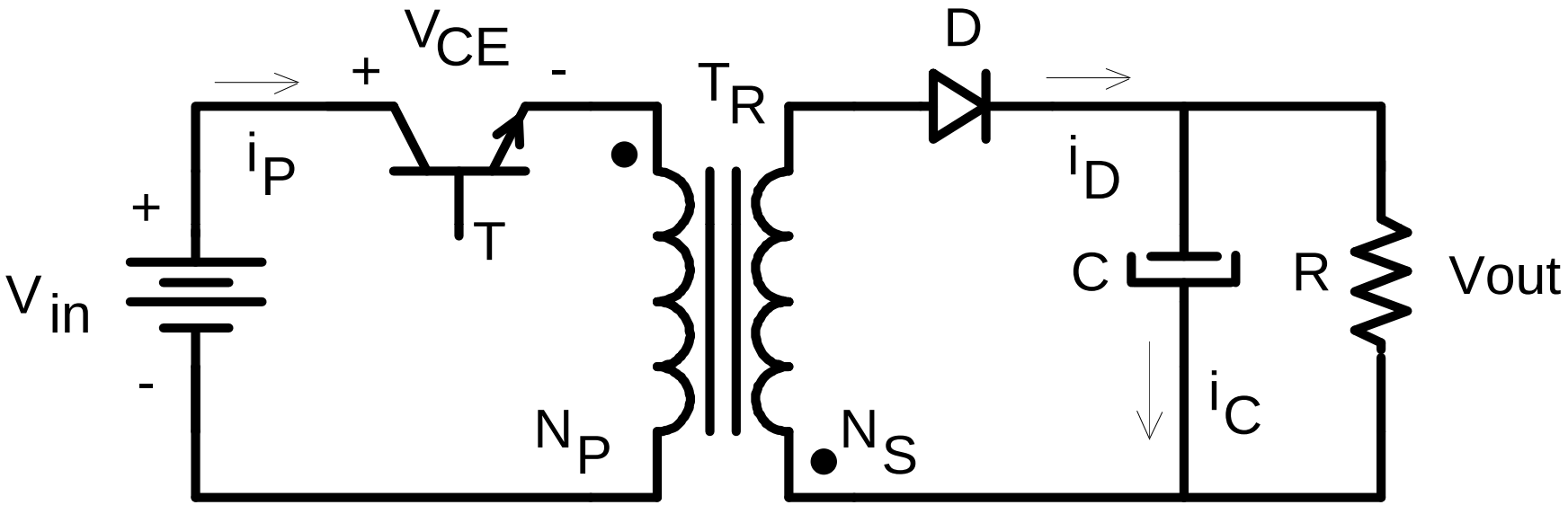
Retificador de entrada



Retificador de entrada - Inrush

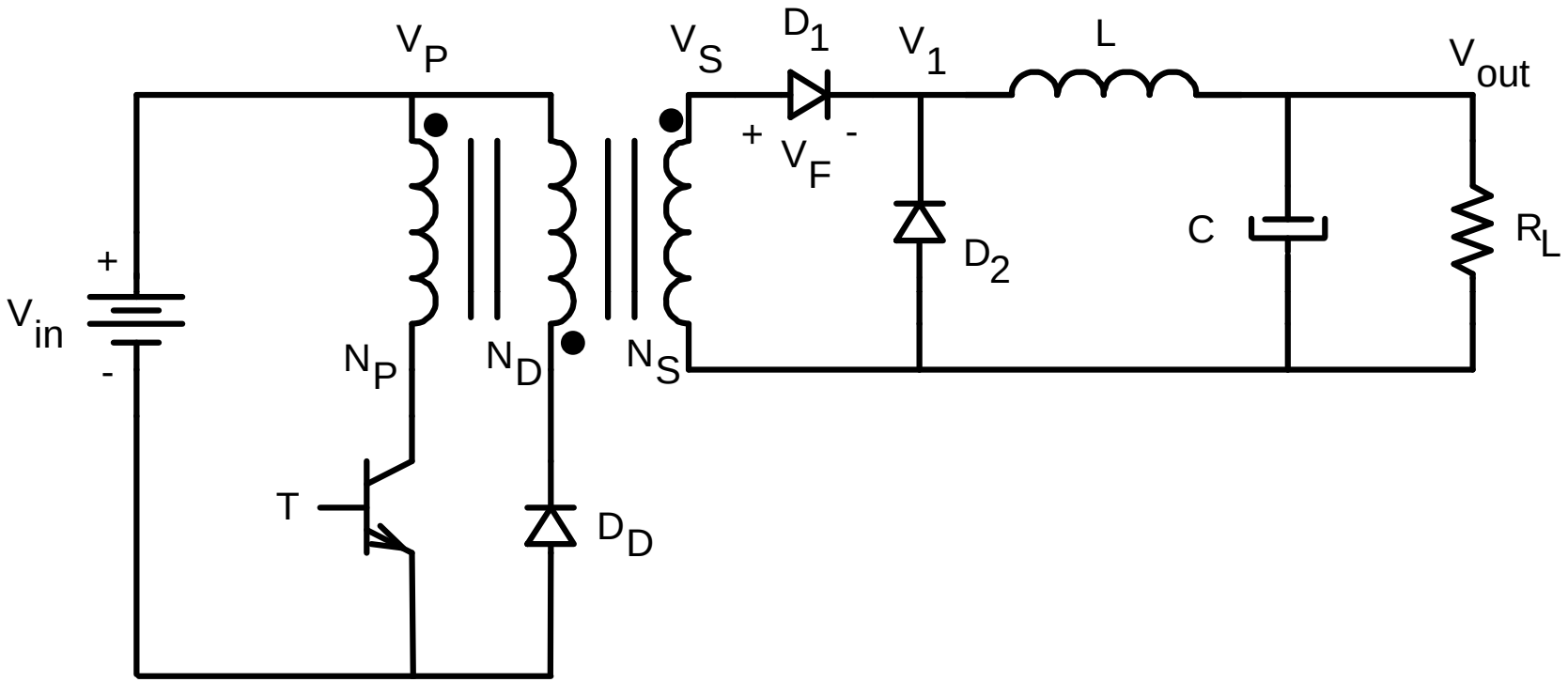


Conversores aplicados em fontes chaveadas



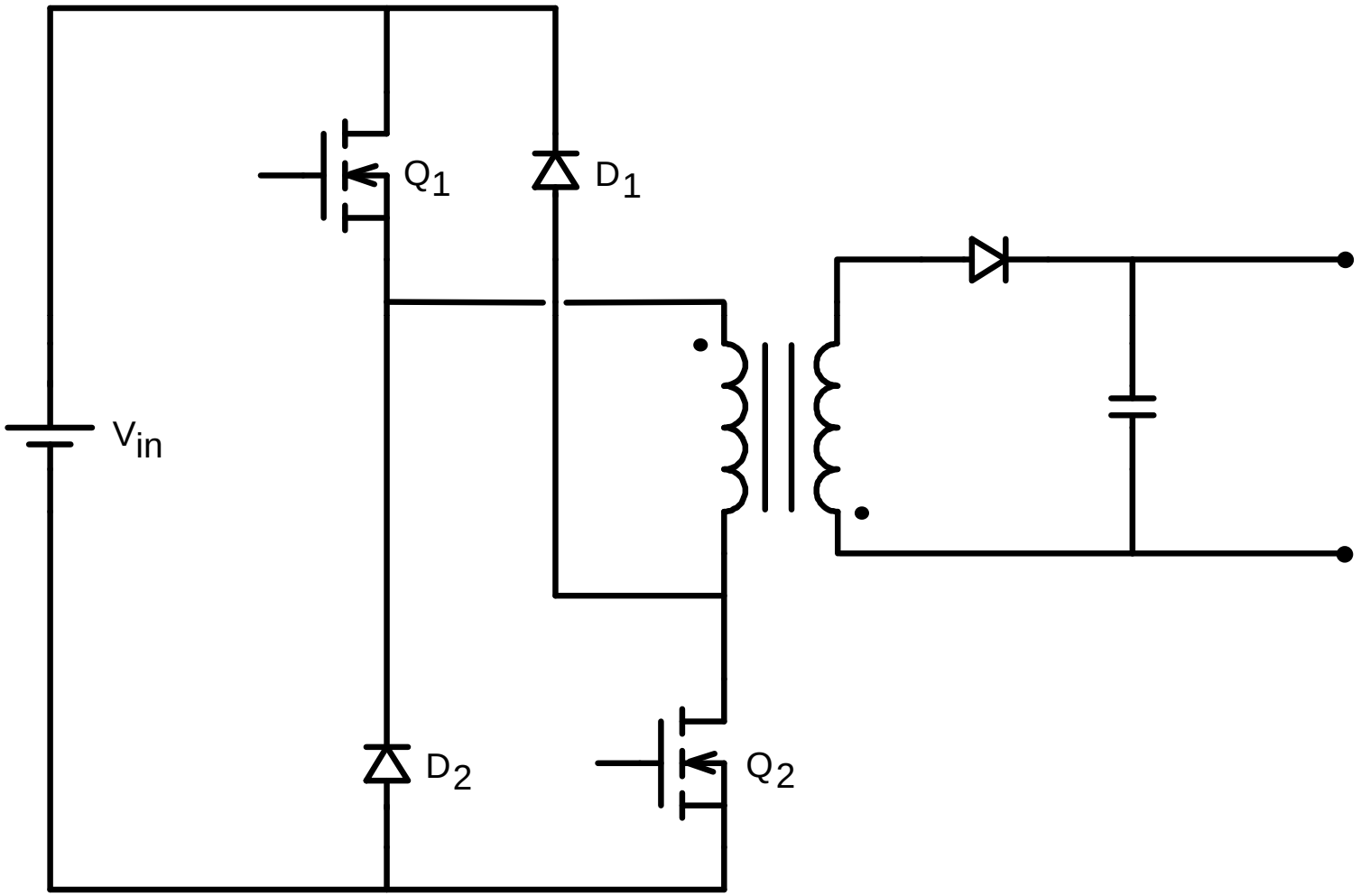
Conversor Flyback

Conversores aplicados em fontes chaveadas



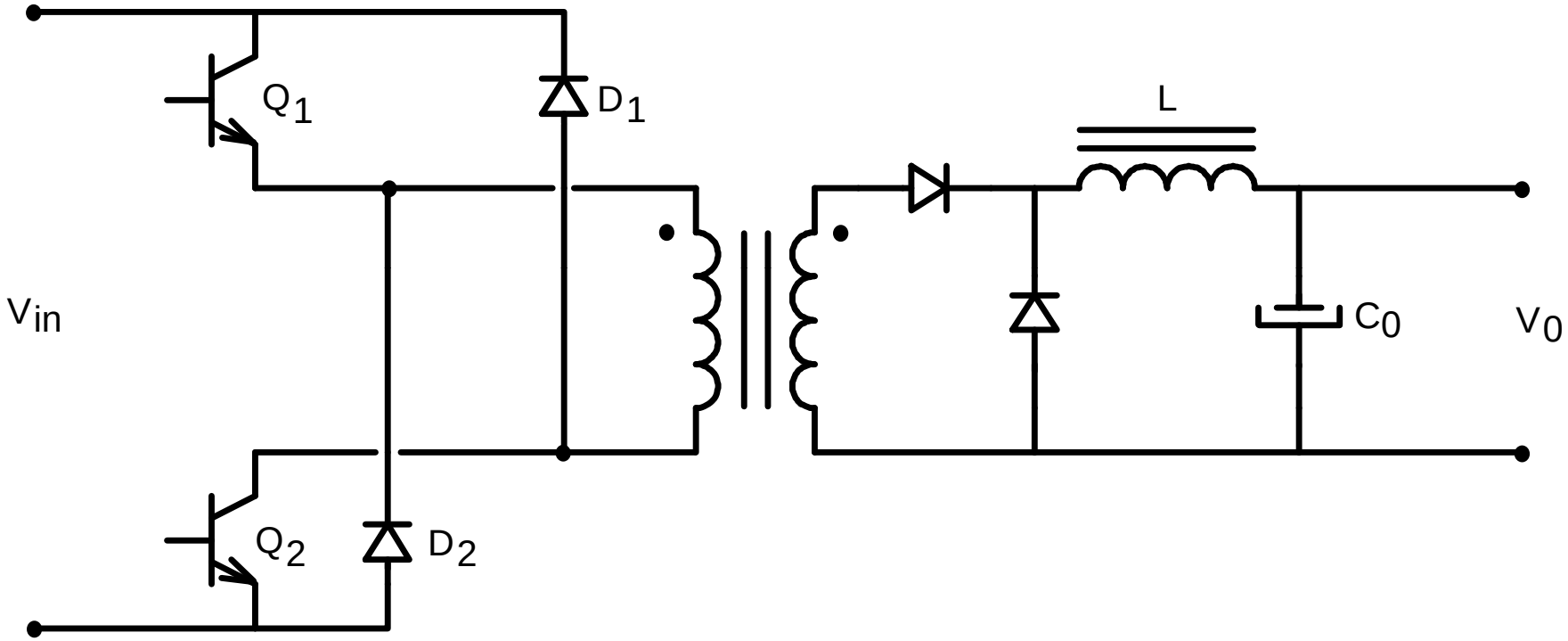
Conversor Forward

Conversores aplicados em fontes chaveadas



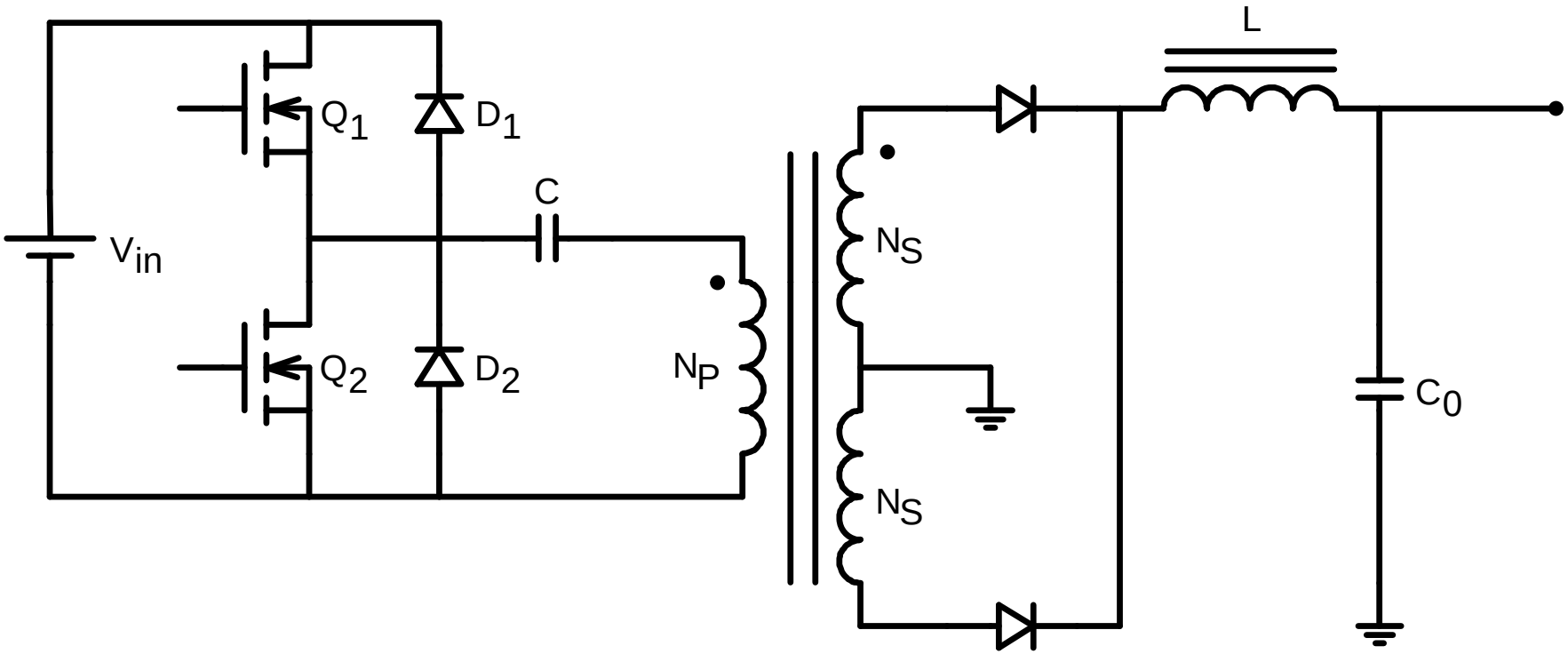
Conversor Flyback com dois interruptores

Conversores aplicados em fontes chaveadas



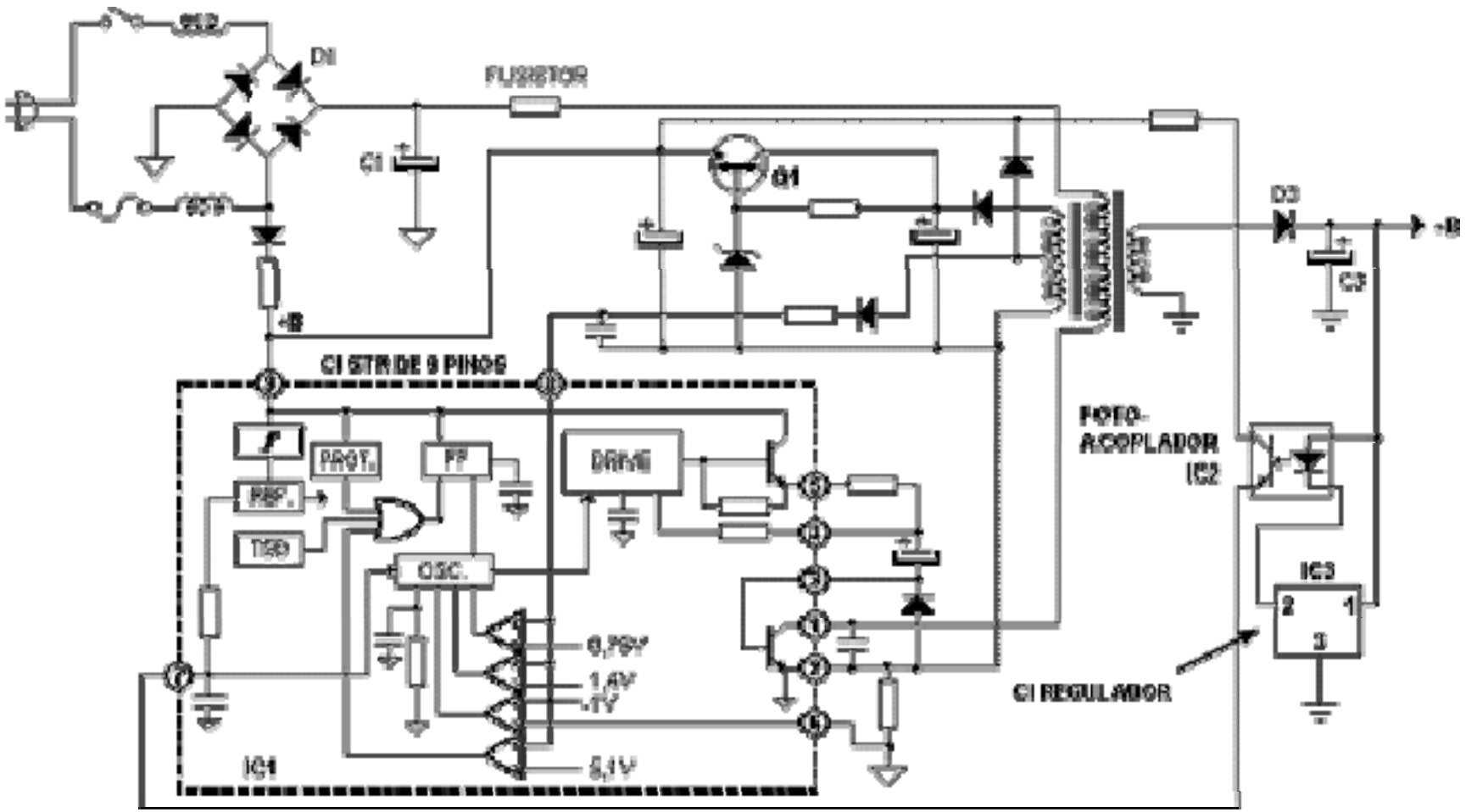
Conversor Forward com dois interruptores

Conversores aplicados em fontes chaveadas

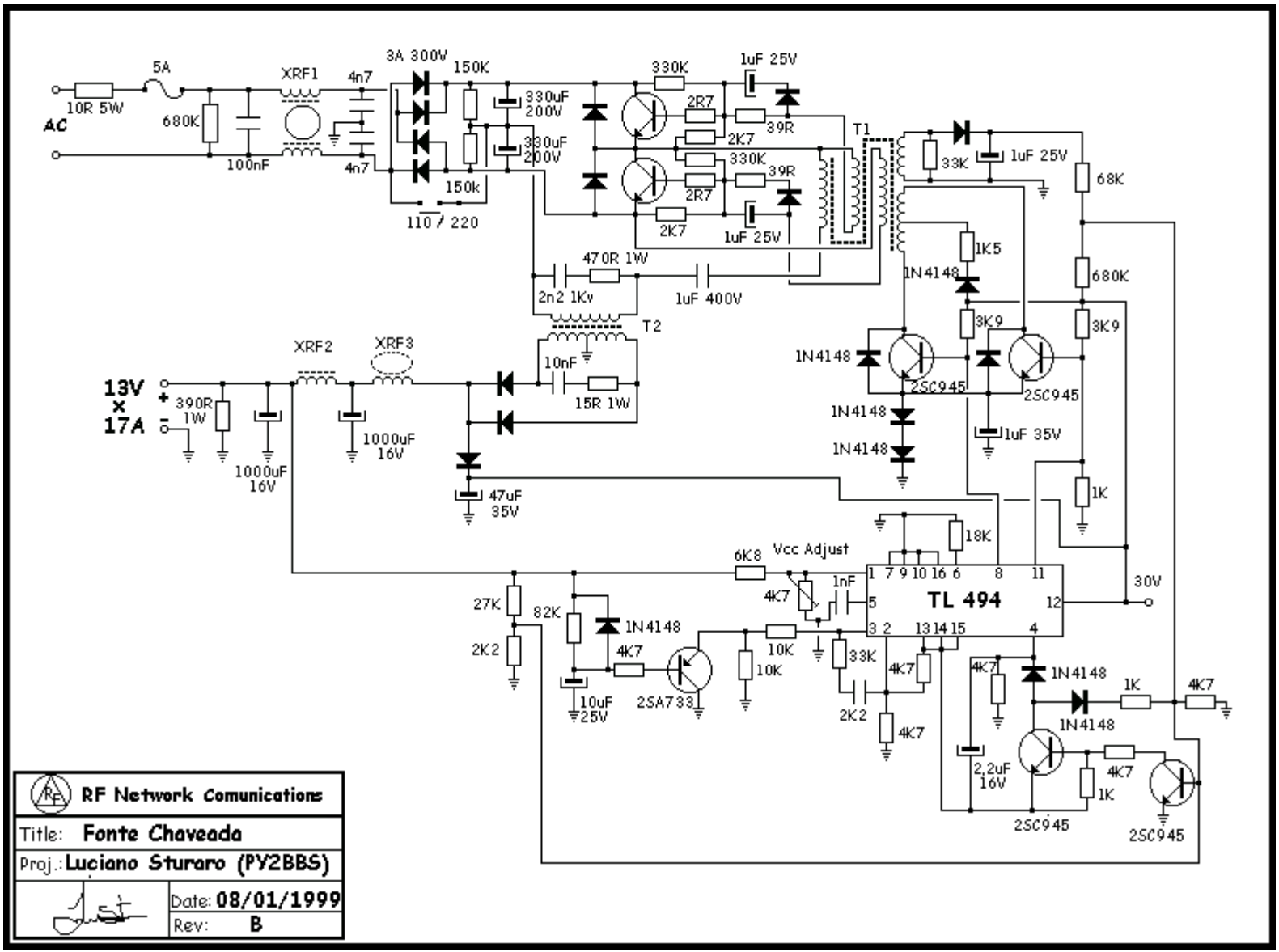


Conversor meia ponte modificado

Circuitos elétricos de fontes chaveadas



Circuitos elétricos de fontes chaveadas



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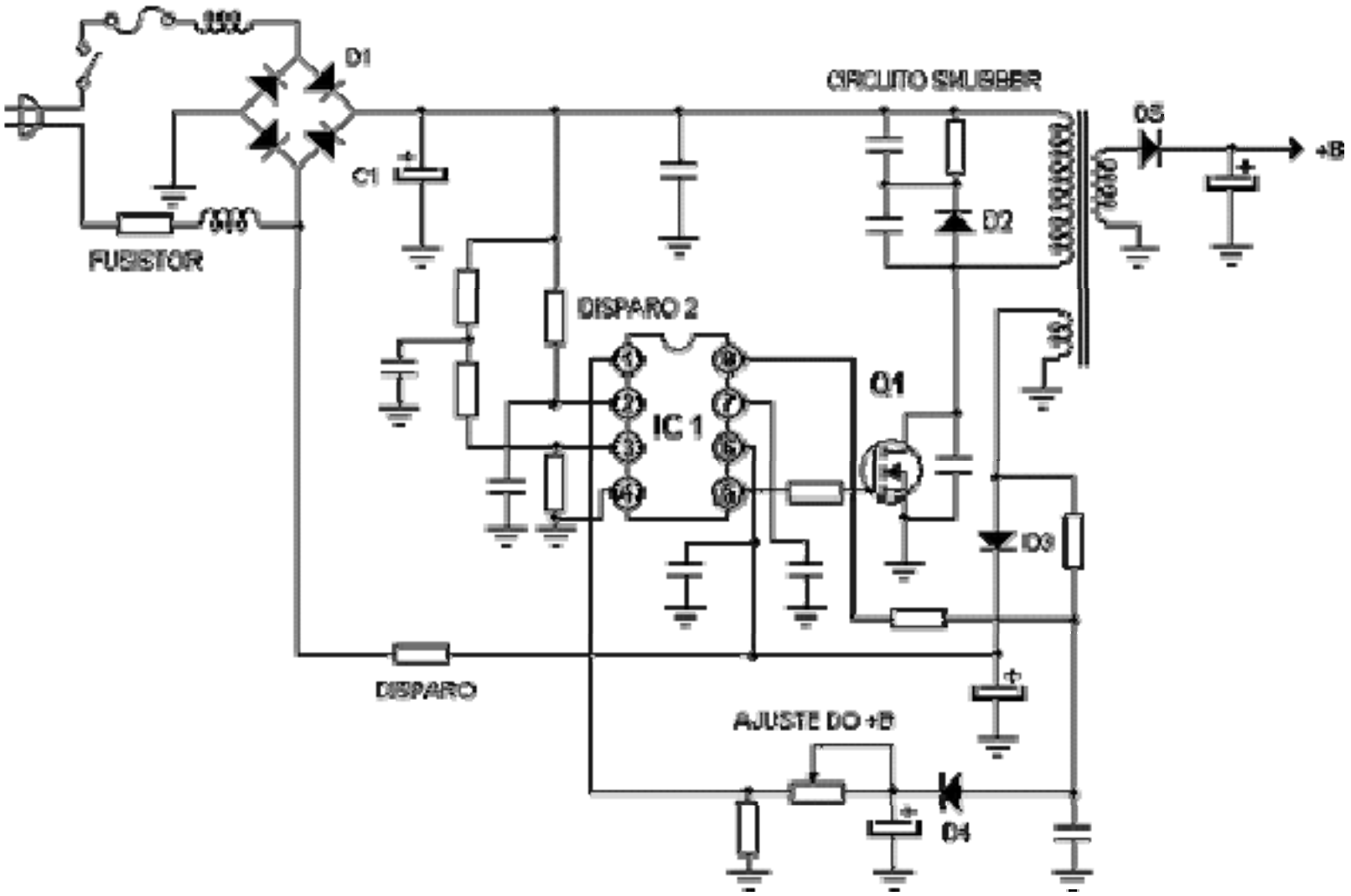
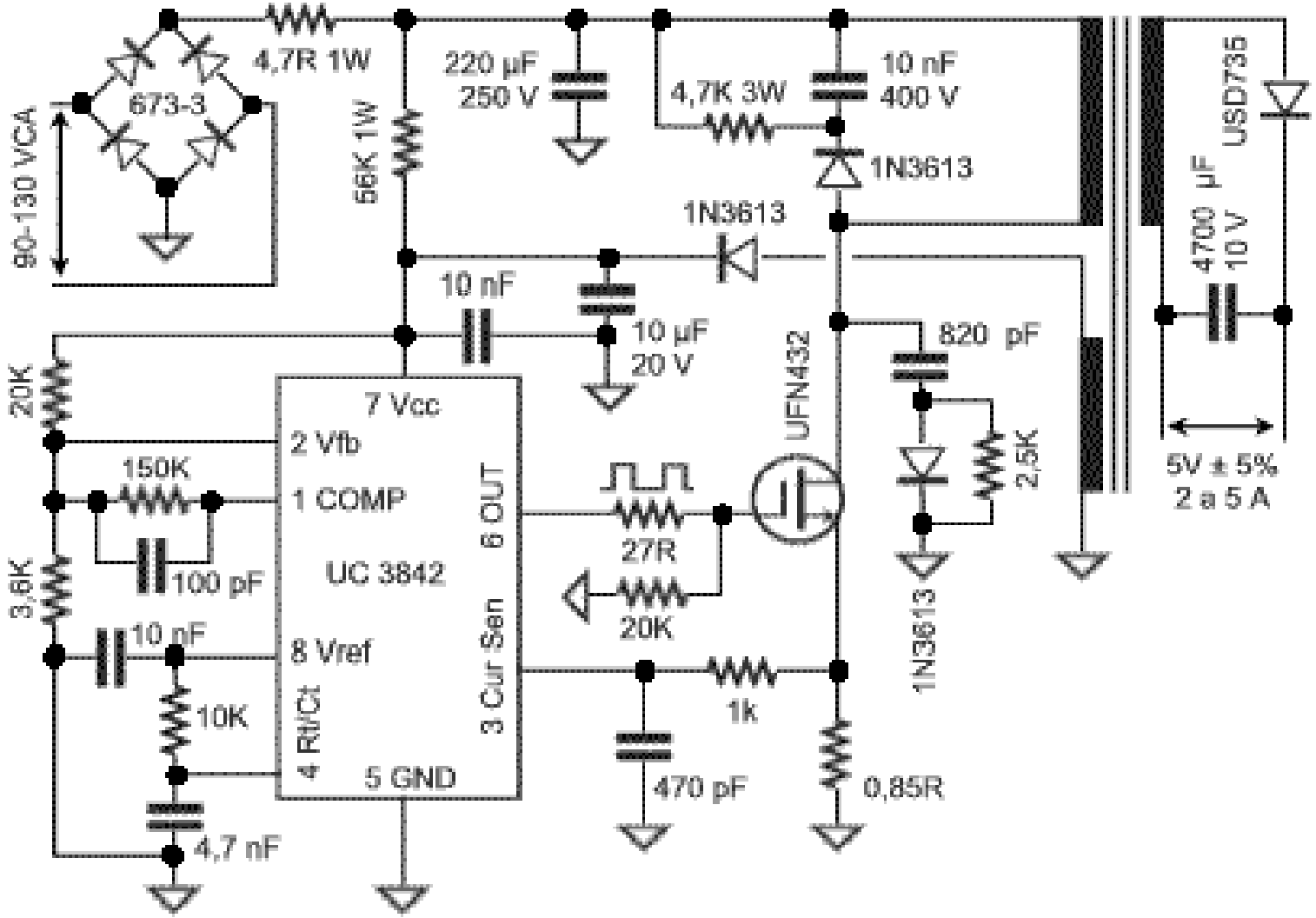


Circuitos elétricos de fontes chaveadas



Circuitos integrados para fontes chaveadas

FAIRCHILD
SEMICONDUCTOR®

www.fairchildsemi.com

UC3842/UC3843/UC3844/UC3845

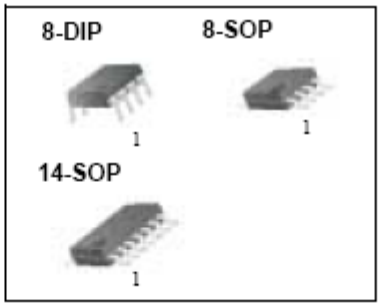
SMPS Controller

Features

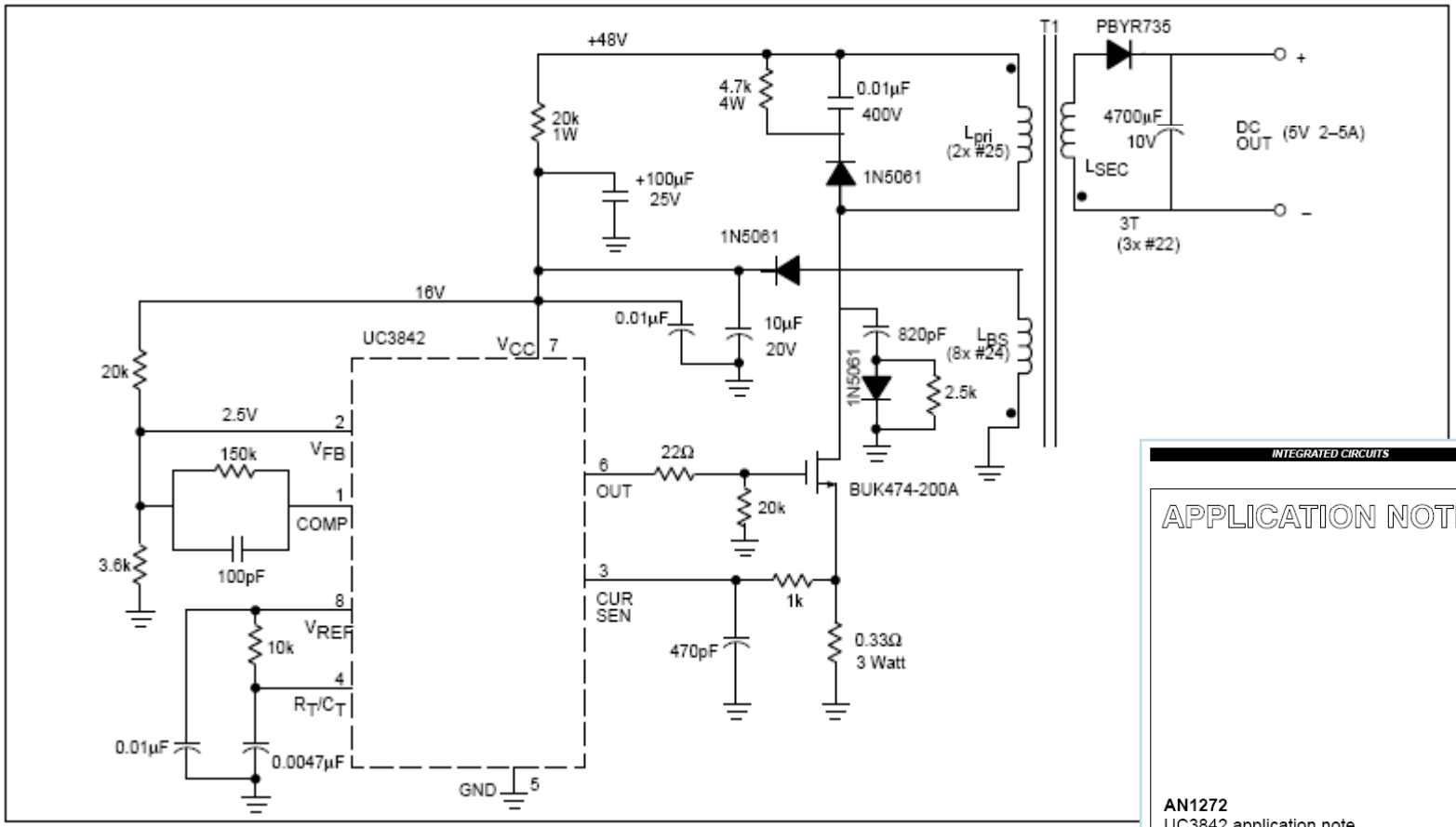
- Low Start up Current
- Maximum Duty Clamp
- UVLO With Hysteresis
- Operating Frequency up to 500KHz

Description

The UC3842/UC3843/UC3844/UC3845 are fixed frequencycurrent-mode PWM controller. They are specially designed for Off-Line and DC to DC converter applications with minimum external components. These integrated circuits feature a trimmed oscillator for precise duty cycle control, a temperature compensated reference, high gain error amplifier, current sensing comparator and a high current totempole output for driving a Power MOSFET. The UC3842 and UC3844 have UVLO thresholds of 16V (on) and 10V (off). The UC3843 and UC3845 are 8.5V(on) and 7.9V (off). The UC3842 and UC3843 can operate within 100% duty cycle. The UC3844 and UC3845 can operate with 50% duty cycle.



Circuitos integrados para fontes chaveadas



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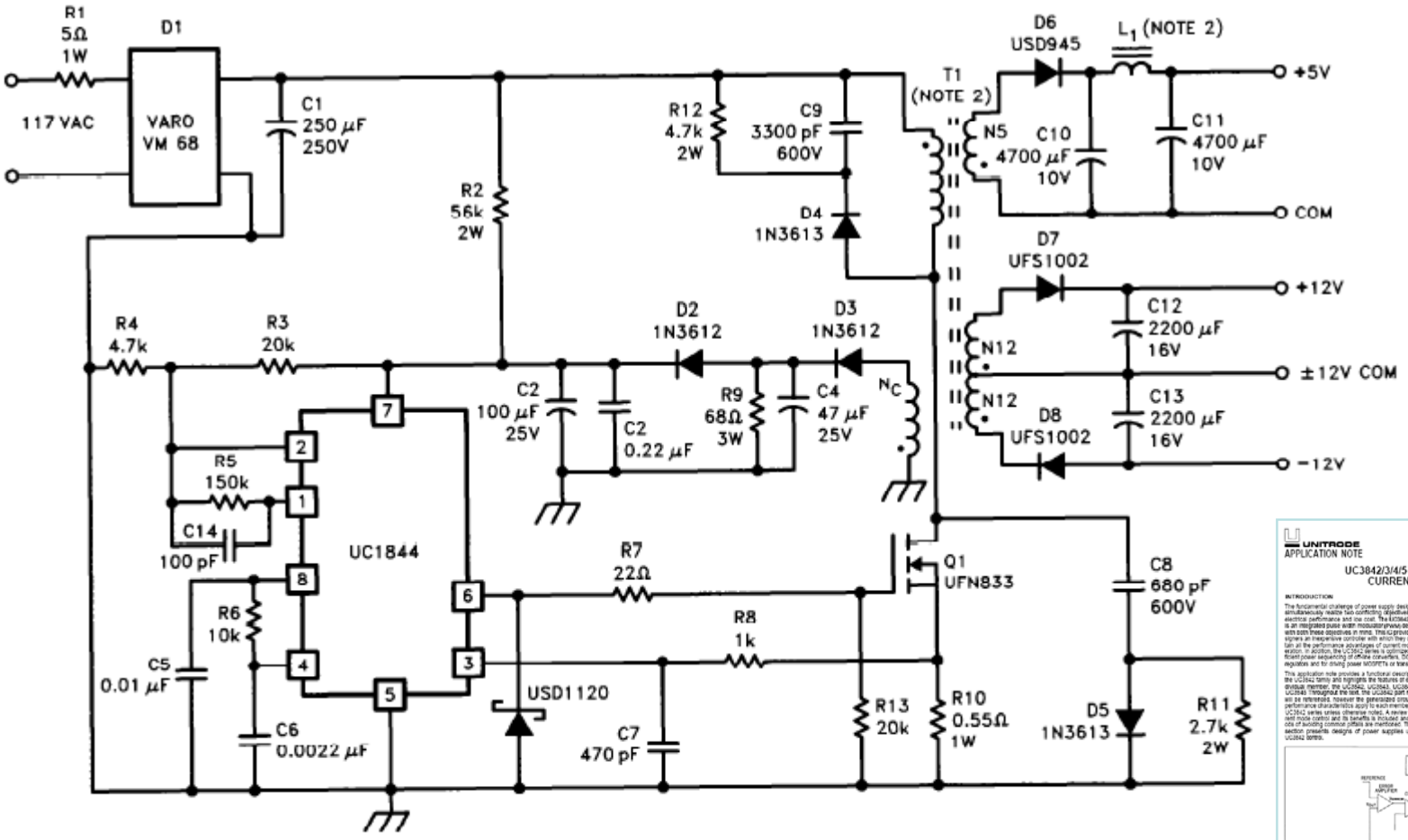
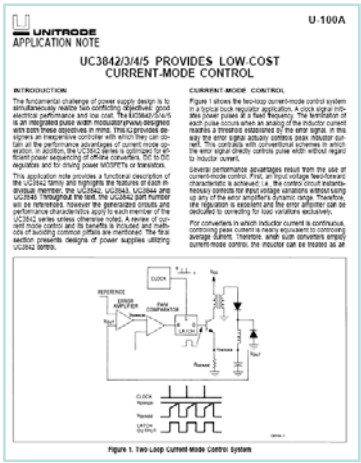
Circuitos integrados para fontes chaveadas




UNITRODE
APPLICATION NOTE
U-100A

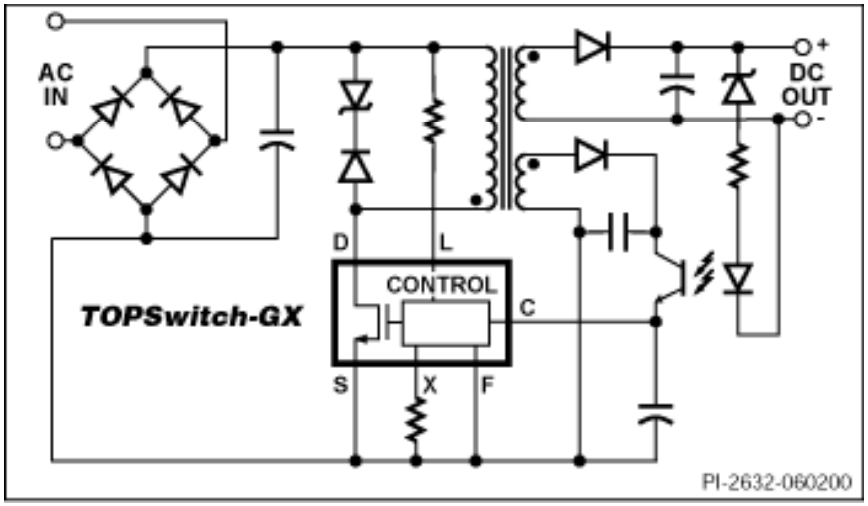
UC3842/3/4/5 PROVIDES LOW-COST CURRENT-MODE CONTROL

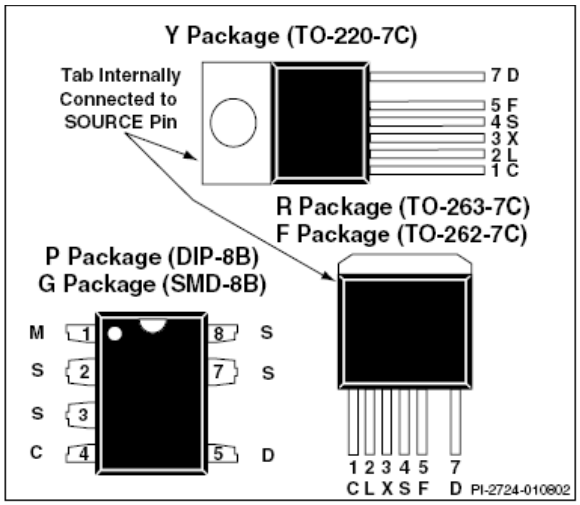
INTRODUCTION

CURRENT-MODE CONTROL

slua143

Circuitos integrados para fontes chaveadas

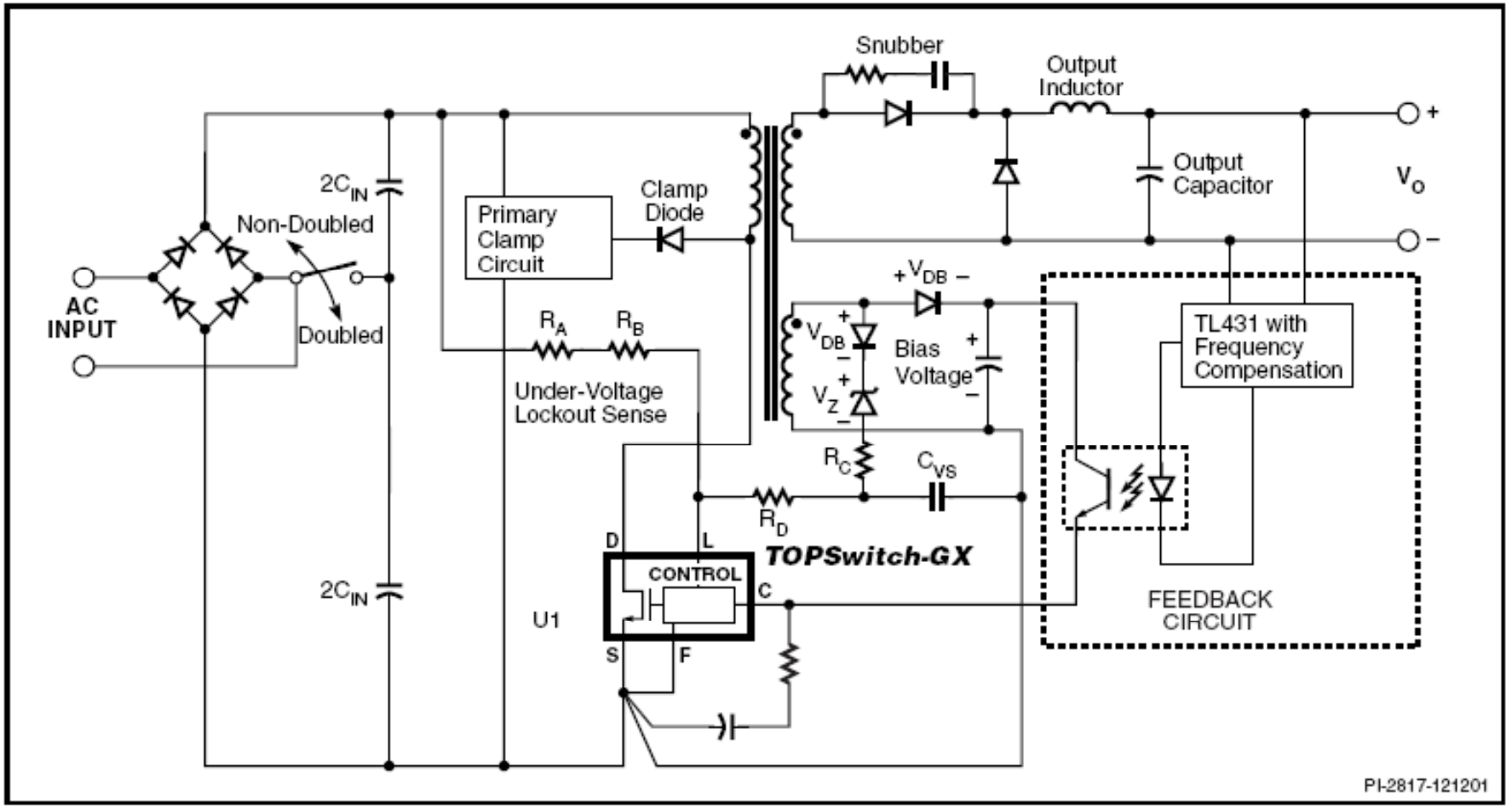




OUTPUT POWER TABLE				
PRODUCT[3]	230 VAC ±15%[4]		85-265 VAC	
	Adapter[1]	Open Frame[2]	Adapter[1]	Open Frame[2]
TOP242 P or G	9 W	15 W	6.5 W	10 W
TOP242 R	15 W	22 W	11 W	14 W
TOP242 Y or F	10 W	22 W	7 W	14 W
TOP243 P or G	13 W	25 W	9 W	15 W
TOP243 R	29 W	45 W	17 W	23 W
TOP243 Y or F	20 W	45 W	15 W	30 W
TOP244 P or G	16 W	28 W	11 W	20 W
TOP244 R	34 W	50 W	20 W	28 W
TOP244 Y or F	30 W	65 W	20 W	45 W
TOP245 P or G	19 W	30 W	13 W	22 W
TOP245 R	37 W	57 W	23 W	33 W
TOP245 Y or F	40 W	85 W	26 W	60 W
TOP246 P or G	21 W	34 W	15 W	26 W
TOP246 R	40 W	64 W	26 W	38 W
TOP246 Y or F	60 W	125 W	40 W	90 W
TOP247 R	42 W	70 W	28 W	43 W
TOP247 Y or F	85 W	165 W	55 W	125 W
TOP248 R	43 W	75 W	30 W	48 W
TOP248 Y or F	105 W	205 W	70 W	155 W
TOP249 R	44 W	79 W	31 W	53 W
TOP249 Y or F	120 W	250 W	80 W	180 W
TOP250 R	45 W	82 W	32 W	55 W
TOP250 Y or F	135 W	290 W	90 W	210 W

http://www.powerint.com

Circuitos integrados para fontes chaveadas



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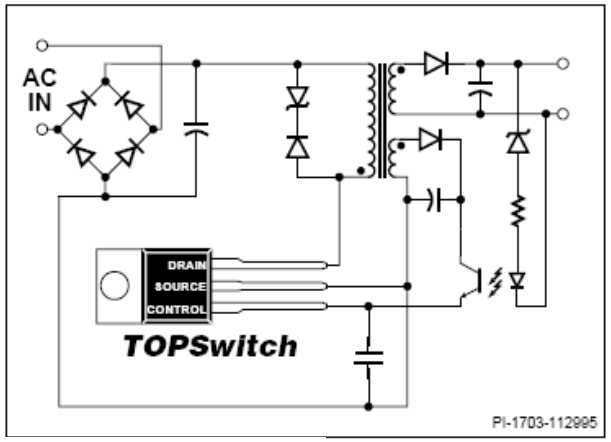
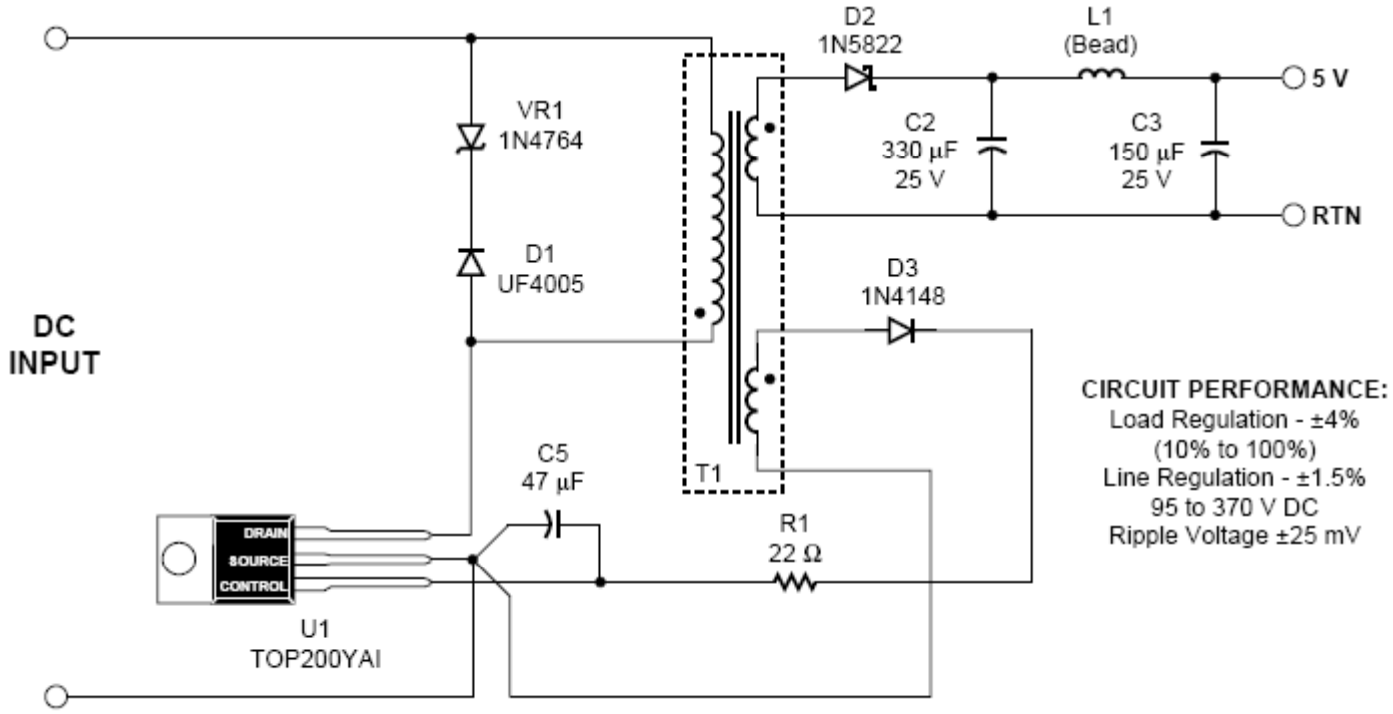
Circuitos integrados para fontes chaveadas

TOP200-4/14

TOPSwitch® Family

Three-terminal Off-line PWM Switch



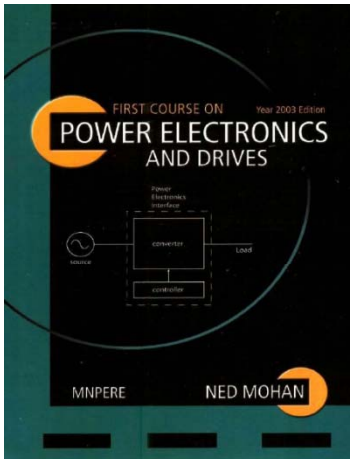


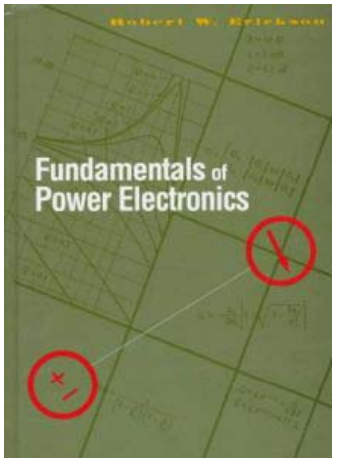
CIRCUIT PERFORMANCE:
Load Regulation - ±4%
(10% to 100%)
Line Regulation - ±1.5%
95 to 370 V DC
Ripple Voltage ±25 mV

Próxima aula

Aplicações da Eletrônica de Potência:

1. Fontes ininterruptas de energia (UPS).





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