VCC.B

C1
1µF

GND.B

VCC.B

IC1

	VCC	4
	VCC	6
	AVCC	18
	AREF	20
	ADC6	19
	ADC7	22

(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

33	GND(PAD)
21	GND
5	GND
3	GND

MLF/QFN32

ATMEGA168PA-M

GND.B

GND.B

X1
CSTCE16M0V53-R0

XTAL1 1
XTAL2 3
2
GND.B

MOSI — SW1 — GND.B
ENTER

MISO — SW2
MODE

PWR_FLAG   PWR_FLAG

GND.B   VCC.B

GND.B 1
2
VCC.B 3
RXI 4
TXO 5
RST 6

P1
FTDI

6x1, 0.1in header, female, DNP

JP1

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

AVR_ISP

3x2, 0.05in header, female, DNP

Boart-to-Board

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

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

(just mechanical)

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

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

5V

5V_raw   +5V   VCC.A

POWER 1
P2   2
       3
       4

GND.A

DS1
SK84B
Vf=0.5V @ 8A
SMC

F1
3A-poly

F2
3A-poly

DS2
SS14L

(1) small I
small Vf

(2) Signal isolation if either
power source is absent

+5V   VCC.A

4k7 Rp1   4k7 Rp2

BSS138   BSS138
SOT-23   SOT-23
Q2 G   G Q1
S   D   D S

TXO/LEDs 2   3   3   2

WS2812B LEDs + capacitors

WS2812B-LEDs-1

A_IN   D_OUTD
+5V
VCC
GND.A   GND

WS2812B-LEDs-1.sch

WS2812B-LEDs-2

E_IN
+5V
VCC
GND.A   GND

WS2812B-LEDs-2.sch

PWR_FLAG   PWR_FLAG   PWR_FLAG

+5V   GND.A   VCC.A

(1) make sure no power flows backwards to the LEDs when just the programmer is connected.
(2) We don't want any power bleeding through input clamping diodes when just the programmer is connected and the main power supply if off.
(3) micro-Match 2x2, 2.54mm / 1.27mm, male, TH, main board (AMP PN: 215464-4)
(4) micro-Match 2x2, 2.54mm / 1.27mm, female, SMD, daughter-board (AMP PN: 188275-4)

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Sheet: /
File: IKEA-Samtid_mood-light.sch
Title: IKEA-Samtid_mood-light
Size: A4   Date: 15 Jul 2014   Rev: 0.19
KiCad E.D.A. kicad (2014-06-29 BZR 4957)-product   Id: 1/3

WS2812B — LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8
WS2812B — LED9, LED10, LED11, LED12, LED13, LED14, LED15, LED16
WS2812B — LED17, LED18, LED19, LED20, LED21, LED22, LED23, LED24
WS2812B — LED25, LED26, LED27, LED28, LED29, LED30, LED31, LED32

Each WS2812B: VCC, DIN, RGB, DOUT, GND

Nets: A_IN, A_OUT, B_OUT, C_OUT, D_OUT, VCCD, GND

VCCD, GND

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