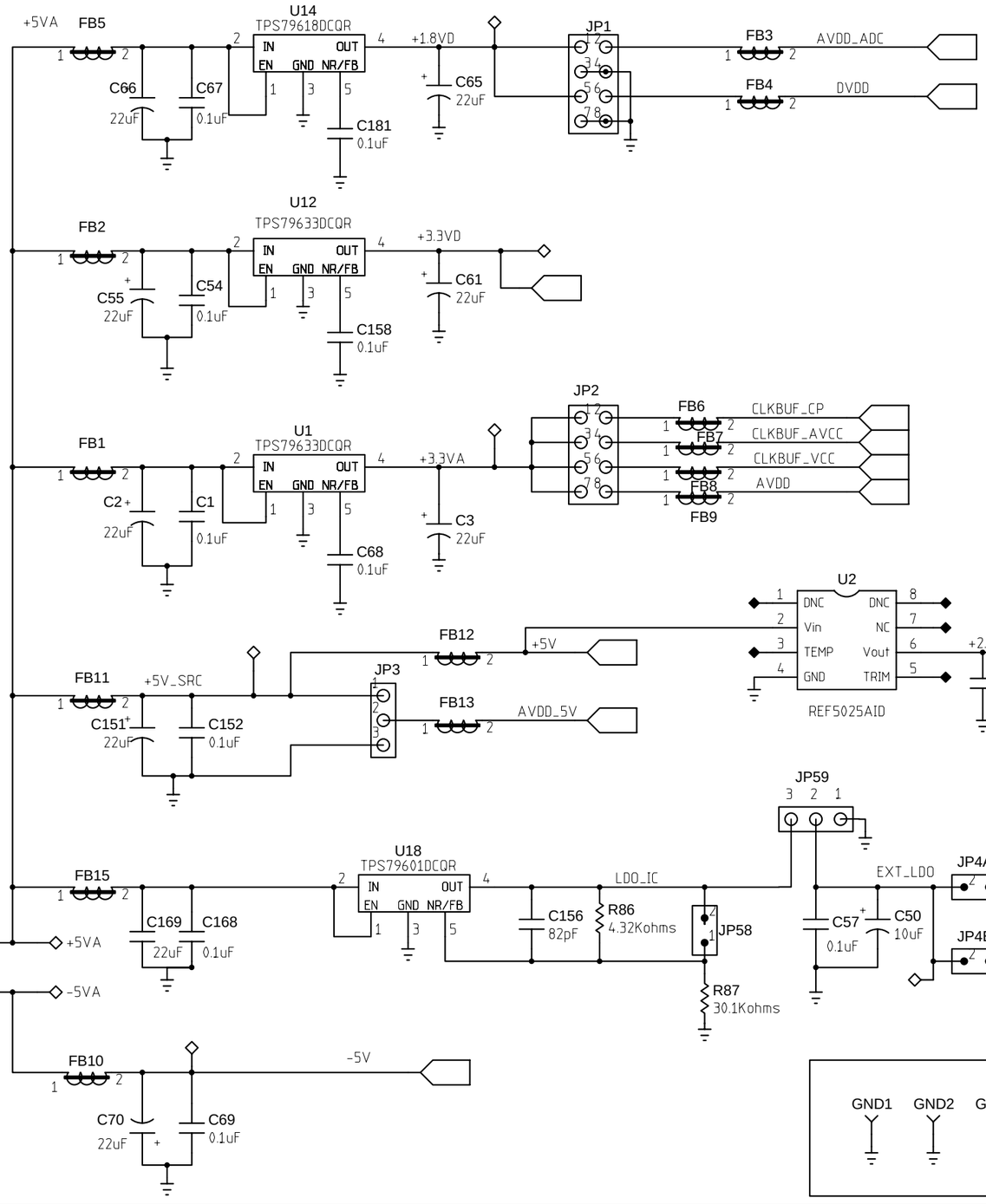
Power

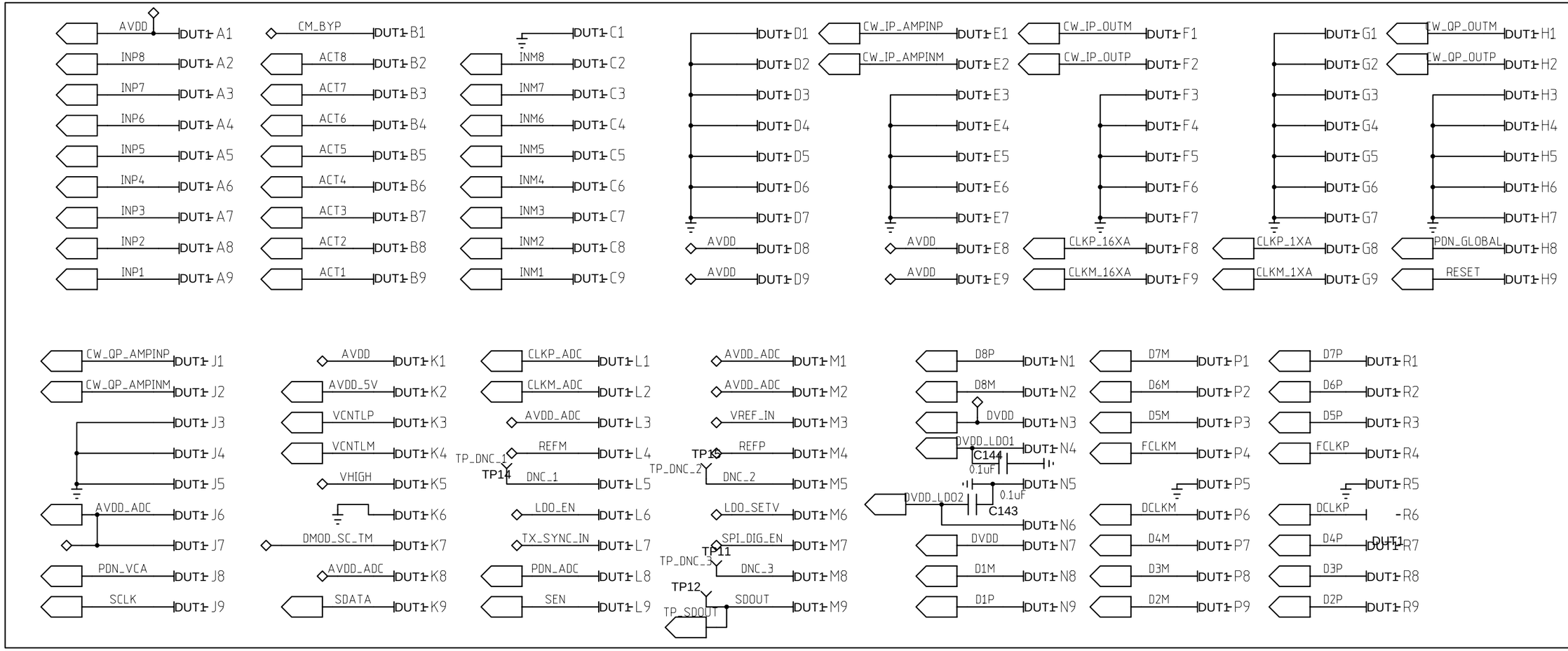
REV	REVISIONS
A	ECR XXXXXX10/04/2012, MPK

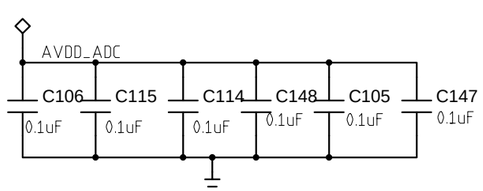


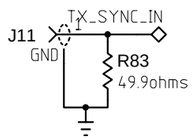
Power Supply

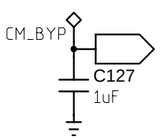
DRAFTSMAN: C. Smyth	DATE 10/04/2012	TEXAS INSTRUMENTS SEMICONDUCTOR OPERATIONS — CODE IDENTITY NUMBER Ø1295
DESIGNER: T. Reinert	DATE 10/04/2012	TITLE: SCHEMATIC, AFE5809 EVM
CHECKER: C. Smyth	DATE 10/04/2012	
ENGINEER: C. Smyth	DATE 10/04/2012	
APPROVED: C. Smyth	DATE 10/04/2012	
RELEASED: C. Smyth	DATE 10/04/2012	SCALE N — B SIZE — 6542734 — A REV — SHEET Ø1 / 11

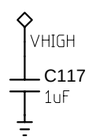
AFE5807/08 DEVICE

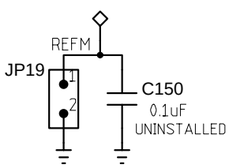


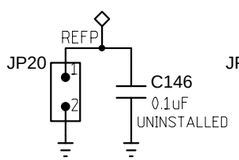


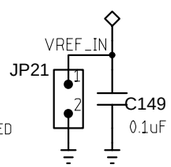


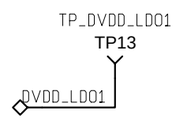


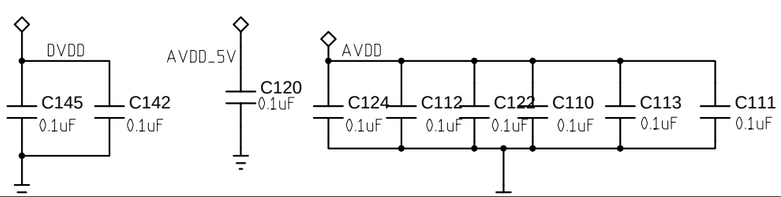


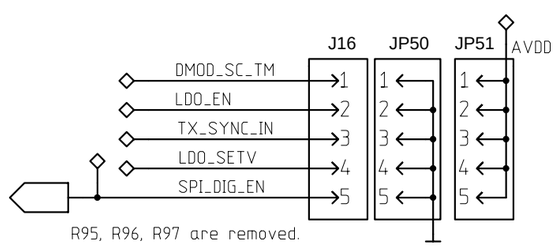










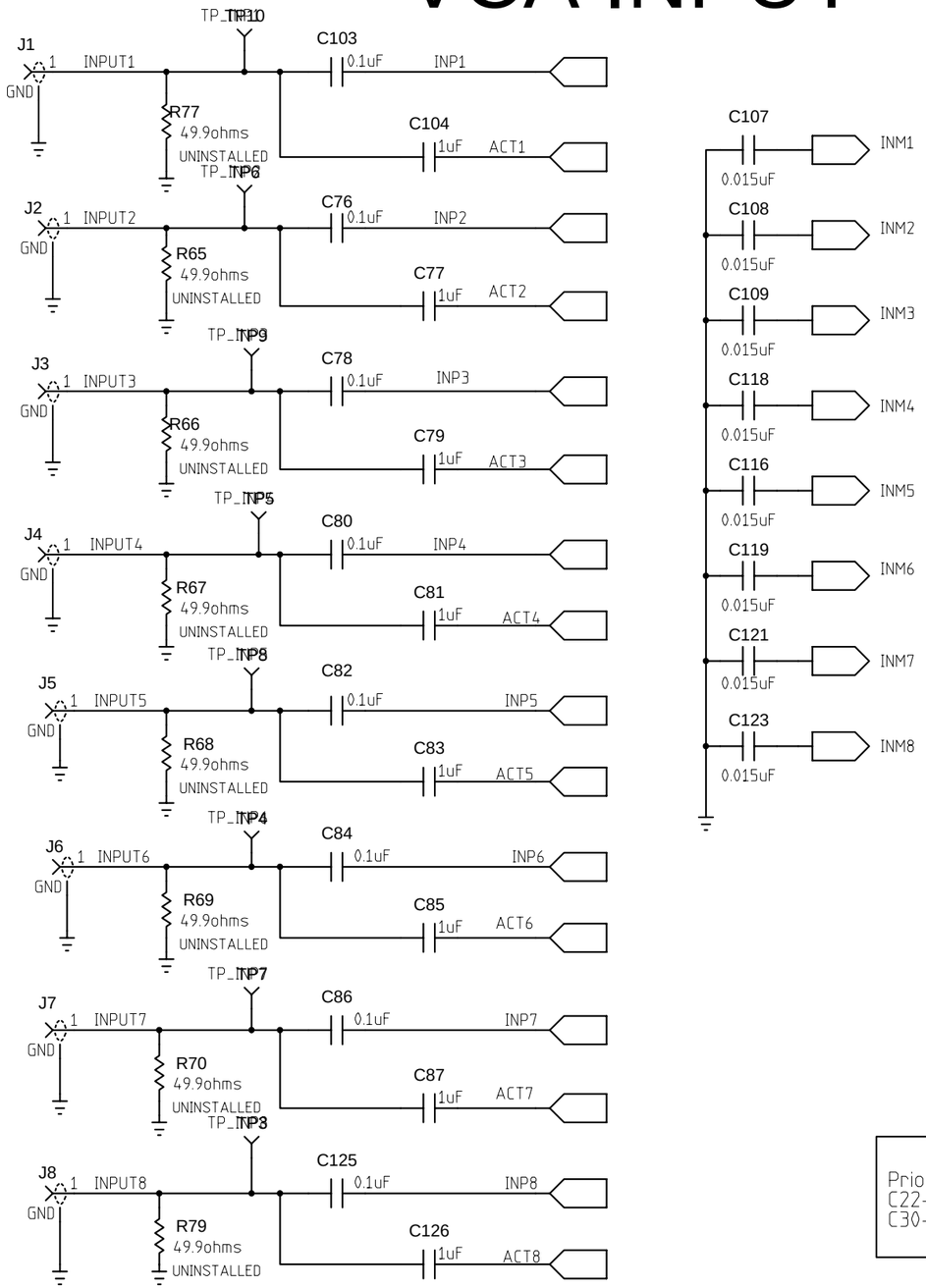


TEXAS INSTRUMENTS
SEMICONDUCTOR OPERATIONS

CODE IDENTITY NUMBER Ø1295

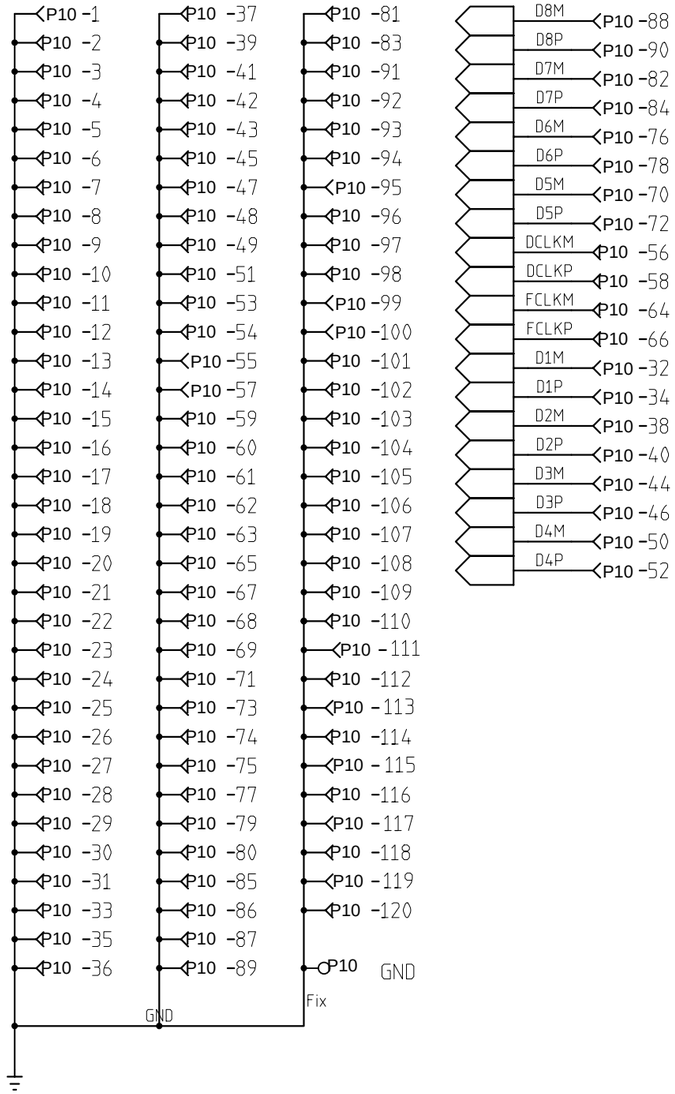
SCALE	SIZE		REV	SHEET
N	B	6542734	A	Ø2 / 11

VCA INPUT

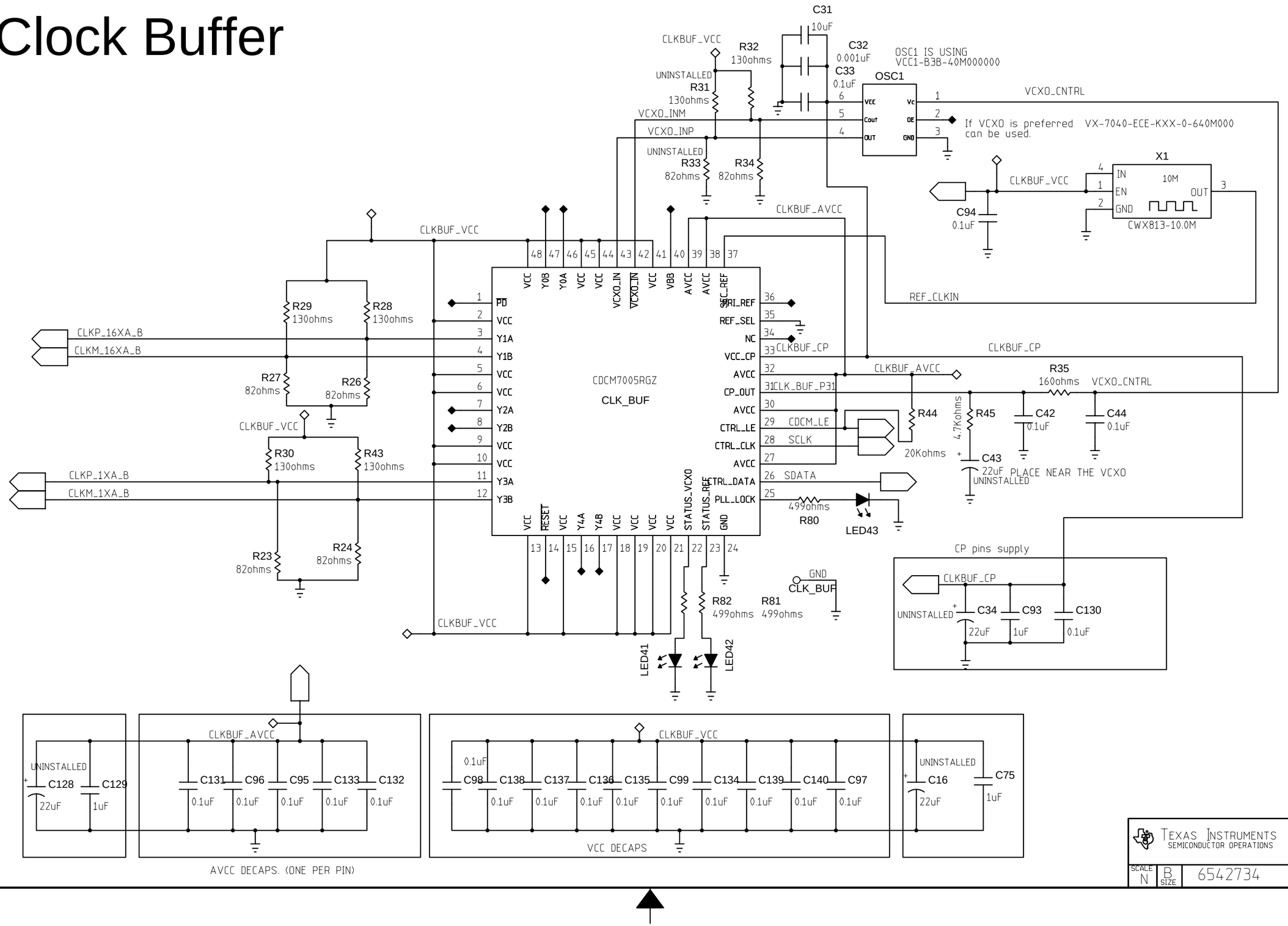


Priority of Close to Pins INPx
C22-C29 1st
C30-C37 2nd

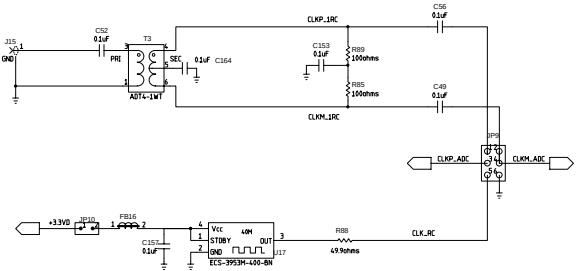
ADC OUTPUT



Clock Buffer

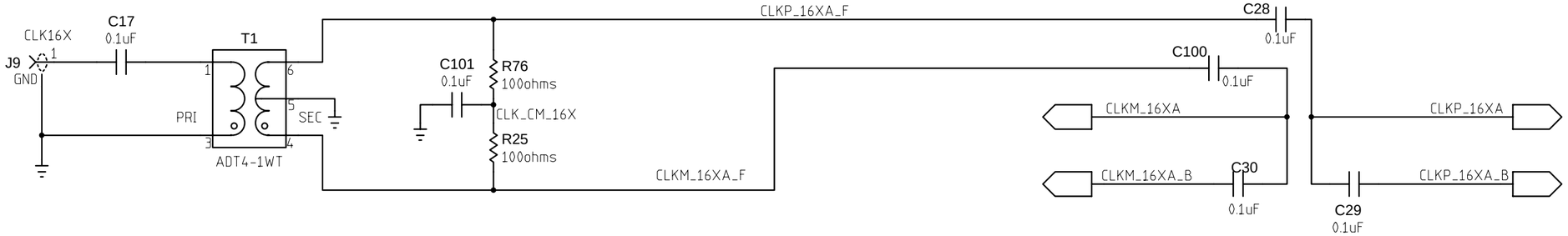


ADC CLOCK

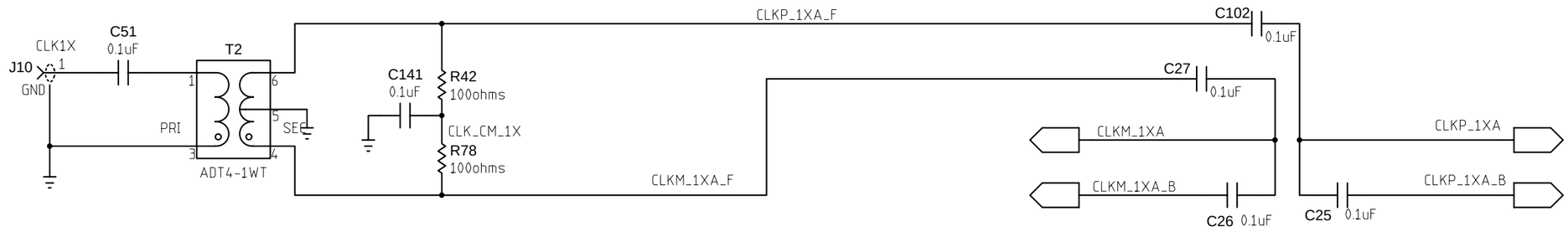

J15
GND
C52
0.1uF
T3
PRI
SEC
0.1uF C164
ADT4-1WT
CLKP_1RC
C153
0.1uF
R89
100ohms
R85
100ohms
CLKM_1RC
C56
0.1uF
C49
0.1uF
JP9
CLKP_ADC
CLKM_ADC
+3.3VD
JP10
FB16
C157
0.1uF
Vcc
STDBY
GND
40M
OUT
ECS-3953M-400-BN
J17
R88
49.9ohms
CLK_RC

CW CLK

16X

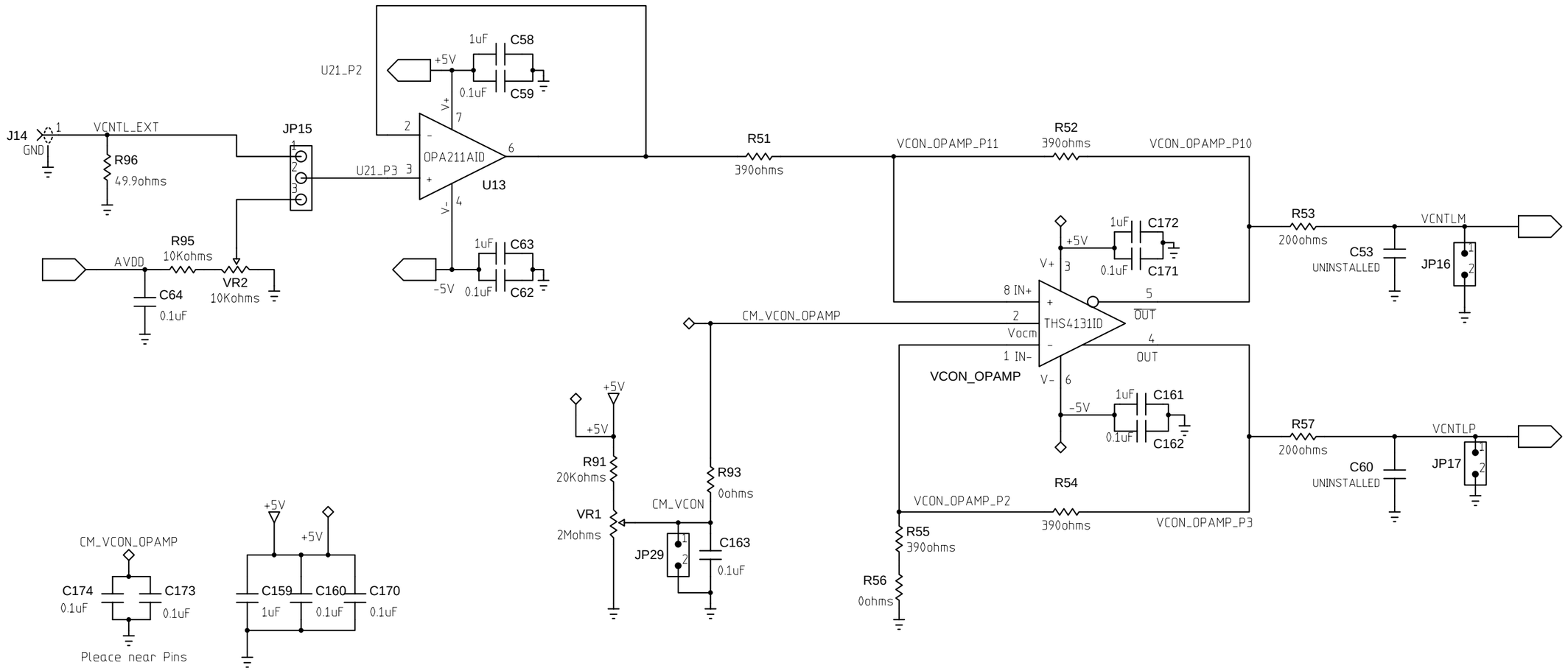


1X



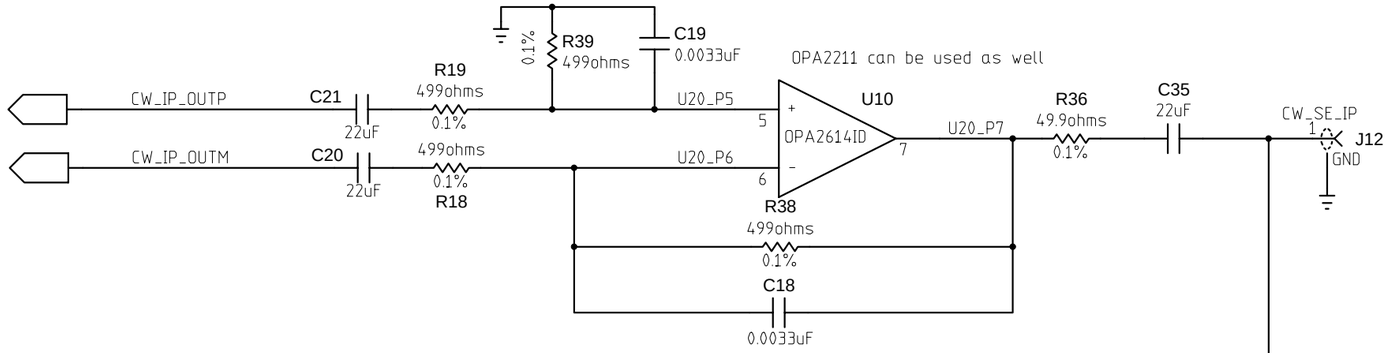
Texas Instruments SEMICONDUCTOR OPERATIONS				CODE IDENTITY NUMBER Ø1295
SCALE N	B SIZE	6542734	A REV	SHEET Ø6 / 11

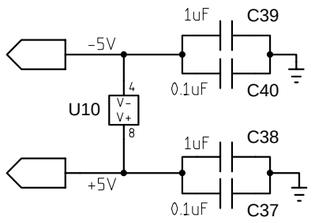
VCON SINGLE TO DIFFERENTIAL CONVERTER

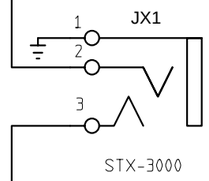


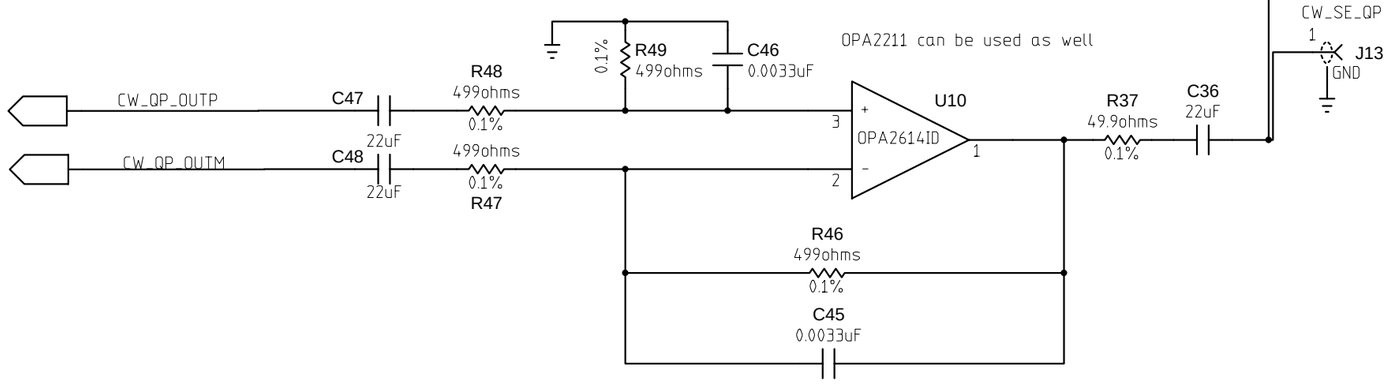
TEXAS INSTRUMENTS SEMICONDUCTOR OPERATIONS				CODE IDENTITY NUMBER Ø1295
SCALE N	B SIZE	6542734	A REV	SHEET Ø7 / 11

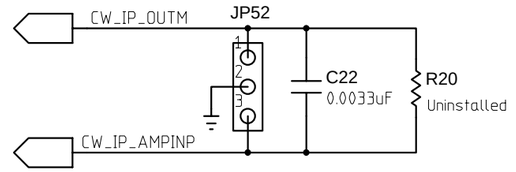
CW Mixer Out





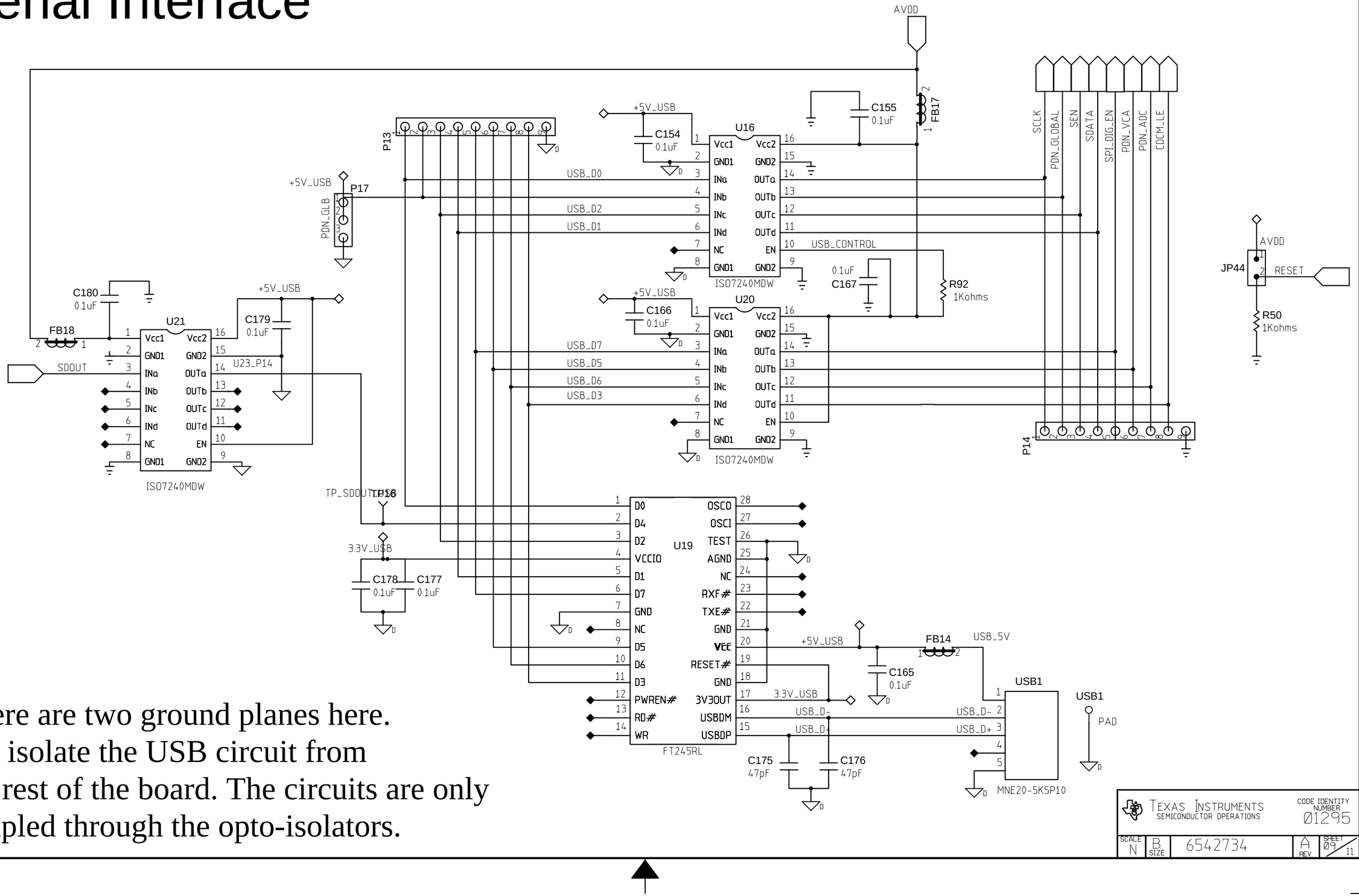






Texas Instruments Semiconductor Operations				CODE IDENTITY NUMBER Ø1295
SCALE N	B SIZE	6542734	A REV	SHEET Ø8 / 11

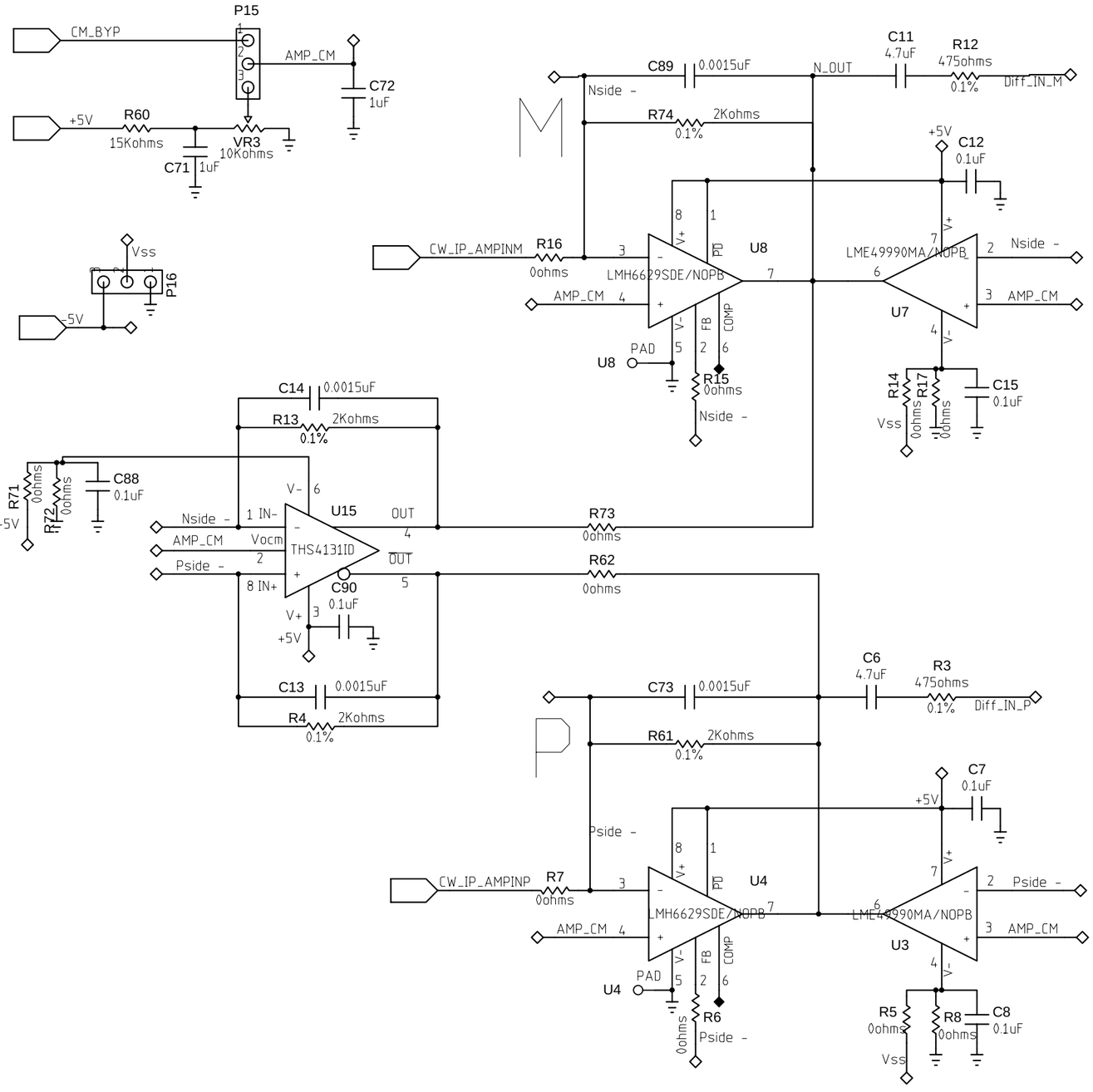
Serial Interface



There are two ground planes here.
We isolate the USB circuit from
the rest of the board. The circuits are only
coupled through the opto-isolators.

Texas Instruments Semiconductor Operations			CODE IDENTITY NUMBER Ø1295	
SCALE N	B SIZE	6542734	A REV	SHEET Ø9 / 11

CW Low Noise I/V Amp



ALL Bypass Caps in this circuit need to be tied close to the pin.

This Circuit provides 3 options for populating Op-Amps for maximum flexibility

Texas Instruments Semiconductor Operations				Code Identity Number Ø1295
Scale N	B Size	6542734	A Rev	Sheet 1Ø / 11

Important Make sure all the information is filled before releasing the schematic to Layout

xx → Fill up by clicking on the text

☐ → Unselected

☒ → Selected (Copy and paste this box on the item that has to be selected)

P1 → For placement instruction .Place this note box number wherever it applies (Note desciption can be changed)

R1 → For Routing instruction .Place this note box number wherever it applies (Note desciption can be changed)

C1 → For current rating instruction .Place this note box number wherever it applies (Note desciption can be changed)

Board Specs

Cycle Time	xx	Controlled Impedence	☒
Number Of Layers	6	Impedance In Ohms	50
Plating	HARD GOLD ☐ SOFT GOLD ☒ HAL ☐	BGA via Holes to be Filled with epoxy	☐

Thermal Keepout

Thermo Stream	☐	Handler Mounting holes	☐
Onley Peltier	☐	Support Mounting holes	☐
Both	☐		

Critical Layout Instructions

Critical Layout Instructions can be enterd inside this box ☐

Net Classes and clearences specified for GND, PWR, LVDS, CMOS, etc. Use Refrence layout from Edge No XXXX

Otherwise stated, minimal trace width and trace clearance are 7 mil. Default trace width is based on 50ohm traces

R1 Planes with mutiple vias from Layer xx

R2 Thick trace width = xx

R3 LVDS pairs to have length matched max = xx

R4 Route all these traces on Layer xx

R5 Differential pair routing

R6 Routing needs to be symmetrical

R7 High instaneous current net

R8 xxxxxx_____

R9 xxxxxx_____

Current Rating for Critical Nets/Traces

Critical Voltage/Current Rating can be enterd inside this box

Net Classes and clearences specified for HV, PWR etc. Use Refrence layout for Routing Edge No XXXX ☐

Otherwise stated, net current is less than 200mA

C1 Low voltage current below 250mA

C2 Low voltage current below 500mA

C3 Low voltage current is up to 2A

C4 High voltage current up to 100mA instaneously, average current is below 10mA

C5 High voltage current up to 2A instaneously, average current is 50mA

C6 xxxxxx_____

C7 xxxxxx_____

C8 xxxxxx_____

C9 xxxxxx_____

Component Placement

Critical Placement Instructions can be enterd inside this box

Use Refrence layout for placement Board Edge Number xxxxx

Otherwise stated, placement follows Sch drawing locations

P1 Placement close to IC or DUT- Page 10 Caps.

P2 Placement close to socket

P3 Placement needs to be symmetrical

P4 xxxxxx_____

P5 xxxxxx_____

P6 xxxxxx_____

P7 xxxxxx_____

P8 xxxxxx_____

P8 xxxxxx_____

FAB VENDOR

TI - FAB vendor---xxxx

DFM is Provided Design For Manufacture: Yes ☐ No ☐

We will select the FAB vendor ☐

MBU Ultrasound EVM SEED

Designer:Xiaochen Xu
Revision: A
Date 09/08/2012

TEXAS INSTRUMENTS SEMICONDUCTOR OPERATIONS | CODE IDENTITY NUMBER Ø1295 | SCALE N | D SIZE | 6542734 | A REV | SHEET 11 / 11

H=4ND; V=4LA