

# 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.

PCB1  
 PCB  
 PCB-WORDCLOCK-ALL-IN-ONE

WordClock	(c) Carsten Wille Karlstraße 68 38106 Braunschweig
Index	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 1/10

1 2 3 4 5 6 7 8

A

A

B

B

C

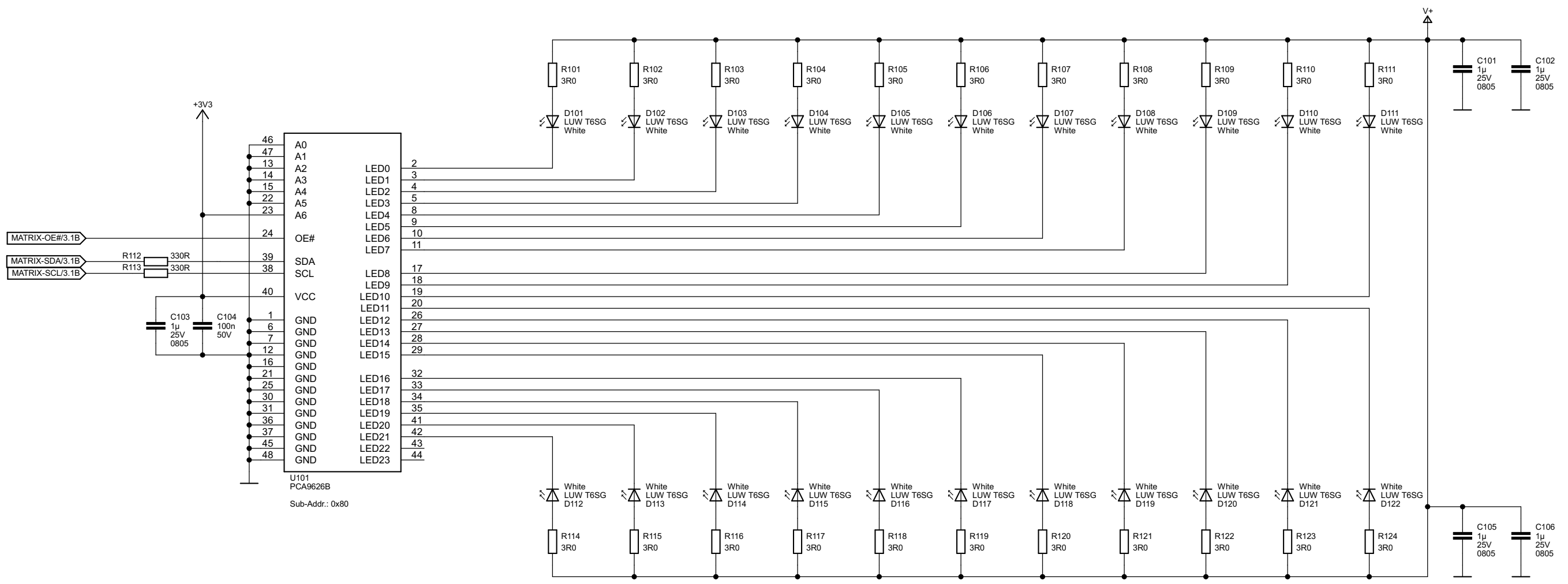
C

D

D

E

E



WordClock	(c) Carsten Wille Karlsruhe 68 38106 Braunschweig
Matrix LED and driver Row 0 & 1	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 2/10

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

A

A

B

B

C

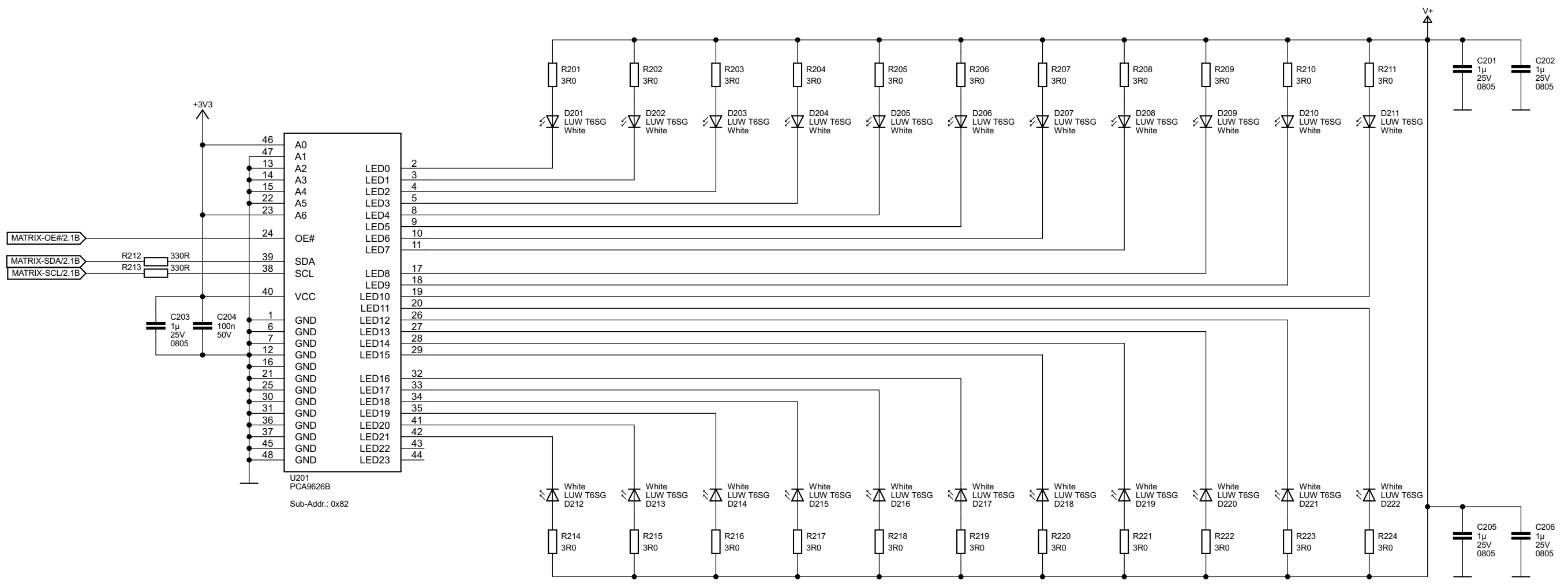
C

D

D

E

E



WordClock	(c) Carsten Wille Karlsruhe 68 38106 Braunschweig
Matrix LED and driver Row 2 & 3	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 3/10

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

A

A

B

B

C

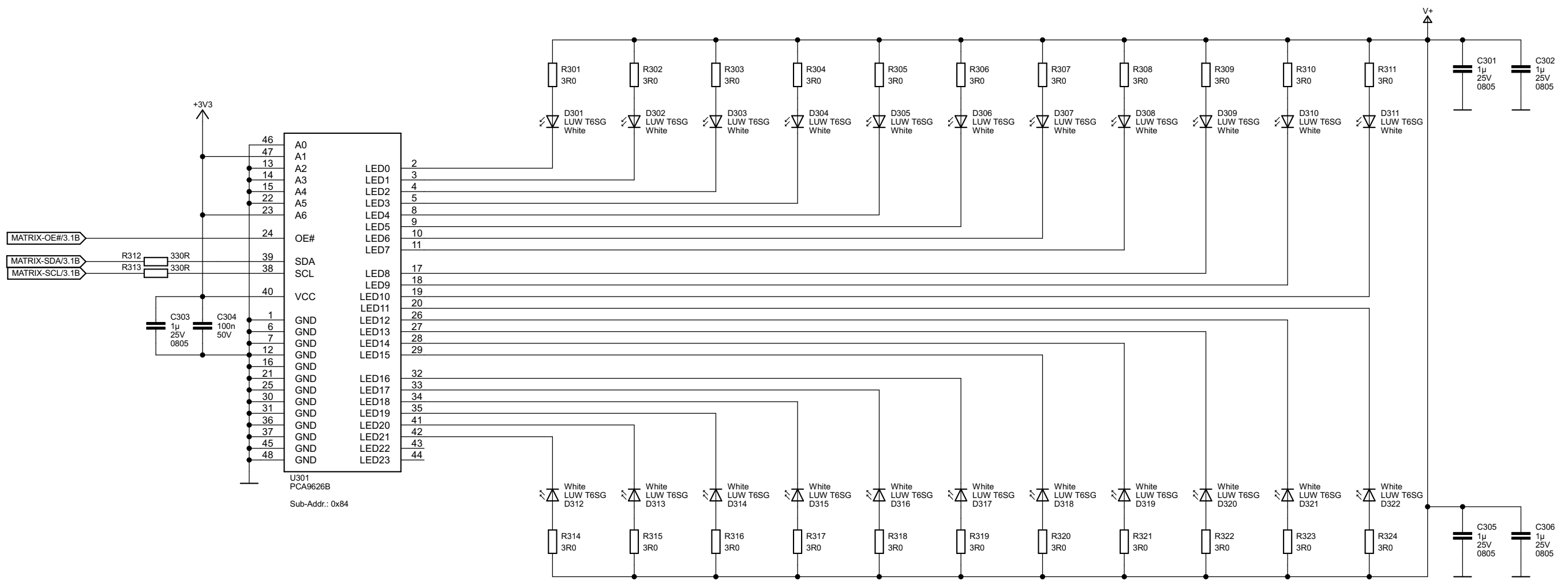
C

D

D

E

E



WordClock	(c) Carsten Wille Karlsruhe 68 38106 Braunschweig
Matrix LED and driver Row 4 & 5	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 4/10

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

A

A

B

B

C

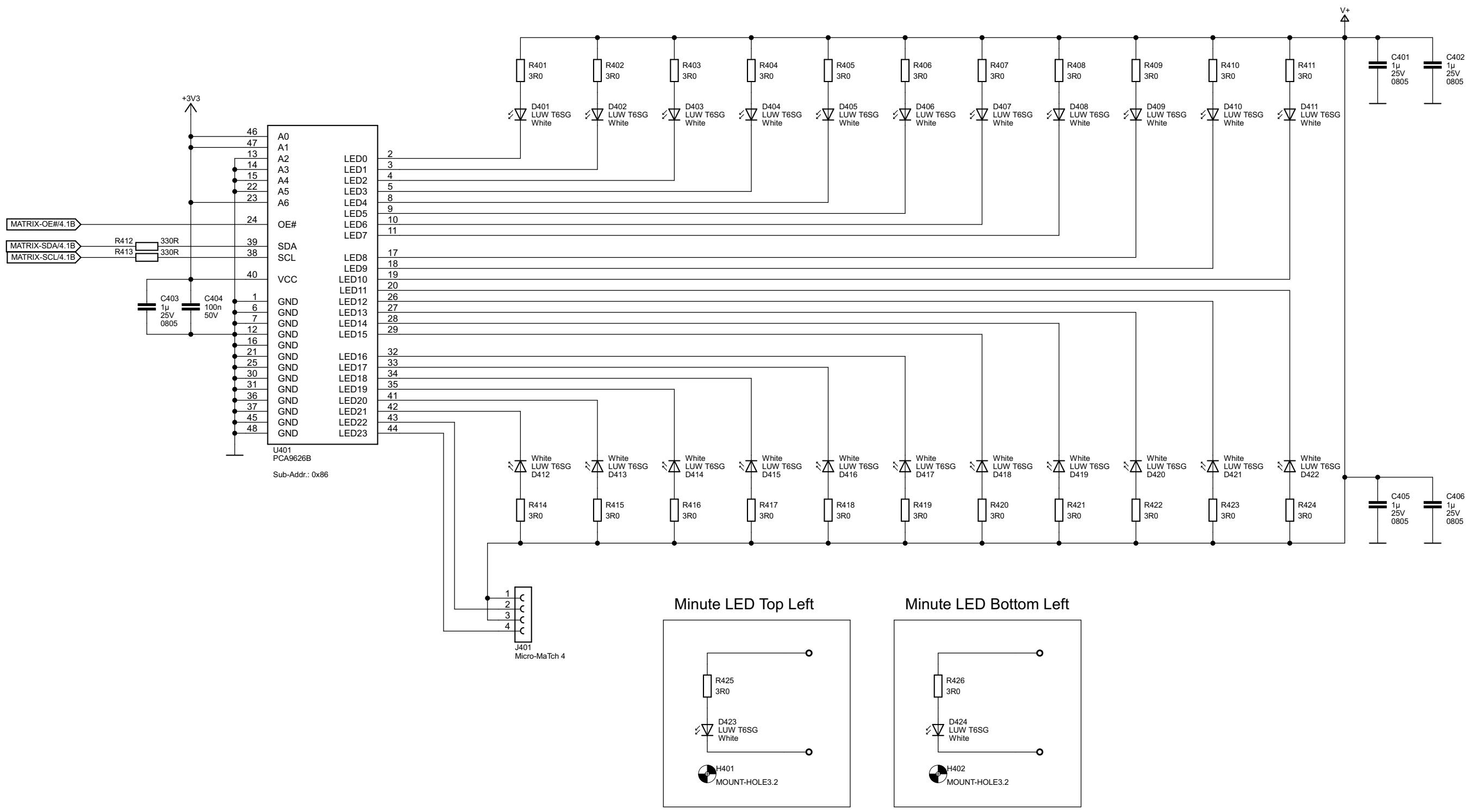
C

D

D

E

E



WordClock	(c) Carsten Wille Karlsruhe 68 38106 Braunschweig
Matrix LED and driver Row 6 & 7	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 5/10

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

A

B

C

D

E

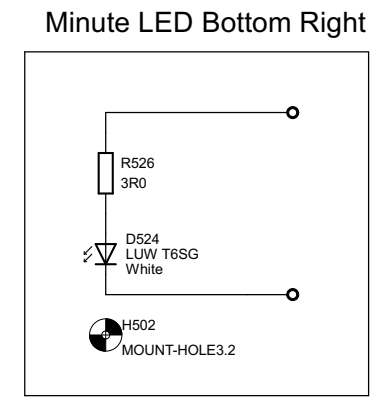
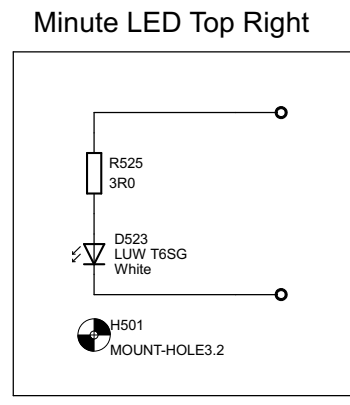
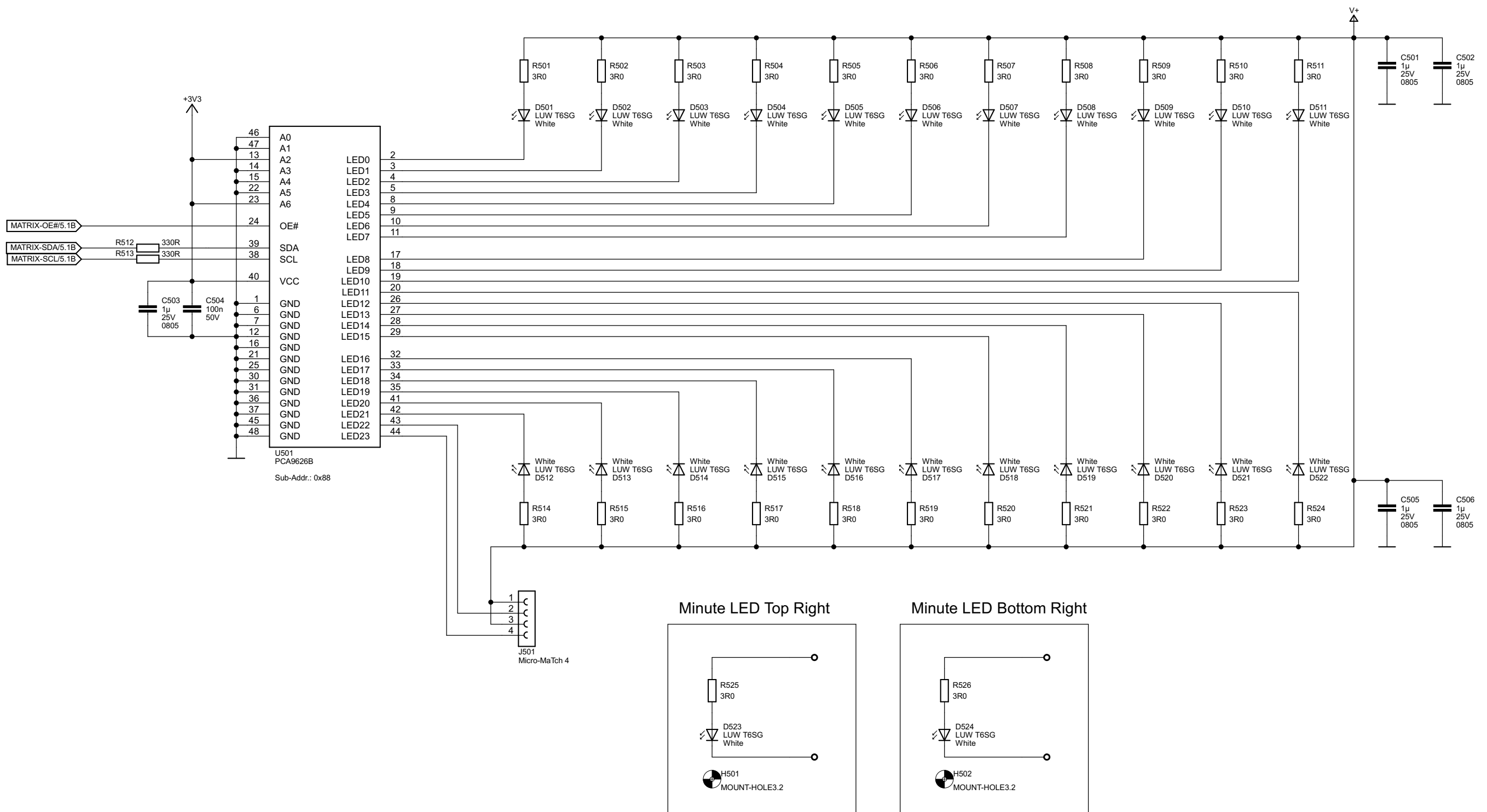
A

B

C

D

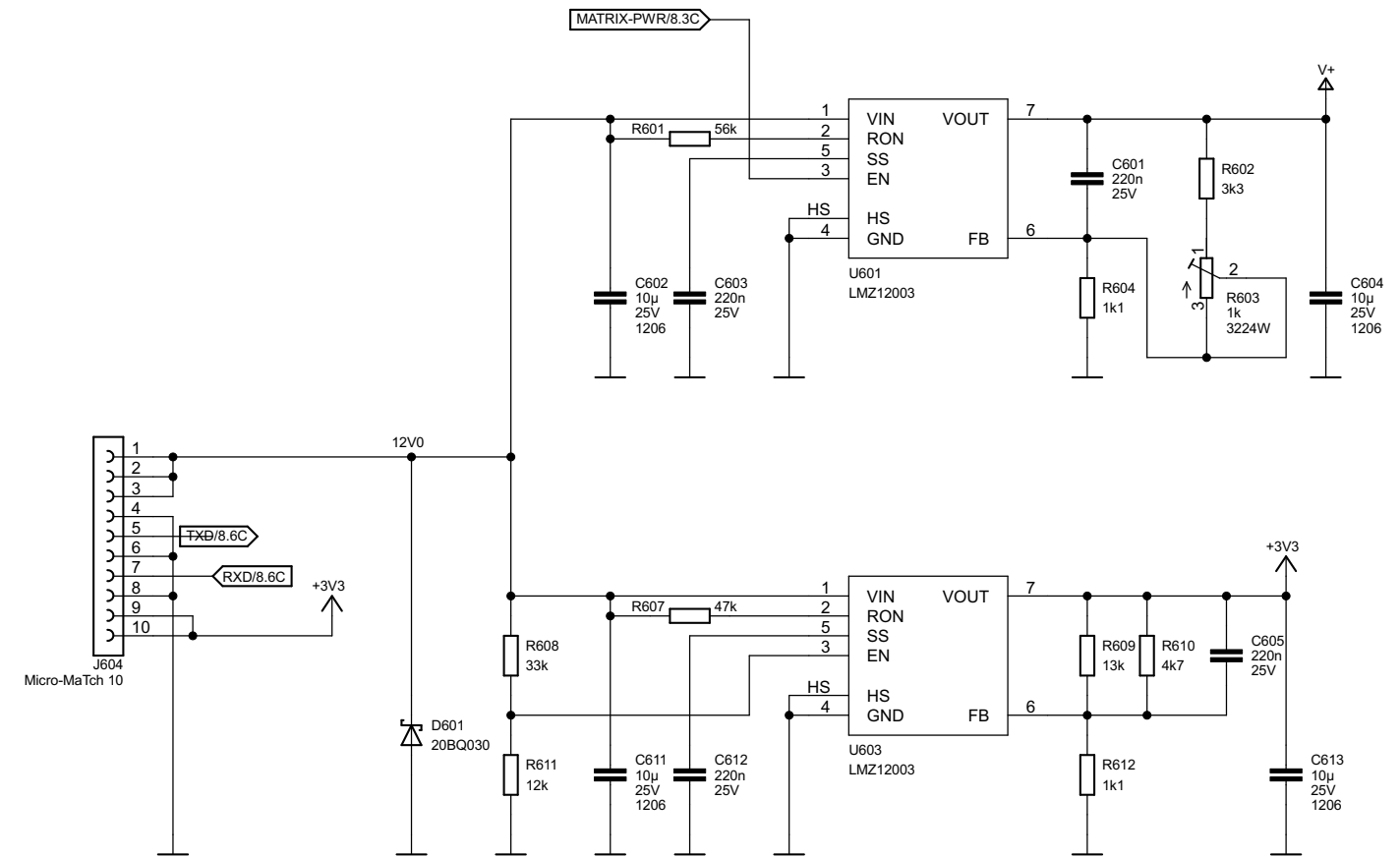
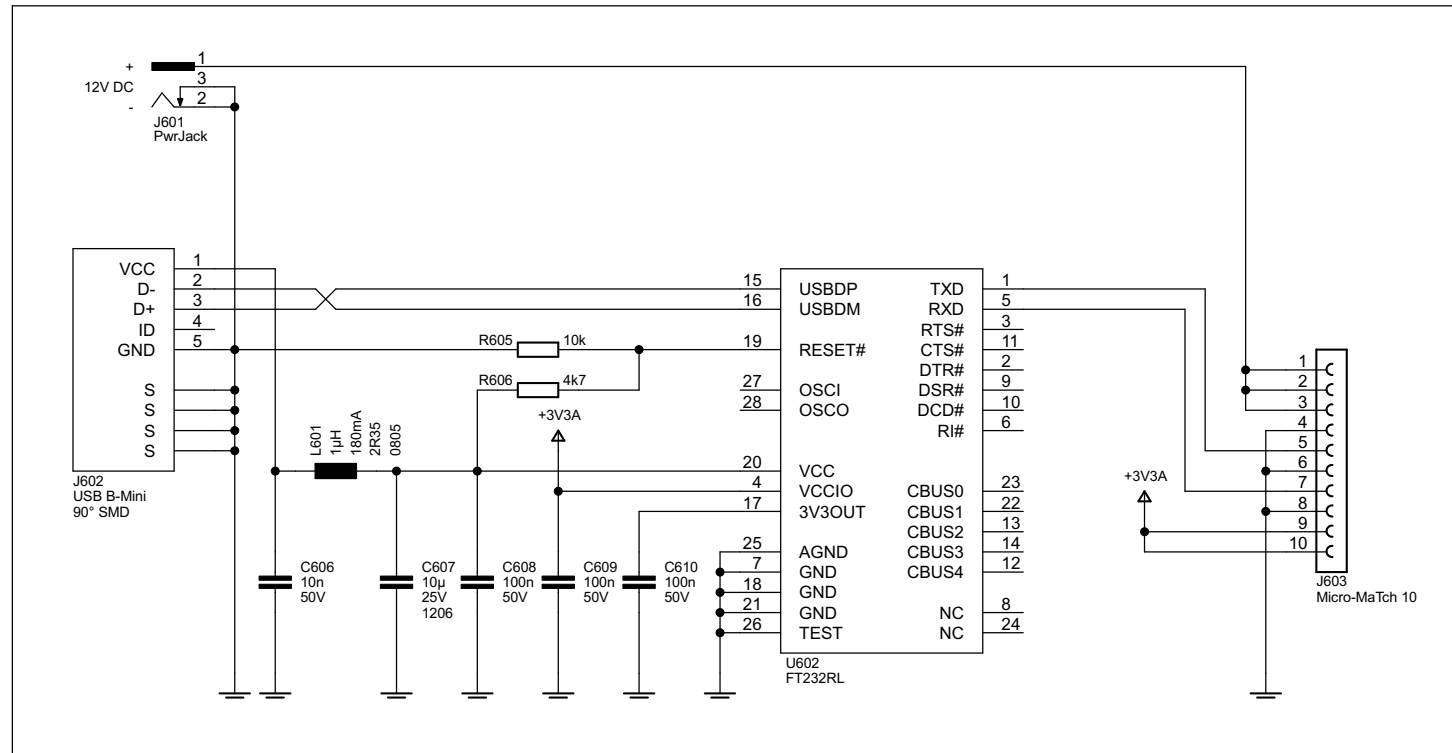
E



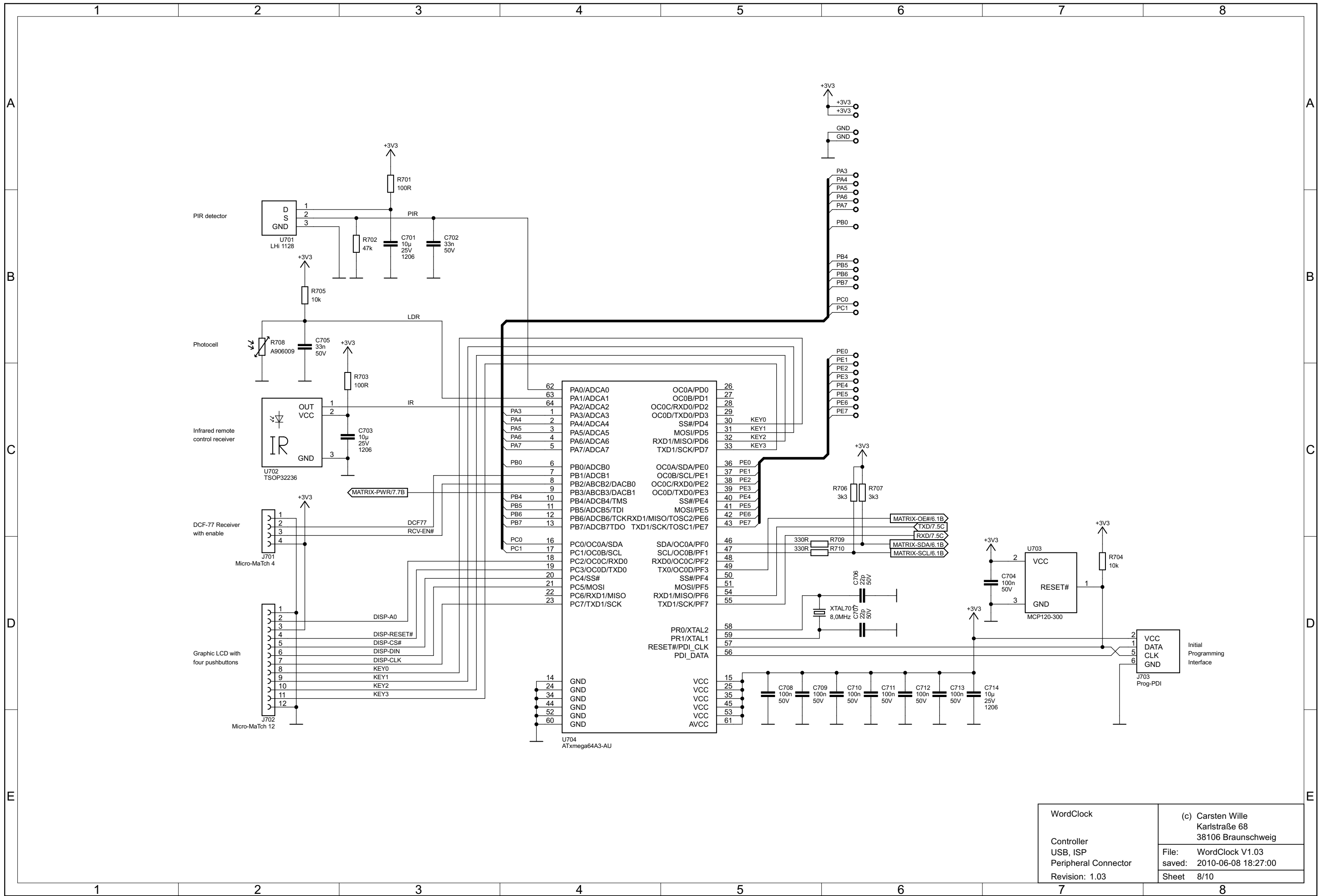
WordClock	(c) Carsten Wille Karlstraße 68 38106 Braunschweig
Matrix LED and driver Row 8 & 9	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 6/10

1 2 3 4 5 6 7 8

### Break-Out for USB and Power Input

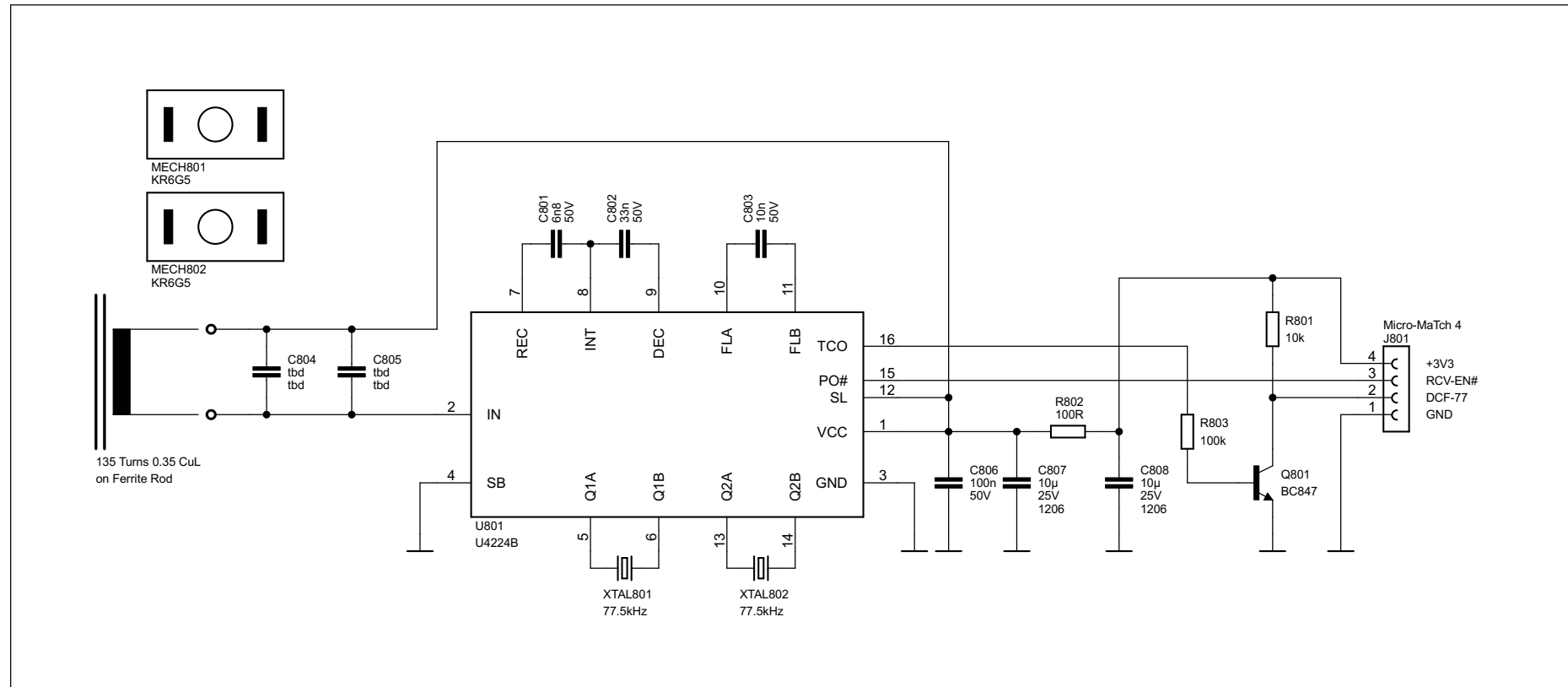


WordClock	(c) Carsten Wille Karlsruhe 68 38106 Braunschweig
Power USB	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 7/10



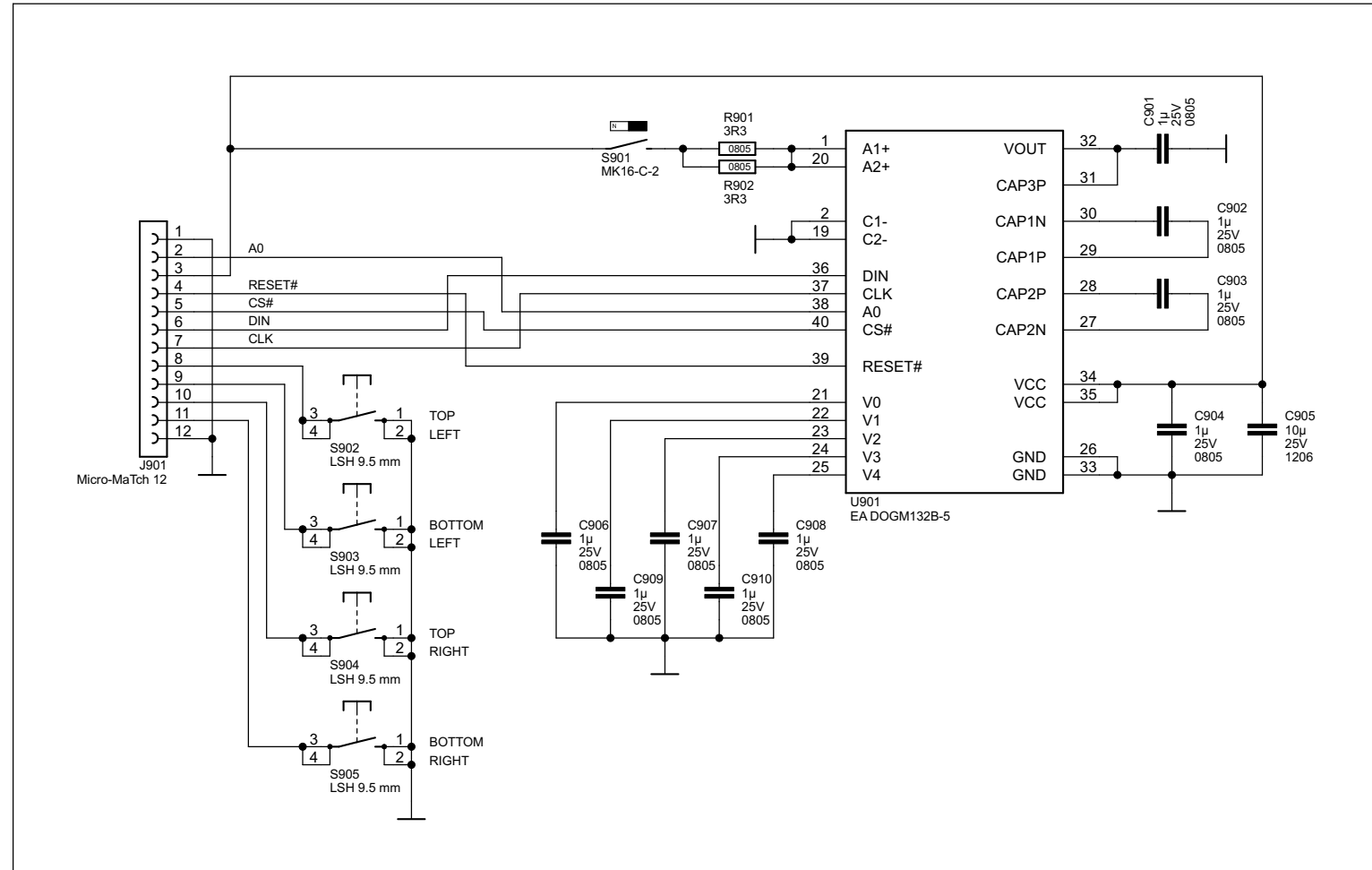


# DCF-77 Receiver



WordClock	(c) Carsten Wille Karlstraße 68 38106 Braunschweig
DCF-77 Receiver	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 9/10

LCD + Keyboard



WordClock	(c) Carsten Wille Karlstraße 68 38106 Braunschweig
LCD and Keyboard	File: WordClock V1.03 saved: 2010-06-08 18:27:00
Revision: 1.03	Sheet 10/10