BIDIRECTIONAL DC DC CONVERTER VOLTAGE SELECTION SIDE MCU **USB** Voltage Input (18V ~ 30V) Voltage Output(7 ~ 55) RELAY_1 J2 USB_B A_Side 5V K1 SRD-05VDC-SL-C C11 R11 10K DATA_PIN_1 DATA_PIN_2 R1_OUTPUT 1N4004 5V Regulator D1 LED POWER XTAL1/PB6 C13 XTAL2/PB 1000uF 1N5822 **USB/SERIAL CONVERSOR** R6 1K RELAY_2 ATmega328P-P B_Side_ADC D2 D3 LED LED 17V Regulator 5V RESET/PC6 U2 LT1083-ADJ R2_OUTPUT R15 220 22pF R1 = 1.25/5A = 0.25 Ohms -> 6.25W (High Power) GND1 Vr = (Vout - 1.25) = (17V - 1.25V) = 15.75VRELAY_3 K2 SRD-05VDC-SL-C **Voltage Monitoring** DISPLAY LCD - DEBUG/MONITORING 16x2 LCD R3_OUTPUT U5 LCD-16X2 **GATE DRIVERS** B_Side A_Side > R47 47 B_Side_ADC A_Side_ADC 1-D D19 1N5338BG D18 1N5338BG Q32 IRLZ4 D22 RELAY_4 1N4004 170 **SWITCHERS** 17V K4 SRD-05VDC-SL-C 5V IR2104 IRLZ44N A_Side B_Side PWR_FLAG R4_OUTPUT D 1N4004 R16 220 GND 🕁 GND 🕂 1N4004 17V R50 220 Screw_Terminal_01x02 IR2104 C19 R2_OUTPUT 1 Q10 IRLZ44N 1-D Final Year Project By Electronic Engineering - IFSP (Federal Institute of São Paulo) PWR_FLAG R51 220 GND 🕁 Sheet: / File: DC_DC_CONVERTER.kicad_sch IRLZ44N Title: BIDIRECTIONAL DC DC CONVERTER BIDIRECTIONAL DC DC CONVERTER