

This diagram illustrates the power supply circuit for a system requiring +15V and -15V rails, derived from a +24V input. The circuit is divided into two main sections: the +15V and -15V regulators.

**Input and Filtering:** The +24V input is connected to the circuit. A 47uF/35V capacitor (C1) is used for input filtering. The input is also connected to a +15V and -15V rail through a 47uF/35V capacitor (C17).

**+15V Regulator:** The +15V output is regulated using a switching regulator (C1) with a switching frequency of 187k to 450kHz. The input to the regulator is +24V. The output is +15V. The regulator is connected to a +24V rail through a 47uF/35V capacitor (C17).

**-15V Regulator:** The -15V output is regulated using a switching regulator (C2) with a switching frequency of 187k to 450kHz. The input to the regulator is +24V. The output is -15V. The regulator is connected to a +24V rail through a 47uF/35V capacitor (C17).

**Output Filtering:** The +15V and -15V outputs are filtered using 47uF/35V capacitors (C6, C7 for +15V; C10, C11 for -15V). The output is also connected to a +24V rail through a 47uF/35V capacitor (C17).

**Component Values:**

- Capacitors: C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29.
- Resistors: R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29.
- Inductors: L1, L2, L3, L4, L5, L6.
- Diodes: D1, D2, D3, D4.

**Switching Frequency:** The switching frequency is 187k to 450kHz. The output voltage is +15V and -15V.

This diagram illustrates the power supply circuit for a system requiring +15V and -15V rails, derived from a +24V input. The circuit is divided into two main sections: the +15V and -15V regulators.

**Input and Filtering:** The +24V input is connected to the circuit. A 47uF/35V capacitor (C1) is used for input filtering. The input is also connected to a +15V rail (C2) and a +24V rail (C3).

**+15V Regulation:** The +15V rail is regulated using a switching regulator (C1) with a switching frequency of 187k to 450kHz. The output is filtered by a 47uF/35V capacitor (C4) and a 100nF/50V capacitor (C8).

**-15V Regulation:** The -15V rail is regulated using a switching regulator (C2) with a switching frequency of 187k to 450kHz. The output is filtered by a 47uF/35V capacitor (C5) and a 100nF/50V capacitor (C9).

**Output and Filtering:** The +15V and -15V rails are connected to the system. The +15V rail is also connected to a +24V rail (C6) and a +24V rail (C7). The -15V rail is also connected to a +24V rail (C10) and a +24V rail (C11).

**Component Values:**

- Capacitors: C1 (47uF/35V), C2 (4u7), C3 (4u7), C4 (>50V 2u2/25V), C5 (47uF/35V), C6 (4u7), C7 (47uF/35V), C8 (100nF/50V), C9 (100nF/50V), C10 (2u2/25V), C11 (2u2/25V).
- Resistors: R1 (180k), R2 (10k), R3 (170k), R4 (100k), R5 (499k), R6 (100k), R7 (180k), R8 (10k), R9 (100k), R10 (100k), R11 (100k), R12 (100k), R13 (316k), R14 (59k), R15 (170k), R16 (100nF/50V), R17 (10\*2), R18 (100k), R19 (499k), R20 (100k), R21 (100k), R22 (100k), R23 (100k), R24 (100k), R25 (316k), R26 (59k), R27 (100k), R28 (100k), R29 (100k).
- Inductors: L1 (10uH), L2 (15uH), L3 (15uH), L4 (10uH), L5 (15uH), L6 (15uH).
- Diodes: D1 (SL43), D2 (SL43), D3 (SL43), D4 (SL43).

**Switching Frequency:** RT: Switching Frequency 187k -> 450kHz, 170k -> 500kHz.

This diagram illustrates the power supply and LED control circuitry for a system, divided into three main sections: Spannungsversorgung 3,3V, Mainboard, and Netzteil 24V Input.

### Spannungsversorgung 3,3V

The 3.3V power supply section (U1) uses a TPS7A4533 DCQ\_6 voltage regulator. The input is connected to +5V through a 10uF capacitor (C5). The regulator's output is connected to +3V3 through a 10uF capacitor (C9). A 47uF/35V capacitor (C12) is connected to the +3V3 output.

### Mainboard

The Mainboard section (SV1) shows the internal connections for the 3.3V supply and LED control. The 3.3V supply is connected to the +3V3 pin of the Mainboard. The LED control circuit includes resistors R9, R10, R11, R12, R15, R17, R20, R21, R22, R23, and R27, and LEDs LED1, LED2, LED3, LED4, LED5, and LED6. The Mainboard is connected to the 24V Input section via a 24V Input connector (J1).

### Netzteil 24V Input

The Netzteil 24V Input section (J1) shows the 24V input connection. The 24V input is connected to the +24V pin of the connector. The output of the connector is connected to the +24V pin of the Mainboard.

The diagram is divided into three vertical sections by dashed lines. The first section, 'Spannungsversorgung 3,3V', shows a TPS7A4533 DCQ\_6 voltage regulator (U1) with its input connected to +5V via a 10uF capacitor (C5) and its output connected to +3V3 via a 10uF capacitor (C9). A 47uF/35V capacitor (C12) is also connected to the +3V3 output. The second section, 'Mainboard', shows a 10-pin connector (SV1) with pins 1-5 connected to +5V, +3V3, +15V, -15V, and GND respectively. Pins 6-10 are connected to LEDs (LED1-LED5) and resistors (R9-R15, R17, R20-R23). The third section, 'Netzteil 24V Input', shows a 2-pin connector (J1) with pins 1 and 2 connected to +24V and GND respectively. The +24V line is connected to the +24V pin of the Mainboard connector (SV1).

This diagram illustrates the power supply and LED control circuitry for a system, divided into three main sections: Spannungsversorgung 3,3V, Mainboard, and Netzteil 24V Input.

### Spannungsversorgung 3,3V

This section shows the 3.3V voltage regulation circuit. It features a TPS7A4533 DCQ\_6 voltage regulator (U1). The input is connected to a +5V supply through a 10uF capacitor (C5). The regulator's output is connected to a +3V3 supply through a 10uF capacitor (C9). A 47uF/35V capacitor (C12) is also connected to the +3V3 supply. The regulator's shutdown pin (SHDN) is connected to the +5V supply, and its sense/adjust pin (SENSE/ADJ) is connected to the +3V3 supply.

### Mainboard

This section shows the mainboard circuitry, including the power supply and LED control. The power supply is connected to the mainboard through a 10-pin connector (J1). The mainboard includes a voltage divider network (R9, R10, R11, R12) for the +15V and -15V inputs. The output of the voltage divider is connected to the mainboard's +3V3 supply through a 130R resistor (R17). The mainboard also includes a 0805L110WR LED (LED3) connected to the +3V3 supply. The mainboard's output is connected to the LED control circuit through a 300R resistor (R23).

### Netzteil 24V Input

This section shows the 24V input circuitry. It features a 24V input connected to a 2k2 resistor (R27) and a 300R resistor (R22). The output is connected to the LED control circuit through a 300R resistor (R23).

This document contains three circuit diagrams for a power supply system, organized into a grid with columns 1-8 and rows A-E.

### Spannungsversorgung +15V und -15V (Columns 1-4, Rows A-C)

This diagram shows a dual-output switching power supply. The input is +15V, which is filtered by C1 (47uF/35V) and C2 (4u7). The input voltage is then stepped down by a transformer (C1, C2) and regulated by a switching converter (C1, C2) to produce +15V and -15V outputs. The circuit includes various components like resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), inductors (L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100), and diodes (D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100).

### Spannungsversorgung +5V und -5V (Columns 5-8, Rows A-C)

This diagram shows a dual-output switching power supply. The input is +5V, which is filtered by C1 (47uF/35V) and C2 (4u7). The input voltage is then stepped down by a transformer (C1, C2) and regulated by a switching converter (C1, C2) to produce +5V and -5V outputs. The circuit includes various components like resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), inductors (L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100), and diodes (D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100).

### Spannungsversorgung 3,3V (Columns 1-4, Rows D-E)

This diagram shows a single-output switching power supply. The input is +5V, which is filtered by C1 (47uF/35V) and C2 (4u7). The input voltage is then stepped down by a transformer (C1, C2) and regulated by a switching converter (C1, C2) to produce +3.3V output. The circuit includes various components like resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34,

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### Spannungsversorgung +15V und -15V (Columns 1-4, Rows A-C)

This diagram shows a dual-output switching power supply. The input is +15V, which is filtered by C1 (47uF/35V) and C2 (4u7). The input voltage is then stepped down by a transformer (C1, C2) and regulated by a switching converter (C1, C2) to produce +15V and -15V outputs. The circuit includes various components like resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), inductors (L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100), and diodes (D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100).

### Spannungsversorgung +5V und -5V (Columns 5-8, Rows A-C)

This diagram shows a dual-output switching power supply. The input is +5V, which is filtered by C1 (47uF/35V) and C2 (4u7). The input voltage is then stepped down by a transformer (C1, C2) and regulated by a switching converter (C1, C2) to produce +5V and -5V outputs. The circuit includes various components like resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100), inductors (L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100), and diodes (D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100).

### Spannungsversorgung 3,3V (Columns 1-4, Rows D-E)

This diagram shows a single-output switching power supply. The input is +5V, which is filtered by C1 (47uF/35V) and C2 (4u7). The input voltage is then stepped down by a transformer (C1, C2) and regulated by a switching converter (C1, C2) to produce +3.3V output. The circuit includes various components like resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100), capacitors (C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34,