



Parts list

| Description | Quantity | Reference ID |
|-------------------------------------|----------|-------------------------|
| AC Voltage Source, 230V, 50Hz, 0Deg | 1 | V2 |
| AC Voltage Source, 0V, 50Hz, 0Deg | 1 | V3 |
| Capacitor, 8.2pF | 1 | C2 |
| Capacitor, 104nF | 5 | C23, C24, C21, C19, C11 |
| Capacitor, 220nF | 1 | C3 |
| Capacitor, 4.7nF | 3 | C14, C13, C4 |
| Capacitor, 33nF | 1 | C1 |
| Connector | 199 | |
| Crystal, ideal | 1 | Y1 |
| Diode, D1N4007 | 5 | D13, D12, D11, D14, D3 |
| Diode, 1N4148 | 4 | D16, D15, D10, D9 |
| Ground | 1 | 0 |
| LED, green_LED | 6 | D7, D6, D5, D2, D4, D1 |
| NPN Transistor, ideal | 1 | Q1 |
| Node | 58 | |
| Nonlinear Transformer, pq-4-24 | 1 | T2 |
| Nonlinear Transformer, pp3-12 | 1 | T1 |
| Nonlinear Transformer, ideal | 1 | T3 |

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| Polarized Capacitor, 470 μ F | 1 | C25 |
| Polarized Capacitor, 47 μ F | 2 | C18, C17 |
| Polarized Capacitor, 1 μ F | 4 | C8, C15, C6, C7 |
| Polarized Capacitor, 10 μ F | 4 | C12, C20, C9, C5 |
| Polarized Capacitor, 100 μ F | 1 | C22 |
| Polarized Capacitor, 4.7 μ F | 1 | C10 |
| Potentiometer, [R], 497k Ω , 50%, 5% | 1 | R46 |
| Potentiometer, [R], 115.6 Ω , 50%, 5% | 1 | R52 |
| Potentiometer, [R], 296.5k Ω , 50%, 5% | 1 | R49 |
| Relay, ideal | 1 | R51 |
| Resistor, 18k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R3 |
| Resistor, 10M Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R7 |
| Resistor, 100k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R22 |
| Resistor, 10k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R48 |
| Resistor, 180 Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R50 |
| Resistor, 1k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 5 | R53, R19, R12, R21, R47 |
| Resistor, 1.2k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R45 |
| Resistor, 2.7k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 6 | R1, R6, R13, R9, R8, R4 |
| Resistor, 4.7k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 2 | R20, R17 |
| Resistor, 15k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R5 |
| Resistor, 68k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 1 | R18 |
| Resistor, 220k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 2 | R14, R2 |
| Resistor, 3.9k Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 5% | 2 | R16, R15 |
| Resistor, 604 Ω , 0 Ω / $^{\circ}$ C, 0 Ω / $^{\circ}$ C ² , 2% | 1 | R11 |
| Switch, [Space] | 1 | S1 |
| Textbox | 73 | PART74, PART76, PART75, PART20, PART21, PART22, PART66, PART35, PART67, PART68, PART69, PART71, PART72, PART73, PART70, PART55, PART56, PART28, PART27, PART65, PART15, PART43, PART7, PART42, PART30, PART29, PART36, PART47, PART53, PART64, PART63, PART62, PART33, PART61, PART60, PART59, PART16, PART57, PART51, PART23, PART52, PART54, PART50, PART49, PART48, PART46, PART44, PART41, PART40, PART19, PART37, PART39, PART25, PART6, PART38, PART11, PART9, PART10, PART13, PART12, PART8, PART1, PART5, PART34, PART4, PART32, PART31, PART14, PART26, PART24, PART18, PART2, PART3 |
| Voltage-Controlled Voltage Source, 5V/V | 1 | V1 |