Key Switches with LEDs

SW_Push_LED — S1 — KEY1 / LED1
SW_Push_LED — S2 — KEY2 / LED2
SW_Push_LED — S3 — KEY3 / LED3
SW_Push_LED — S4 — KEY4 / LED4
GND

USB-C Receptacle
Configured to Identify as USB 2.0 Device
+5V
PWR_FLAG
10uF C4
GND
J1
VBUS VBUS VBUS VBUS
A4 B4 A9 B9
SBU1 A8
SBU2 B8
usb-c_2.0
SHIELD S1
CC1 A5 R02 5k1
CC2 B5 R03
D- A7
D- B7 R04 22 GND D-
D+ A6
D+ B6 R05 22 D+
5k1
GND GND GND GND
A1 B1 A12 B12
PWR_FLAG
GND

AVR In-System Programmer
+5V
J2
AVR-ISP-6
VCC 2
MISO 1 MISO
MOSI 4 MOSI
SCK 3 SCK
RST 5 !RESET
GND 6
GND

ATmega32U4 AVR Microcontroller
+5V
R01 10k
22pF C1
!RESET
22pF C2
Y1 16MHz
GND
+5V
AREF
UVCC 2
VCC 14
AVCC 24
RESET 13
XTAL1 17
XTAL2 16
AREF 42
VBUS 7
D+ 4 D+
D- 3 D-
UCAP 6
C3 1uF
GND
ATmega32U4-AU
U1
PB0 8 DIMMER S0 GND
PB1 9
PB2 10 SCK
PB3 11 MOSI
PB4 28 MISO
PB5 29
PB6 30
PB7 12
PC6 31
PC7 32 LED_PWM
PD0 18 KEY1
PD1 19 KEY2
PD2 20 KEY3
PD3 21 KEY4
PD4 25
PD5 22
PD6 26
PD7 27
HWB/PE2 33
PE6 1
PF0 41
PF1 40
PF4 39
PF5 38
PF6 37
PF7 36
UGND 5
GND 15
GND

LED Driver
+5V
LED_PWM R6 7k5 Q1 Q_PNP_BCE
R07 50 LED1
R08 50 LED2
R09 50 LED3
R10 50 LED4

Rev 2 Changes:
- No key matrix - each key connected directly to a gpio pin.
- No LED driver, instead LEDs controlled via PWM and transistor.
- Removed external pull-up from dimmer push-button.

Sheet: /
File: macr0.sch
Title: macr0 – USB HID 2x2 Button Matrix with LED Illumination
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