**Counter/divider by 44 with counting sequence 0, 1, 2, …, 42, 43, 0**

**Counter/divider by 44 with counting sequence 0,1,2…42,43,0. Counter will use the synchronous R input.** It will use only ICs HCT/HC series. Oscillator will have two frequencies of 5Hz, respectively of 220kHz and a manual tick button.

A diagram of a computer system

Description automatically generated

Block diagram

A diagram of a circuit

Description automatically generated

**Oscillator schematic**

A white board with black text and a diagram

Description automatically generated

**Oscillator frequencies calculations**

A diagram of a circuit

Description automatically generated

**Power supply schematic**

A diagram of a circuit

Description automatically generated

**Counter schematic**

A diagram of a computer circuit

Description automatically generated

**Reset detector schematic**

A diagram of a circuit

Description automatically generated

**Full circuit schematic**

A graph with colorful lines

Description automatically generated

**Simulation graphs**

A black and white circuit board

Description automatically generated

**Bottom copper layer**

**A black and white circuit board

Description automatically generated**

**Top copper layer**

**A diagram of a circuit board

Description automatically generated**

**Silkscreen**

A group of black dots

Description automatically generated

**Top and bottom mask**

A white sheet of paper with black text

Description automatically generated

**Power consumption calculations**

**Bill of Materials**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Id | Designator | Footprint | Quantity | Designation |
| 1 | U4,U3 | DIP-16\_W7.62mm | 2 | 74LS163 |
| 2 | D7,D5,D6,D3,D2,D1,D4 | LED\_D3.0mm | 7 | LED |
| 3 | C5,C6 | CP\_Radial\_D5.0mm\_P2.50mm | 2 | C\_Polarized |
| 4 | U2 | DIP-14\_W7.62mm | 1 | 74LS132 |
| 5 | C4,C1,C3,C2 | C\_Disc\_D5.0mm\_W2.5mm\_P5.00mm | 4 | C |
| 6 | R4,R6,R5,R1,R9,R7,R3,R2,R8 | R\_Axial\_DIN0207\_L6.3mm\_ D2.5mm\_P7.62mm\_Horizontal | 9 | R |
| 7 | S3 | 418117270901 | 1 | 418117270901 |
| 8 | S1 | SW\_MINI-SPDT-SW | 1 | MINI-SPDT-SW |
| 9 | D8 | D\_DO-35\_SOD27\_P7.62mm\_Horizontal | 1 | 1N4148 |
| 10 | S2 | SW\_FSM8JH | 1 | FSM8JH |
| 11 | C7 | CP\_Radial\_D4.0mm\_P2.00mm | 1 | C\_Polarized |
| 12 | J1 | Samtec\_HPM-02-05-x-S\_Straight\_1x02\_Pitch5.08mm | 1 | Conn\_01x02\_Pin |
| 13 | U5 | TO-220-3\_Vertical | 1 | L7805 |
| 14 | U1 | DIP-14\_W7.62mm | 1 | 74HC00 |