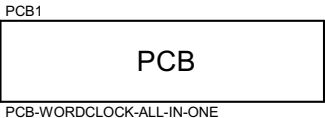


WordClock

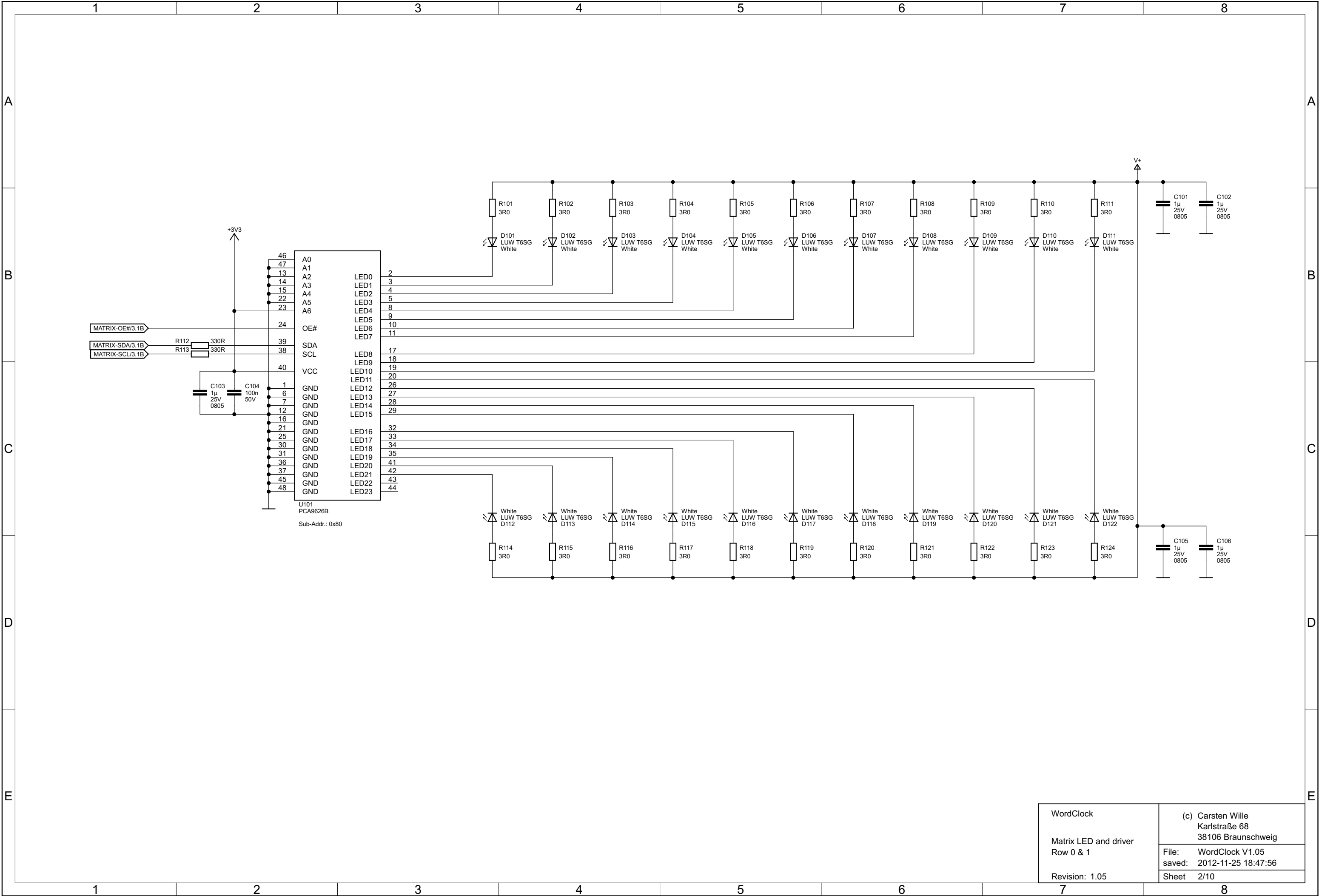
E S K I S T L F Ü N F
Z E H N Z W A N Z I G
D R E I V I E R T E L
T G N A C H V O R J M
H A L B Q Z W Ö L F P
Z W E I N S I E B E N
K D R E I R H F Ü N F
E L F N E U N V I E R
W A C H T Z E H N R S
B S E C H S F M U H R

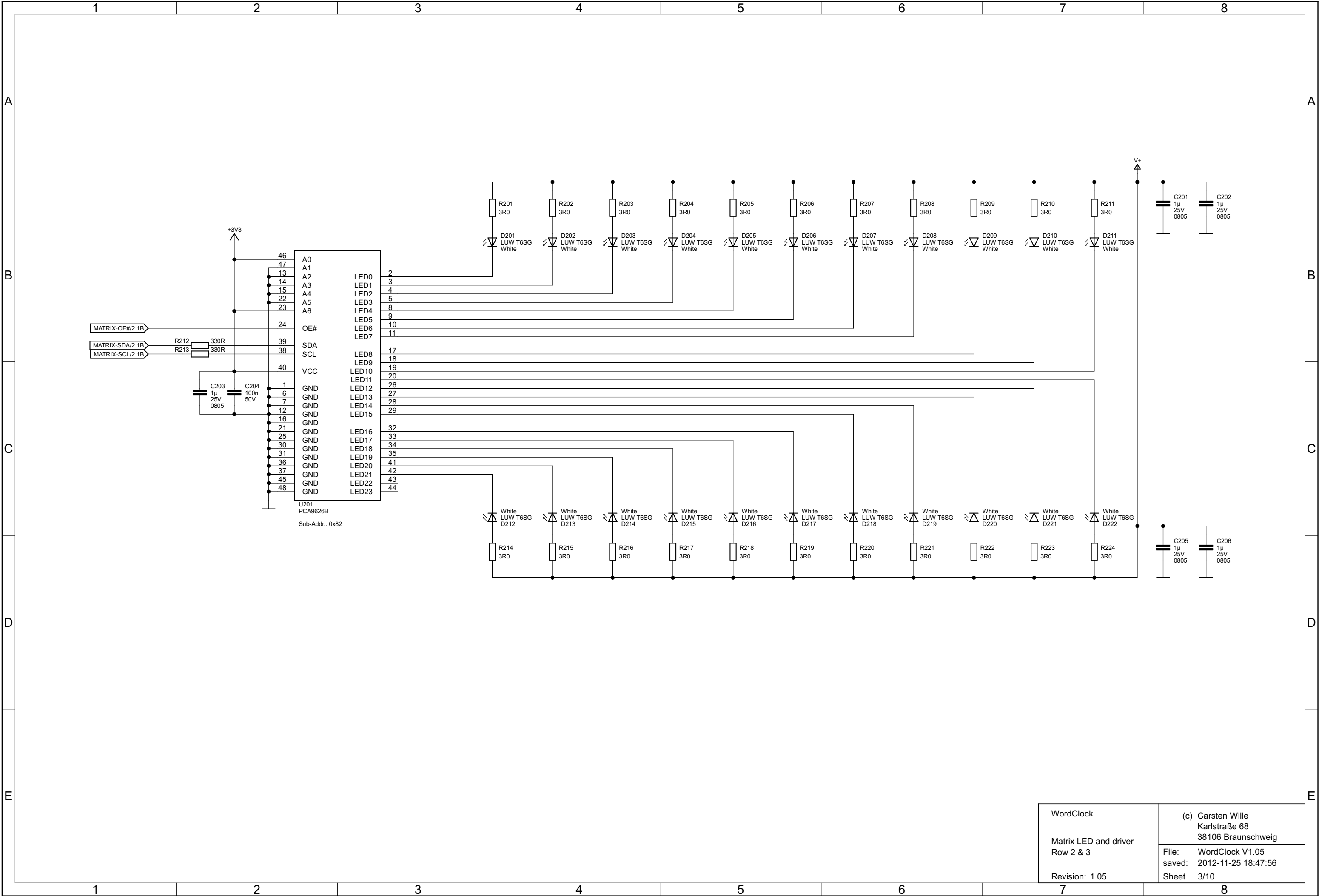
Sheet	Content
1	Overview
2	Matrix LED and driver for row 0 & 1
3	Matrix LED and driver for row 2 & 3
4	Matrix LED and driver for row 4 & 5
5	Matrix LED and driver for row 6 & 7
6	Matrix LED and driver for row 8 & 9
7	Power and USB
8	Controller, ISP, Reset and Sensors
9	DCF-77 Receiver
10	Display and Keyboard

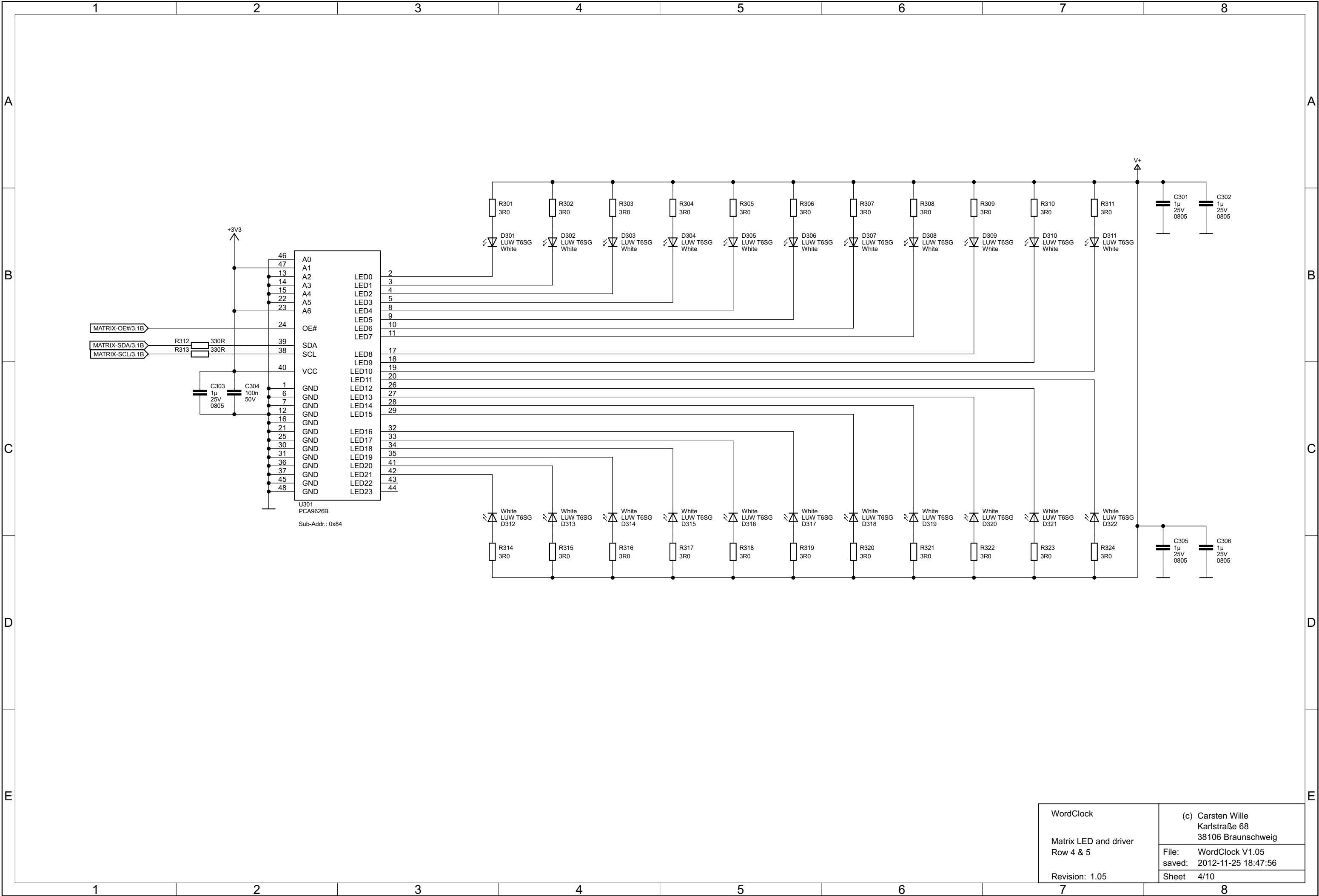
Revision	Date	History
DRAFT	2010-03-18	Project started
1.00	2010-05-23	First version finished
1.01	2010-05-26	Controller ATxmega32A4 replaced by ATxmega64A3.
1.02	2010-06-02	Breakout pins added to spare controller port pins.
1.03	2010-06-08	Ground layout changed, LCD-backlight added to BOM VCC/GND breakout pins added.
1.04	2010-07-25	DCF-Antenna: 130 turns and the capacity is 3nF in total.
1.05	2010-09-01	Circuit corrections on page 8 and layout: - Secondary functions for port F completely screwed up! - Symbol for U704 (ATxmega64A3) corrected on port F. - Serial connections at U704 moved from pin 54/55 to 48/49. - Signal MATRIX-OE# at U704 moved from pin 49 to 55. - I²C bus at U704 moved from pins 46/47 to port C, pins 16/17.
	2012-11-25	- Doubled connectors for LED & DCF for top & bottom mounting. - Added three additional holes for better assembly. - Added C614, C615 for improved DC/DC-converter stability. - Added J704 for JTAG debugging with JTAGICE III. - Two alternative photocell positions for French layout.

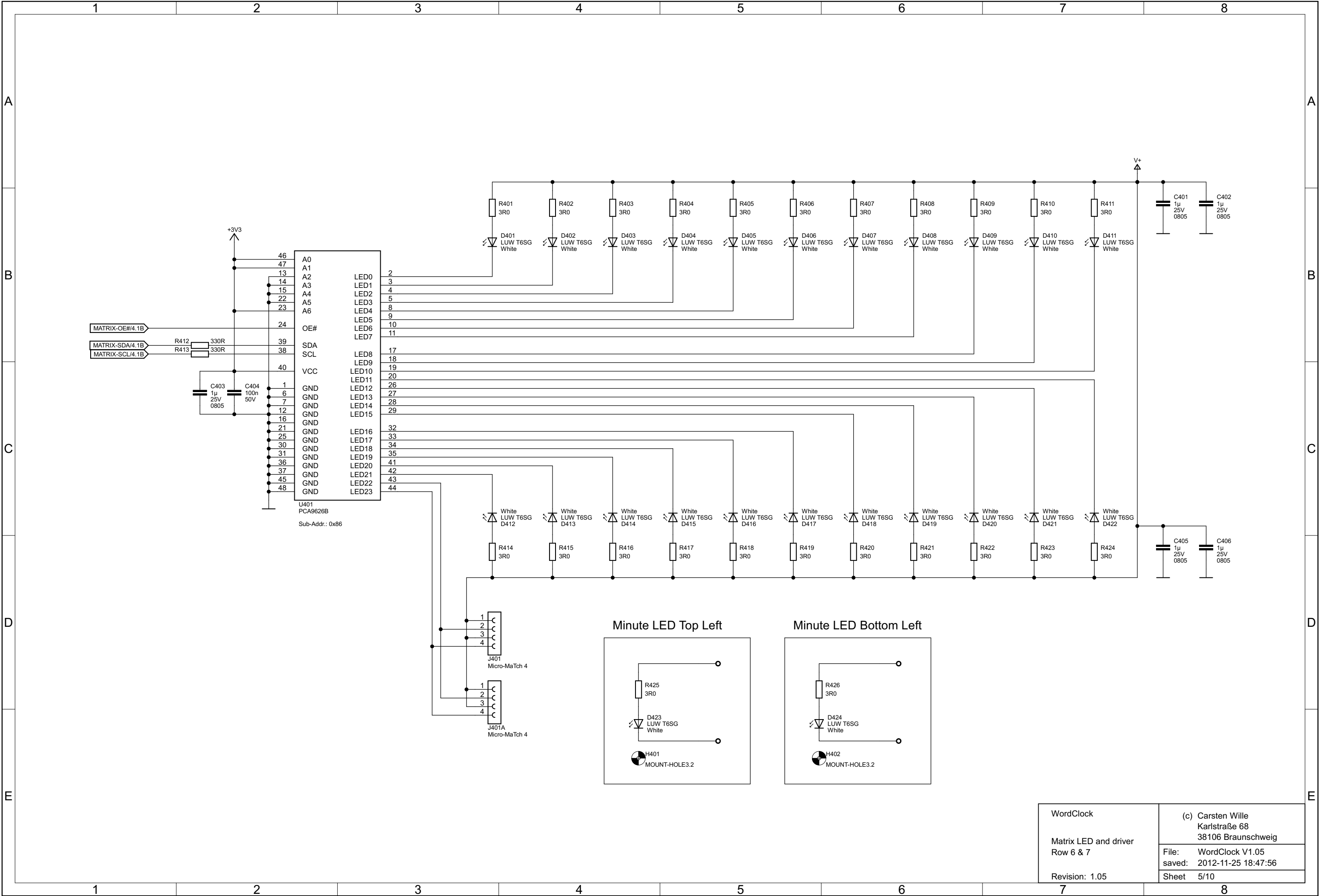


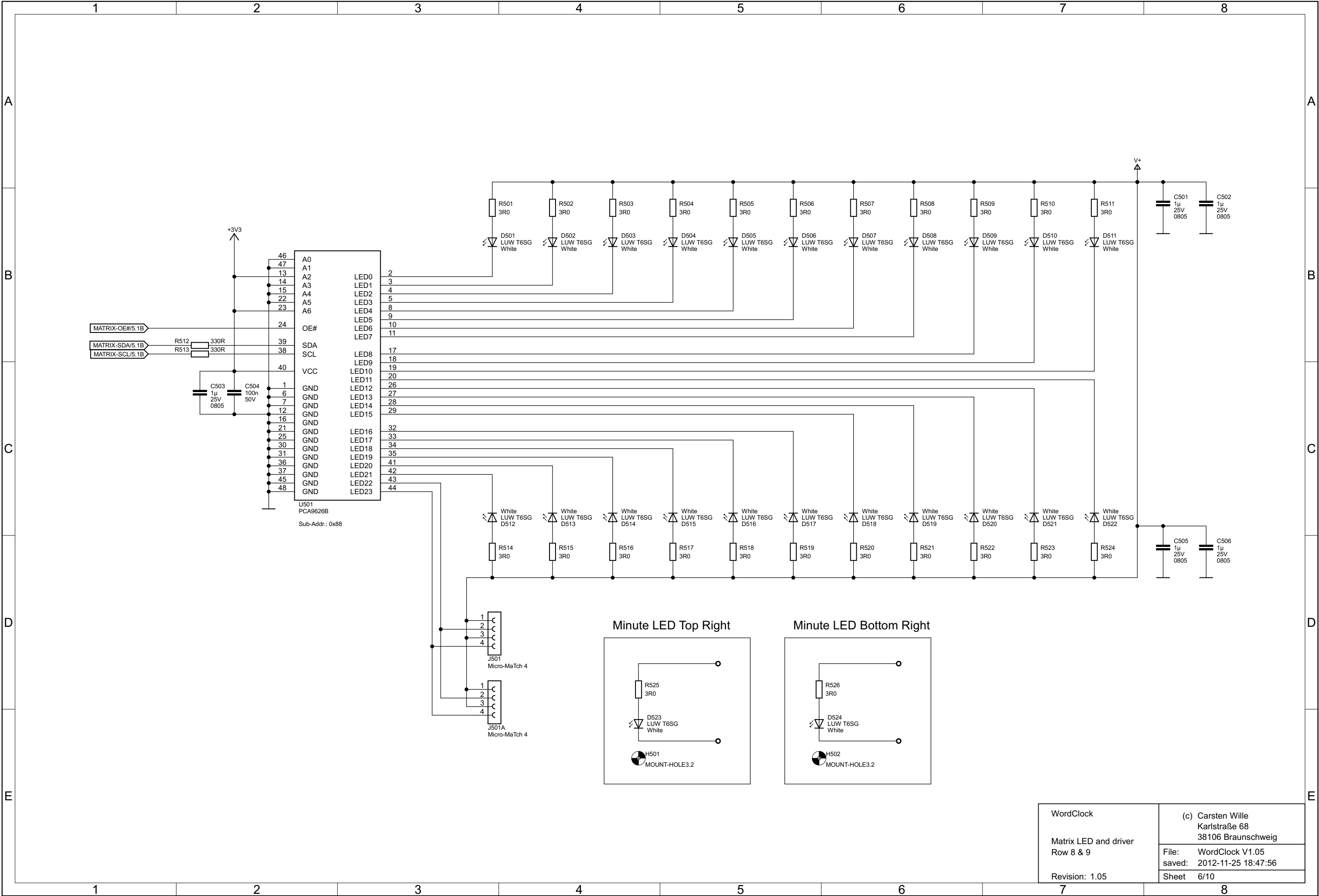
WordClock	(c) Carsten Wille Karlstraße 68 38106 Braunschweig
Index	File: WordClock V1.05 saved: 2012-11-25 18:47:56
Revision: 1.05	Sheet 1/10



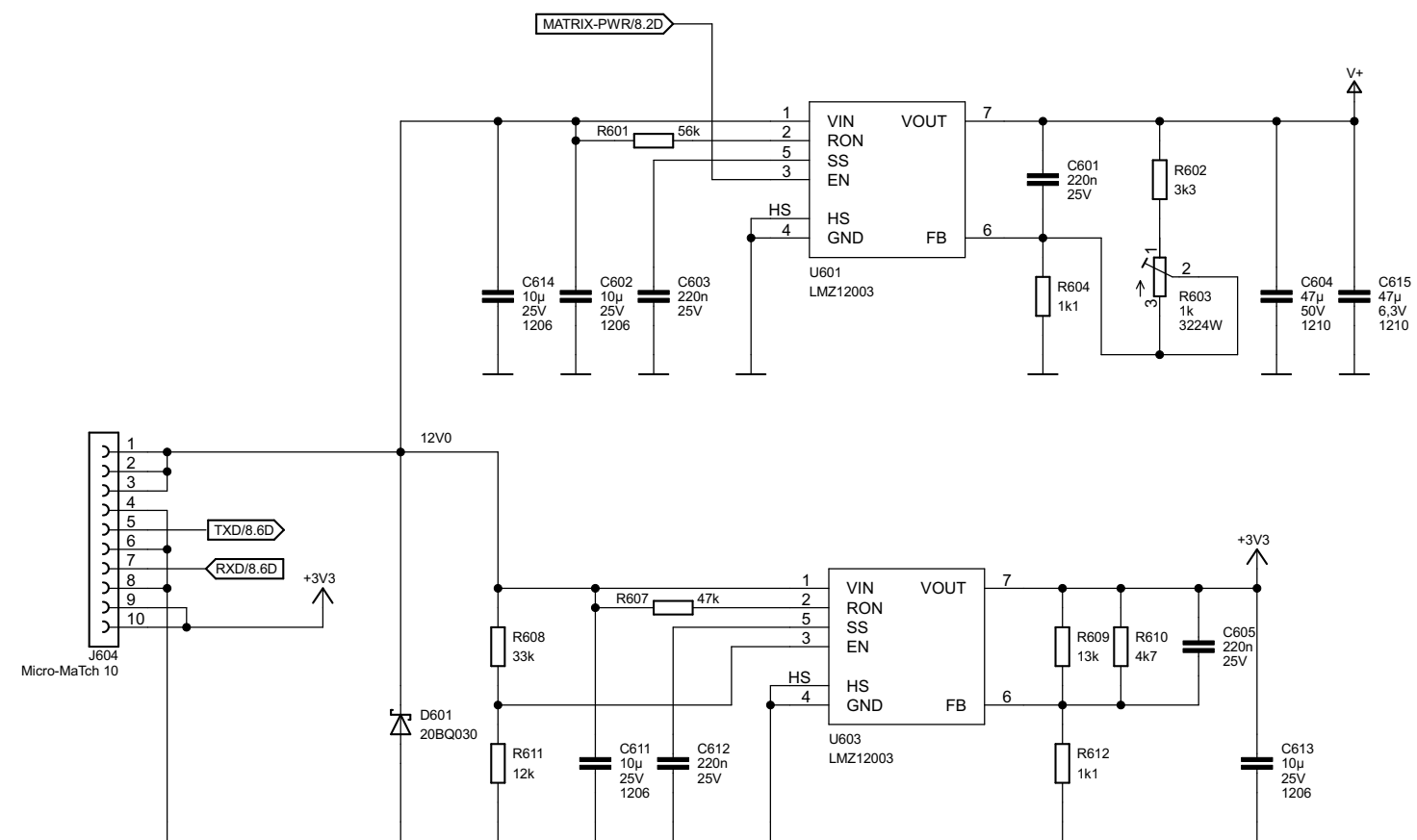


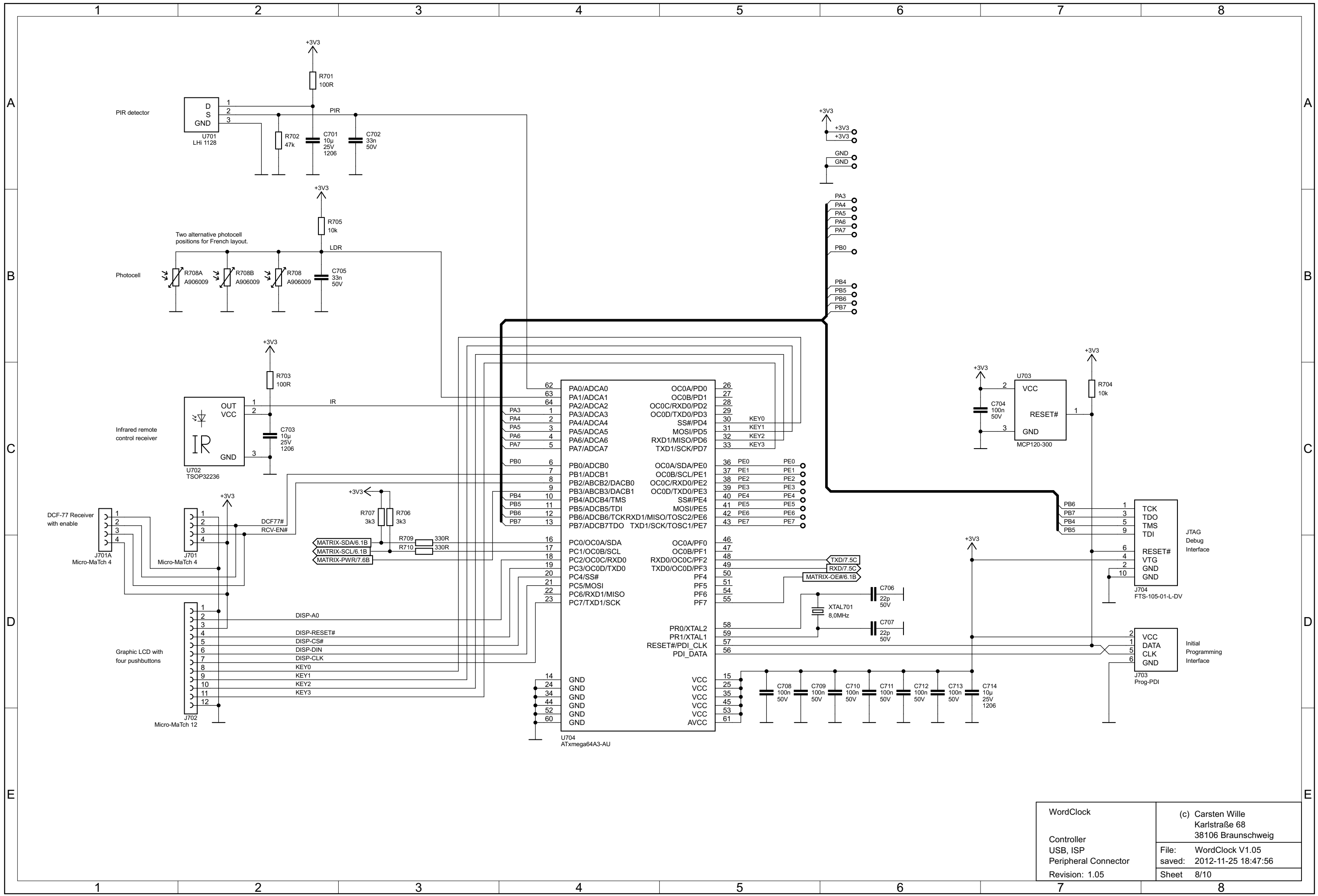




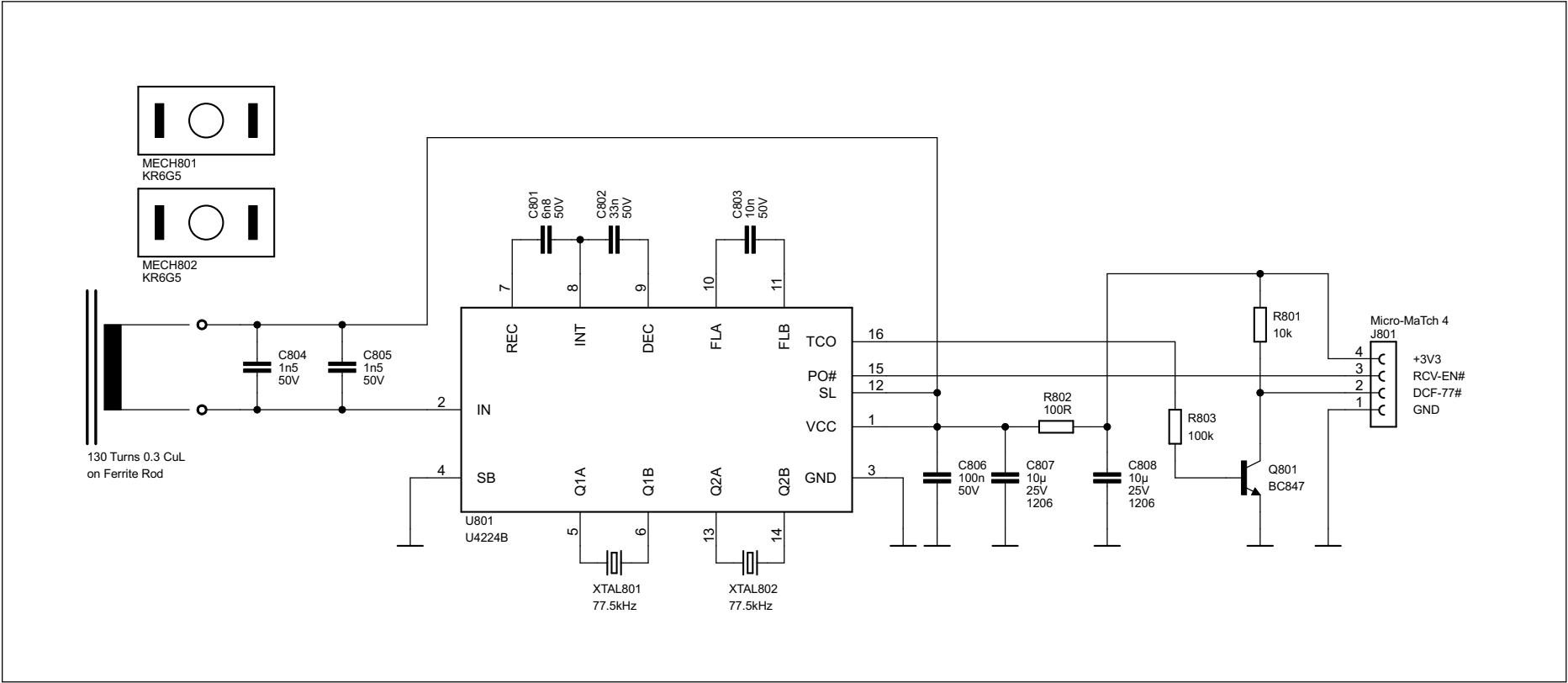


The schematic diagram illustrates the internal wiring of the USB B-Mini 90° SMD module (J602). The module is powered by a 12V DC source (J601) and provides a +3V3A output (J603). The schematic includes various components such as resistors (R605, R606), capacitors (C606, C607, C608, C609, C610), and a diode (D601). The module is designed to be used in a 90° SMD configuration.





DCF-77 Receiver



WordClock

DCF-77 Receiver

Revision: 1.05

(c) Carsten Wille
Karlstraße 68
38106 Braunschweig

File: WordClock V1.05
saved: 2012-11-25 18:47:56
Sheet 9/10

The schematic diagram illustrates the electrical connections for the U901 EA DOGM132B-5 module. The module is a 40-pin connector (J901) with pins 1-12 labeled A0, RESET#, CS#, DIN, CLK, and pins 13-20 labeled TOP LEFT, BOTTOM LEFT, TOP RIGHT, and BOTTOM RIGHT. The module is connected to a power supply (VCC, GND) and a display (A1+, A2+, C1-, C2-, DIN, CLK, A0, CS#, RESET#). The module includes several capacitors (C901, C902, C903, C904, C905, C906, C907, C908, C909, C910) and resistors (R901, R902). The module is labeled U901 EA DOGM132B-5.