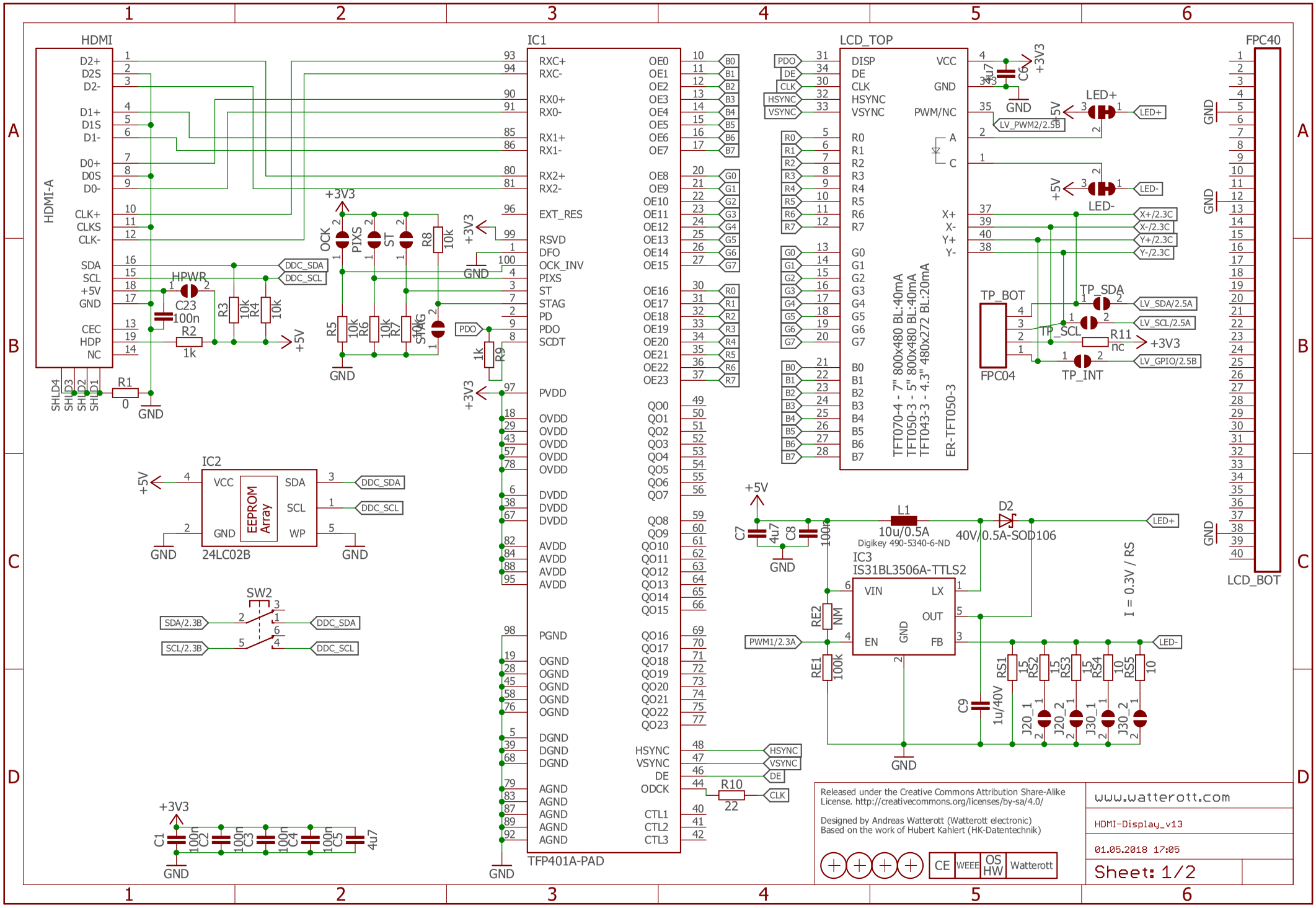
HDMI
HDMI-A
D2+
D2S
D2-
D1+
D1S
D1-
D0+
D0S
D0-
CLK+
CLKS
CLK-
SDA
SCL
+5V
GND
CEC
HDP
NC
SHLD4
SHLD3
SHLD2
SHLD1
R1
0
HPWR
C23
100n
R2
1k
R3
10k
R4
10k
IC1
TFP401A-PAD
RXC+
RXC-
RX0+
RX0-
RX1+
RX1-
RX2+
RX2-
EXT_RES
RSVD
DFO
OCK_INV
PIXS
ST
STAG
PD
PDO
SCDT
PVDD
OVDD
DVDD
AVDD
PGND
OGND
DGND
AGND
OE0
OE1
OE2
OE3
OE4
OE5
OE6
OE7
OE8
OE9
OE10
OE11
OE12
OE13
OE14
OE15
OE16
OE17
OE18
OE19
OE20
OE21
OE22
OE23
QO0
QO1
QO2
QO3
QO4
QO5
QO6
QO7
QO8
QO9
QO10
QO11
QO12
QO13
QO14
QO15
QO16
QO17
QO18
QO19
QO20
QO21
QO22
QO23
HSYNC
VSYNC
DE
ODCK
CTL1
CTL2
CTL3
OCK
PIXS
ST
R8
10k
R5
10k
R6
10k
R7
10k
STAG
R9
1k
R10
22
+3V3
GND
DDC_SDA
DDC_SCL
IC2
24LC02B
EEPROM Array
VCC
GND
SDA
SCL
WP
SW2
SDA/2.3B
SCL/2.3B
C1
100n
C2
100n
C3
100n
C4
100n
C5
100n
4u7
LCD_TOP
TFT070-4 - 7" 800x480 BL:40mA
TFT050-3 - 5" 800x480 BL:40mA
TFT043-3 - 4.3" 480x272 BL:20mA
ER-TFT050-3
DISP
DE
CLK
HSYNC
VSYNC
VCC
GND
PWM/NC
R0
R1
R2
R3
R4
R5
R6
R7
G0
G1
G2
G3
G4
G5
G6
G7
B0
B1
B2
B3
B4
B5
B6
B7
X+
X-
Y+
Y-
A
C
C6
4u7
LV_PWM2/2.5B
LED+
LED-
X+/2.3C
X-/2.3C
Y+/2.3C
Y-/2.3C
TP_BOT
FPC04
TP_SDA
TP_SCL
TP_INT
R11
nc
LV_SDA/2.5A
LV_SCL/2.5A
LV_GPIO/2.5B
FPC40
LCD_BOT
C7
4u7
C8
100n
L1
10u/0.5A
Digikey 490-5340-6-ND
D2
40V/0.5A-SOD106
IC3
IS31BL3506A-TTLS2
VIN
LX
OUT
EN
GND
FB
RE2
NM
RE1
100k
PWM1/2.3A
I = 0.3V / RS
C9
1u/40V
RS1
15
RS2
15
RS3
15
RS4
10
RS5
10
J20_1
J20_2
J30_1
J30_2
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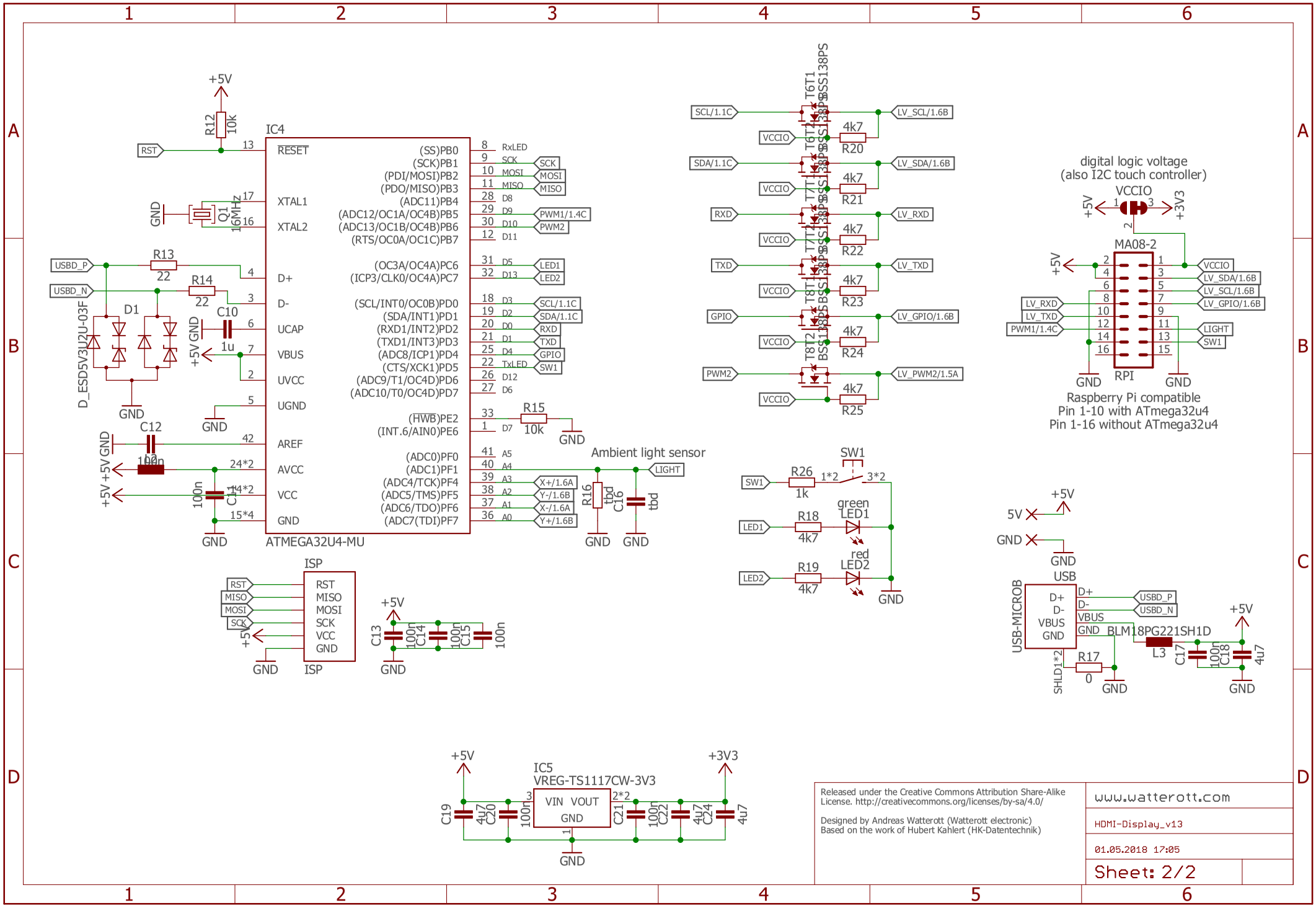
Designed by Andreas Watterott (Watterott electronic)
Based on the work of Hubert Kahlert (HK-Datentechnik)
CE
WEEE
OS HW
Watterott
www.watterott.com
HDMI-Display_v13
01.05.2018 17:05
Sheet: 1/2


IC4
ATMEGA32U4-MU
RESET
XTAL1
XTAL2
D+
D-
UCAP
VBUS
UVCC
UGND
AREF
AVCC
VCC
GND
(SS)PB0
(SCK)PB1
(PDI/MOSI)PB2
(PDO/MISO)PB3
(ADC11)PB4
(ADC12/OC1A/OC4B)PB5
(ADC13/OC1B/OC4B)PB6
(RTS/OC0A/OC1C)PB7
(OC3A/OC4A)PC6
(ICP3/CLK0/OC4A)PC7
(SCL/INT0/OC0B)PD0
(SDA/INT1)PD1
(RXD1/INT2)PD2
(TXD1/INT3)PD3
(ADC8/ICP1)PD4
(CTS/XCK1)PD5
(ADC9/T1/OC4D)PD6
(ADC10/T0/OC4D)PD7
(HWB)PE2
(INT.6/AIN0)PE6
(ADC0)PF0
(ADC1)PF1
(ADC4/TCK)PF4
(ADC5/TMS)PF5
(ADC6/TDO)PF6
(ADC7/TDI)PF7
RxLED
SCK
MOSI
MISO
LED1
LED2
PWM1/1.4C
PWM2
TxLED
SW1
LIGHT
X+/1.6A
Y-/1.6B
X-/1.6A
Y+/1.6B
Ambient light sensor
D_ESD5V3U2U-03F
Q1
16MHz
R12
10k
R13
22
R14
22
R15
10k
R16
tbd
C10
1u
C11
100n
C12
100n
C13
100n
C14
100n
C15
100n
C16
tbd
C17
100n
C18
4u7
C19
4u7
C20
100n
C21
100n
C22
4u7
C24
4u7
ISP
RST
MISO
MOSI
SCK
VCC
GND
IC5
VREG-TS1117CW-3V3
VIN VOUT
GND
+5V
+3V3
SCL/1.1C
SDA/1.1C
RXD
TXD
GPIO
PWM2
VCCIO
LV_SCL/1.6B
LV_SDA/1.6B
LV_RXD
LV_TXD
LV_GPIO/1.6B
LV_PWM2/1.5A
T6T1
T7T1
T8T1
T6T2
T7T2
T8T2
BSS138PS
R20
R21
R22
R23
R24
R25
4k7
digital logic voltage
(also I2C touch controller)
MA08-2
RPI
Raspberry Pi compatible
Pin 1-10 with ATmega32u4
Pin 1-16 without ATmega32u4
SW1
R26
1k
R18
4k7
R19
4k7
green
LED1
red
LED2
USB
USB-MICROB
D+
D-
VBUS
GND
SHLD1*2
R17
0
BLM18PG221SH1D
L3
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Designed by Andreas Watterott (Watterott electronic)
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HDMI-Display_v13
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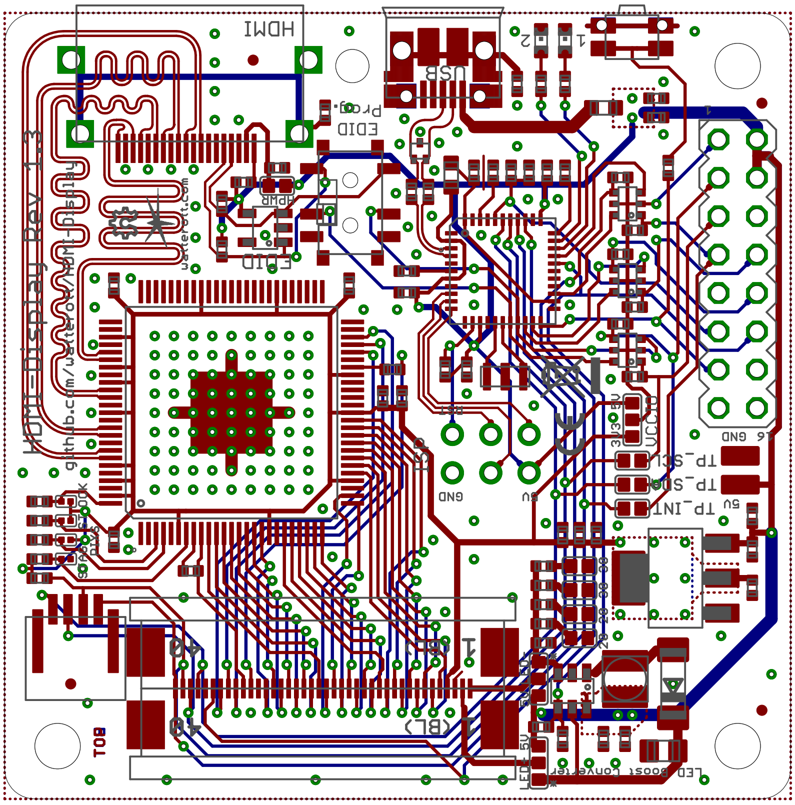
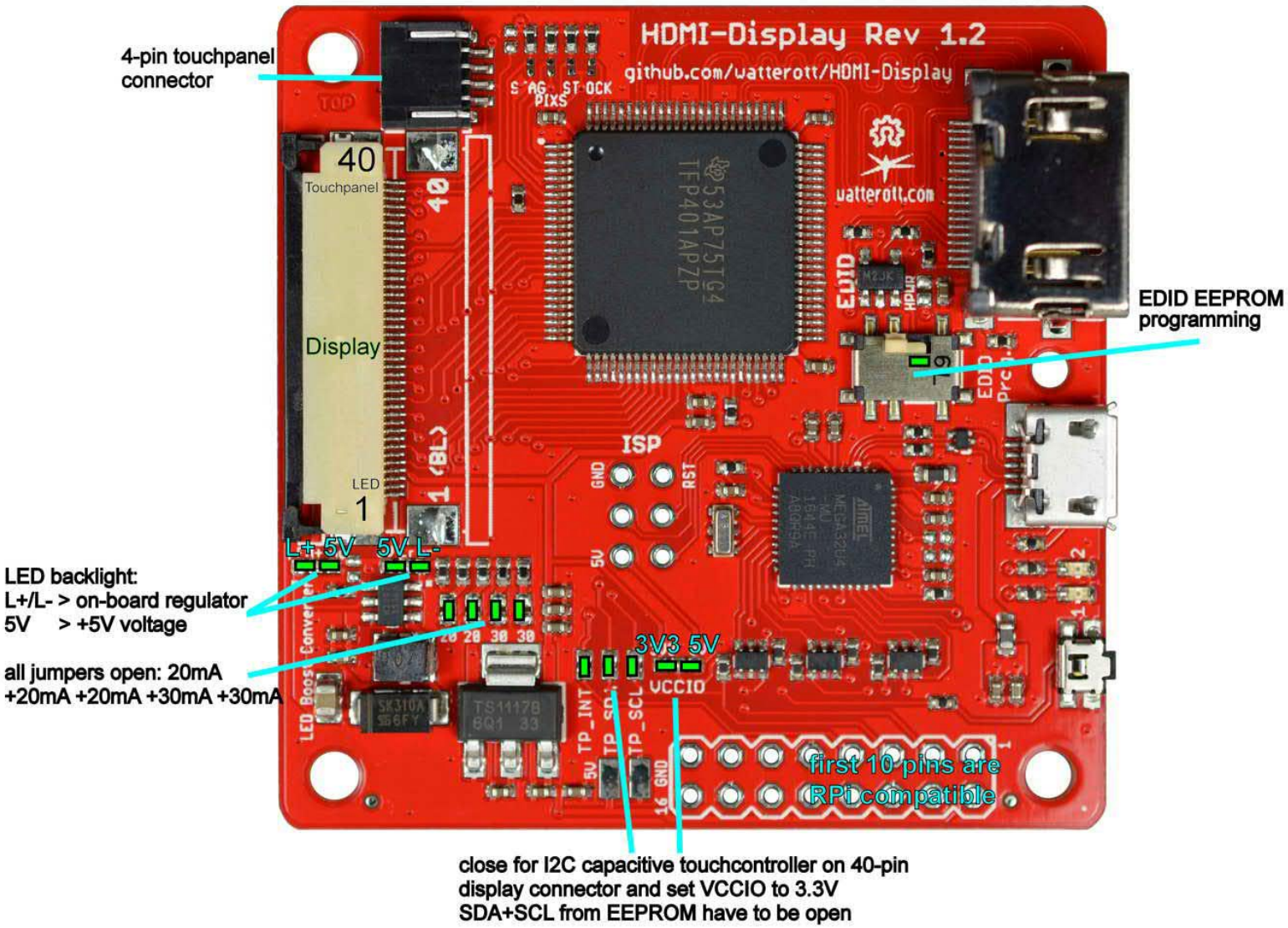
Sheet: 2/2



HDMI-Display Rev 1.3
github.com/wolfer/hdmi-display
USB
HDMI
EDID
Prog.
GND
5V
VCC
TP_SCL
TP_SDA
TP_INT
LED Boost Converter
(BL)


4-pin touchpanel connector
HDMI-Display Rev 1.2
github.com/watterott/HDMI-Display
watterott.com
40
Touchpanel
Display
LED
1
EDID
EDID EEPROM programming
ISP
GND
RST
5V
L+ 5V
5V L-
LED backlight:
L+/L- > on-board regulator
5V > +5V voltage
all jumpers open: 20mA
+20mA +20mA +30mA +30mA
3V3 5V
VCCIO
TP_INT
TP_SDA
TP_SCL
5V
GND
first 10 pins are RPi compatible
close for I2C capacitive touchcontroller on 40-pin display connector and set VCCIO to 3.3V
SDA+SCL from EEPROM have to be open

Jumper	LED+	LED-	VCCIO	TP_SDA	TP_SCL	TP_INT
Displays with resistive Touchpanel (no Backlight Boost Regulator)	LED+	LED-	3.3V or 5V	open	open	open
Displays with capacitive Touchpanel (on-board Backlight Boost Regulator)	5V	5V	3.3V	closed	closed	closed

The adapter is pre-programmed with the respective firmware for a resistive (RTP) or capacitive (CTP) Touchpanel. But the EDID EEPROM is empty.
To program EDID data into the EEPROM the switch has to be set to the marked direction and HDMI has to be disconnected during the programming. The programming can be started, when the tactile switch *SW1* is hold on power-up.

The backlight brightness of the Displays with capacitive Touchpanel can be controlled via Pin 35 (AVR PB6).

Displays with resistive Touchpanel: TFT043-3, TFT050-3, TFT070-4

Displays with capacitive Touchpanel: HY050CTP-HD, HY070CTP, HY070CTP-HD, HY101CTP

HYxxxCTP Display RGB-Connector