

USB_C_Receptacle_USB2.0_16P

Diagram showing the USB_C_Receptacle_USB2.0_16P connector. The connector is represented by a yellow rectangle with a USB symbol and a shield. The pins and their connections are as follows:

- VBUS (A4):** Connected to VBUS.
- CC1 (A5):** Connected to CC1, which is connected to Rcc2 (5.1kΩ) and GND.
- CC2 (B5):** Connected to CC2, which is connected to Rcc1 (5.1kΩ) and GND.
- D- (A7):** Connected to D-.
- D- (B7):** Connected to D-.
- D+ (A6):** Connected to D+.
- D+ (B6):** Connected to D+.
- SBU1 (A8):** Connected to SBU1.
- SBU2 (B8):** Connected to SBU2.
- SHIELD:** Connected to GND.
- S1:** Connected to GND.
- A1:** Connected to GND.

The diagram shows a PMOS/NMOS driver circuit. The PMOS transistor (PMOS CJ2301) has its source connected to VBUS and its gate to a 5V supply. Its drain is connected to the gate of the NMOS transistor (NMOS CJ2302) and to a 100kΩ pull-up resistor (Rp) connected to VBUS. A 100nF capacitor (Cp) is connected between VBUS and the node between the PMOS drain and the pull-up resistor. The NMOS transistor has its source connected to GND and its gate to the same node. Its drain is connected to the Mode Button through a 1MΩ resistor (RN). The Mode Button is also connected to GND through a 330Ω resistor (RLatch). The Mode Button is labeled "Mode Button" and "SWMode Mode Button".

The diagram shows a 5V input connected to a voltage divider consisting of R_{up} (22k Ω) and R_{down} (33k Ω). The output of the divider is connected to an ADC pin. A separate LDO regulator (U2, ME6211C33M5) is shown, which takes the 5V input and provides a regulated 3V3 output. The LDO's input is connected to CLDO_IN through a 1 μ F capacitor, and its output is connected to CLDO_OUT through a 1 μ F capacitor. The LDO's ground is connected to GND.

5V

CLLED_IN
10µF

PWM

1kΩ
RCTRL

U3
SGM3732

LED
10µH

DLED
MBR0540

CLLED_OUT
470nF

LEDK

RSET
10Ω

D1 LED

D2 LED

D3 LED

D4 LED

D5 LED

LEDK

GND

GND

GND

GND

PWM Dimming Frequency: 2kHz – 60kHz
LED Brightness controlled by duty cycle

$R_{SET} = 200mV / I_{max}$
 $10\Omega \rightarrow I_{max} = 20mA$

Up to 10 LEDs

Title: CH32V003 SGM3732 Portable LED Light

Rev: V1.0
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