

APPLICATIONS & INDUSTRIES GUIDE 2024

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

The Würth Elektronik Group

Würth Elektronik eiSos Group



Printed Circuit Boards

Intelligent Power and Control Systems

Passive Components

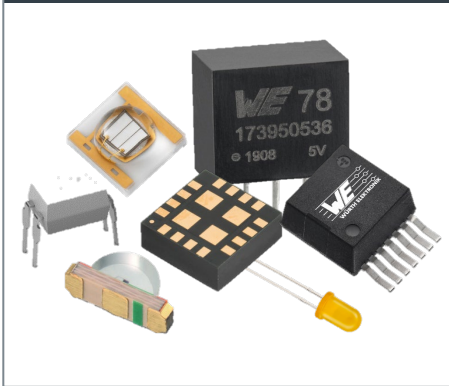


Würth Elektronik eiSos GmbH & Co. KG

Würth Electronics Midcom Inc.

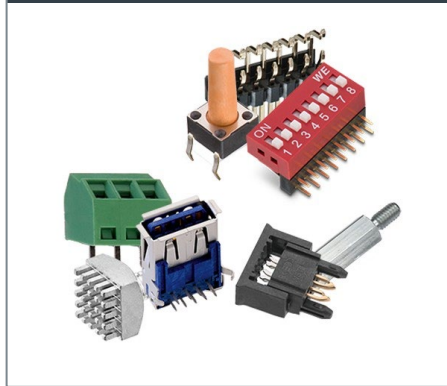
IQD Frequency Products Ltd.

Power Modules & Optoelectronics



Würth Elektronik eiSos GmbH & Co. KG

Electromechanical Components



Würth Elektronik eiCan

Würth Elektronik Stelvio Kontek S.p.A.

Automotive & eMobility

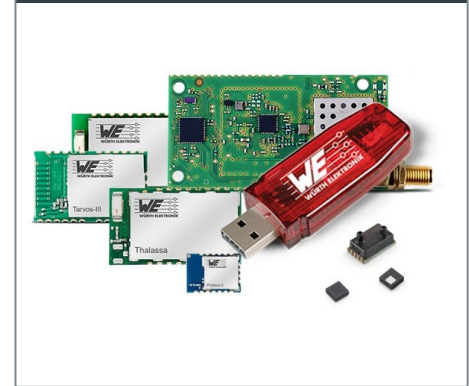


Würth Elektronik eiSos GmbH & Co. KG

Würth Elektronik iBE GmbH

Erwin Büchele GmbH & Co. KG

Wireless Connectivity & Sensors



Würth Elektronik eiSos GmbH & Co. KG

(former AMBER Wireless GmbH)

More than you expect



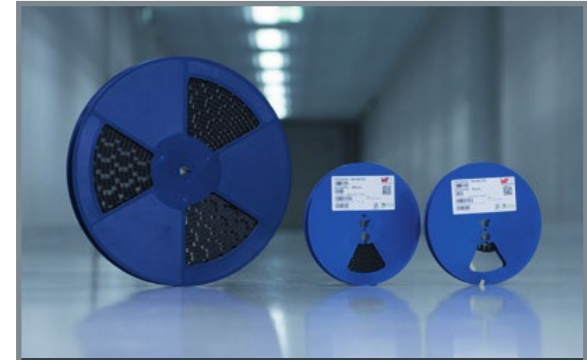
SAY YES TO OUR FAST AND COST-FREE DESIGN-IN SUPPORT



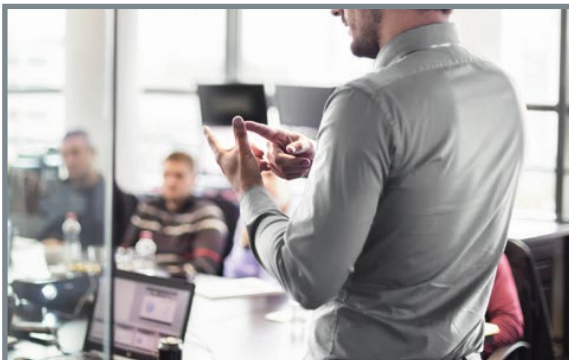
WE TAILOR QUANTITIES TO YOUR NEEDS



ALL CATALOGUE PRODUCTS AVAILABLE EX STOCK



RE-REELING SERVICE



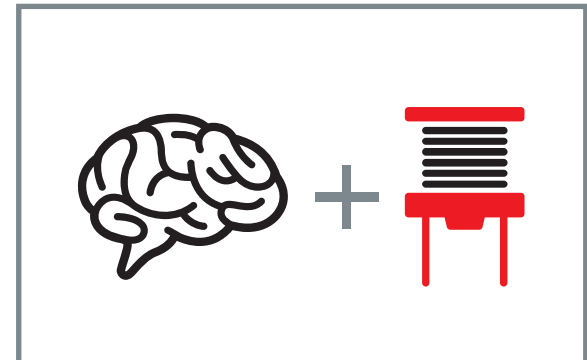
DESIGN SEMINARS AND WEBINARS FREE OF CHARGE



ONLINE DESIGN PLATFORM FOR COMPONENT SELECTION & SIMULATION



DESIGN KITS WITH LIFELONG FREE REFILL



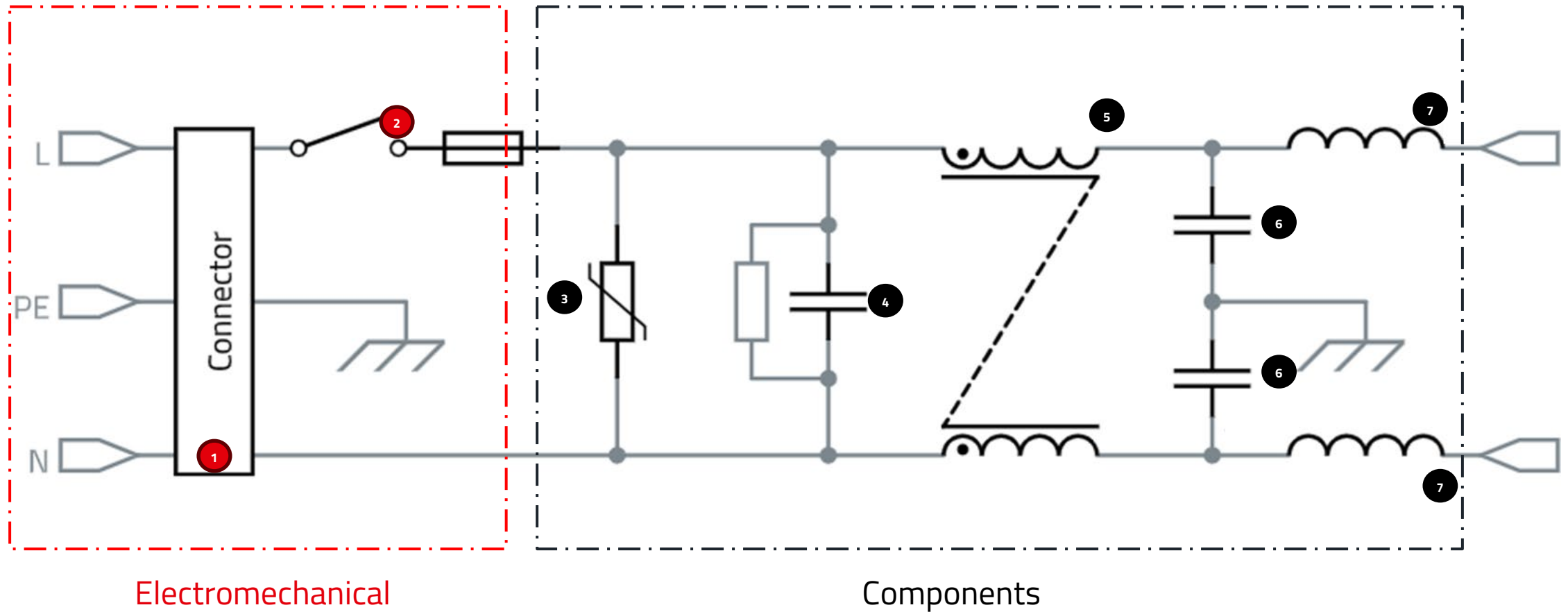
REFERENCE DESIGNS OF LEADING MANUFACTURERS

Agenda

- **Applications & Industries Guide**
- Offline Flyback
 - Mains Filter
 - Redexpert
 - Flyback
 - Redexpert

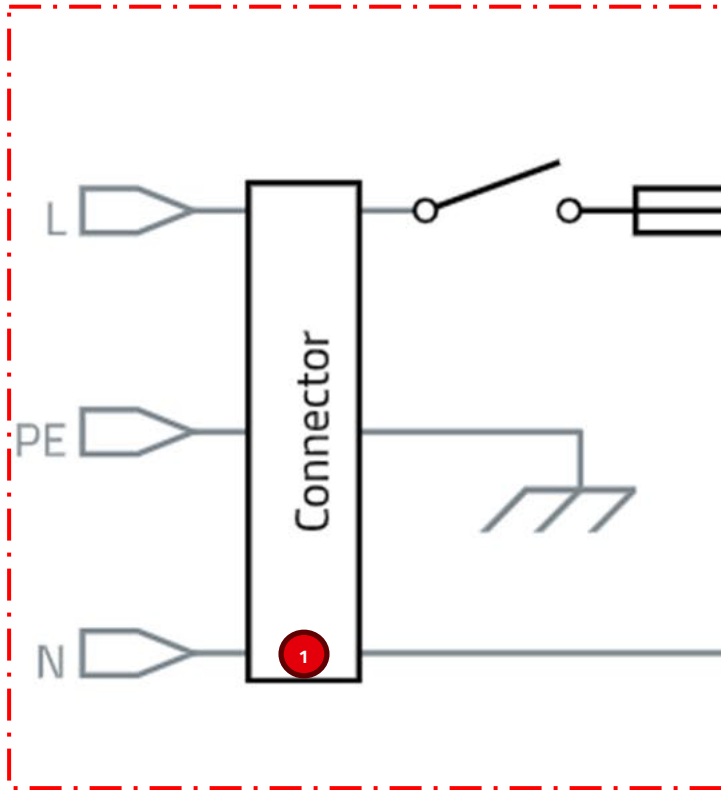
Offline Flyback

- Mains Filter



Offline Flyback

- **Mains Filter**



Electromechanical

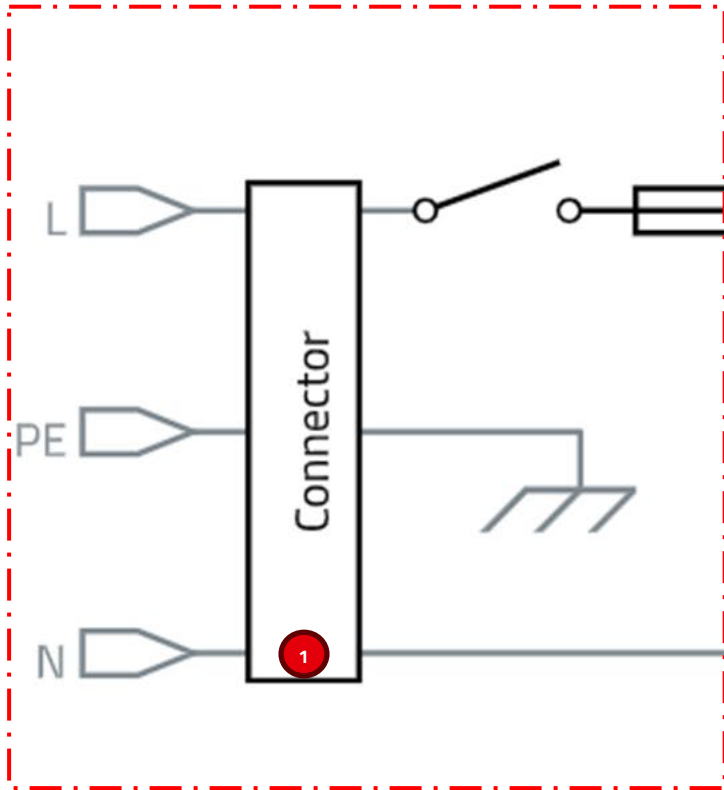
1. Terminal Block

Pluggable Connector, Spring Clamp, Wire Protector and Rising Cage Clamp
Pitch: 2.5 - 10.16mm
Rated Current: 4 - 57A
Mounting: THT / SMD / THR



Offline Flyback

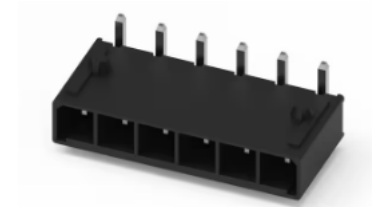
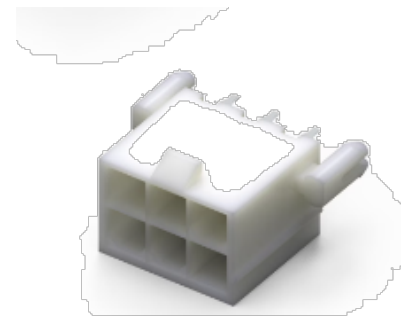
- Mains Filter



Electromechanical

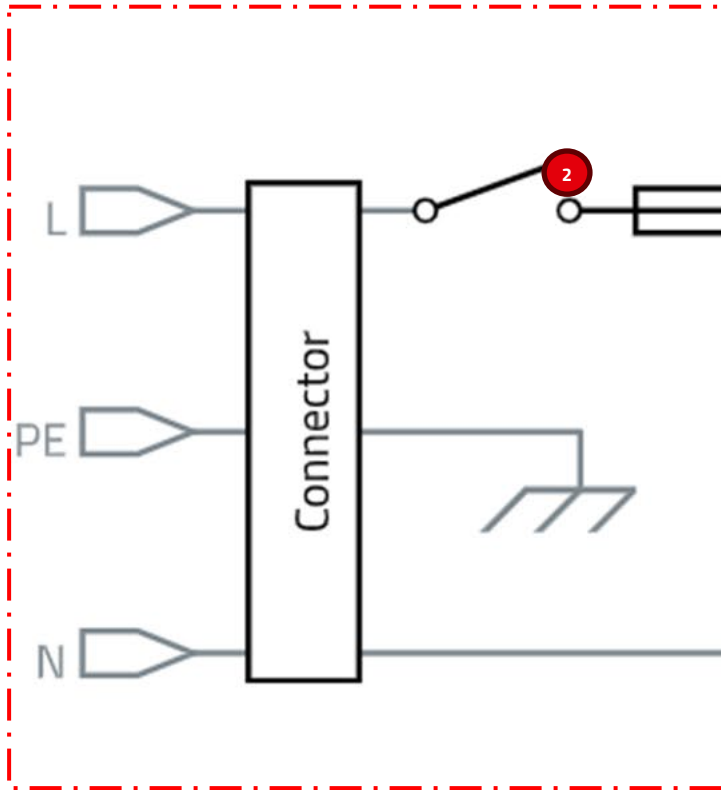
1. Wire to Board

MPC3	MPC4	MPC5
2-24 pins	2-24 pins	2-12 pins
3mm Pitch	4.2mm Pitch	5.7mm Pitch
5A	6-9A	26A
Dual or Single	Dual or Single	Dual or Single
SMT or THT	SMT or THT	THT



Offline Flyback

- Mains Filter



Electromechanical

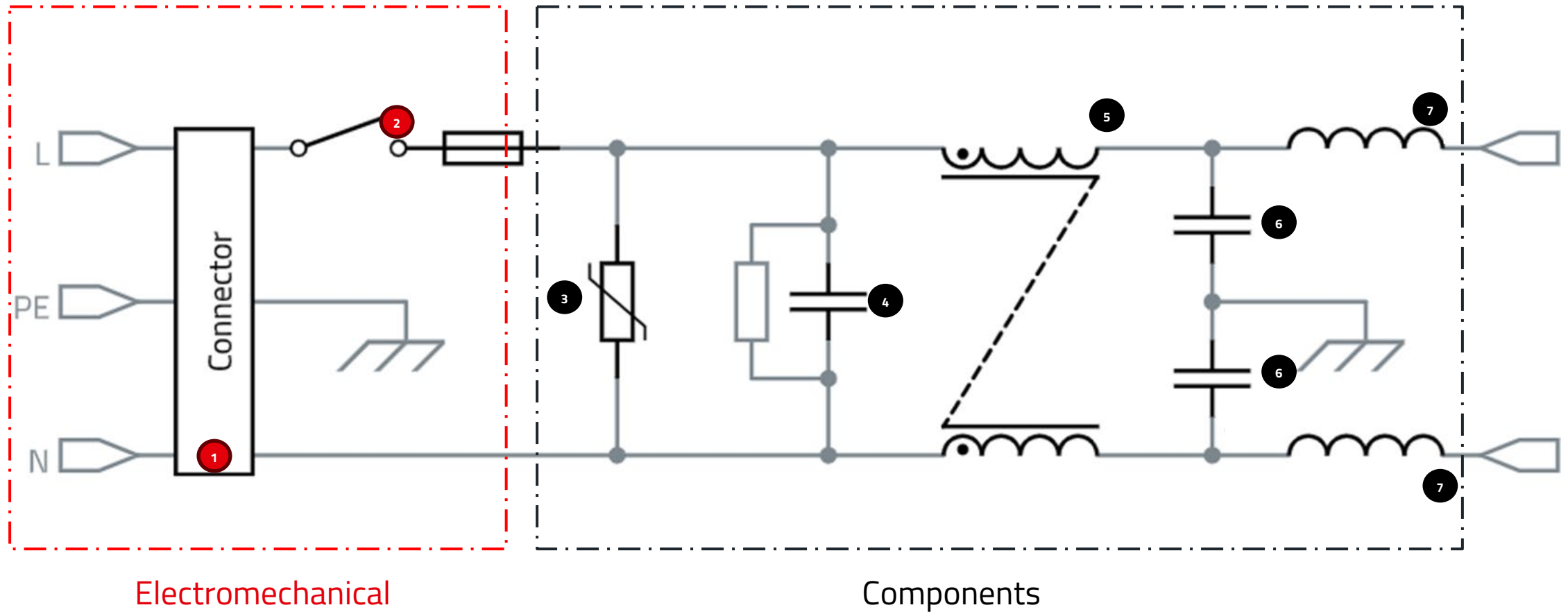
2. Rocker Switches or Fuse Holder

IP65 Design
PCB or Panel Mounted
Fuse size 5 x20
IP class: 20 or 40
Protection class: PC1 – PC2



Offline Flyback

- Mains Filter



Offline Flyback

- Mains Filter

3. Disk Varistor

Proteção Overvoltage, Surge e Burnst

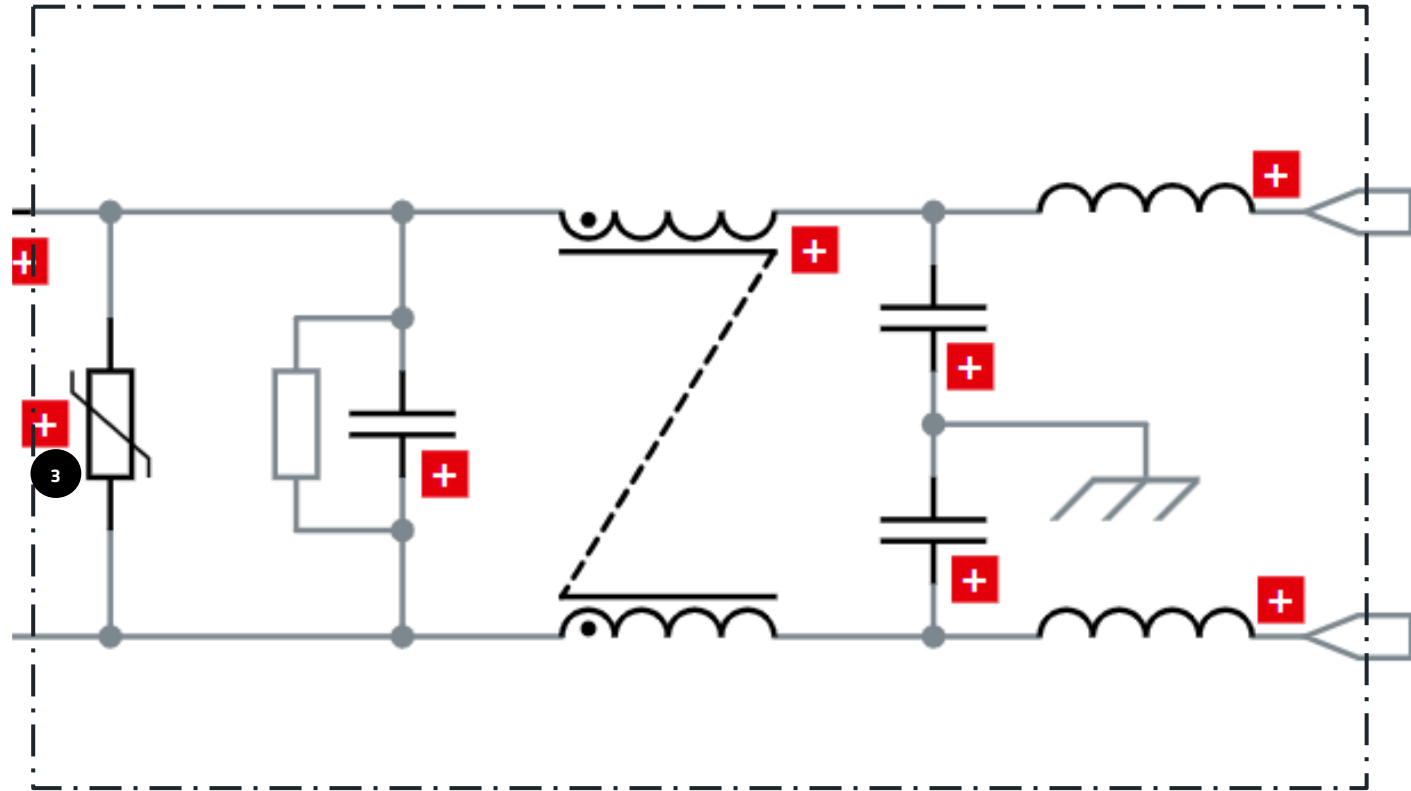
Diameter: 5 / 7 / 10 / 14 / 20mm

Operating temperature: -40°C to $+85^{\circ}\text{C}$

Mounting: THT

Vrms AC Operating Voltage: 14 – 1000V

Vdc DC Operating Voltage: 18 – 1465V



Components

Offline Flyback

- Mains Filter

4. X Capacitor

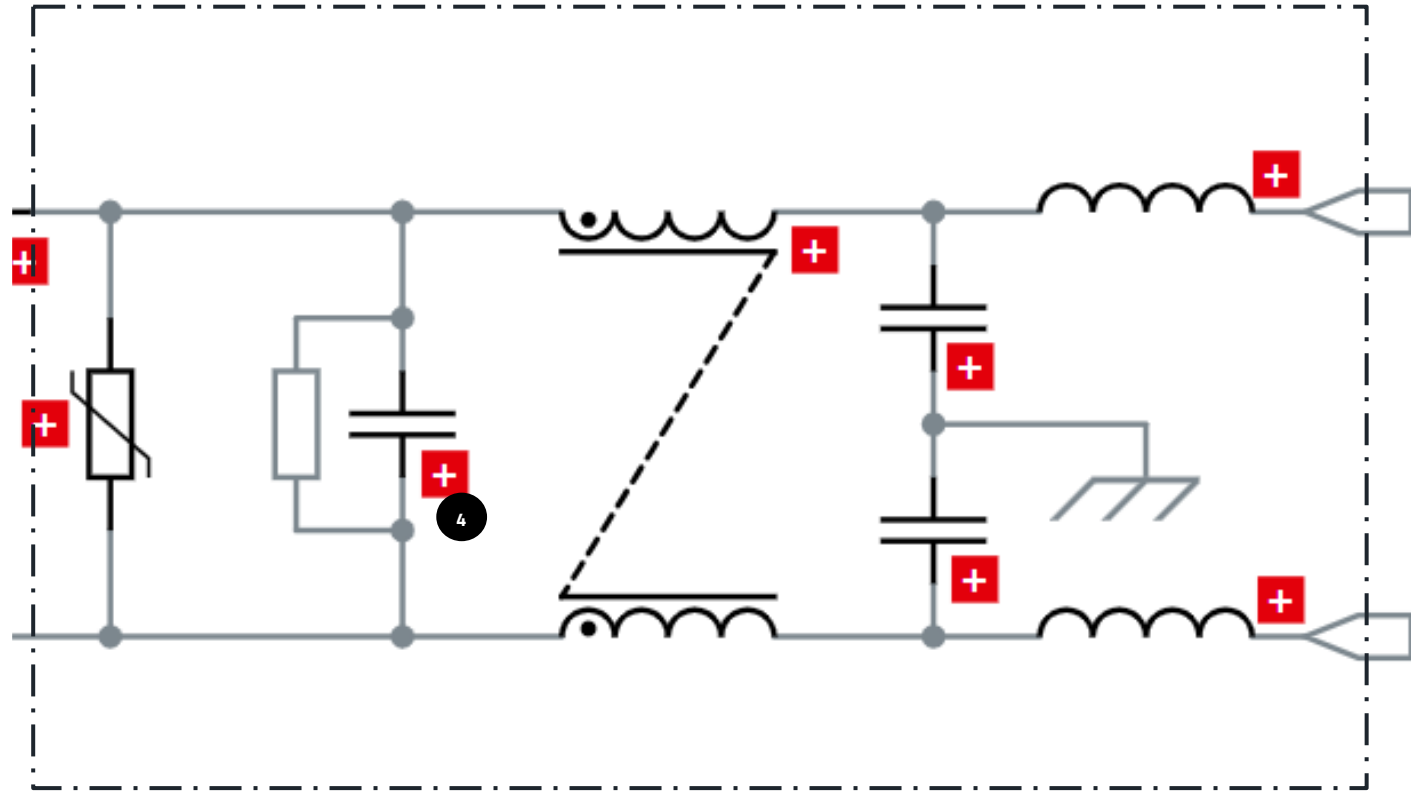
Filtra a interferência do modo diferencial

Capacitance: 5.6nF – 10uF

Vr Rated Voltage: 275 – 310VAC

Pitch: 7.5 – 37.5mm

Operating temperature: -40°C to +105°C



Components

Offline Flyback

- Mains Filter

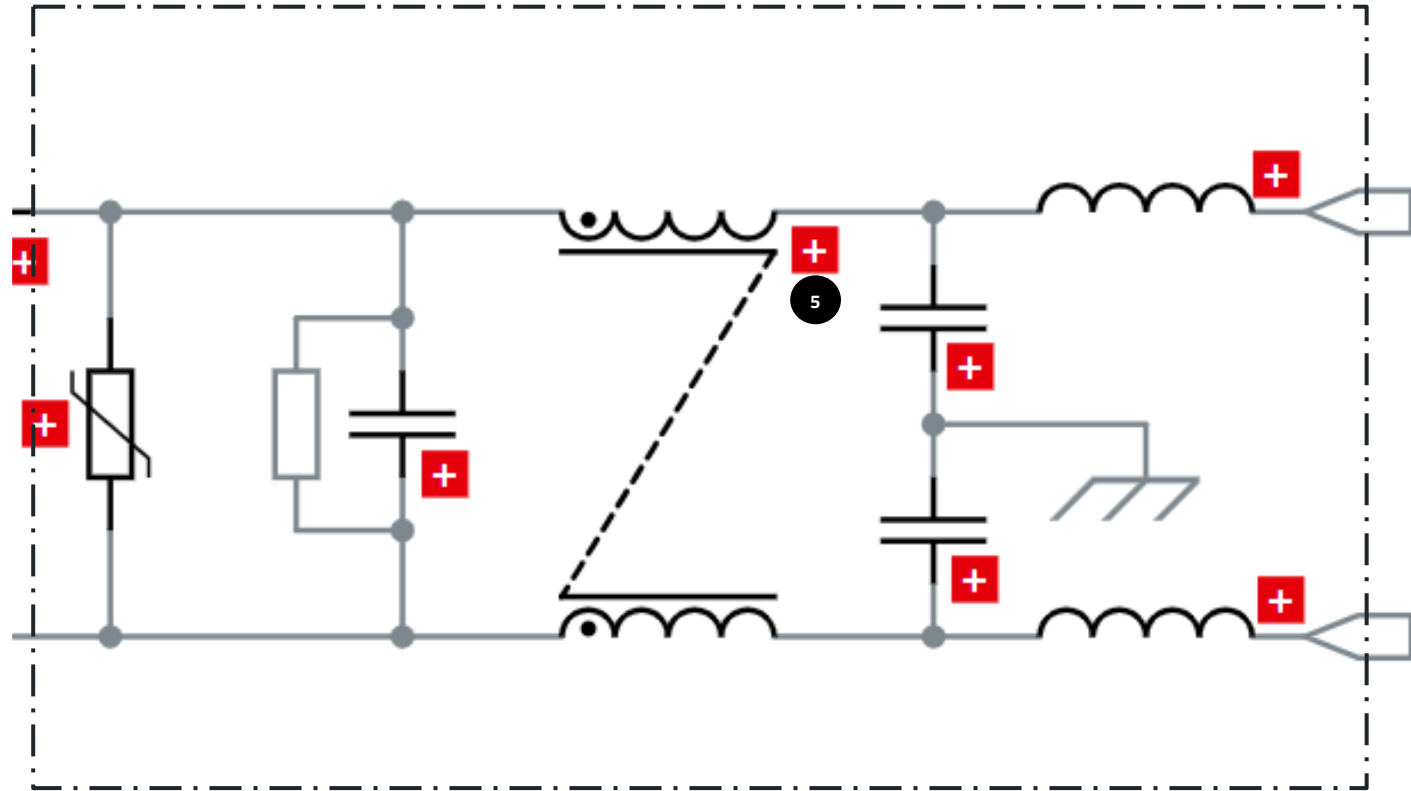
5. Common Mode Choke

Filtra não apenas ruído de modo comum conduzido, mas também ruído de modo diferencial.

Materiais: manganês-zinco (mais comum), níquel-zinco e nanocristalino.

Vr Rated Voltage: 250 – 760VAC

Ir Rated Current: 0.25 – 46A



Components

Offline Flyback

- Mains Filter

6. Y Capacitor

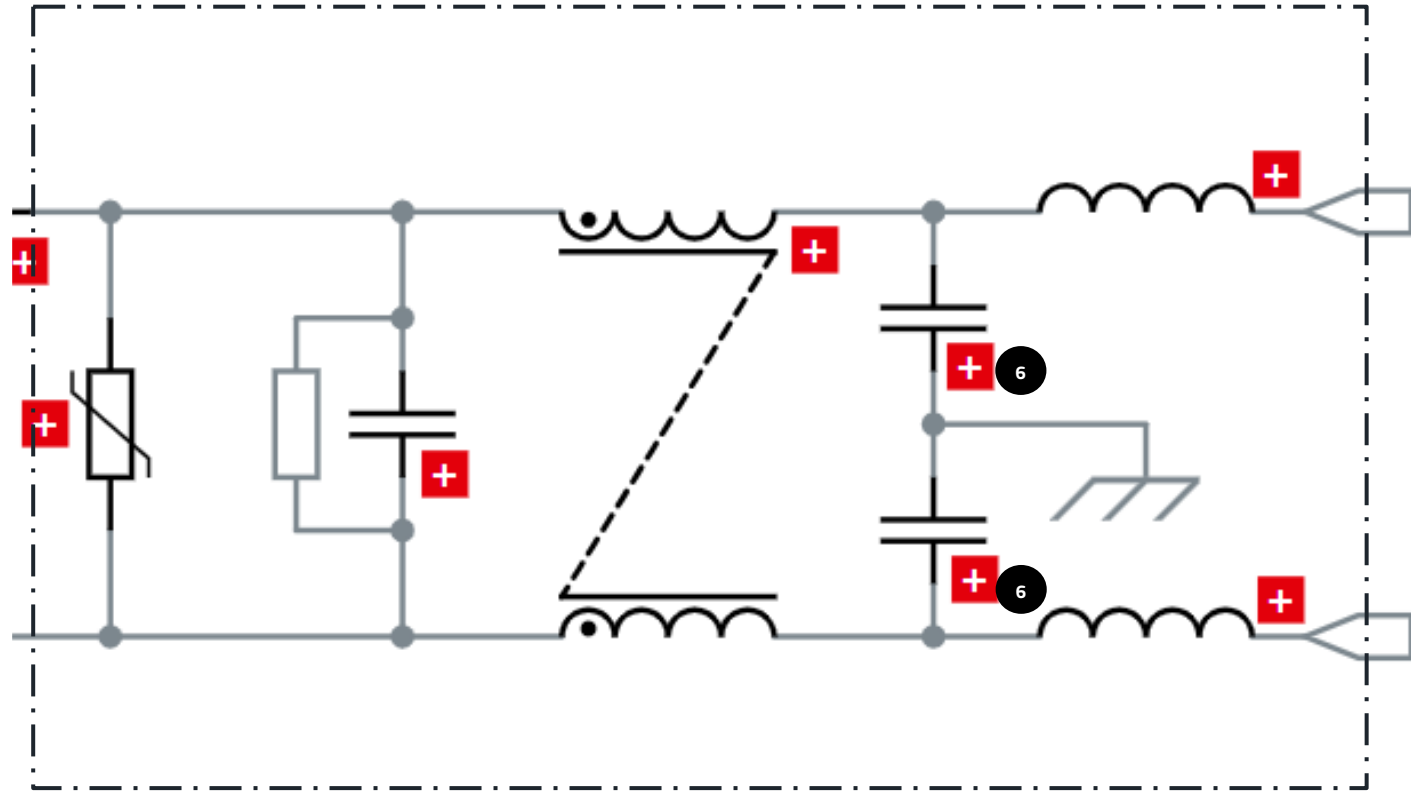
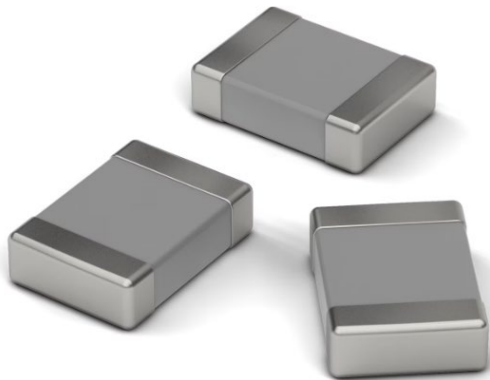
Desviam o ruído de modo comum para o terra

Capacitance: 33pF – 4.7nF

Size: 1808 / 1812 / 2211 / 2220

Vr rated Voltage: 250VAC

Tolerance: $\pm 5\%$ e $\pm 10\%$



Components

Offline Flyback

- Mains Filter

7. Filter Choke or Inductor

Filtrar modo diferencial

Choke

Rated current: 2.5 – 15A

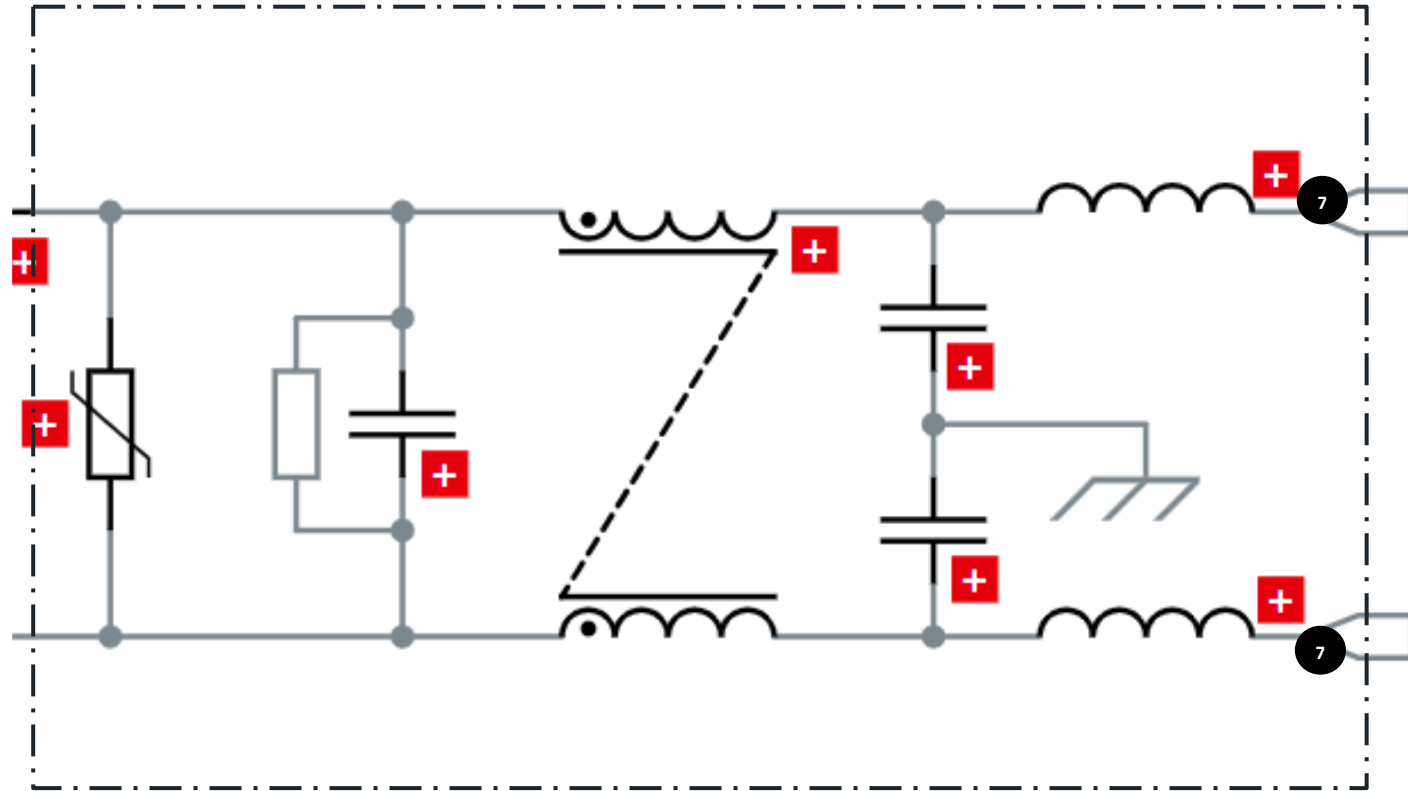
Inductance: 2 – 10uH

Inductor

Unshield

Inductance: 0.1uH – 68mH

Ir Rated Current: 0.03 – 18A



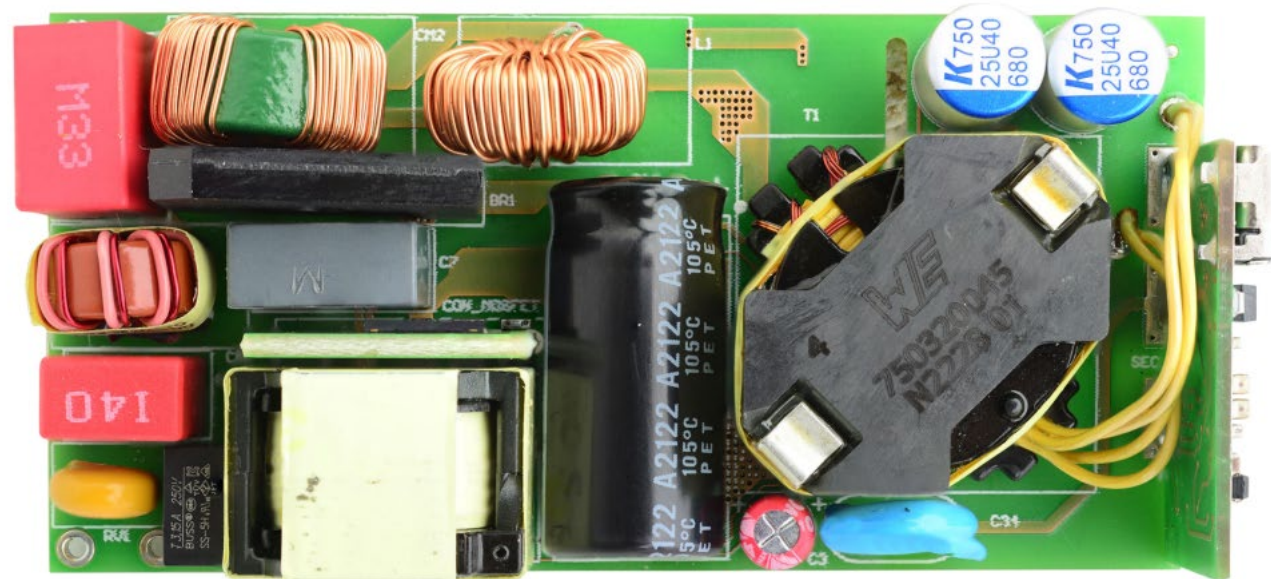
Components



REDEXPERT

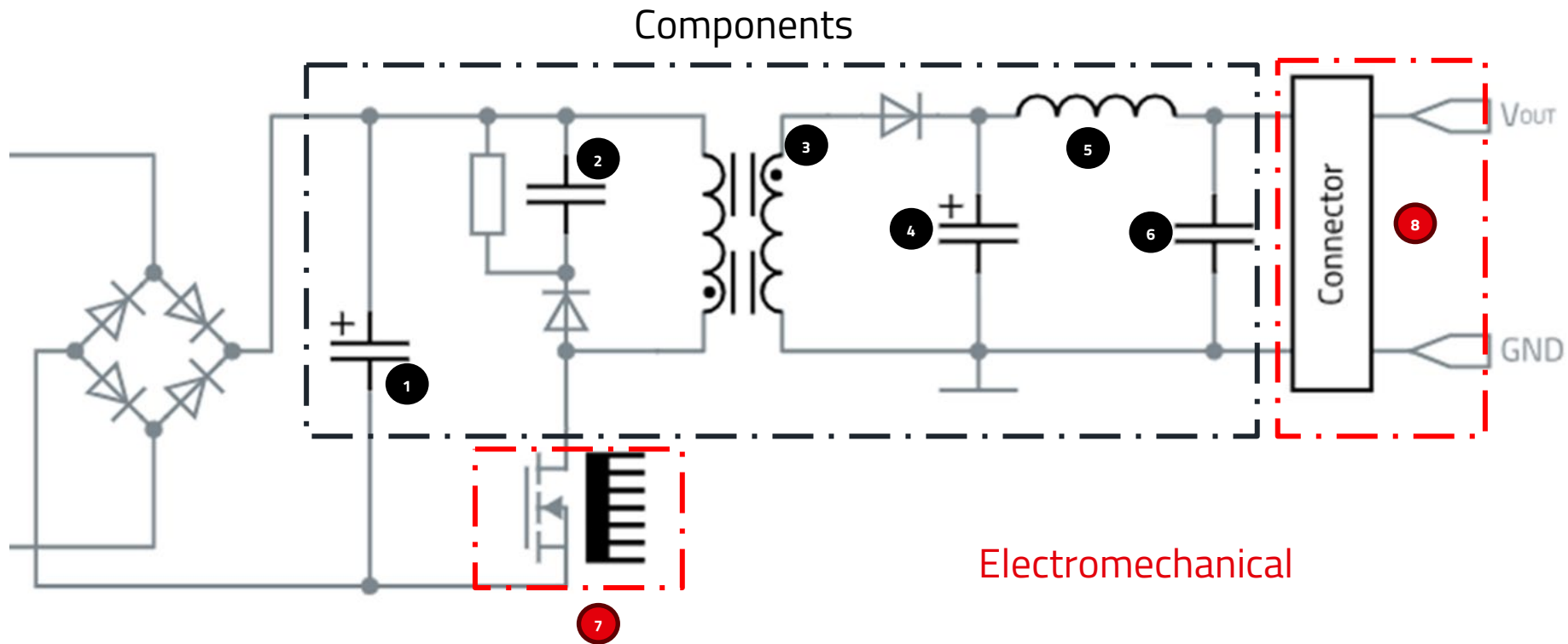


- **100 W USB Power delivery adaptor reference design with VIPERGAN100**
Demoboard: EVLVIPGAN100PD



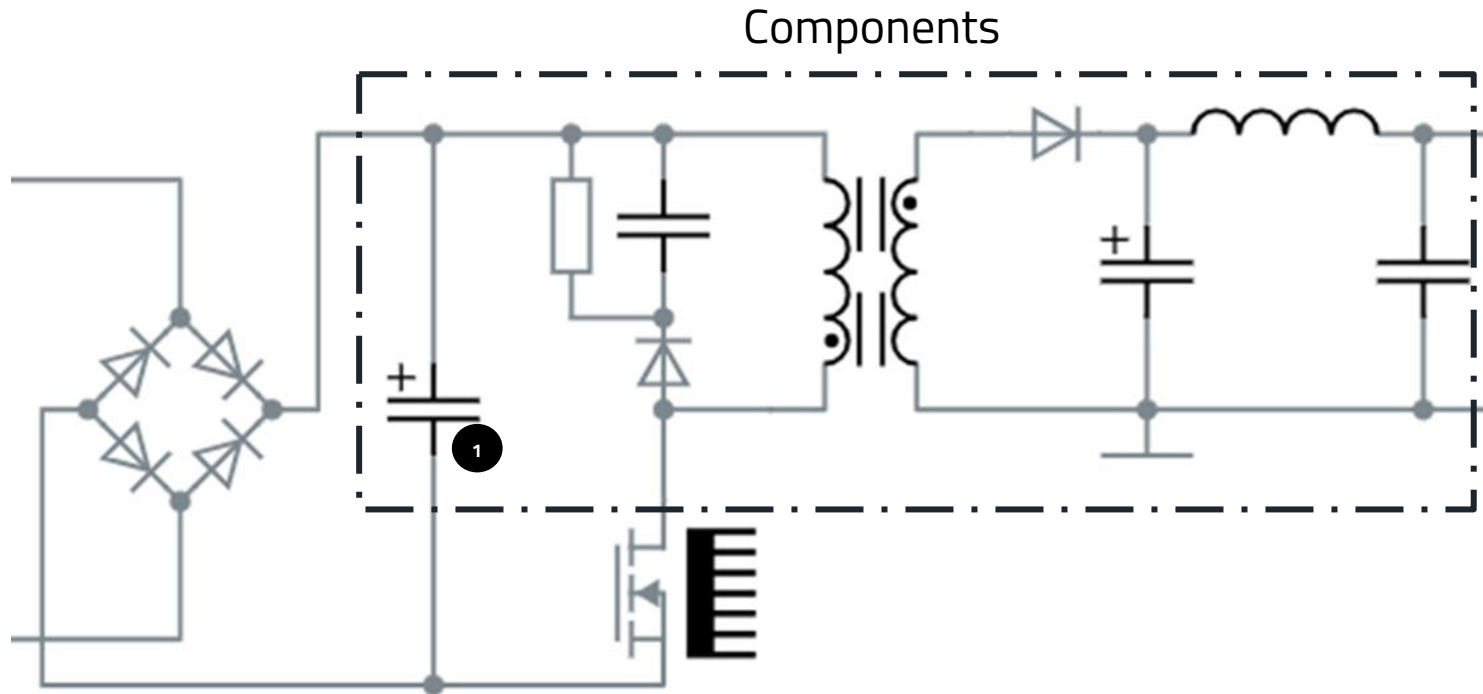
Offline Flyback

- Flyback



Offline Flyback

- Flyback



1. Electrolytic Capacitors

Capacitance: 0.47 μ F– 0.033F

Vr Rated Voltage: 6.3 – 450Vdc

Diameter: 3 – 76.2mm

Operating temperature: -40°C to +125°C

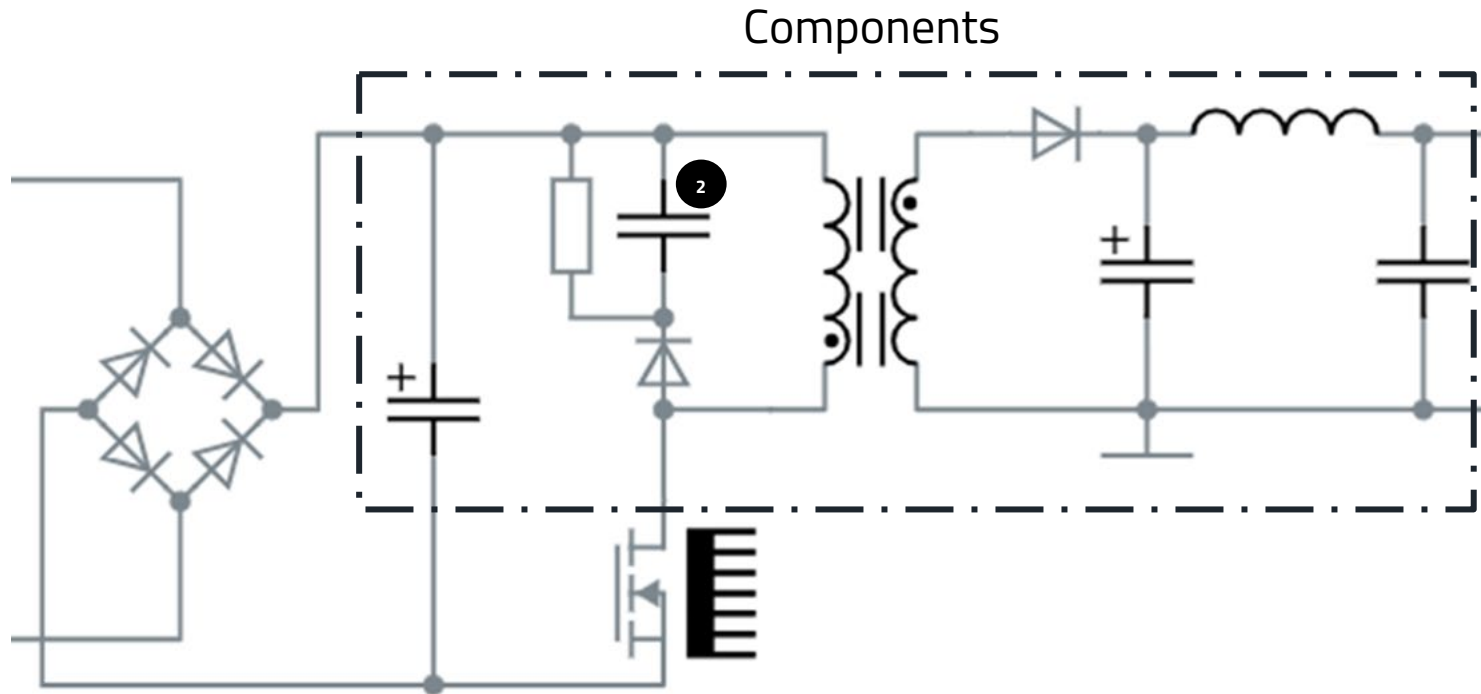
Endurance: 1000 – 10000h

Radial, SMD, Snap-in and Screw



Offline Flyback

- Flyback



2. Capacitor

Snubber protegem contra tensões transitórias que ocorrem durante o desligamento.

Capacitance: 10pF – 2.2uF

Vr Rated Voltage: 200 – 3000Vdc

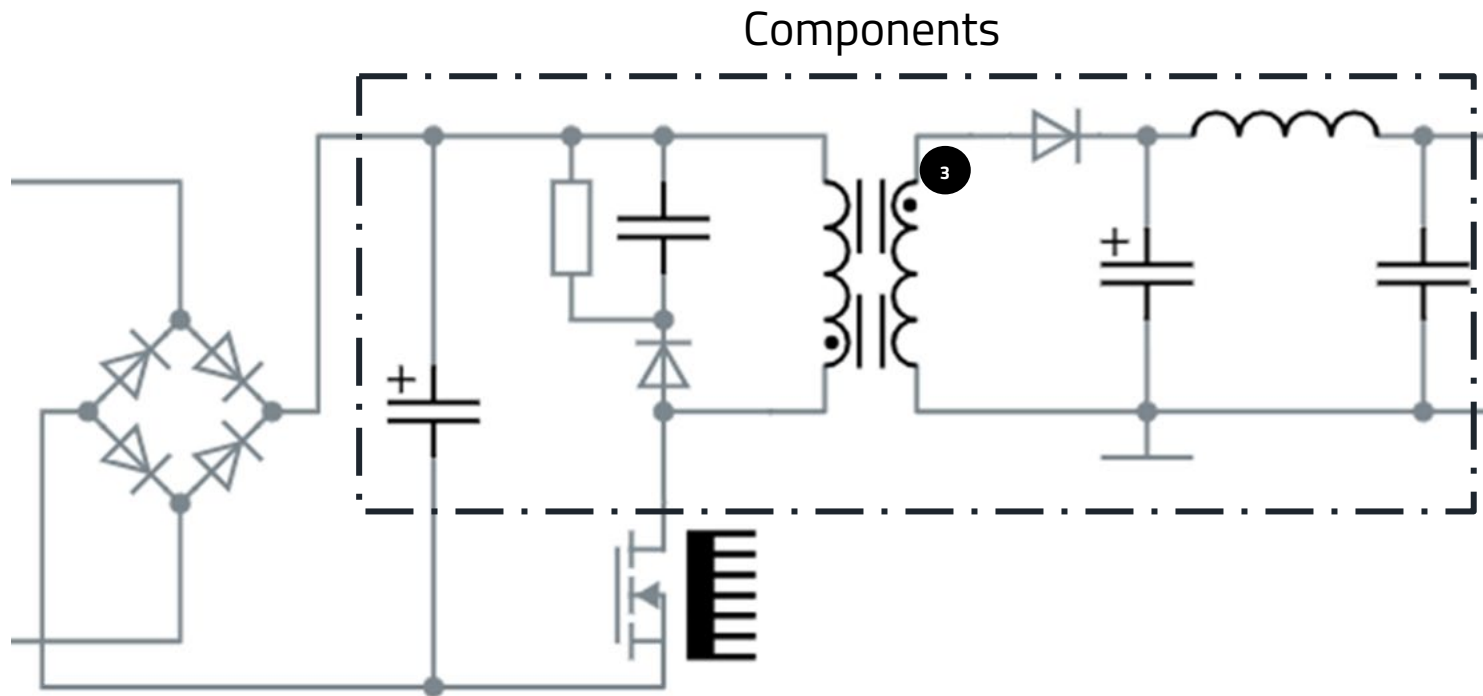
Package: 0603 - 2220

Operating temperature: -40°C to +125°C



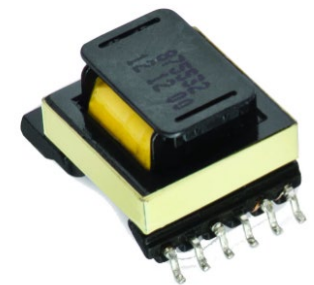
Offline Flyback

- Flyback



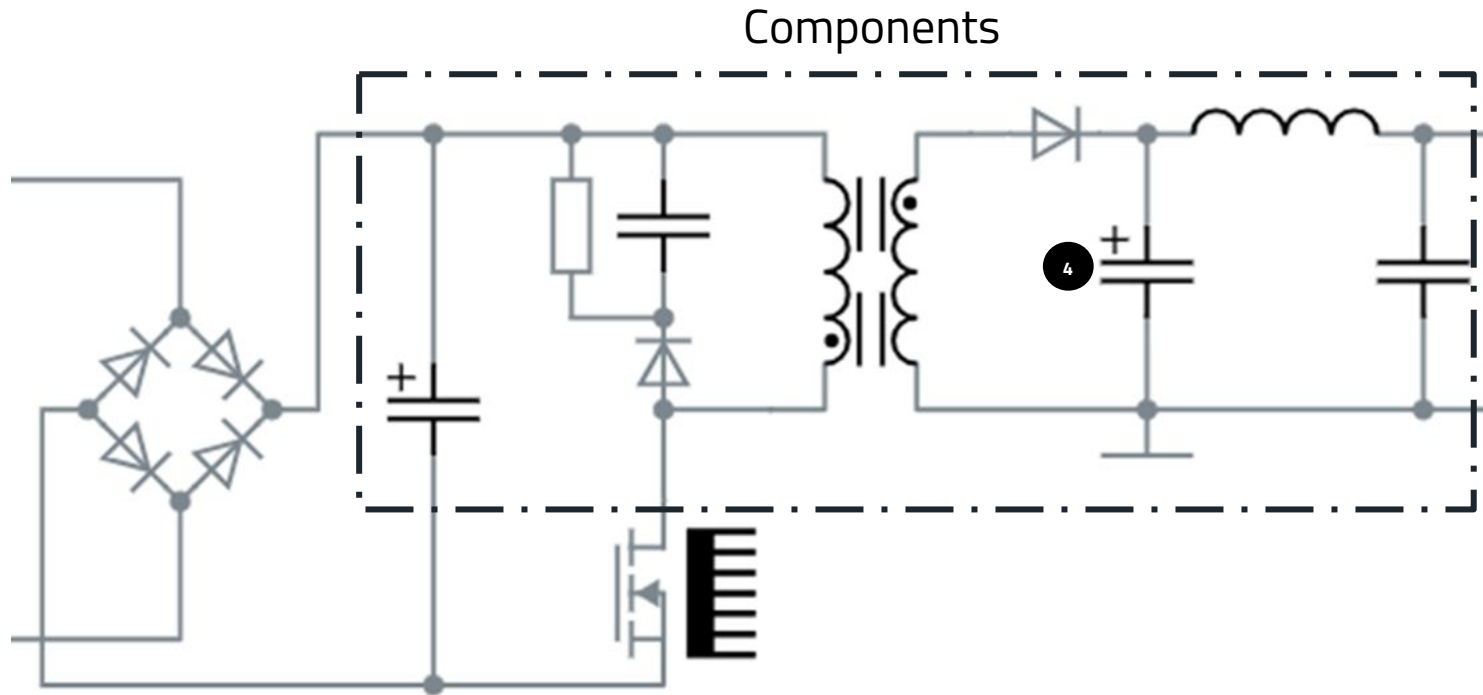
3. Transformer

Itens para Fontes AC/DC e DC/DC
Customizados
PTH ou SMD
Isolação
Múltiplas saídas



Offline Flyback

- Flyback



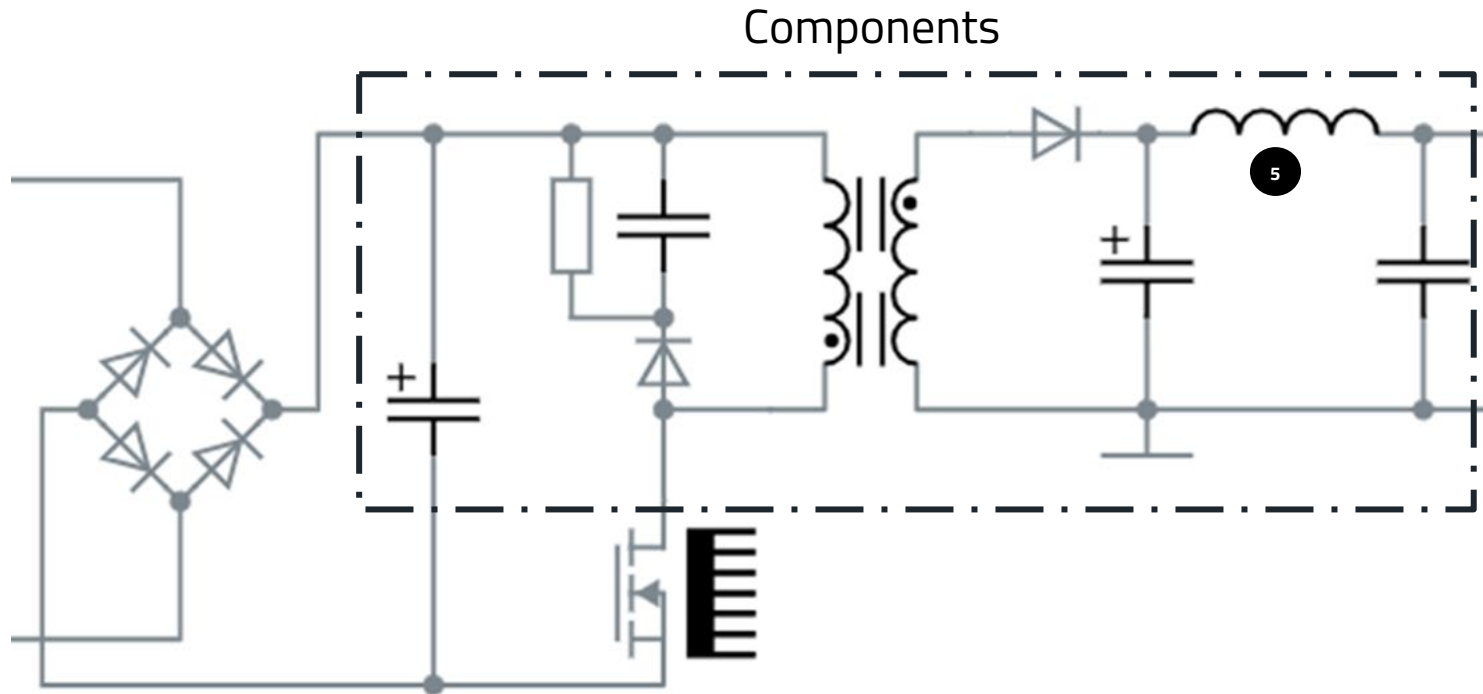
4. Capacitors

Polímero (low ESR)
Capacitance: 4.7uF – 2000uF
Vr Rated Voltage: 2 – 100Vdc
Endurance: 2000 – 5000h
Radial, SMD and Chip



Offline Flyback

- Flyback



5. Inductor

Ruído de modo diferencial < 30 MHz é melhor atenuado por indutores.

Unshield

Inductance: 1uH – 68mH

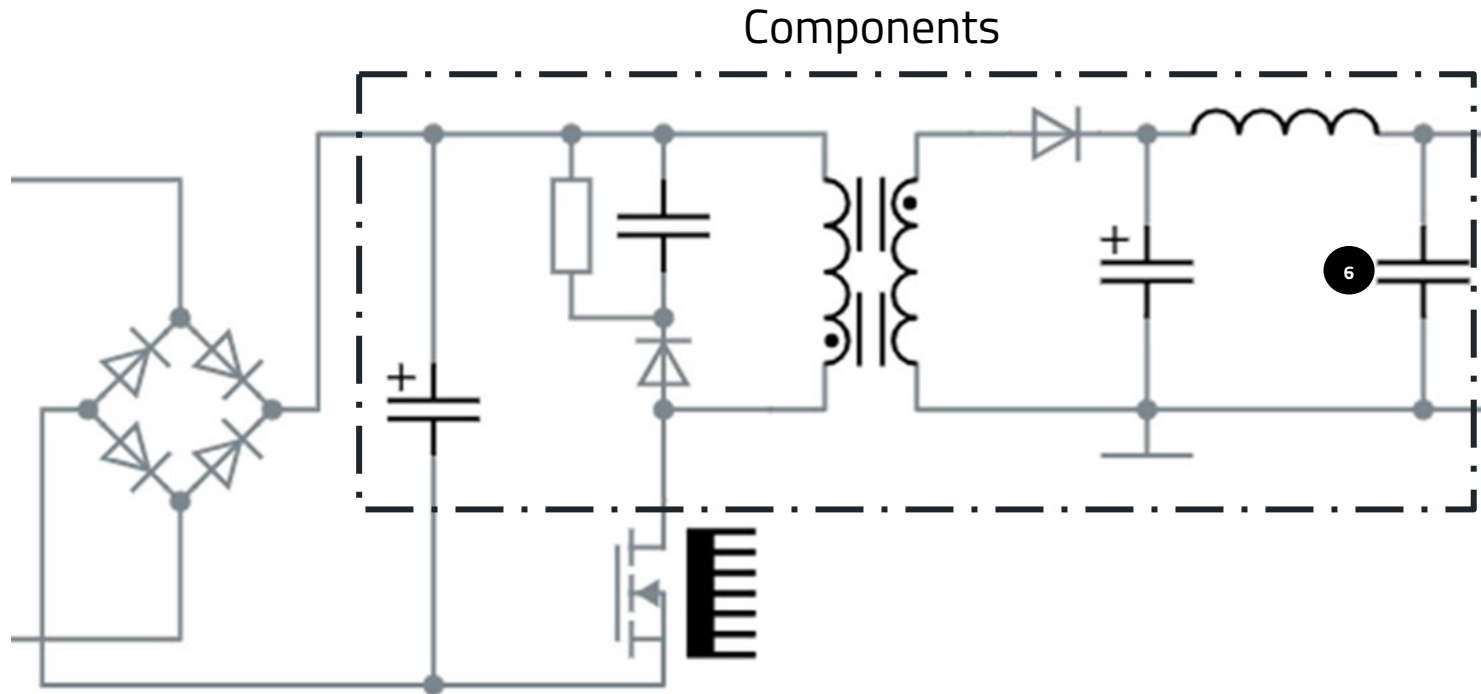
I_r Rated Current: 0.05 – 8.5A

PTH ou SMD



Offline Flyback

- Flyback



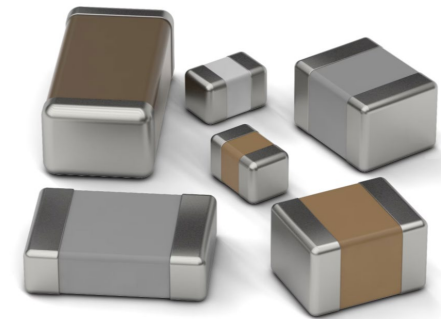
6. Capacitor MLCC

Filtro

Capacitance: 0.5pF – 100uF

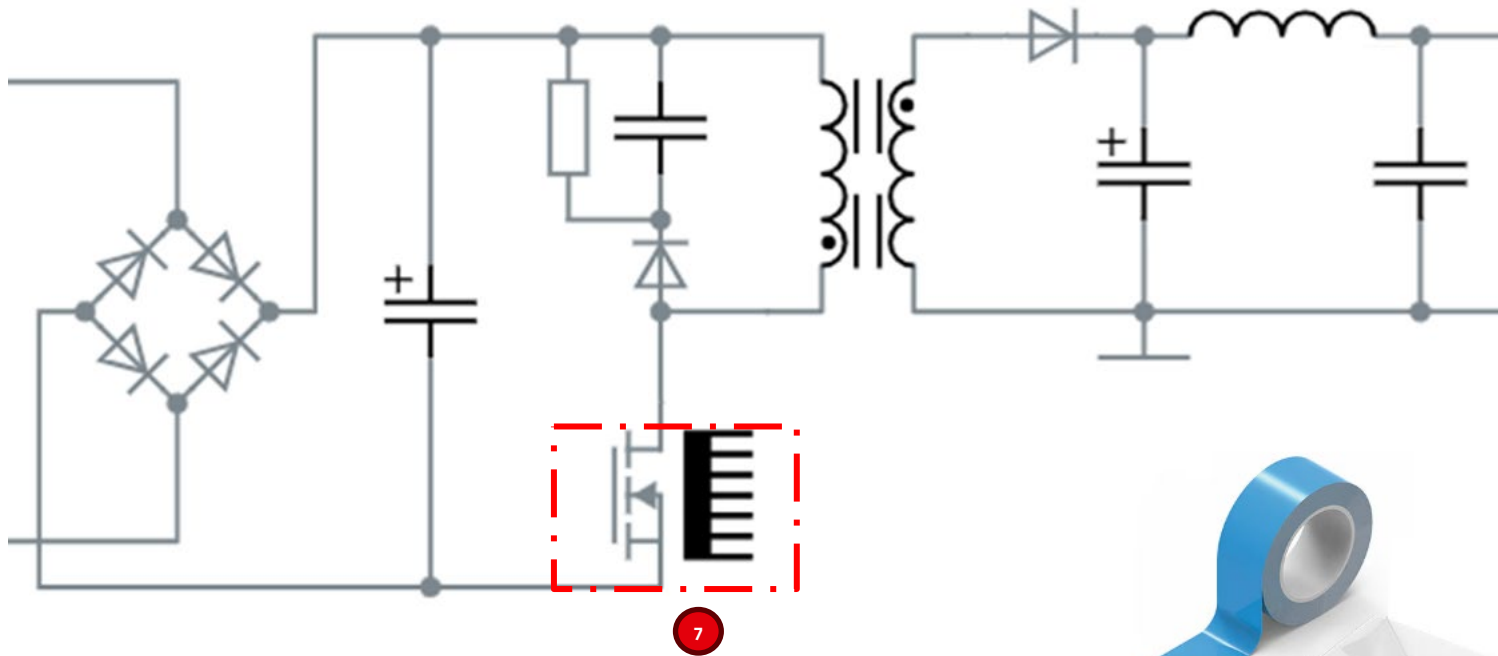
Vr Rated Voltage: 6.3 – 100Vdc

Package: 0201 - 2220



Offline Flyback

- Flyback

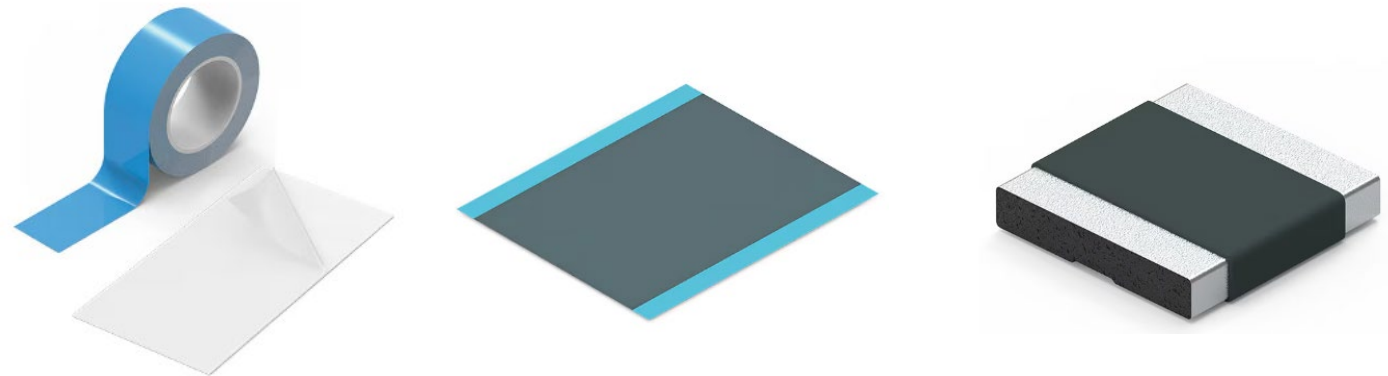


7. Thermal Management

Provide a path for the heat energy.

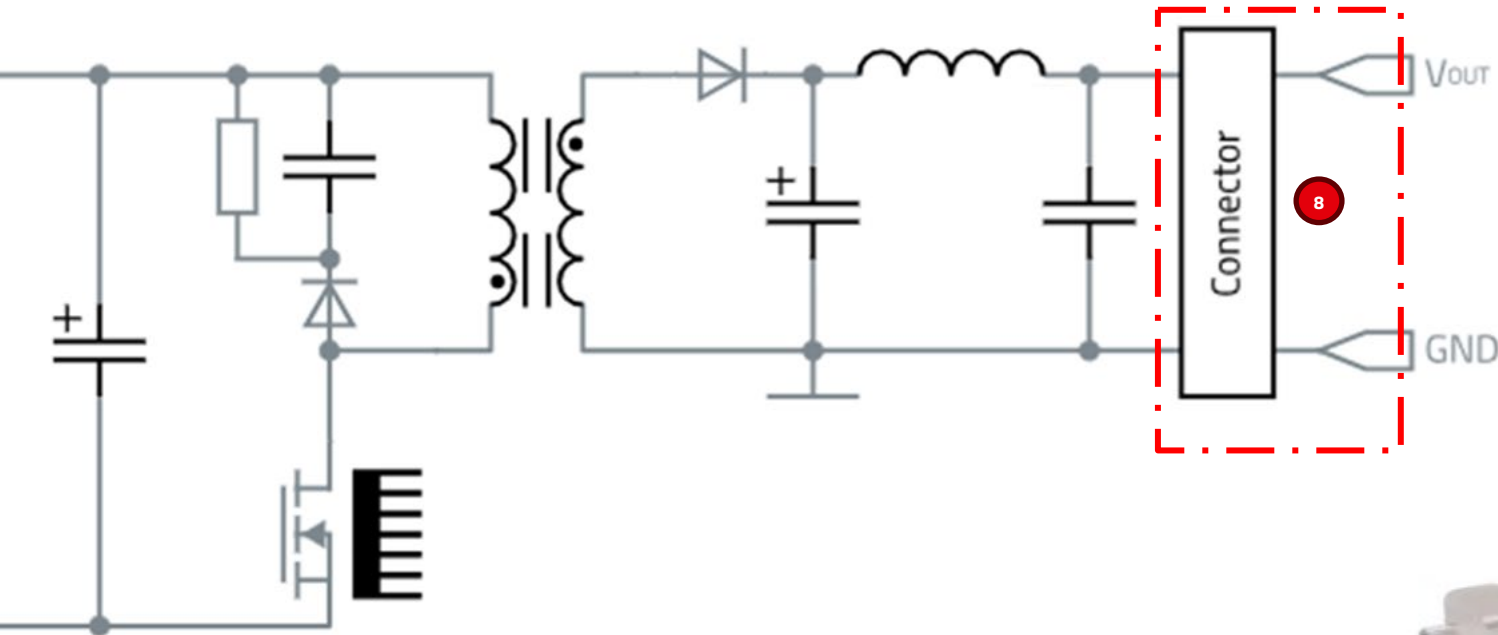
Spreading the heat over a larger dissipation area.

Avoiding the overheating of components



Offline Flyback

- Flyback



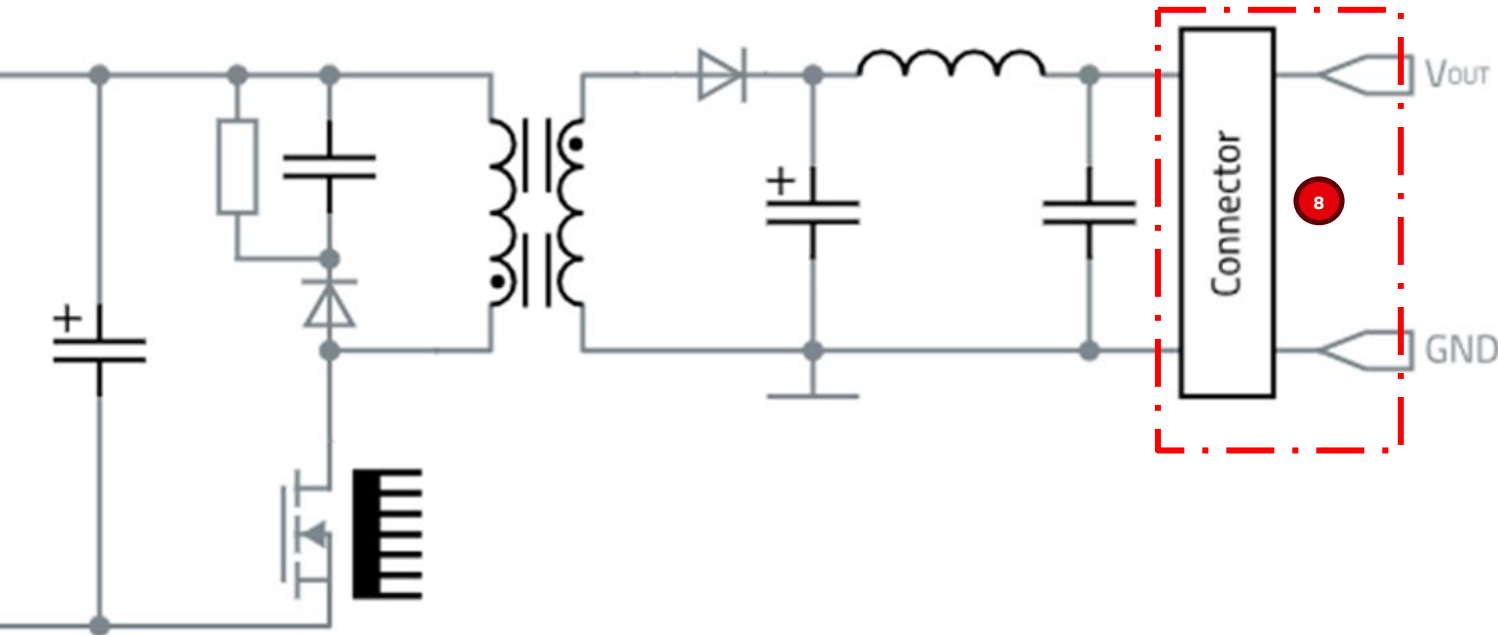
8. Wire to Board

- 2 – 40 pins
- 1 – 3.96mm Pitch
- 1 – 7A Rated Current
- Female and male
- SMT and THT



Offline Flyback

- Flyback



8. Redcube

High Current

Quick and easy assembling

Press-Fit

Plug

THR

SMT

70 - 350A

50 - 120A

50 - 85A

50 - 85A

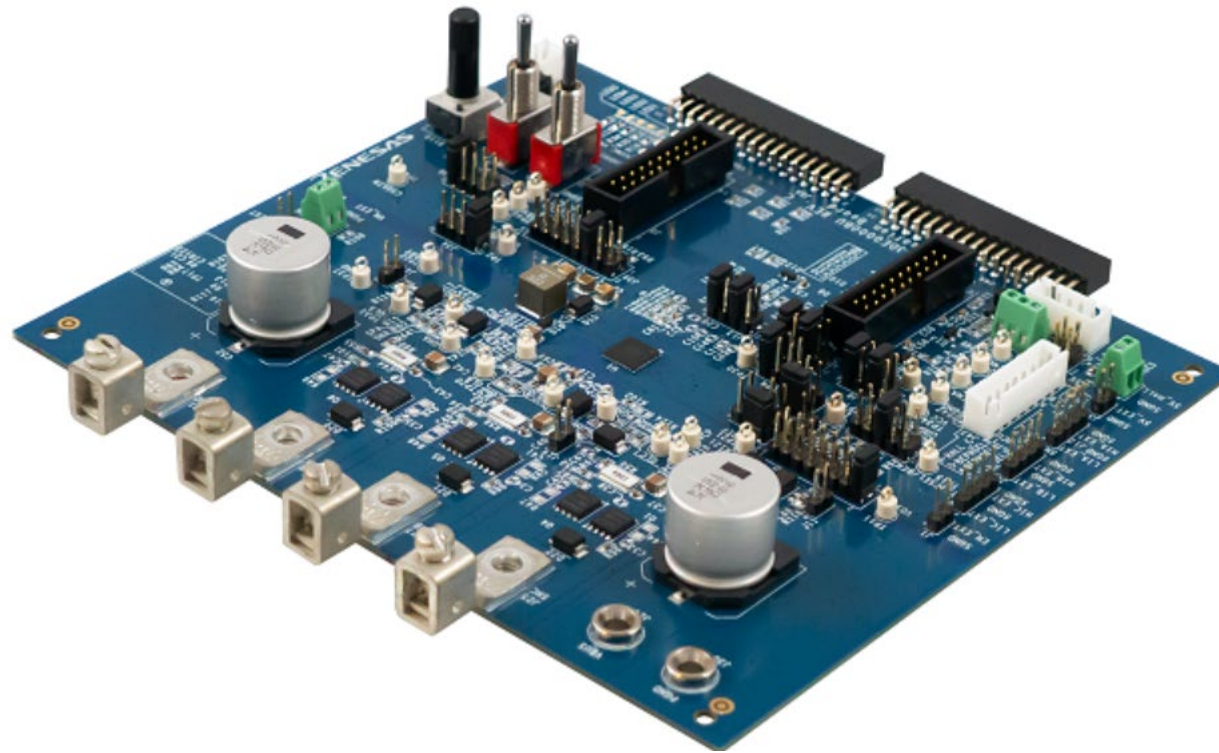


REDEXPERT



- **Smart 3-Phase Gate Driver Evaluation Board for RAA227063**
Demoboard: RTKA227063DE0000BU

RENESAS



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- 1KW TP PFC-LLC Power Stage

Demoboard:

