IKEA-Samtid_mood-light (Schematic)

VCC.B decoupling
- VCC.B
- C1 100nF
- C2 1µF

IC1 — ATMEGA168PA-M (MLF/QFN32)
VCC.B

Pin	Signal
4	VCC
6	VCC
18	AVCC
20	AREF
19	ADC6
22	ADC7
33	GND(PAD)
21	GND
5	GND
3	GND

Signal	Pin
(PCINT0/CLKO/ICP1)PB0	12
(PCINT1/OC1A)PB1	13
(PCINT2/OC1B/SS)PB2	14
(PCINT3/OC2A/MOSI)PB3	15 — MOSI
(PCINT4/MISO)PB4	16 — MISO
(PCINT5/SCK)PB5	17 — SCK
(PCINT6/XTAL1/TOSC1)PB6	7 — XTAL1
(PCINT7/XTAL2/TOSC2)PB7	8 — XTAL2
(PCINT8/ADC0)PC0	23
(PCINT9/ADC1)PC1	24
(PCINT10/ADC2)PC2	25
(PCINT11/ADC3)PC3	26
(PCINT12/SDA/ADC4)PC4	27
(PCINT14/SCL/ADC5)PC5	28
(PCINT14/RESET)PC6	29 — RST
(PCINT16/RXD)PD0	30 — RXI
(PCINT17/TXD)PD1	31 — TXO
(PCINT18/INT0)PD2	32
(PCINT19/OC2B/INT1)PD3	1
(PCINT20/XCK/T0)PD4	2
(PCINT21/OC0B/T1)PD5	9
(PCINT22/OC0A/AIN0)PD6	10
(PCINT23/AIN1)PD7	11

P1 — FTDI
- 1
- 2 — VCC.B
- 3
- 4 — RXI
- 5 — TXO
- 6 — RST

6x1, 0.1in header, female, DNP

JP1 — AVR_ISP
1 MISO	VTG 2	VCC.B
3 SCK	MOSI 4	MOSI
5 RST	GND 6	

MISO / SCK / RST

3x2, 0.05in header, female, DNP

X1 — CSTCE16M0V53-R0
- 1 XTAL1
- 2
- 3 XTAL2

SW1 — MODE
- MOSI

SW2 — +/-
- MISO

P3.1 (B-to-B-1A)
- 1 3 — TXO/LEDs
- 2 4 — VCC.A
- (3)

P3.2 (B-to-B-1B)
- 1 3 — TXO
- 2 4 — VCC.B
- (4)

P4.1 (B-to-B-2A)
- 1 2
- 3 4
- (3)

P4.2 (B-to-B-2B)
- 1 2
- 3 4
- (4)

(just mechanical)

WS2812B LEDs + capacitors

WS2812B-LEDs-1
- A_IN — TXO/LEDs
- D_OUT
- WS2812B-LEDs-1.sch

WS2812B-LEDs-2
- E_IN
- WS2812B-LEDs-2.sch

5V — POWER P2
- 1
- 2
- 3
- 4

- F1 2A-poly
- F2 2A-poly
- DS1 757-CMS04TE12 — Toshiba, 5A approx. SMA package
- +5V
- DS2 SS14L — (1) small I small Vf
- VCC.A

PWR_FLAG
- +5V
- VCC.B

Notes
(1) make sure no power flows backwards to the LEDs when just the programmer is connected.
(2) ---
(3) micro-Match 2x2, 2.54mm / 1.27mm, male, TH, main board
(4) micro-Match 2x2, 2.54mm / 1.27mm, female, SMD, daughter-board

WS2812B — LED matrix schematic

LED1–LED32: WS2812B (VCC, DIN, DOUT, GND, RGB)

Pin labels: 1 VCC, 4 DIN, 2 DOUT, 3 GND

Net labels: A_IND, A_OUT, B_OUT, C_OUT, D_OUT, +5V

Decoupling capacitors: C5, C7, C9, C11, C13, C15, C17, C19, C21, C23, C25, C27, C29, C31, C33, C35
C6, C8, C10, C12, C14, C16, C18, C20, C22, C24, C26, C28, C30, C32, C34, C36

WS2812B — VCC, RGB, DIN, DOUT, GND — LED33 ... LED64

E_IND, E_OUT, F_OUT, G_OUT

C37 C39 C41 C43 C45 C47 C49 C51 C53 C55 C57 C59 C61 C63 C65 C67
C38 C40 C42 C44 C46 C48 C50 C52 C54 C56 C58 C60 C62 C64 C66 C68