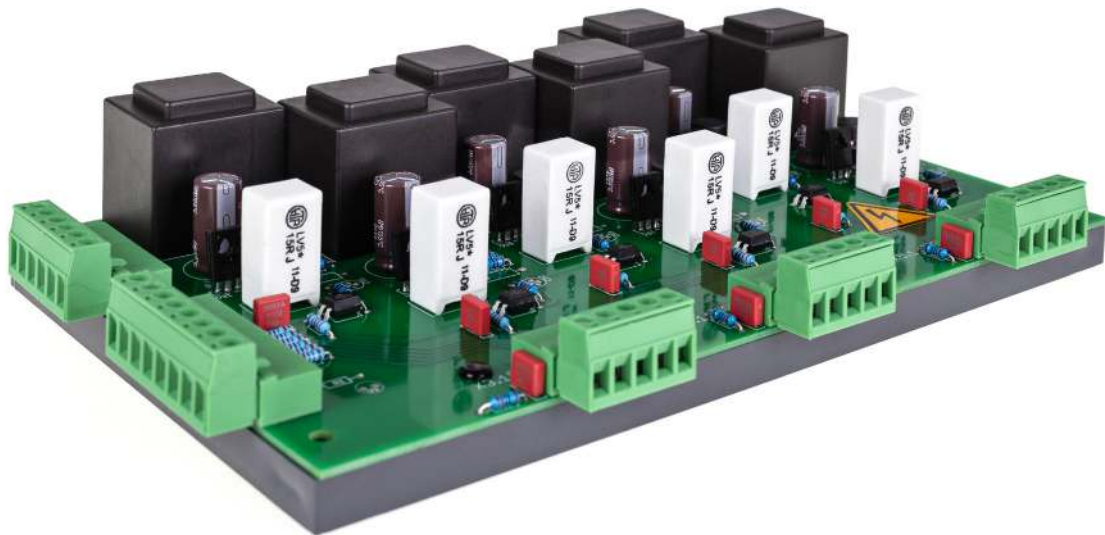


Datasheet

Ignition Transformer 6xZB1/10

Art.-Nr.: 9522



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1. Special Features

The control system has 6 outputs with high isolation voltages, allowing an operating voltage of up to 700 V rms for the power semiconductors. It is built on a circuit board with sufficiently large clearance and creepage distances.

Three-phase bridges with thyristors can be controlled in rectifier or inverter operation, as well as three-phase controllers with thyristors for resistive and inductive loads.

Control is performed via long pulses with steep rise times, preventing the disadvantages associated with pulse chains. Magnetic ignition pulse transformers have considerable volume and achieve poor rise characteristics.

The required gate circuitry is integrated on the 6xZB1/10 circuit board.

Due to the low coupling capacitance — both between outputs and between outputs and inputs — no shielding windings are required.

2. Technical Data

2.1 Input Parameters

Supply voltage	3x 400 V~ oder 230 V~ -20% bis +10%
Current consumption (With 6 pulses of 10 ms from ISIC 06B / ISR 06 / ISIC 6D.1)	0,035 A _{eff}
Frequency	47... 63 Hz
Ready after power-on	< 120 ms
Signal input X2	0... 4 V => UA (X3... X5) = 0 V 15... 30 V => UA (X3... X5) = 10 V
Reverse polarity tolerance up to -30V	
Input current	11 mA

2.2 Output Parameters

	400V~	700V~
Open-circuit voltage at X3... X5	≥ 11 V	11 V
Output current with 1,5 Ohm load	////	see Figure 2.2
Turn-on delay t_{ve}	< 6 μs	2,5... 5 μs
Rise time t_{an}	≤ 3 μs	≤ 1 μs
Turn-off delay t_{va}	12 - 20 μs	12 - 20 μs
Current amplitude	0,45 A	1 A
Current amplitude for 50μs	-----	> 0,9 A
Continuous current	> 0,4 A	0,5 A
Coupling capacitance	100 pF	100 pF
Glow extinguishing voltage	1,2 kV	1,2 kV
Test voltage Outputs–Outputs–Inputs	5 kV _{eff}	5 kV _{eff}
max. Operating voltage	440 V _{eff}	760 V _{eff}
nominal Operating voltage	400 V _{eff}	700 V _{eff}

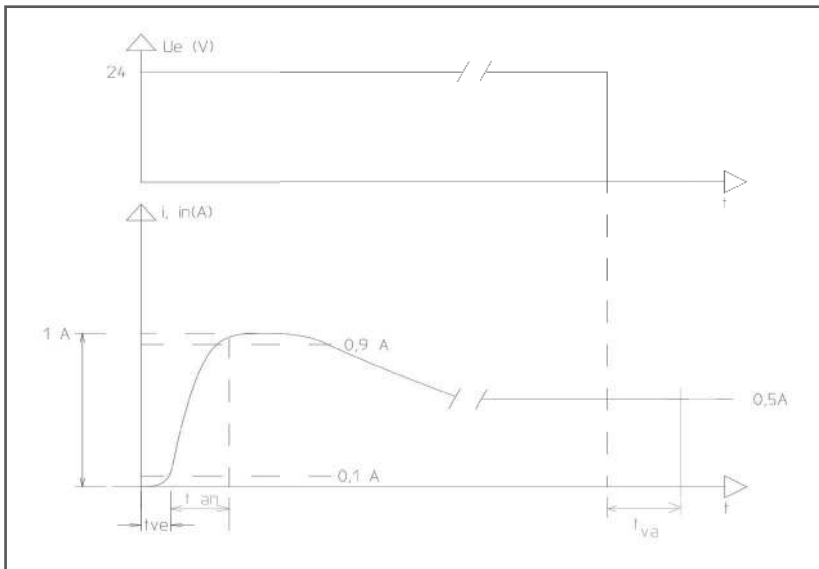


Figure 2.2: Pulse waveform at the output of 6xZB1/10-700 V~

2.3 Physical Data

W x D x H	220 x 132 x 45 mm
Weight	1,0 kg
Ambient temperature	- 20... + 65° C
Cooling	Convection

The circuit board is mounted on a plastic insulating plate. Installation should be on a vertical mounting surface to ensure optimal heat dissipation.

3. Electrical Function

The circuit board contains 6 fully encapsulated transformers compliant with VDE 551, each with a test voltage of 5 kV rms. The secondary auxiliary voltages are rectified and provide the gate drive power for the thyristors. The control signals from the pulse generator are transmitted via terminal strip X2 through 6 optocouplers and 6 driver amplifiers to the thyristors.

4. Connection and Circuit Examples

The control system 6xZB1/10 is suitable for all three-phase rectifier and controller circuits (see Figures 4.1/4.2). Due to the steep rise times of the pulses and minimal timing offset, parallel connection of thyristors is easily achievable. A group of parallel thyristors requires a second 6xZB1/10 system, which can be connected in parallel on the input side via terminal strip X2 with System 1.

< Up to 8 thyristors can be controlled in parallel without >

< additional amplifier cards — i.e., 48 thyristors total >

For parallel operation of thyristors, selection of the optocouplers and additional dynamic testing in all 6 channels is required.

With the 6xZB1/10 – 400 V~ version, selection for parallel operation is not possible.

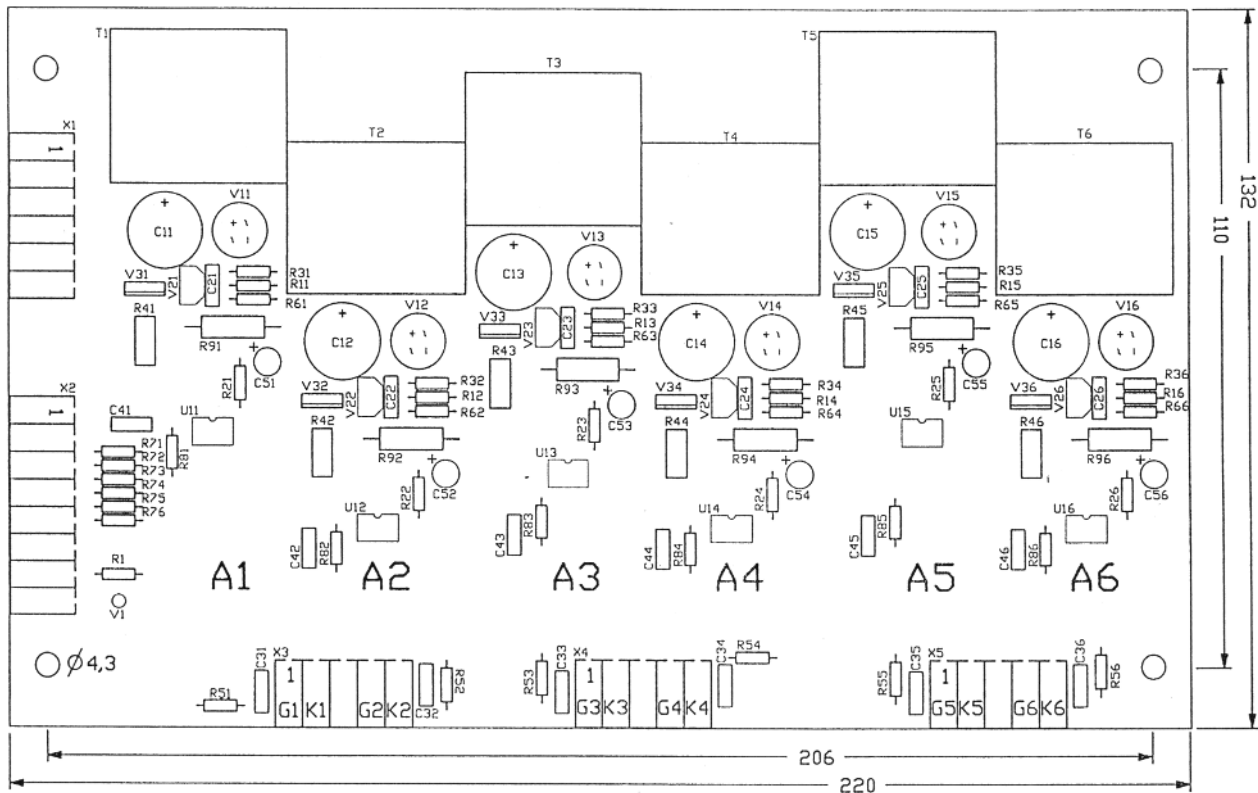
The following information is required when placing an order:

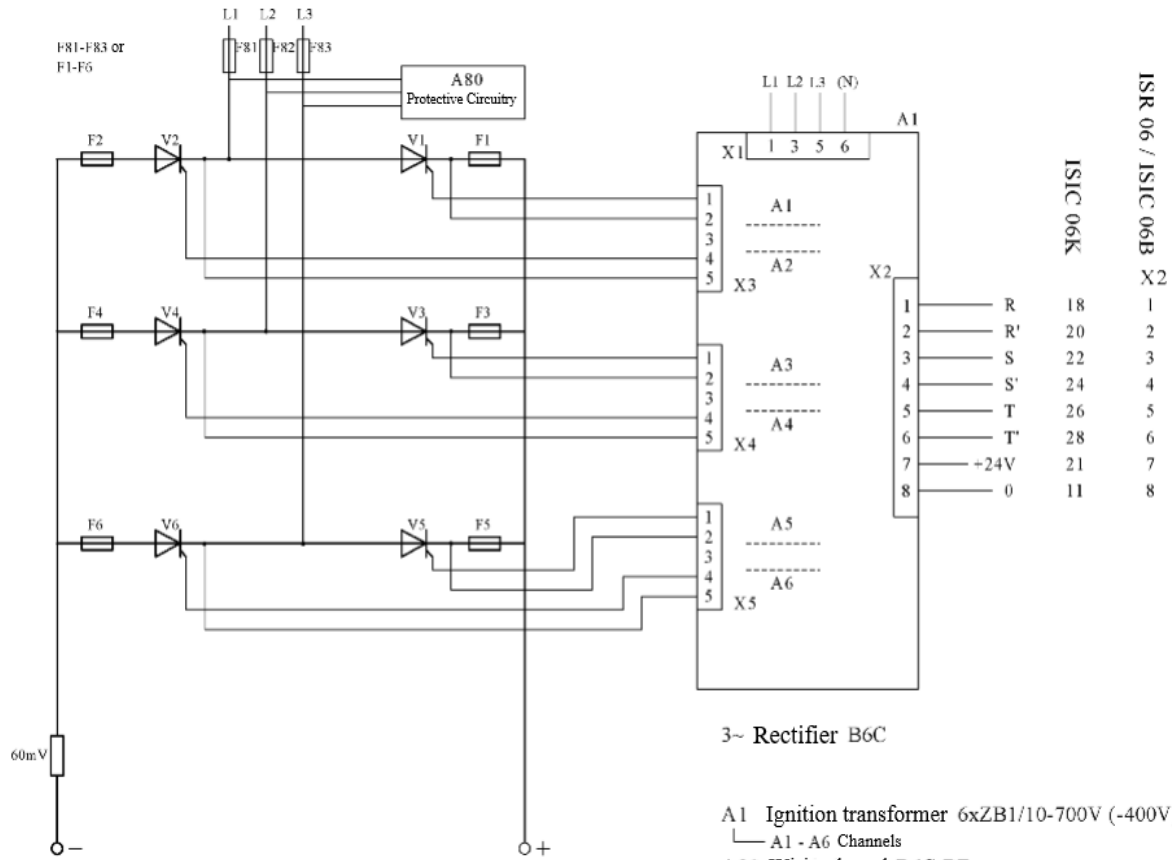
6xZB1/10 P-700V~ (! P !)

For controller circuits with transformer or motor loads, the following control units are available:

- ISIC 6D.1** in plug-in Eurocard format with jumper J1 – long pulse
- ISIC 06B** as a flat module with Combicon connectors
- ISR 06** as a flat module with Combicon connectors, including controller

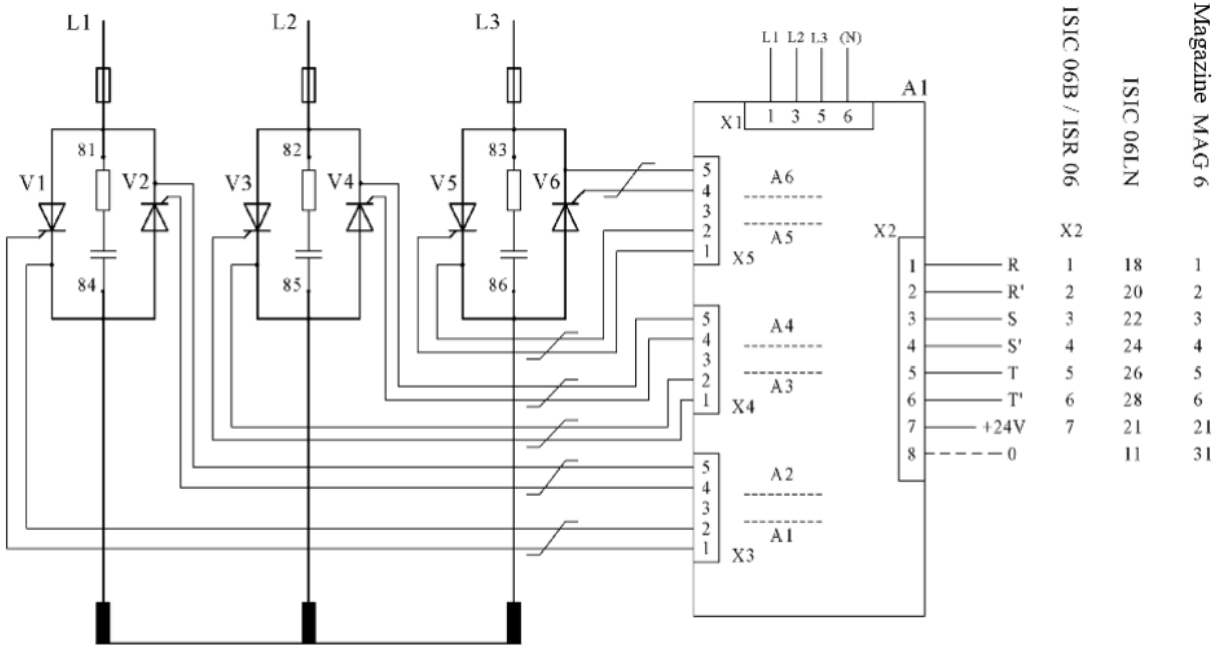
For operation of the circuit board with **230V~** supply, terminals X1.1, X1.3, and X1.5 must be bridged (L1).





6xZB10-B6C.sief

Figure 4.1



6xZB10-W3C.sief

Figure 4.2