## USB-Connector Place RN1 as close as postible to USB-Connector! USB\_D+ and USB\_D- must be routed as a differential pair. By naming them uith \_N and \_P Eagle automatically routes both traces when placing traces in board layout. It uses the DRU and/or net class values. See EAGLE-Menu Edit->Net classes for the values in this example board V1A 32 198158<del>1</del>-1<sub>000</sub>/100 Switching Regulation 3.3V based on Sparkfuns Power Cell Schematics: https://www.sparkfun.com/products/11231 This suitching regulator has been used in a LIPIO based project. If you are running your board only USB-connected this circuit is overkill, use a simple 3.30 Lou dropout regulator in a SOC 223 package for easier soldering and board layout. But it's important to get a clean, noise free 3.30 pour supply and it should be able to provide a minimum of 150mA (this circuit is able to provide 380 mA) 3 < uc VIN EN PS UVLO GND PAD PAD VOUT VAUX FB PGND PAD PAD R4 W 220k 0.1uF PAD PGND PGND GND PGND 220k GNE GND MCU MCU based on the amazing Teensy 3.1, developed by Paul J Stoffregen and pjrc.com VREGIN VOUT33 C18 C19 VDD 0.1u 13 ADC0\_DM0 ADC0\_DP0 VDDA C17 VREFH C16 F 0.1uF VREF\_OUT 2.2uF C11 PTC7 PTC6 PTC4 PTC3 PTD3 PTD2 PTD4 PTD7 PTA13 PTA12 PTD0 PTB17 PTB16 51 49 46 60 59 61 64 29 28 57 40 USB\_D\_N USB0\_DM USB\_D\_P USB0 DP PTA18 16Mhz/8pF = Y2G\$1 12 EXTAL32 VBAT ADC0 DM3 26 41 1 56 55 53 PTA4 PTB18 PTC0 PTC11 PTC10 PTC8 PTC9 PTE1 PTB19 PTA5 PTA1 PTA3 PTA0 PTA2 592 2 42 27 P5 2 P3.2 11 LDOCAP RESET\_B ADC0 DP3 AVSS VSS P2.5 P1.4 18 4\*3 DAC0 PROGRAM MINI54TAN MK20DX256ULHZ RESET B C14 0.1uF

Released under the Creative Commons Attribution Share-Alike 4.0 License https://creativecommons.org/licenses/by-sa/4.0/

Parts of this these schematics were inspired/taken from Teensy 3.1 schematics published by Paul J. Stoffregen at www.pjrc.com and Sparkfuns Power Cell schematics (https://www.sparkfun.com/products/11231) These schematics have been successfully working in a real world project and are provided as a reference for your oun custom board.