

WordClock

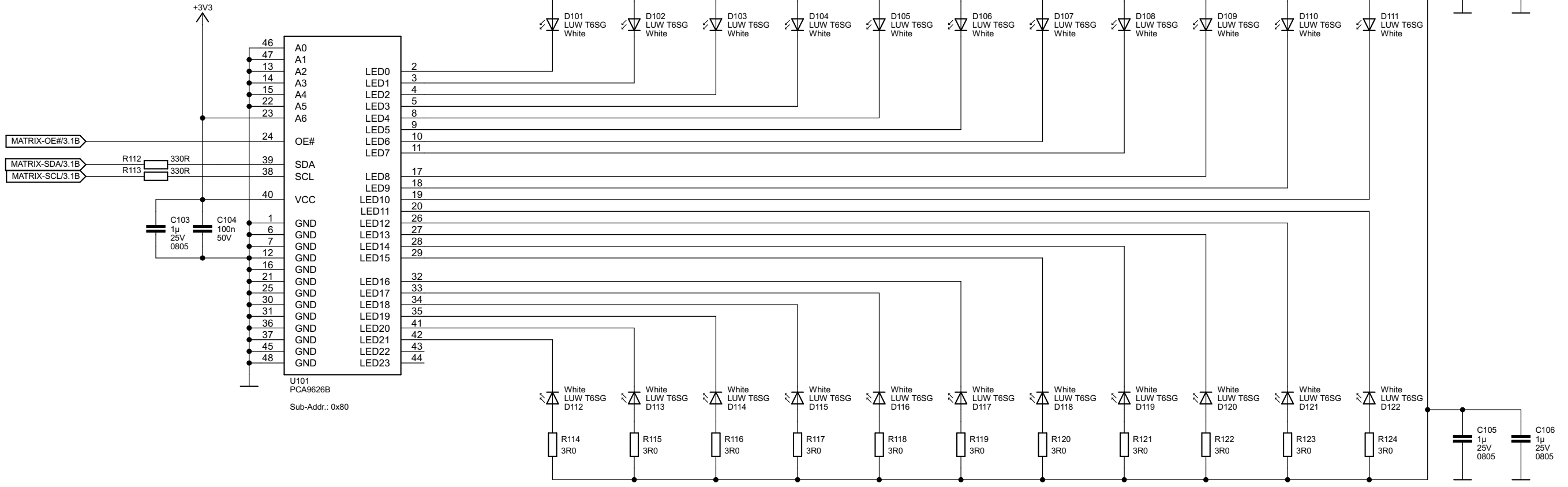
E S K I S T L F Ü N F
 Z E H N Z W A N Z I G
 D R E I V I E R T E L
 T G N A C H V O R J M
 H A L B Q Z W Ö L F P
 Z W E I N S I E B E N
 K D R E I R H F Ü N F
 E L F N E U N V I E R
 W A C H T Z E H N R S
 B S E C H S F M U H R

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2	Matrix LED and driver for row 0 & 1
3	Matrix LED and driver for row 2 & 3
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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.

PCB1
 PCB
 PCB-WORDCLOCK-ALL-IN-ONE

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1 2 3 4 5 6 7 8

A

A

B

B

C

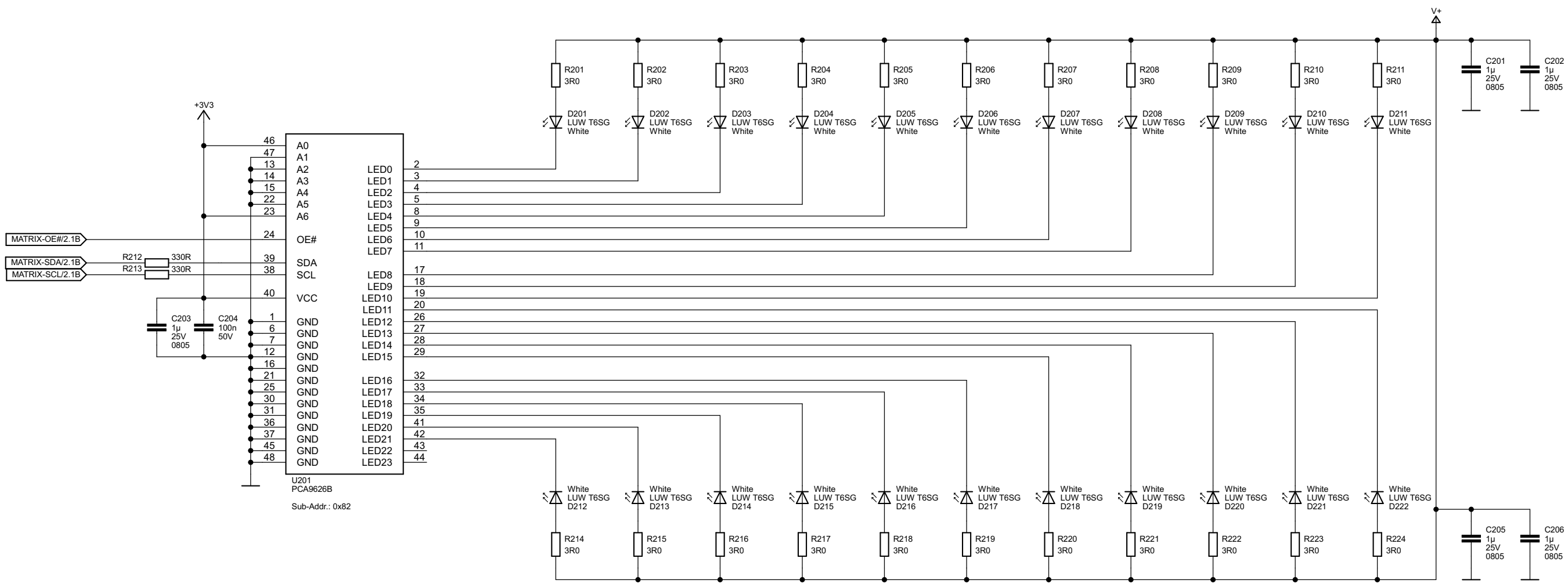
C

D

D

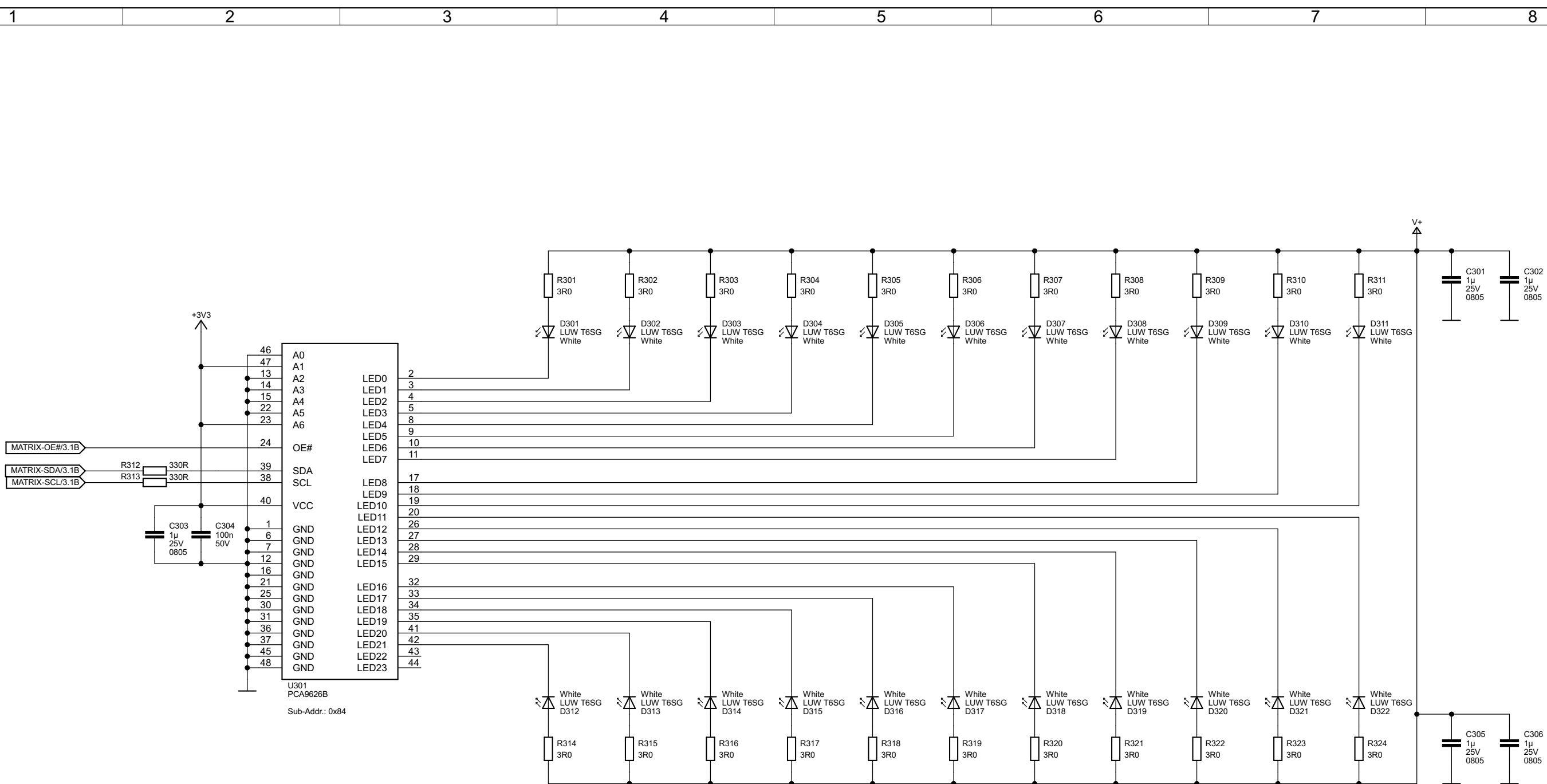
E

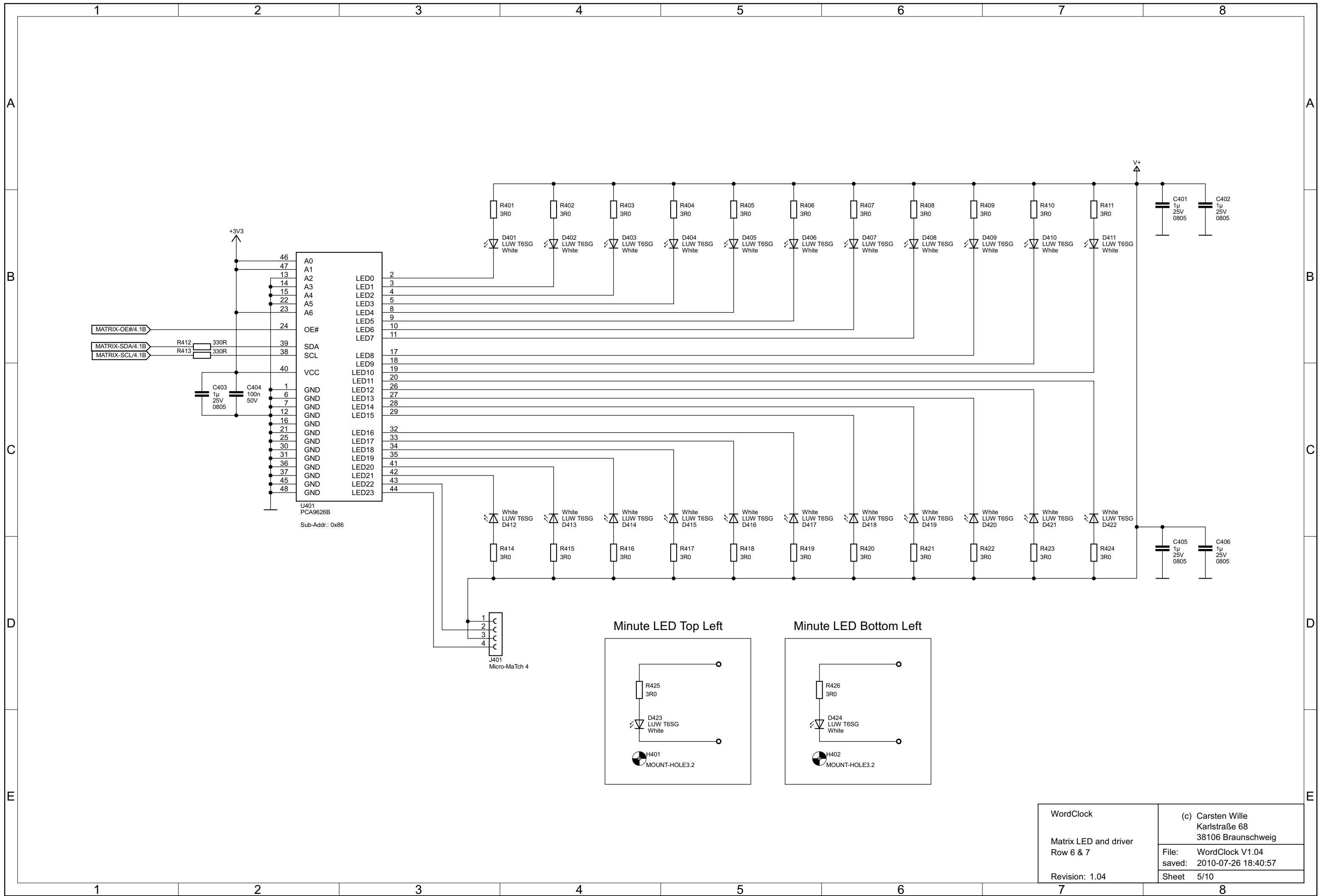
E



WordClock	(c) Carsten Wille Karlsruhe 68 38106 Braunschweig
Matrix LED and driver Row 2 & 3	File: WordClock V1.04 saved: 2010-07-26 18:40:57
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1 2 3 4 5 6 7 8





MATRIX-OE#4.1B
 MATRIX-SDA/4.1B
 MATRIX-SCL/4.1B

C403 1µ 25V 0805
 C404 100n 50V

46 A0
 47 A1
 13 A2
 14 A3
 15 A4
 22 A5
 23 A6
 24 OE#
 39 SDA
 38 SCL
 40 VCC
 1 GND
 6 GND
 7 GND
 12 GND
 16 GND
 21 GND
 25 GND
 30 GND
 31 GND
 36 GND
 37 GND
 45 GND
 48 GND

LED0
 LED1
 LED2
 LED3
 LED4
 LED5
 LED6
 LED7
 LED8
 LED9
 LED10
 LED11
 LED12
 LED13
 LED14
 LED15
 LED16
 LED17
 LED18
 LED19
 LED20
 LED21
 LED22
 LED23

U401
 PCA9626B
 Sub-Addr.: 0x86

R401 3R0
 R402 3R0
 R403 3R0
 R404 3R0
 R405 3R0
 R406 3R0
 R407 3R0
 R408 3R0
 R409 3R0
 R410 3R0
 R411 3R0

D401 LUW T6SG White
 D402 LUW T6SG White
 D403 LUW T6SG White
 D404 LUW T6SG White
 D405 LUW T6SG White
 D406 LUW T6SG White
 D407 LUW T6SG White
 D408 LUW T6SG White
 D409 LUW T6SG White
 D410 LUW T6SG White
 D411 LUW T6SG White

C401 1µ 25V 0805
 C402 1µ 25V 0805

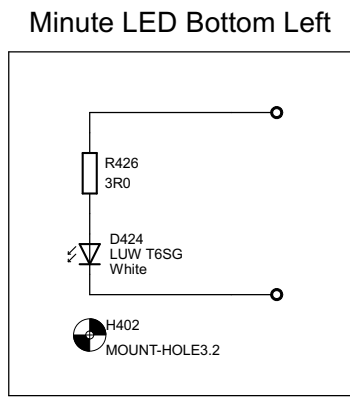
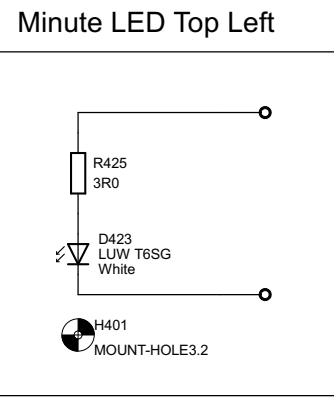
R414 3R0
 R415 3R0
 R416 3R0
 R417 3R0
 R418 3R0
 R419 3R0
 R420 3R0
 R421 3R0
 R422 3R0
 R423 3R0
 R424 3R0

D412 White LUW T6SG
 D413 White LUW T6SG
 D414 White LUW T6SG
 D415 White LUW T6SG
 D416 White LUW T6SG
 D417 White LUW T6SG
 D418 White LUW T6SG
 D419 White LUW T6SG
 D420 White LUW T6SG
 D421 White LUW T6SG
 D422 White LUW T6SG

C405 1µ 25V 0805
 C406 1µ 25V 0805

1 C
 2 C
 3 C
 4 C

J401
 Micro-MaTch 4



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Matrix LED and driver Row 6 & 7	File: WordClock V1.04 saved: 2010-07-26 18:40:57
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1 2 3 4 5 6 7 8

A

A

B

B

C

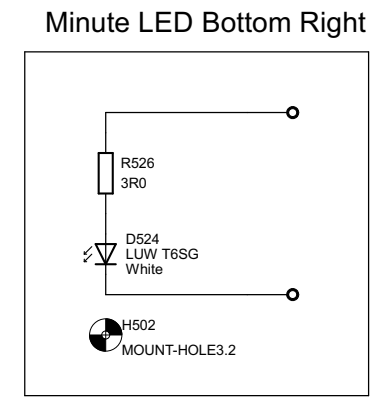
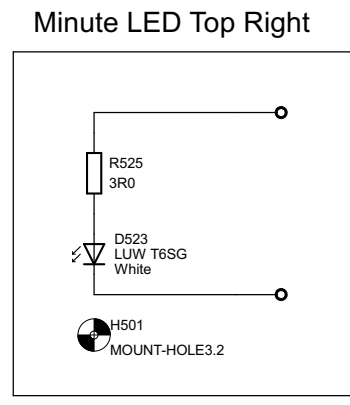
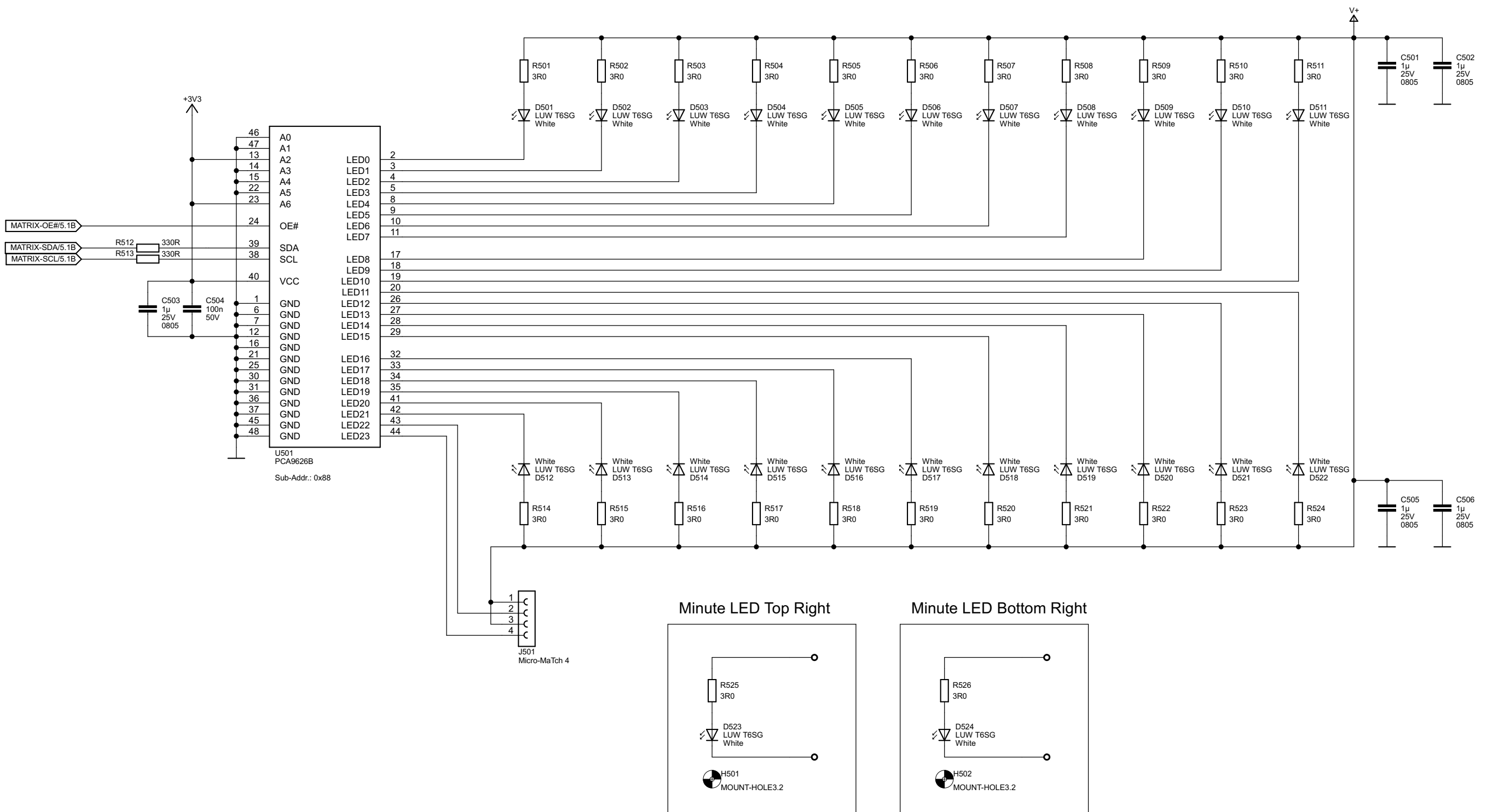
C

D

D

E

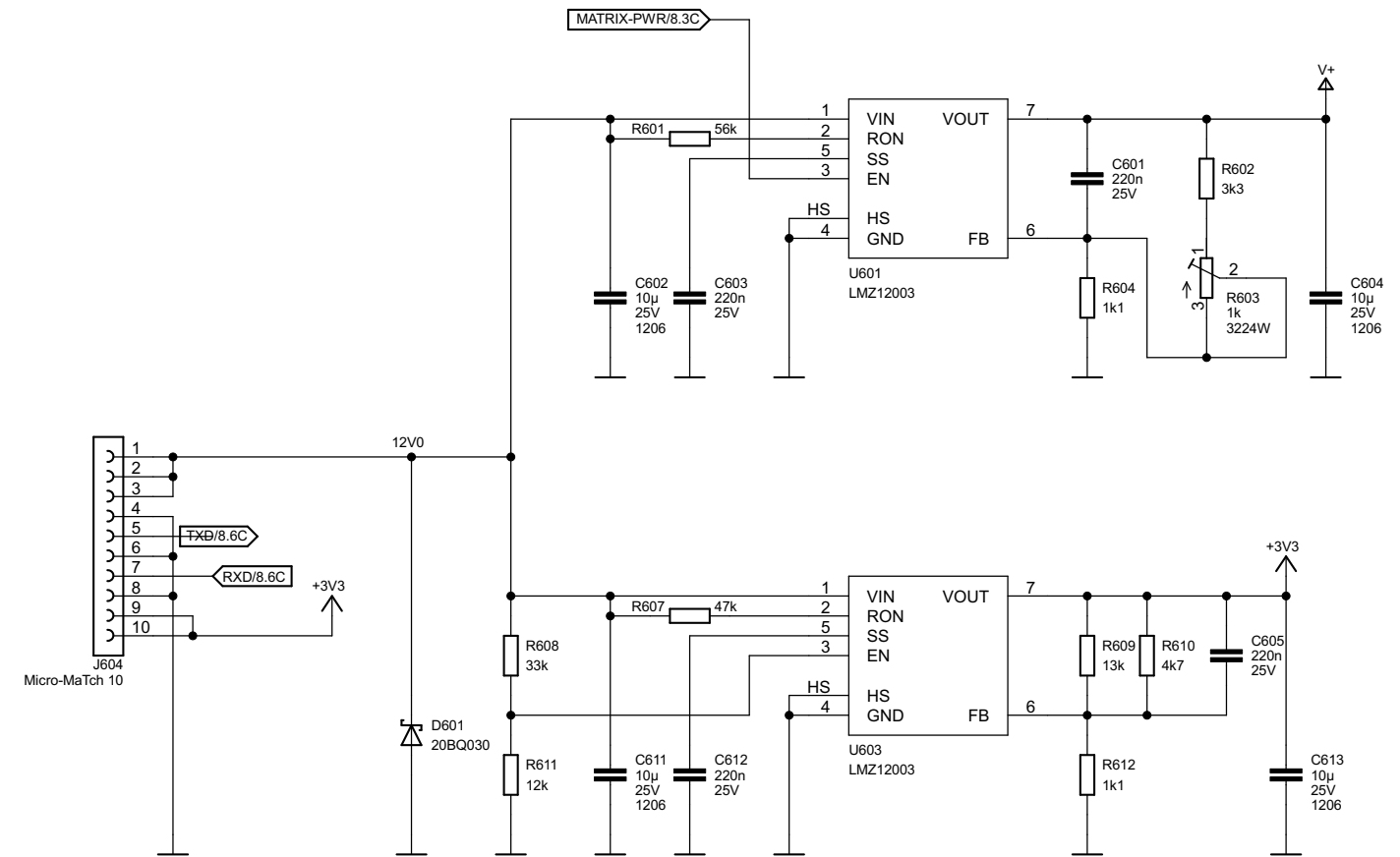
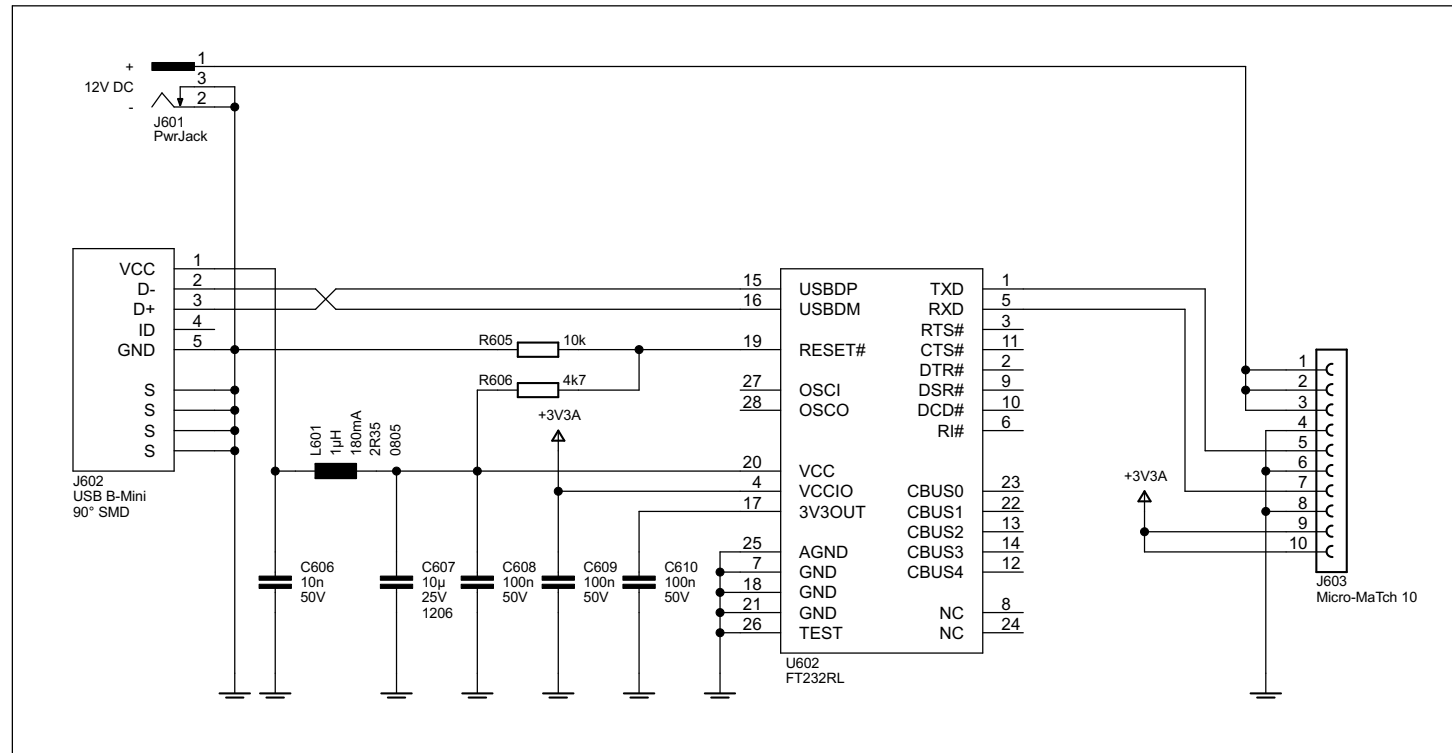
E



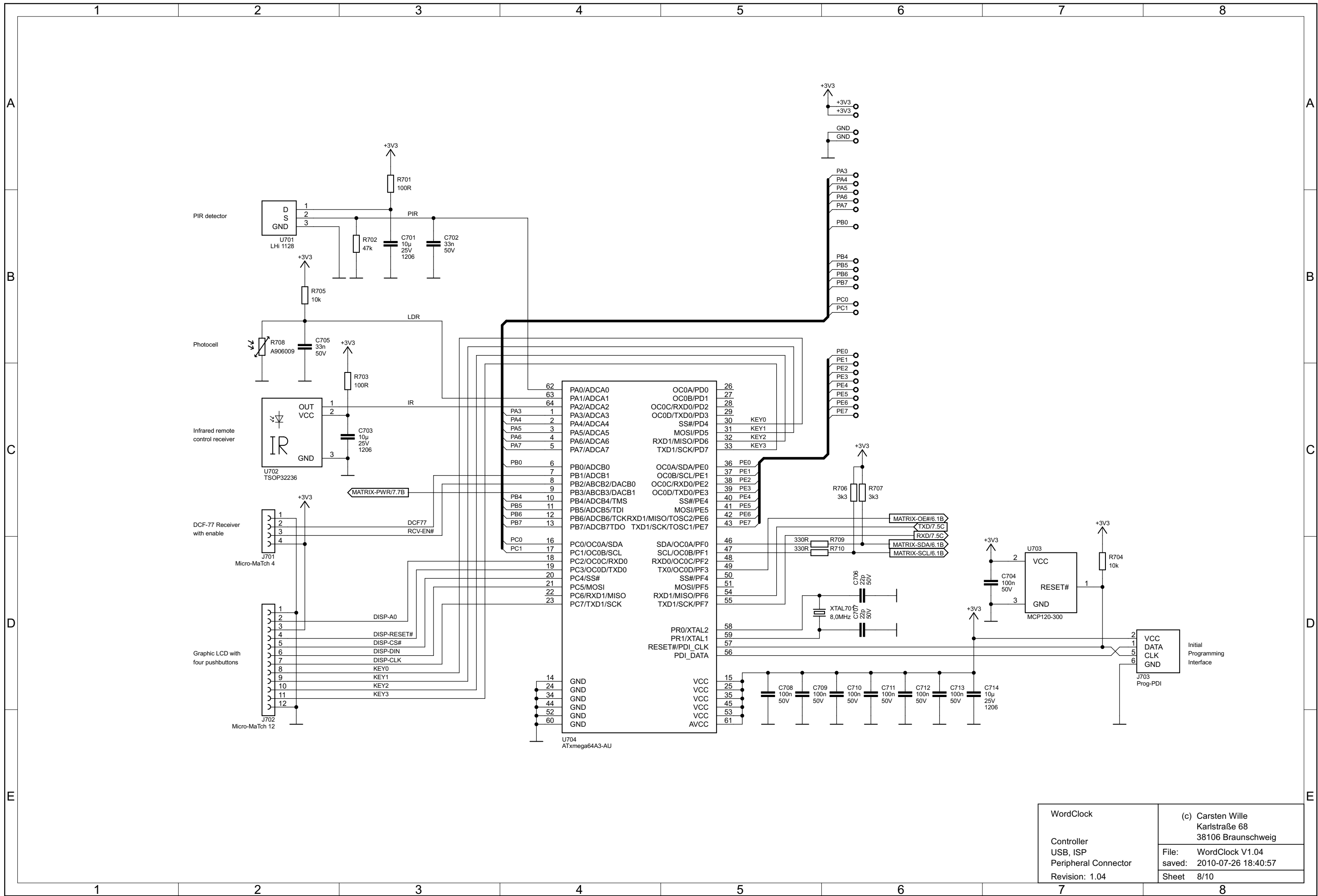
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Matrix LED and driver Row 8 & 9	File: WordClock V1.04 saved: 2010-07-26 18:40:57
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1 2 3 4 5 6 7 8

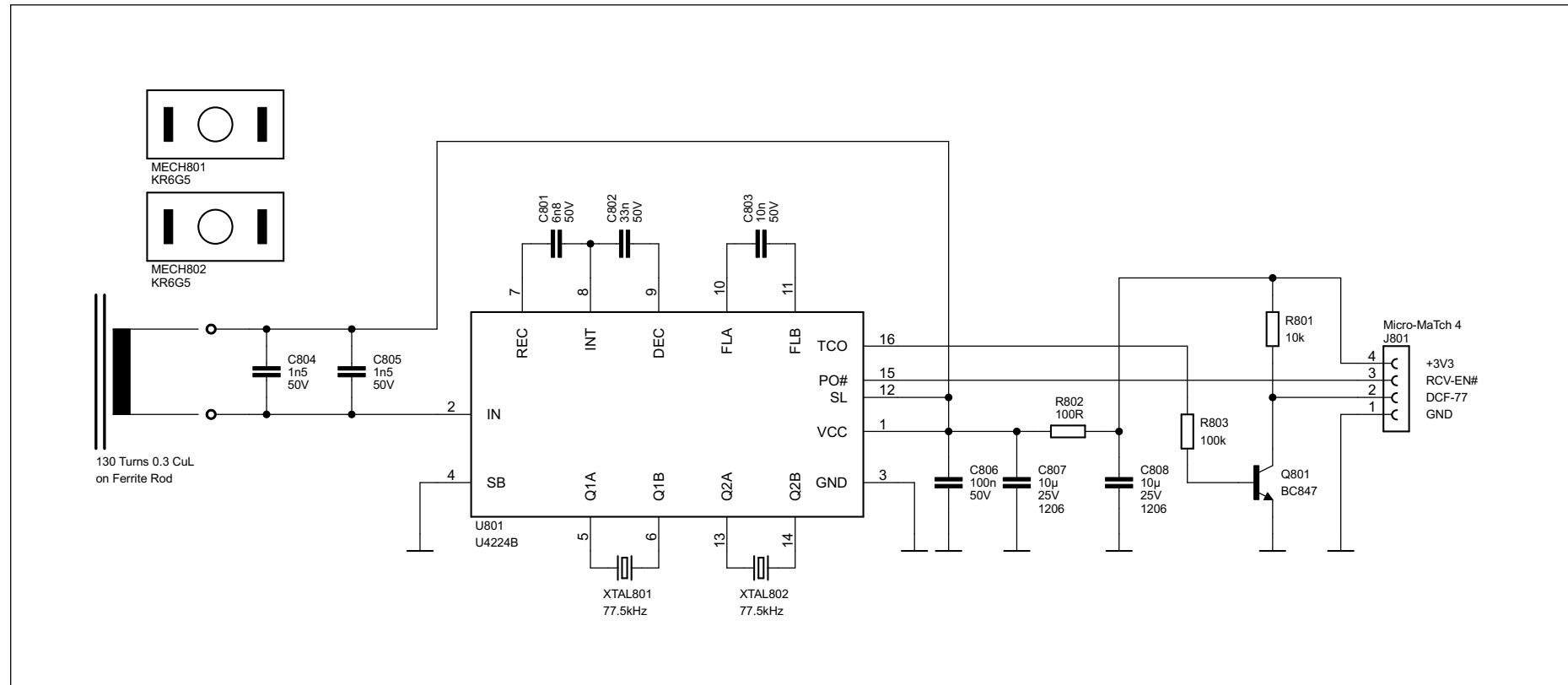
Break-Out for USB and Power Input



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Power USB	File: WordClock V1.04 saved: 2010-07-26 18:40:57
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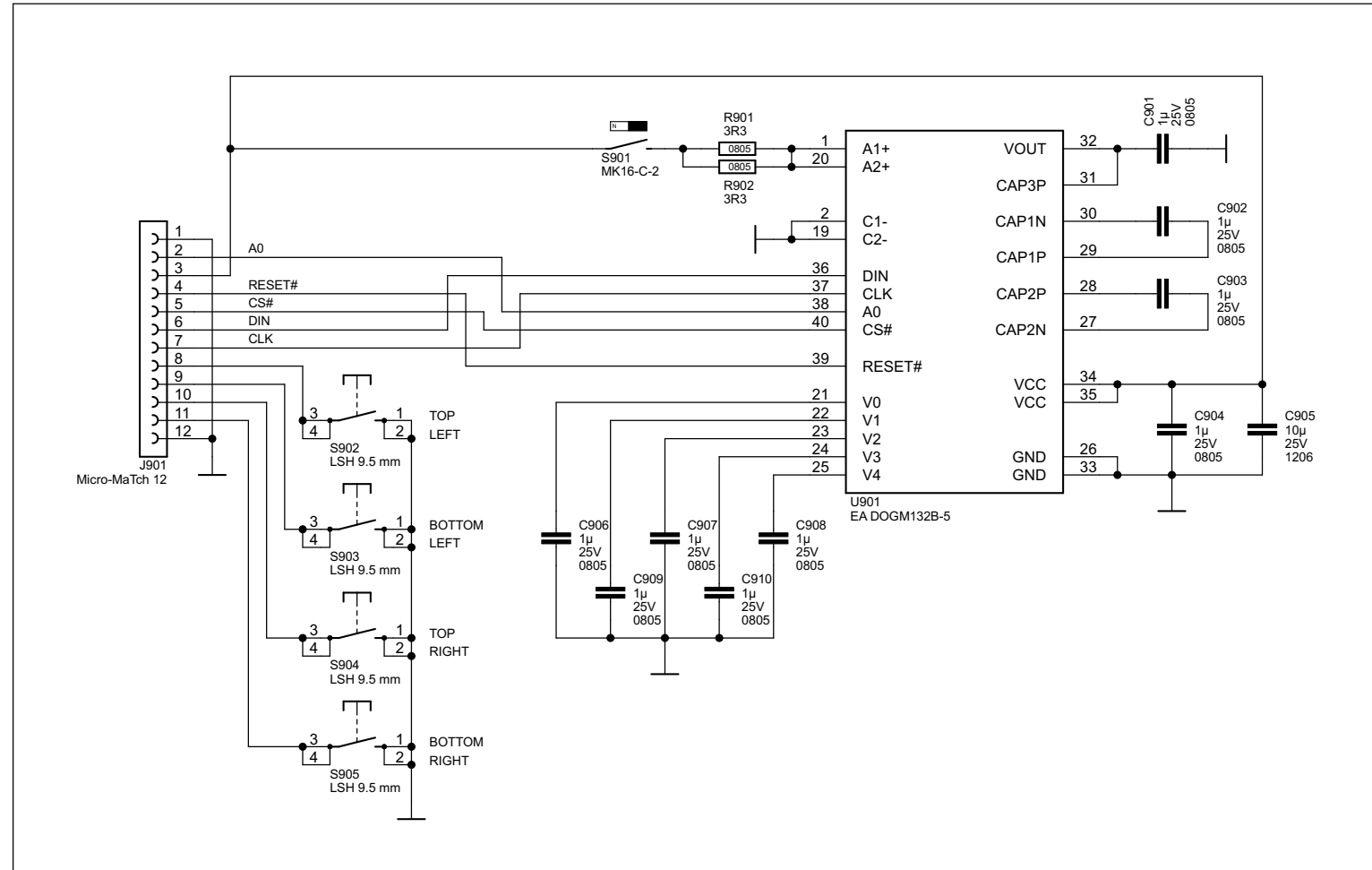


DCF-77 Receiver



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DCF-77 Receiver	File: WordClock V1.04 saved: 2010-07-26 18:40:57
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LCD + Keyboard



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LCD and Keyboard	File: WordClock V1.04 saved: 2010-07-26 18:40:57
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