REVISION HISTORY

REV	DESCRIPTION	CAT	DWN	ENGR	
A	INITIAL RELEASE	II	-	-	SEE JPL DATA MANAGEMENT SYSTEM FOR APPROVAL SIGNATURES AND DATES
B	CORRECTED R79 & R97. PREPARED FOR UNLIMITED RELEASE.	II	C. SHELTON	C. SHELTON	
C	CHANGE FROM CONCERTO TO DELFINO SUPPORT. ADDED DIFFERENTIAL CURRENT SENSE AND ENCODER OPTIONS.	II	C. SHELTON	C. SHELTON	
D	CHANGED FORM FACTOR. ADDED MCU DIRECTLY TO BOARD. REMOVED ANALOG ENCODER. REMOVED 18-BIT ADC. UPDATED CONNECTORS. ADDED TEMPERATURE/HUMIDITY SENSOR AND 1-WIRE ID CONNECTOR. UPDATED CURRENT-SENSE COMPONENTS.	II	C. SHELTON	C. SHELTON	

Sheet Listing

4. DIAGNOSTIC (AUX) HEADERS MATE WITH SAMTEC TCSD, 2mm PITCH, CABLE ASSEMBLIES.
3. PLACE GND1, GND2, AND GND 3 ON THE FRONT OF THE BOARD NEAR THE EDGES. PLACE GND4, GND5, AND GND6 ON THE REAR SIDE, OPPOSITE THE GNDs ON THE FRONT. LABEL EACH INSTANCE ON THE SILKSCREEN WITH "GND".
2. ALL CAPACITORS ARE 20% TOLERANCE.
1. ALL RESISTORS ARE 1% TOLERANCE.

NOTES: UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DRAWING
INTERPRET DEMENSIONING AND TOLERANCING PER ASME Y14.5 2009
INTERPRET DWG PER ASME Y14.100

10398534	TMT
NEXT ASSEMBLY	USED ON
APPLICATION	

CONTRACT NO _____

DWN	C. SHELTON
ENGR	C. SHELTON

SEE JPL DATA MANAGEMENT SYSTEM FOR APPROVAL SIGNATURES AND DATES

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA, CA 91109

TITLE
SCHEMATIC DIAGRAM, M1 ACTUATOR DRIVER

SIZE	DAI	DWG NO	REV
B	23835	10398533	D

SCALE: NONE | SHEET 1 OF 13

REV 05/2018

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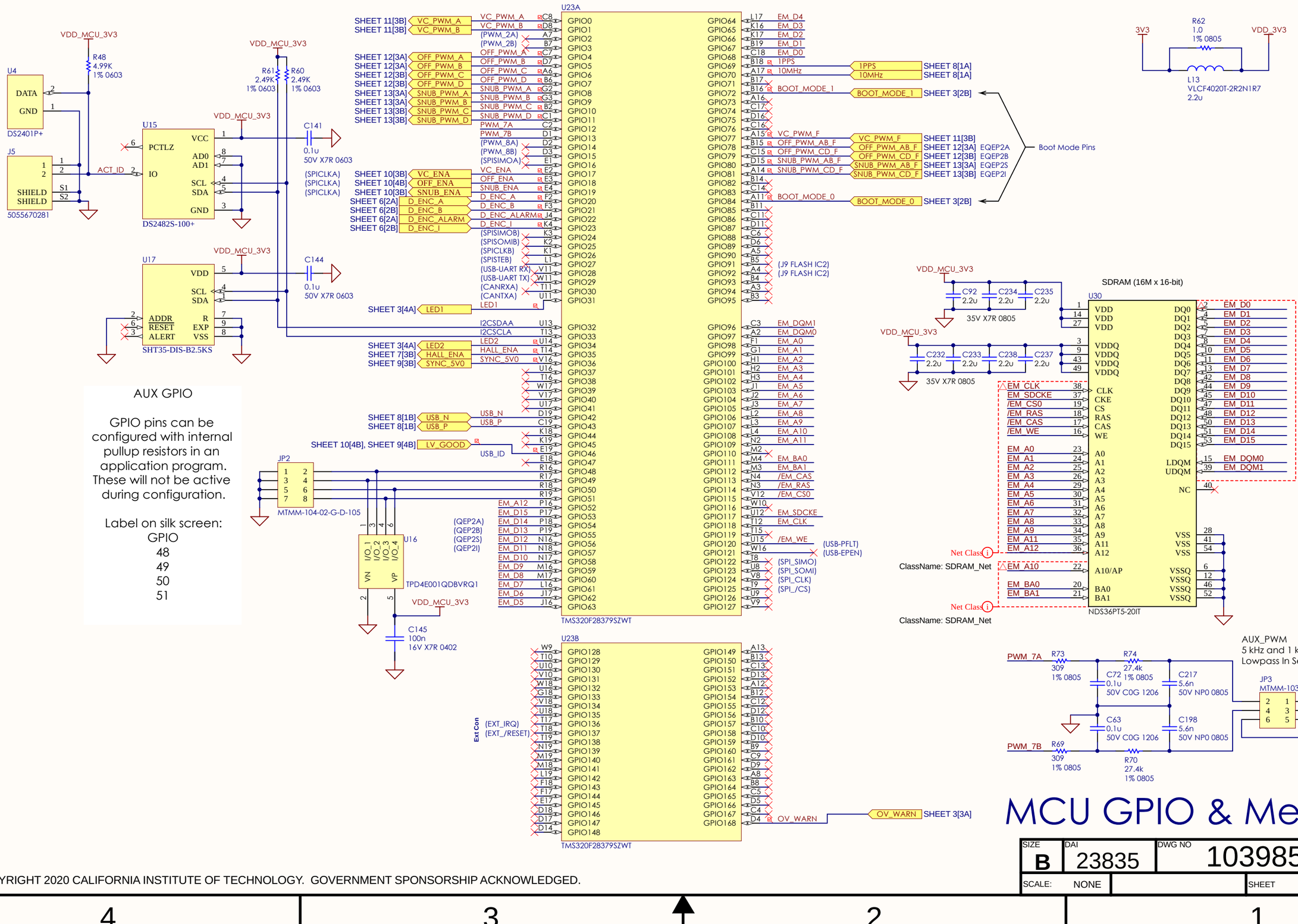
AUX GPIO

GPIO pins can be configured with internal pullup resistors in an application program. These will not be active during configuration.

Label on silk screen:
GPIO
48
49
50
51



SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 2 OF 13	

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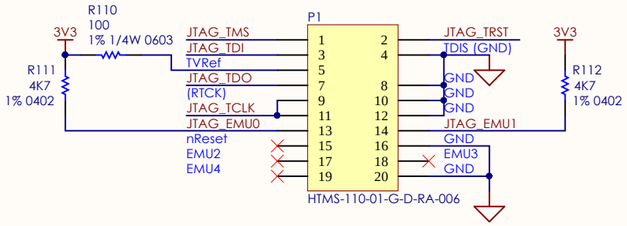
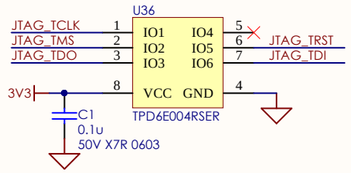
REV 03/2020

JPL_B_SH2

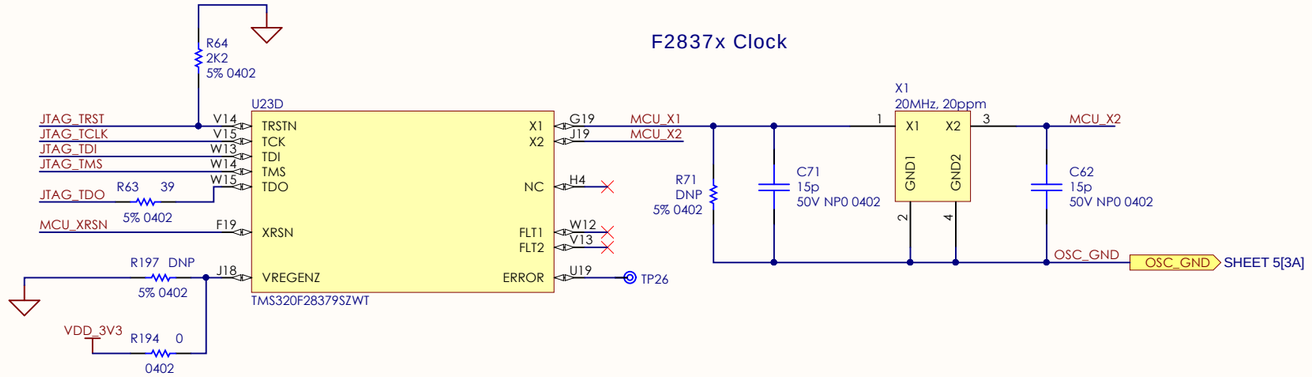
EMULATOR CONNECTOR



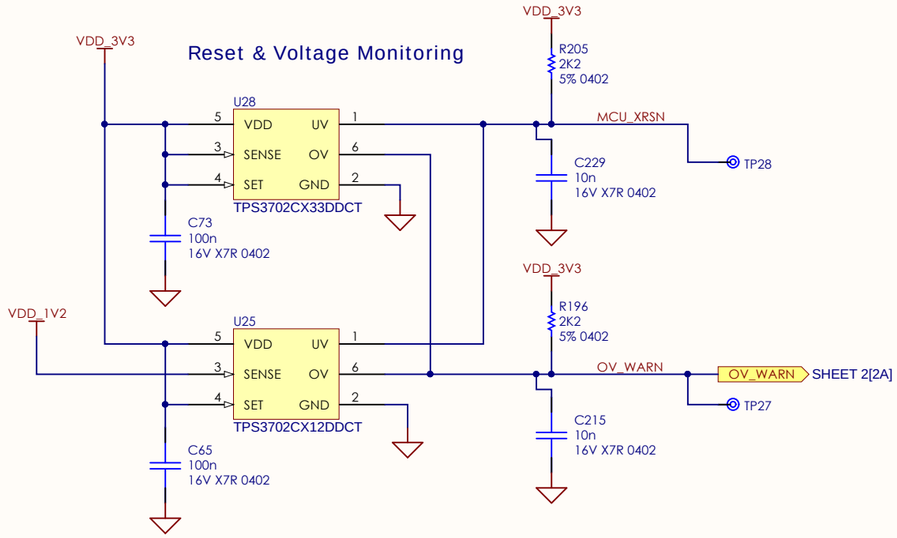
USE SULLINSSFH41-PPPB-D10-ID-BK AS PROTECTIVE CAP



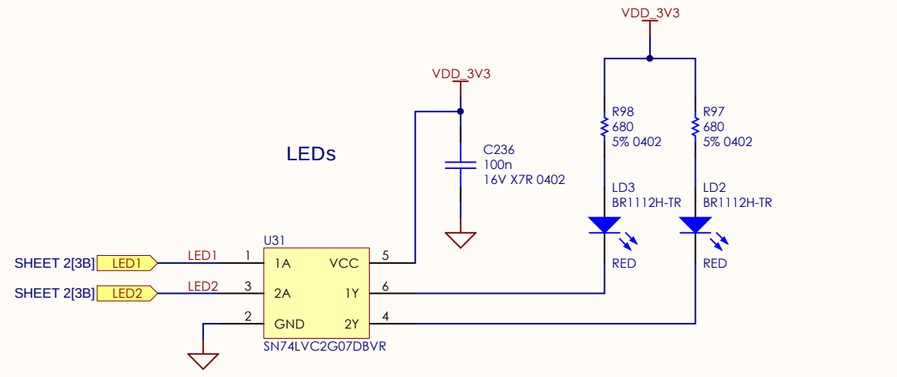
F2837x Clock



Reset & Voltage Monitoring

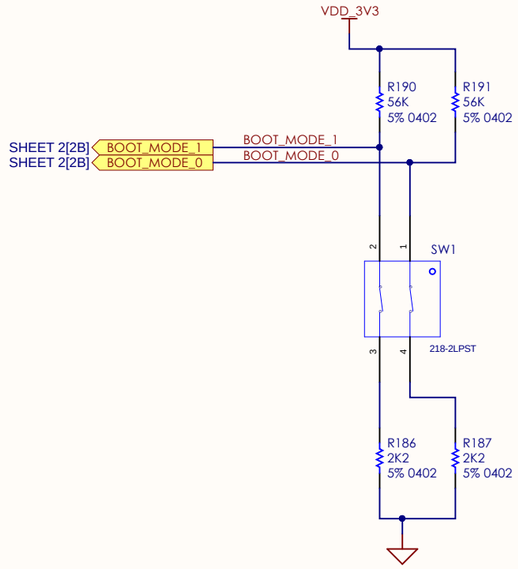


LEDs



Boot Mode Selection Switch

*SW1 placed upside-down (so UP is open (1), DOWN is closed (0))



Selected Boot Mode Chart

(see datasheet for other boot modes and more information)

Mode #	GPIO72	GPIO84	Boot Mode
00	0	0	Boot from Parallel GPIO
01	0	1	Boot from SCI
02	1	0	Wait Boot Mode
03	1	1	Get Mode (Flash by default)

MCU SUPPORT

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 3 OF 13	

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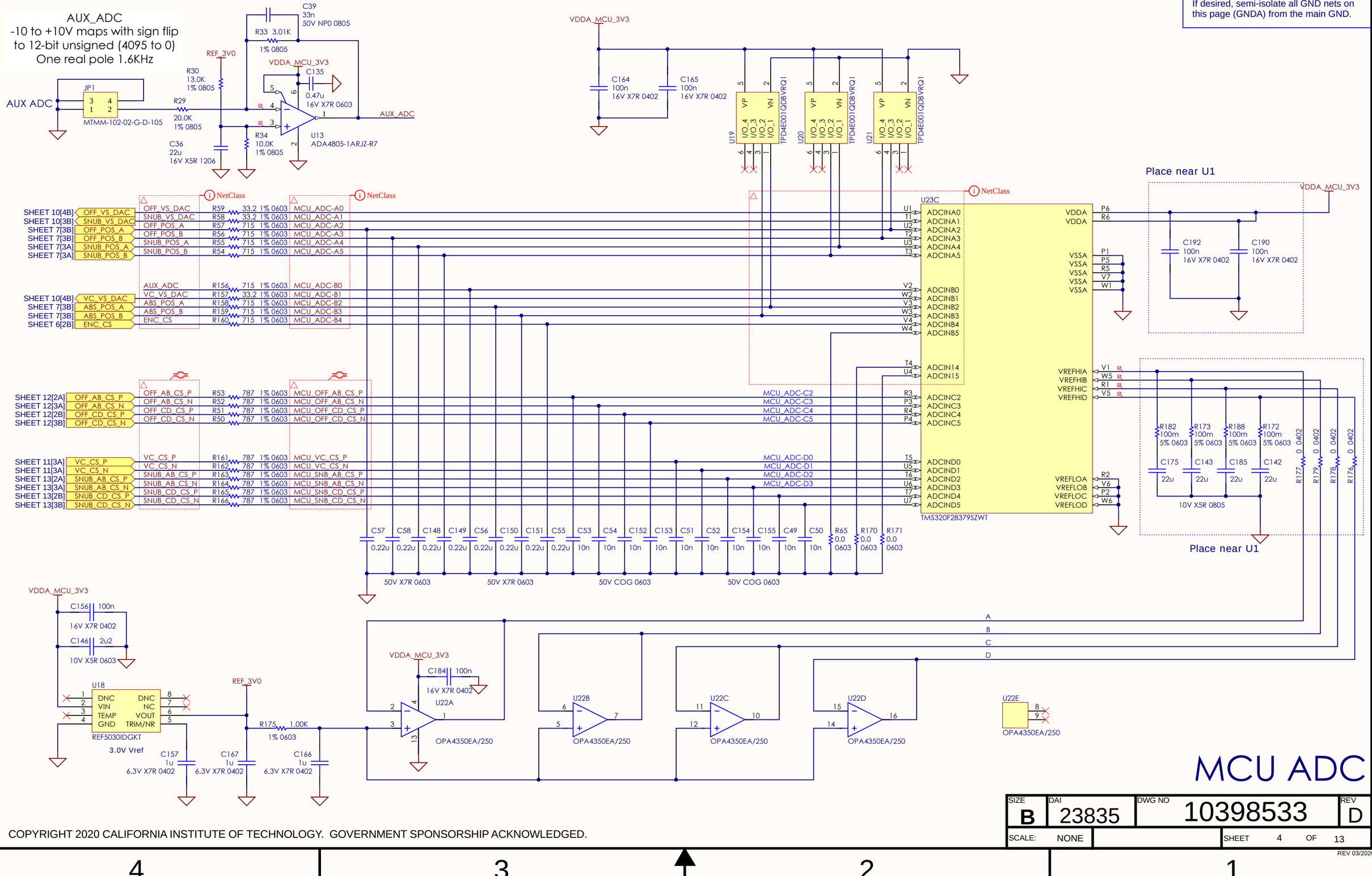
JPL_B_SH2


AUX_ADC
-10 to +10V maps with sign flip
to 12-bit unsigned (4095 to 0)
One real pole 1.6KHz
If desired, semi-isolate all GND nets on this page (GNDA) from the main GND.
Place near U1
Place near U1
MCU ADC
TMS320F28379SZWT
REF5030IDGKT
3.0V Vref
OPA4350EA/250
TPD4E001QDBVRQ1
ADA4805-1ARJZ-R7
MTMM-102-02-G-D-105
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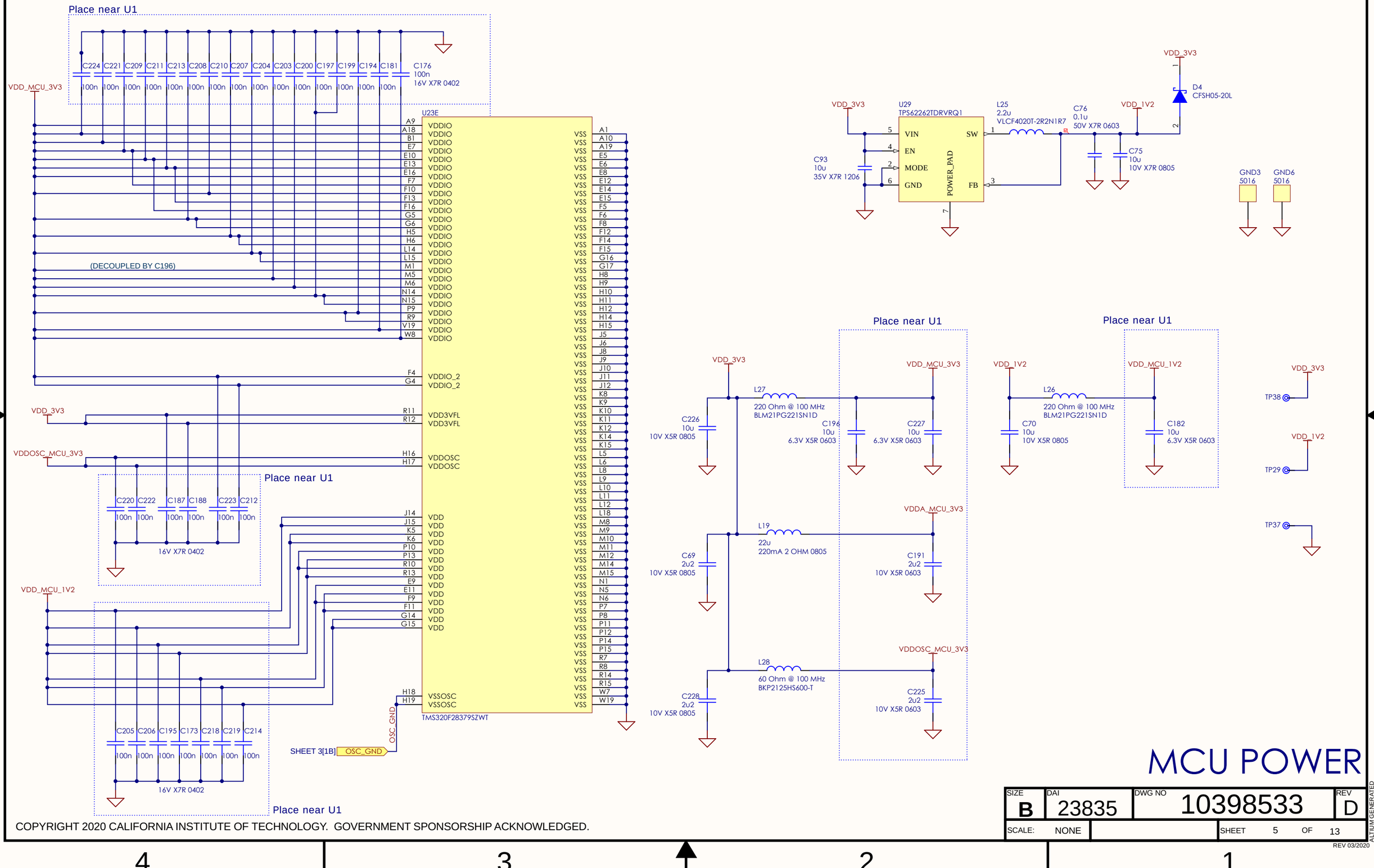
SIZE B
DAI 23835
DWG NO 10398533
REV D
SCALE: NONE
SHEET 4 OF 13
REV 03/2020
ALTIUM GENERATED
JPL_B_SH2



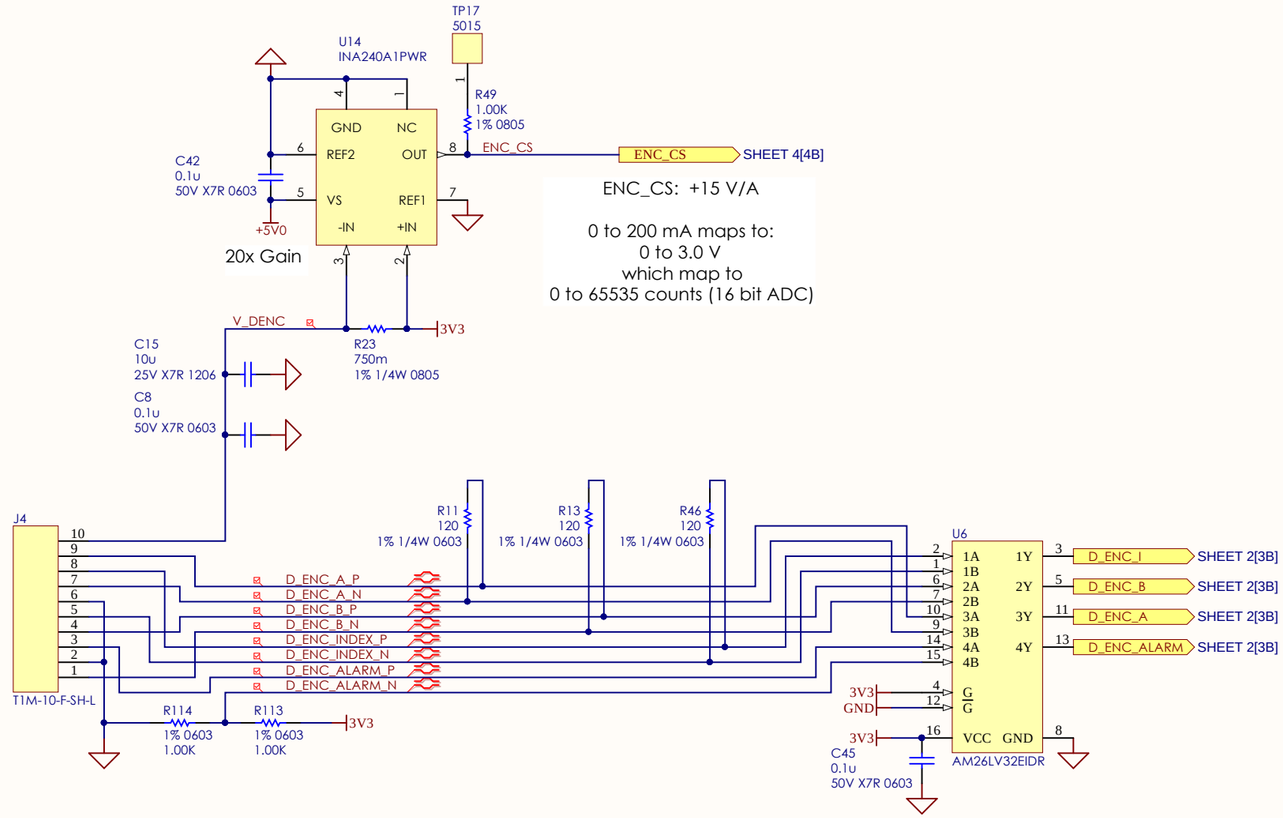
MCU POWER

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 5 OF 13	

REV 03/2020

ALTIUM GENERATED

JPL_B_SH2



DIGITAL ENCODER

Route all paired traces on this page, digital and analog, as 120 ohm differential pairs.

Optionally, remove RS422 terminating resistors: R11, R13, and R46.

Encoders

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 6 OF 13	

REV 03/2020

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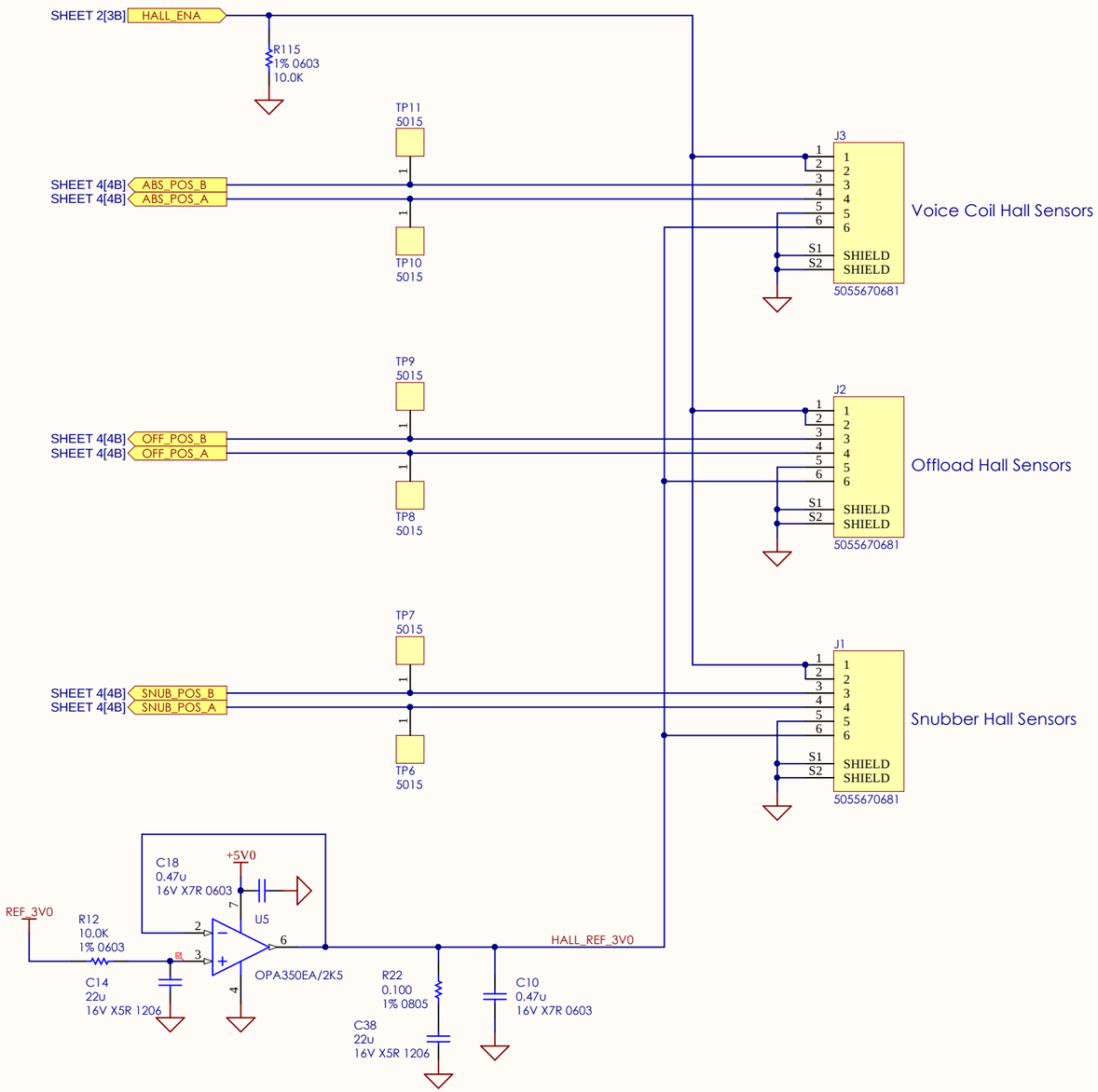


PINOUT FOR HALL SENSORS
Each connector supports two hall sensors.
All sensor pairs are enabled together.

1 nSLEEP2
2 nSLEEP1
3 OUT2
4 OUT1
5 GND
6 VREF/VCC

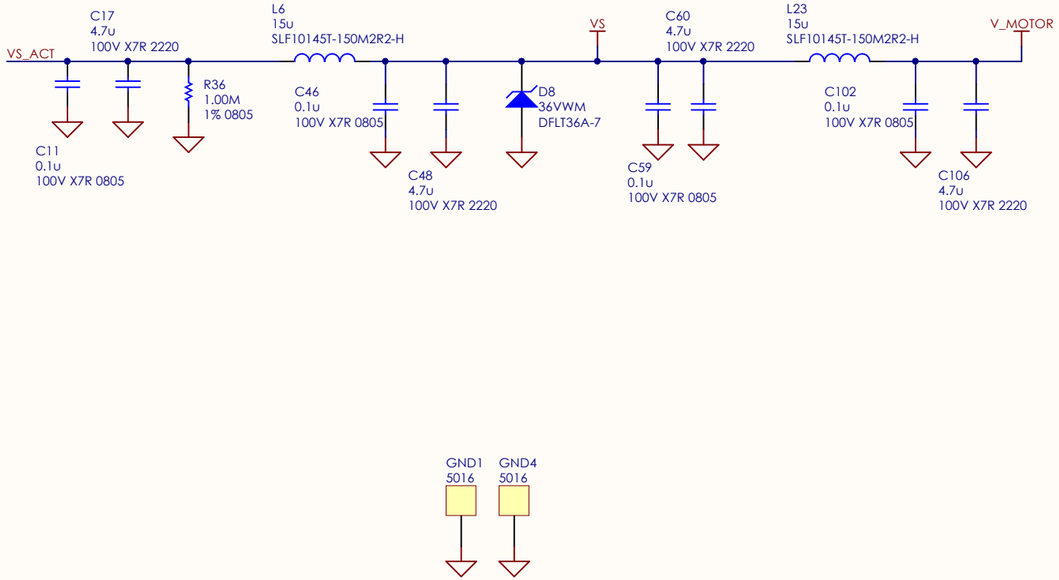
HALL SENSORS

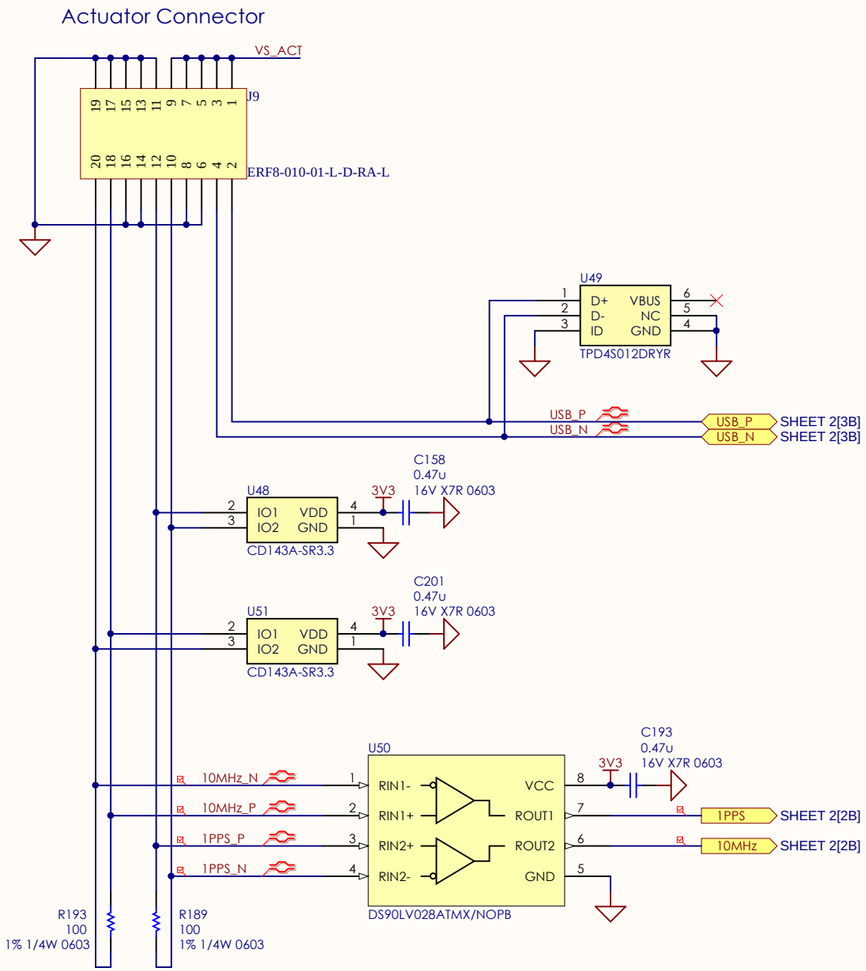
SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 7 OF 13	

REV 03/2020

ALTIUM GENERATED

JPL_B_SH2





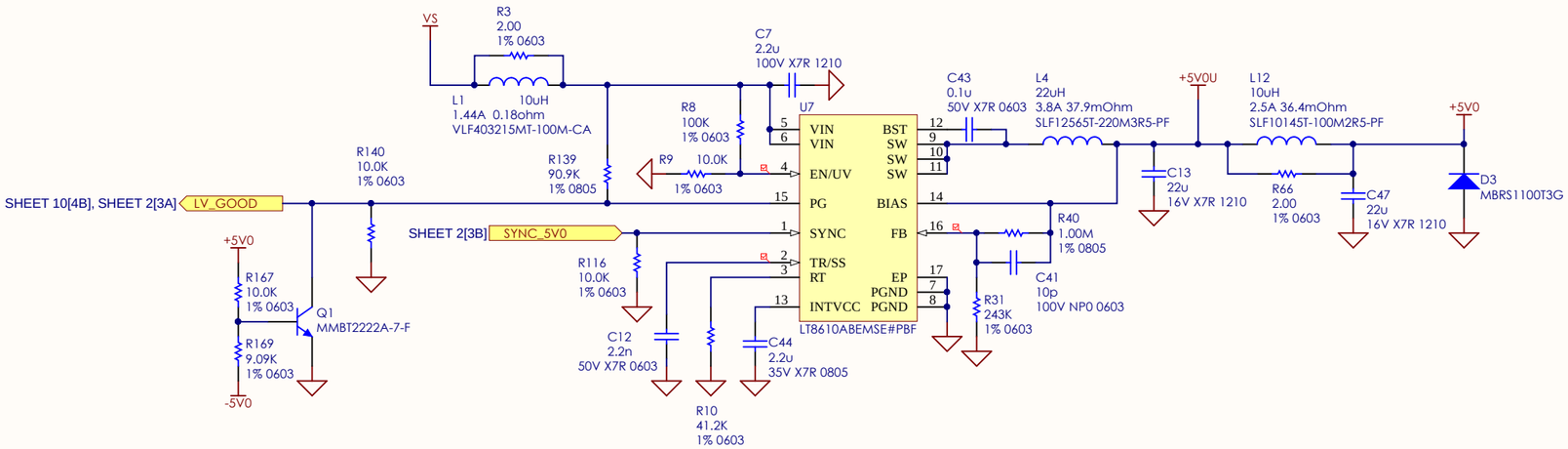
Comm and Power I/O

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 8 OF 13	

REV 03/2020

ALTIUM GENERATED

JPL_B_SH2



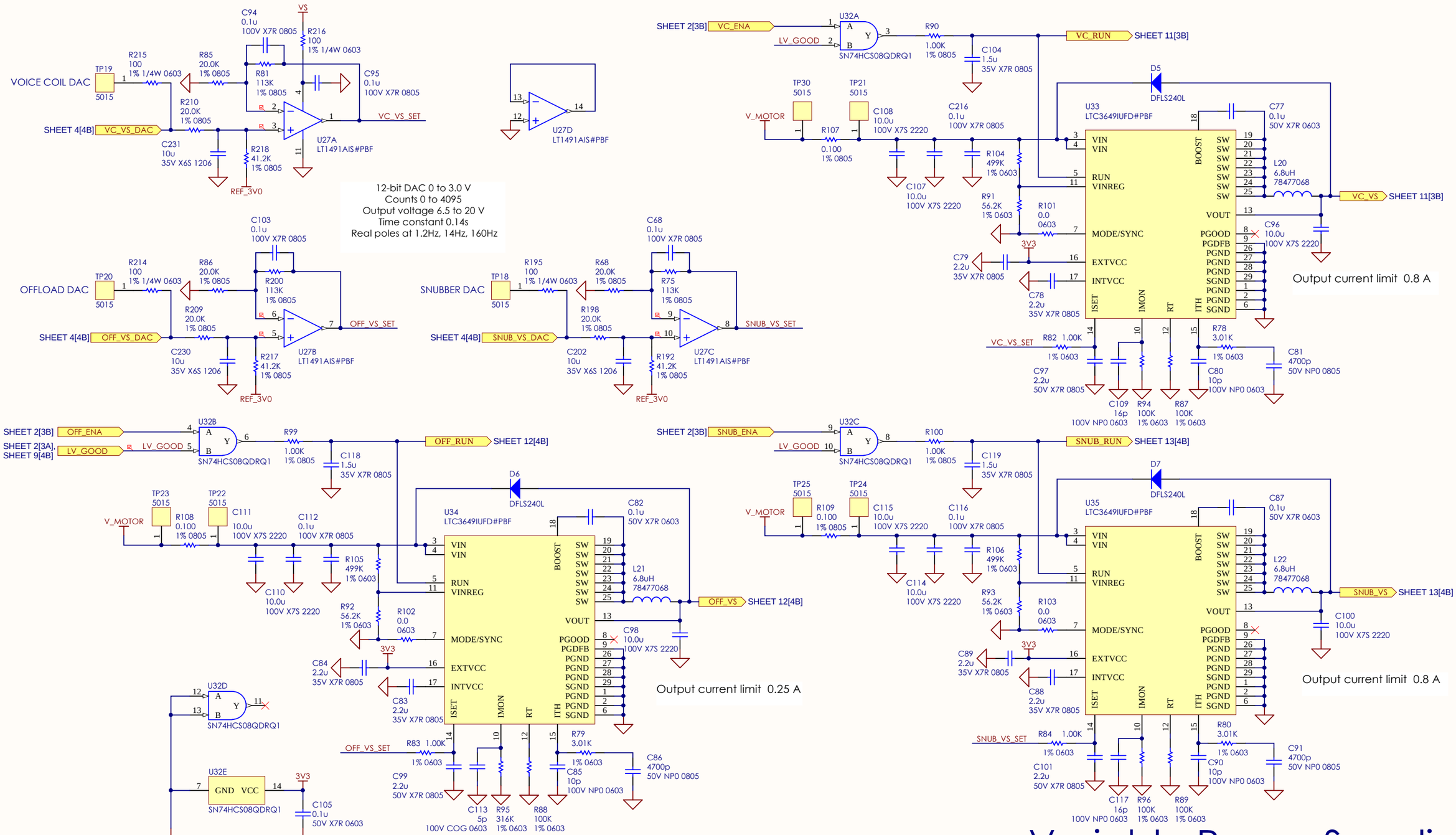
Fixed Power Supplies

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 9 OF 13	

ALTIUM GENERATED

REV 03/2020

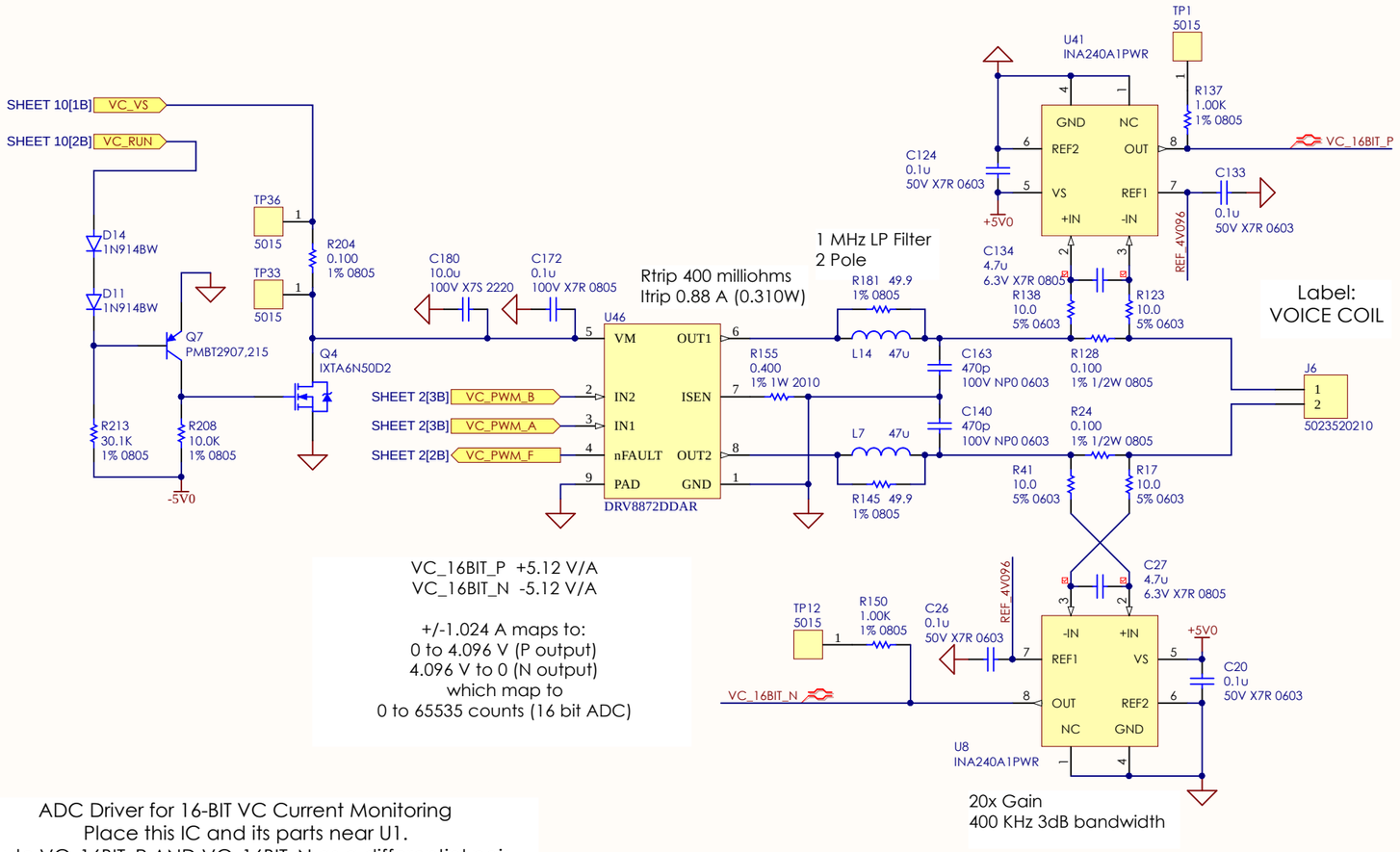
JPL_B_SH2



Variable Power Supplies

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 10 OF 13	

ALTIUM GENERATED
REV 03/2020
JPL_B_SH2



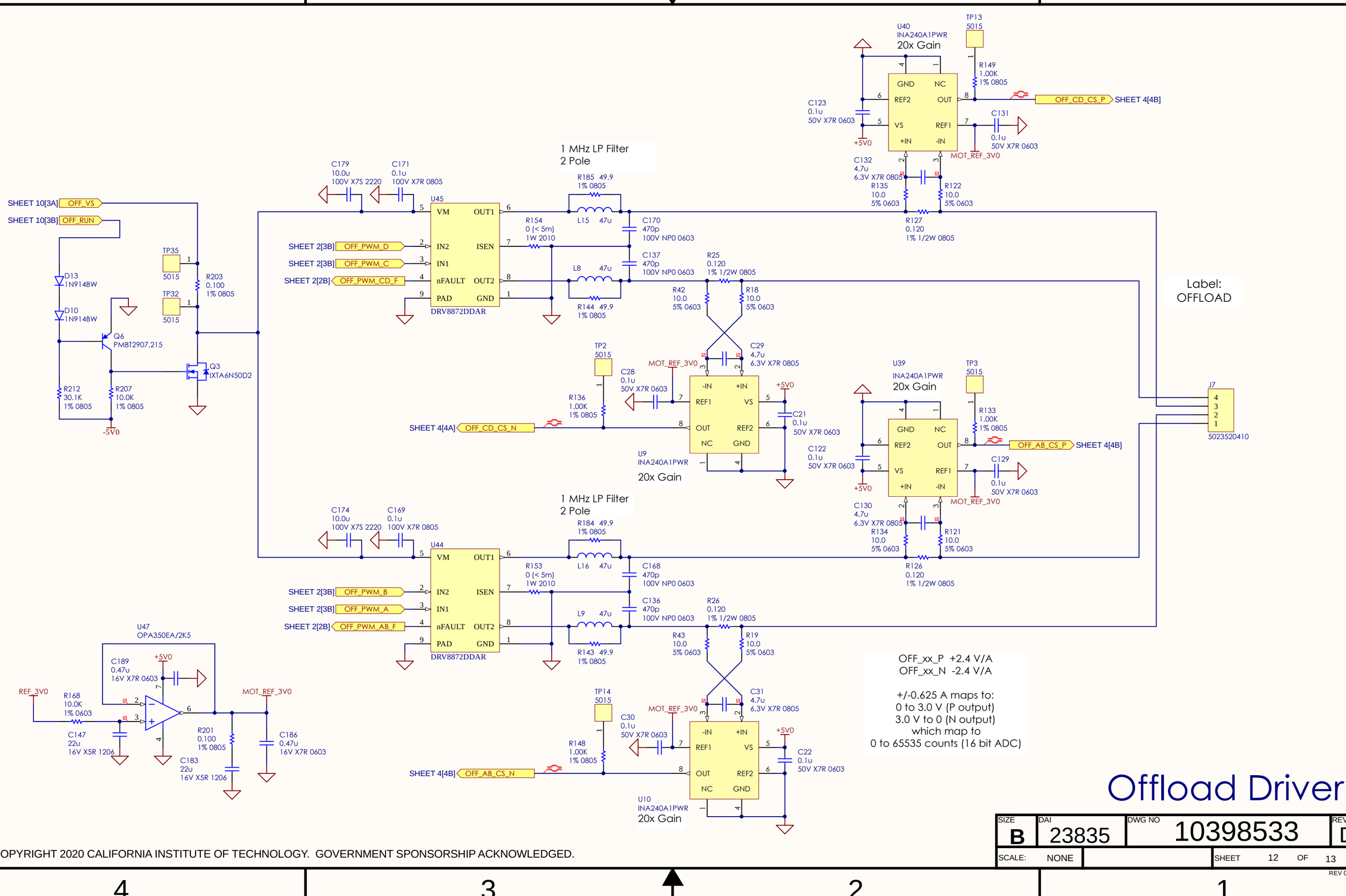
Voice Coil Driver

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 11 OF 13	

REV 03/2020

ALTIUM GENERATED

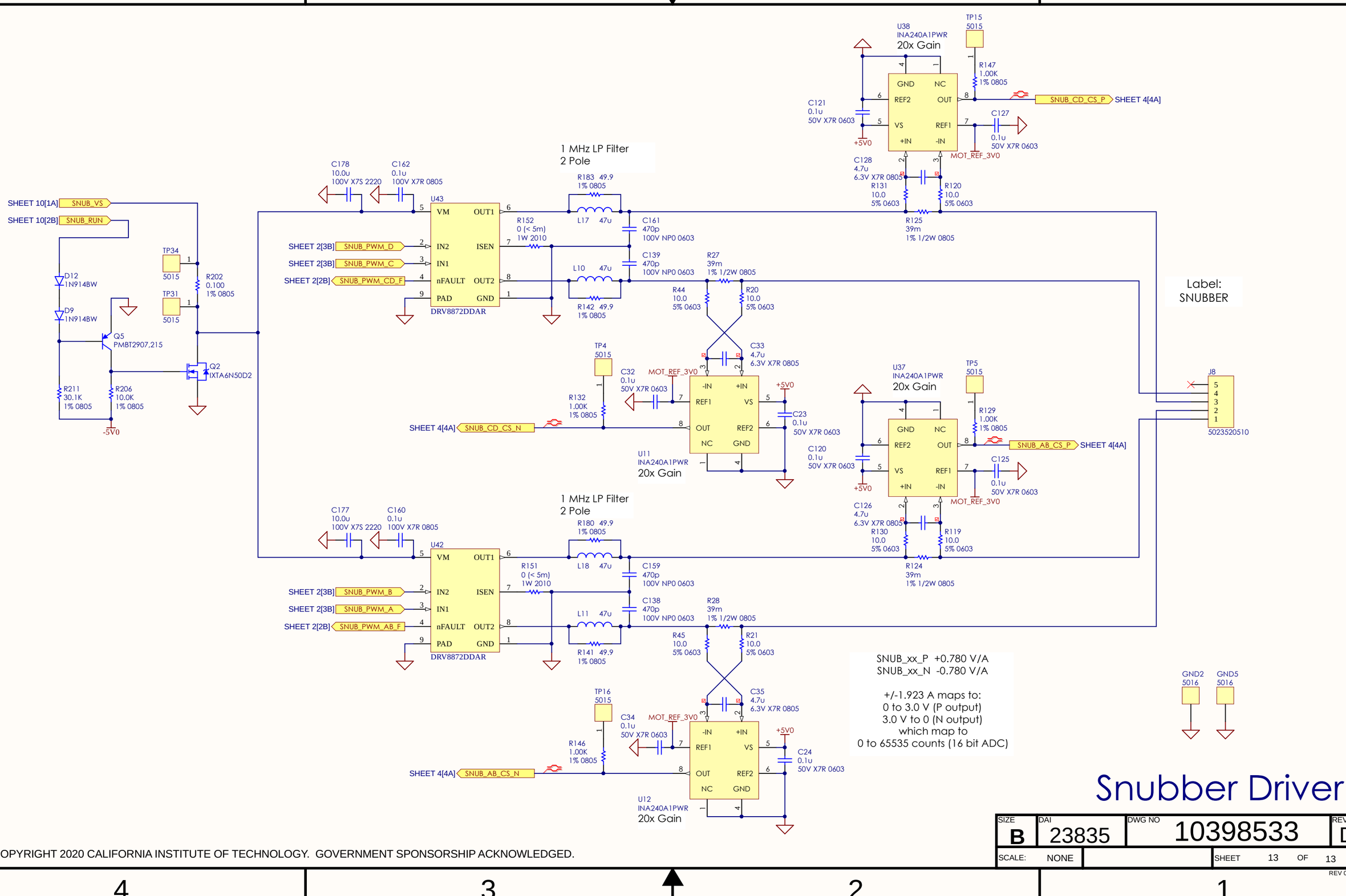
JPL_B_SH2



Offload Driver

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 12 OF 13	

ALTIUM GENERATED
REV 03/2020



Snubber Driver

SIZE	DAI	DWG NO	REV
B	23835	10398533	D
SCALE: NONE		SHEET 13 OF 13	

REV 03/2020

ALTIUM GENERATED

JPL_B_SH2