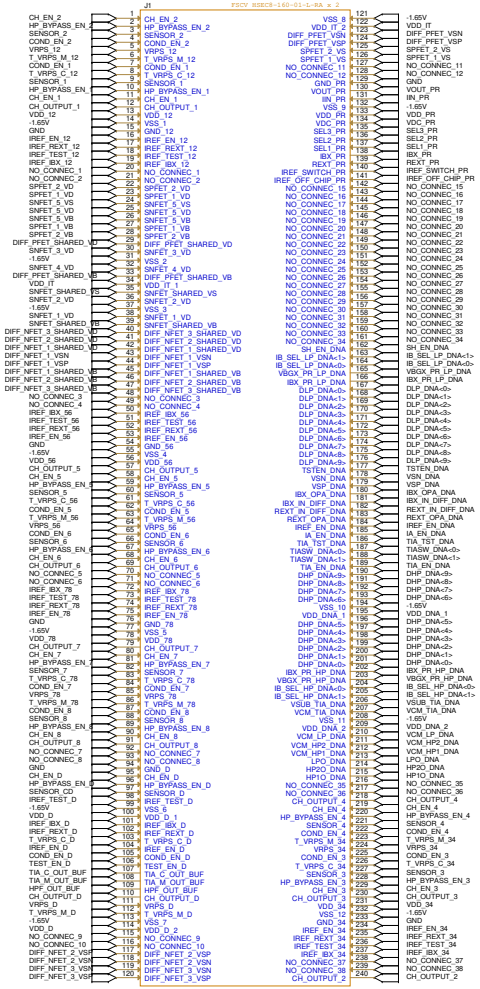
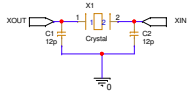
CARD EDGE CONNECTOR

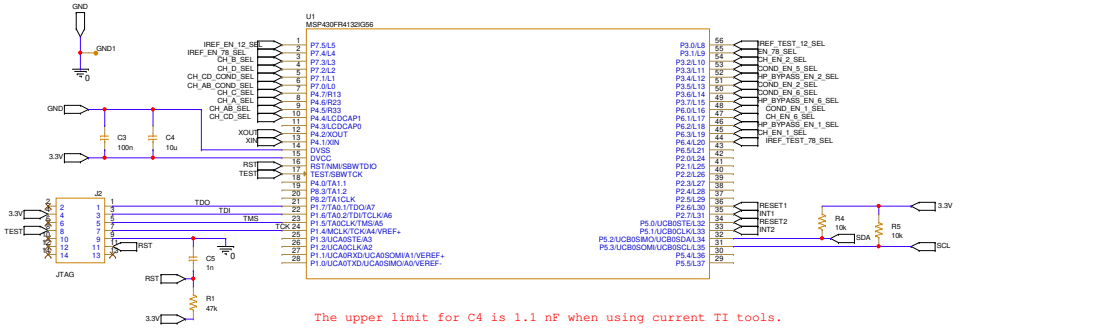
Total 240 pins
Card edge pin 142-240 is connected to 170-268 on chip pad
FSCV chip don't have connection from chip pad 142 to 189



32kHz OSCILLATOR



MICROCONTROLLER



The upper limit for C4 is 1.1 nF when using current TI tools.

TI recommends connecting a combination of a 10-µF plus a 100-nF low-ESR ceramic decoupling capacitor to each AVCC and DVCC pin.

4-Wire JTAG Communication is used

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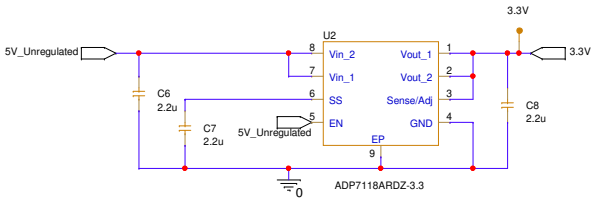
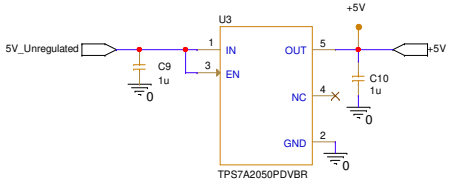
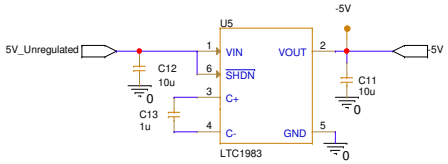
3.3V Generation : For the MCU and IOExpander



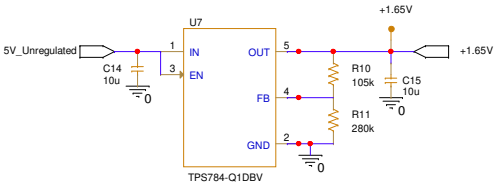
+/-5V Generation : for the electronic switches

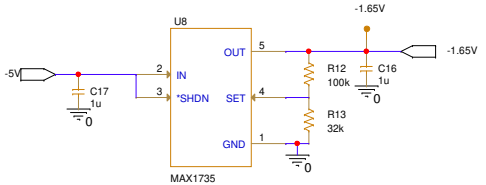


Low noise Linear Voltage regulator
Maximum output current of 300mA
output accuracy of 0.5% typical



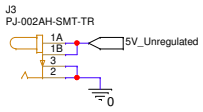
+/-1.65V Generation : VDD and VSS for the chip





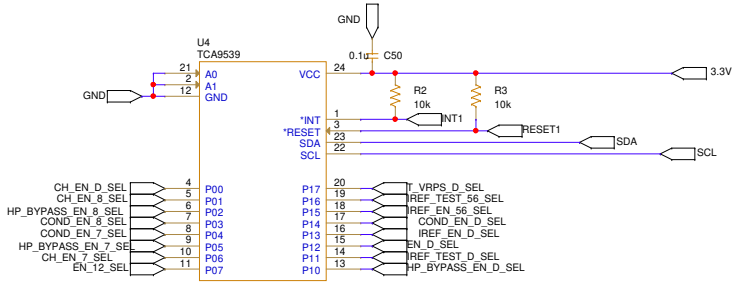
Uses the regulated -5V for generating -1.65V

Power Jack

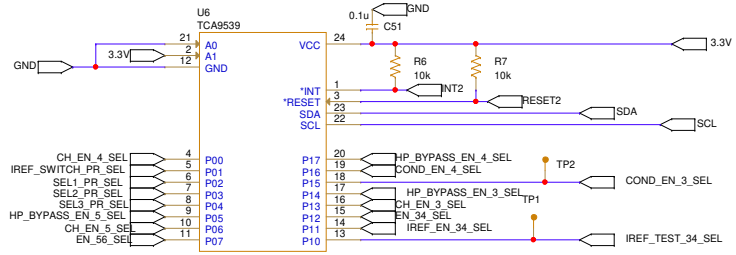


IO Expander for MCU

INT, RESET, SDA and SCL requires pull-up resistors to VCC
Each device has programmable 16bits
Uses I2C protocol for writing to and reading from registers in the device
A0 and A1 can be connected to VCC or GND for configuring address of the device



Device address configured as 1110100 (A0 = A1 = 0)



Device address configured as 1110110 (A0 = 0, A1 = 1)

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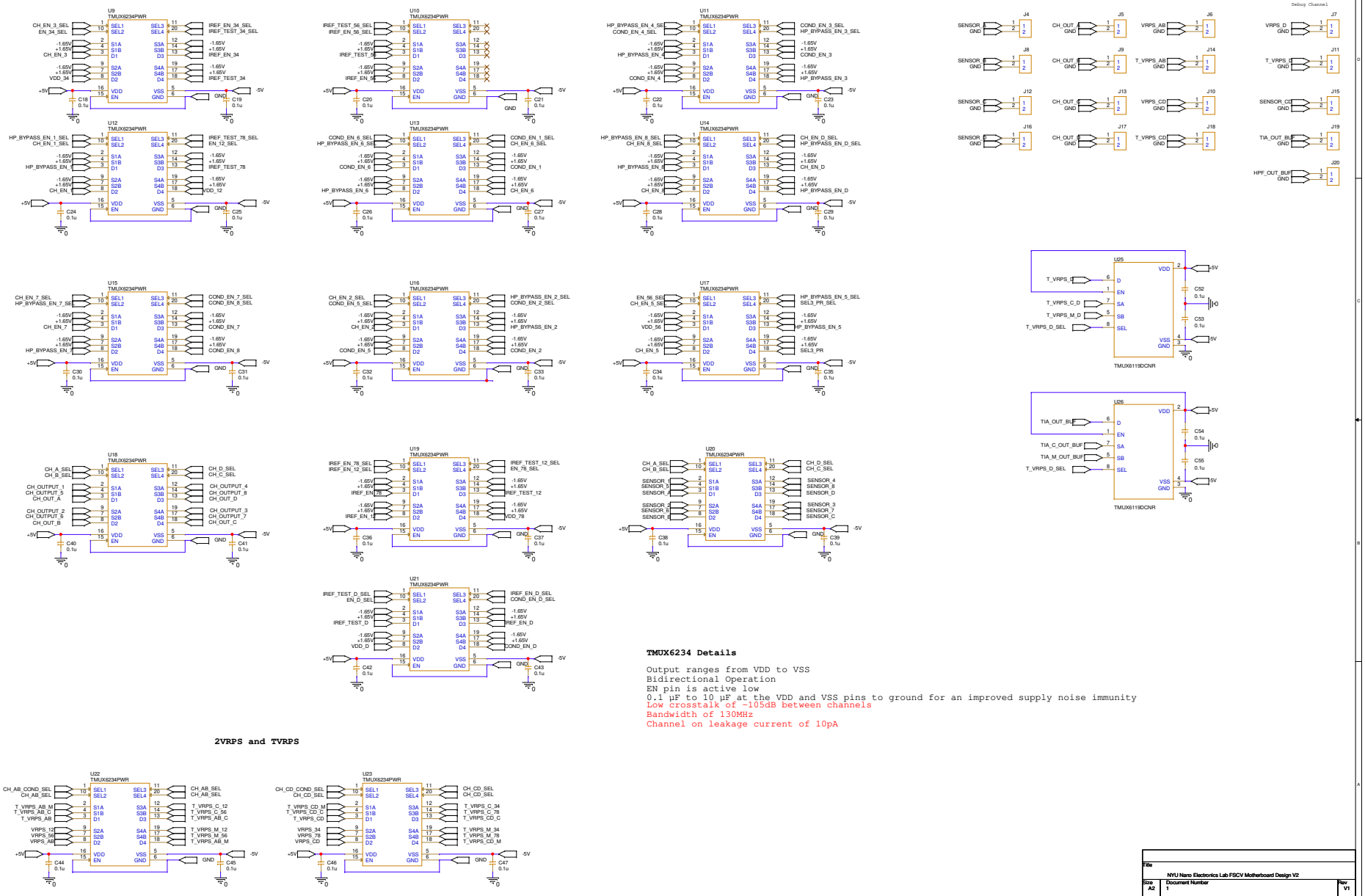
INPUT OUTPUT PORTS
Debug Channel
J4 SENSOR_A GND
J5 CH_OUT_A GND
J6 VRPS_AB GND
J7 VRPS_D GND
J8 SENSOR_B GND
J9 CH_OUT_B GND
J14 T_VRPS_AB GND
J11 T_VRPS_D GND
J12 SENSOR_C GND
J13 CH_OUT_C GND
J10 VRPS_CD GND
J15 SENSOR_CD GND
J16 SENSOR_D GND
J17 CH_OUT_D GND
J18 T_VRPS_CD GND
J19 TIA_OUT_BUF GND
J20 HPF_OUT_BUF GND
U9 TMUX6234PWR
CH_EN_3_SEL EN_34_SEL CH_EN_3 VDD_34 IREF_EN_34_SEL IREF_TEST_34_SEL IREF_EN_34 IREF_TEST_34
U10 TMUX6234PWR
IREF_TEST_56_SEL IREF_EN_56_SEL IREF_TEST_56 IREF_EN_56
U11 TMUX6234PWR
HP_BYPASS_EN_4_SEL COND_EN_4_SEL HP_BYPASS_EN_4 COND_EN_4 COND_EN_3_SEL HP_BYPASS_EN_3_SEL COND_EN_3 HP_BYPASS_EN_3
U12 TMUX6234PWR
HP_BYPASS_EN_1_SEL CH_EN_1_SEL HP_BYPASS_EN_1 CH_EN_1 IREF_TEST_78_SEL EN_12_SEL IREF_TEST_78 VDD_12
U13 TMUX6234PWR
COND_EN_6_SEL HP_BYPASS_EN_6_SEL COND_EN_6 HP_BYPASS_EN_6 COND_EN_1_SEL CH_EN_6_SEL COND_EN_1 CH_EN_6
U14 TMUX6234PWR
HP_BYPASS_EN_8_SEL CH_EN_8_SEL HP_BYPASS_EN_8 CH_EN_8 CH_EN_D_SEL HP_BYPASS_EN_D_SEL CH_EN_D HP_BYPASS_EN_D
U15 TMUX6234PWR
CH_EN_7_SEL HP_BYPASS_EN_7_SEL CH_EN_7 HP_BYPASS_EN_7 COND_EN_7_SEL COND_EN_8_SEL COND_EN_7 COND_EN_8
U16 TMUX6234PWR
CH_EN_2_SEL COND_EN_5_SEL CH_EN_2 COND_EN_5 HP_BYPASS_EN_2_SEL COND_EN_2_SEL HP_BYPASS_EN_2 COND_EN_2
U17 TMUX6234PWR
EN_56_SEL CH_EN_5_SEL VDD_56 CH_EN_5 HP_BYPASS_EN_5_SEL SEL3_PR_SEL HP_BYPASS_EN_5 SEL3_PR
U18 TMUX6234PWR
CH_A_SEL CH_B_SEL CH_OUTPUT_1 CH_OUTPUT_5 CH_OUT_A CH_OUTPUT_2 CH_OUTPUT_6 CH_OUT_B CH_D_SEL CH_C_SEL CH_OUTPUT_4 CH_OUTPUT_8 CH_OUT_D CH_OUTPUT_3 CH_OUTPUT_7 CH_OUT_C
U19 TMUX6234PWR
IREF_EN_78_SEL IREF_EN_12_SEL IREF_EN_78 IREF_EN_12 IREF_TEST_12_SEL EN_78_SEL IREF_TEST_12 VDD_78
U20 TMUX6234PWR
CH_A_SEL CH_B_SEL SENSOR_1 SENSOR_5 SENSOR_A SENSOR_2 SENSOR_6 SENSOR_B CH_D_SEL CH_C_SEL SENSOR_4 SENSOR_8 SENSOR_D SENSOR_3 SENSOR_7 SENSOR_C
U21 TMUX6234PWR
IREF_TEST_D_SEL EN_D_SEL IREF_TEST_D VDD_D IREF_EN_D_SEL COND_EN_D_SEL IREF_EN_D COND_EN_D
U25 TMUX6119DCNR
T_VRPS_C T_VRPS_C_D T_VRPS_M_D T_VRPS_D_SEL
U26 TMUX6119DCNR
TIA_OUT_BUF TIA_C_OUT_BUF TIA_M_OUT_BUF T_VRPS_D_SEL
TMUX6234 Details
Output ranges from VDD to VSS
Bidirectional Operation
EN pin is active low
0.1 µF to 10 µF at the VDD and VSS pins to ground for an improved supply noise immunity
Low crosstalk of -105dB between channels
Bandwidth of 130MHz
Channel on leakage current of 10pA
2VRPS and TVRPS
U22 TMUX6234PWR
CH_AB_COND_SEL CH_AB_SEL T_VRPS_AB_M T_VRPS_AB_C T_VRPS_AB VRPS_12 VRPS_56 VRPS_AB CH_AB_SEL CH_AB_SEL T_VRPS_C_12 T_VRPS_C_56 T_VRPS_AB_C T_VRPS_M_12 T_VRPS_M_56 T_VRPS_AB_M
U23 TMUX6234PWR
CH_CD_COND_SEL CH_CD_SEL T_VRPS_CD_M T_VRPS_CD_C T_VRPS_CD VRPS_34 VRPS_78 VRPS_CD CH_CD_SEL CH_CD_SEL T_VRPS_C_34 T_VRPS_C_78 T_VRPS_CD_C T_VRPS_M_34 T_VRPS_M_78 T_VRPS_CD_M
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NYU Nano Electronics Lab FSCV Motherboard Design V2
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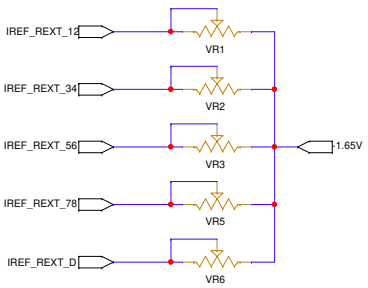
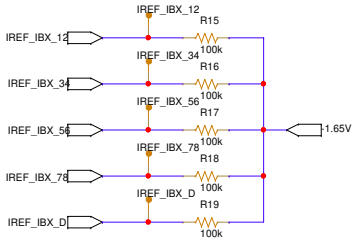
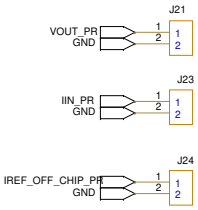
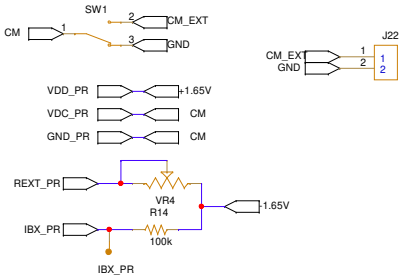
CURRENT GENERATION AND MEASUREMENT

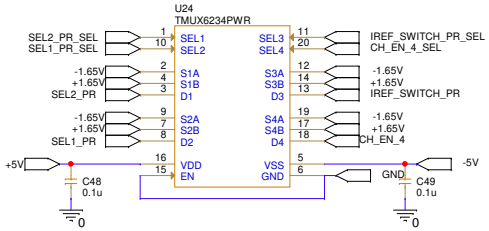






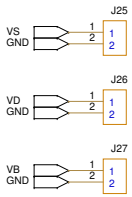
PSEUDO RESISTOR

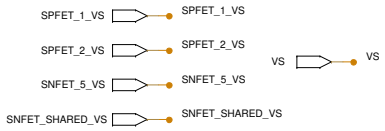


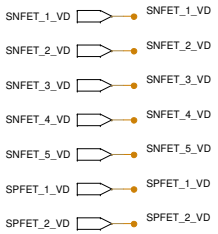


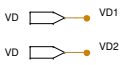
INDIVIDUAL TRANSISTORS

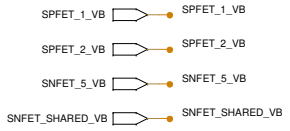
Shorting blocks are used to make connections
Added connections to three individual transistors SPFET_2, SPFET_1 and SNFET_5











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