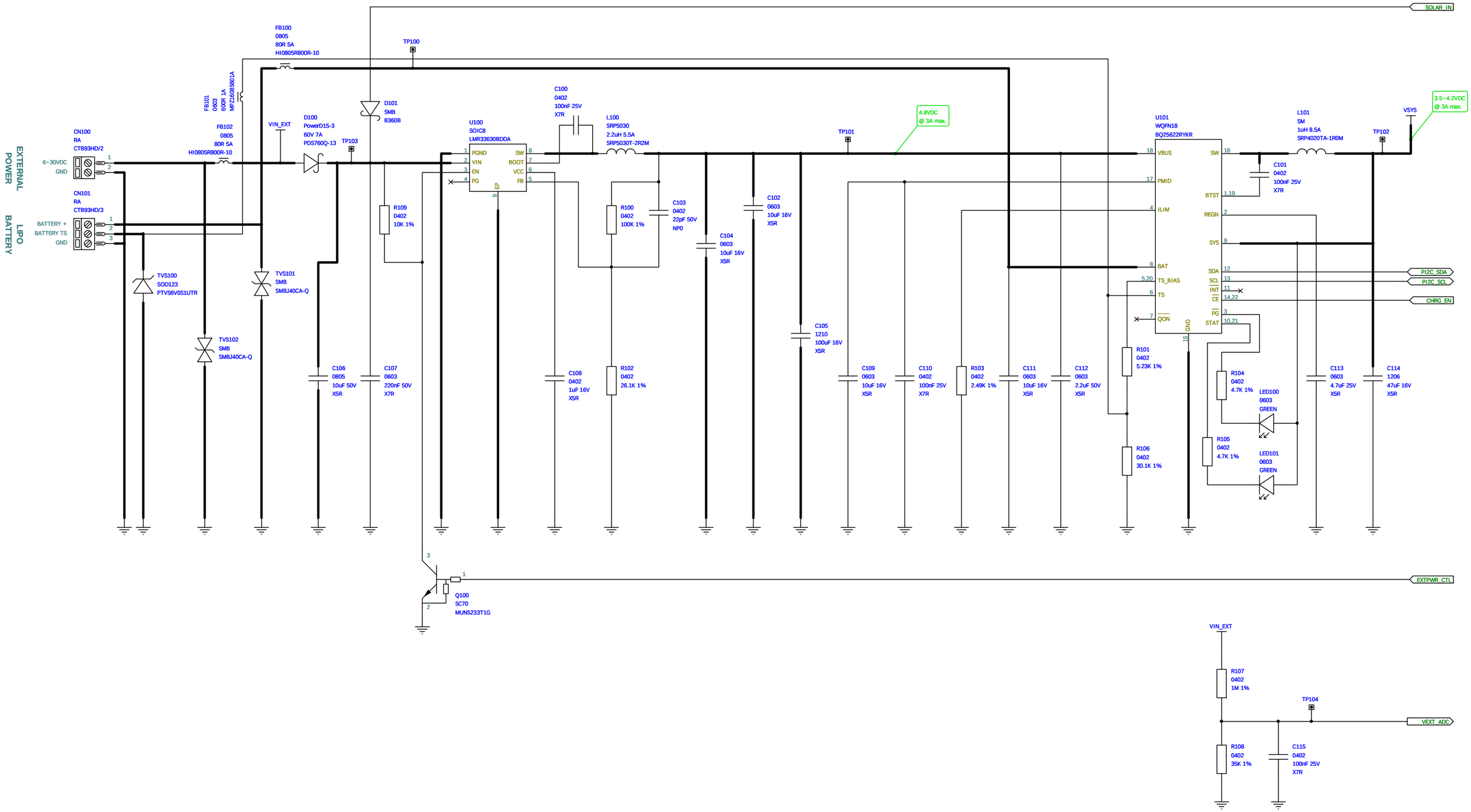

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Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 Input regulation, battery charge and power path			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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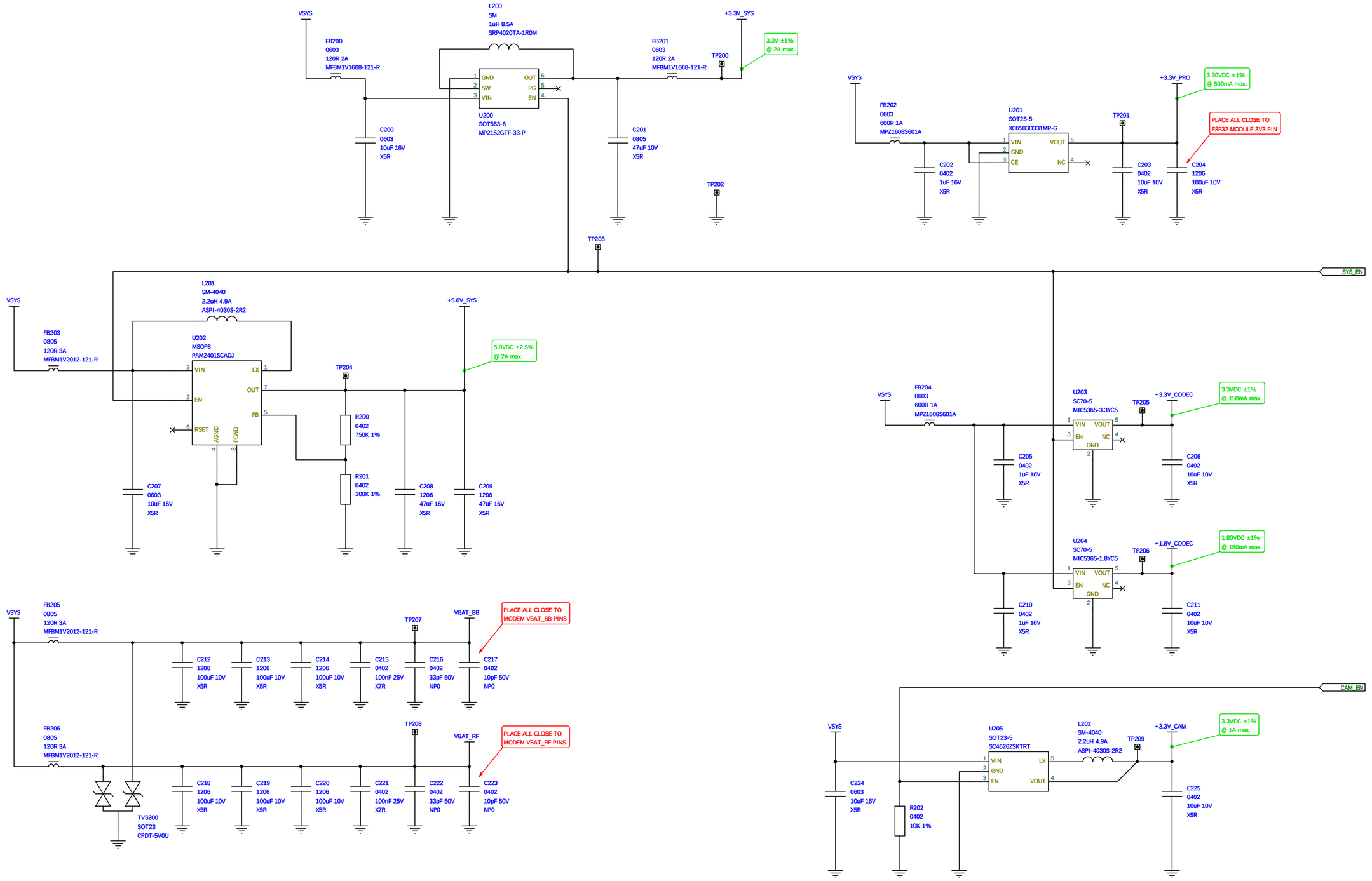

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Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 Sub-regulated supplies			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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Notes:
1. Place all decoupling close to device power pins.
2. Adhere to antenna clearances and stitch all ground layers around antenna traces.
3. Adhere to all trace routing requirements.

PLACE CLOSE TO ESP32 3V3 PIN

ESP32 DECOUPLING

WIFI / RESET / PROGRAM / GNSS ANTENNA / MAIN ANTENNA / DIVERSITY ANTENNA

SIM CARD

PLACE ALL CLOSE TO SIM CARD HOLDER

Sheet No: 3	Total Sheets: 8	Technology:	Rev No:	Revision Date:	Create Date: 20/2/23
Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 — Processor, modem and antennas		Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017		Copyright: 2023-2024 DAC Limited

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STATUS INDICATOR

LED400 SM WS2812B — LED401 SM WS2812B — C400 0402 100nF 25V X7R — C401 0402 100nF 25V X7R — R400 0402 1K 1%

U400 TQFN24 KTS1622EUAA-TR — U401 TQFN24 KTS1622EUAA-TR

R401 0402 10K 1% — R403 0402 10K 1% — R404 0402 10K 1% — R405 0402 10K 1% — R406 0402 10K 1%

U402 SOT353 74LVC1G17SE-7 — ESD408 SC70-3 NUP2125

R409 0402 4.7K 1% — R410 0402 4.7K 1% — LED402 0603 YELLOW — LED403 0603 YELLOW — MODEM INDICATOR

Q400 SC70 MUN5233T1G — F400 0603 500mA 8V PTSLR06038V050 — FB407 0603 600R 1A MPZ1608S601A

SW400 HOOK_SW — RA708 HOOK SW

SW401 SW402 SW403 SW404 SW405 SW406 SW407 SW408 SW409 SW410 SW411 SW412 — RA708 KEYPAD

R415 0402 10K 1% — R416 0402 10K 1% — R417 0402 10K 1% — R418 0402 10K 1%

FB400 1206 600R 0.1A BLA31AG601SN4D — CN400 ST 8w ST Molex KK — HANDSFREE BUTTONS

ESD400 SC70-3 NUP2125 — ESD401 SC70-3 NUP2125

FB401 0402 600R 0.3A MMZ1005A601 — FB402 0402 600R 0.3A MMZ1005A601 — CN401 ST 5w ST Molex KK — HANDSET BUTTONS

ESD402 SC70-3 NUP2125

FB403 1206 600R 0.1A BLA31AG601SN4D — CN402 ST 8w ST Molex KK — KEYPAD MATRIX

ESD403 SC70-3 NUP2125 — ESD404 SC70-3 NUP2125 — ESD405 SC70-3 NUP2125 — ESD406 SC70-3 NUP2125

FB404 1206 600R 0.1A BLA31AG601SN4D — FB405 0402 600R 0.3A MMZ1005A601 — VLED — CN403 ST-REV 8w ST Molex KK — DOOR & BEACON

ESD407 SC70-3 NUP2125

R402 0402 470R 1% — R407 0402 1K 1% — RL400 SOP4 G3VM-41DY1 — RL401 SOP4 G3VM-41DY1 — FB406 0402 600R 0.3A MMZ1005A601

RL402 SOP4 G3VM-41DY1 — CN404 RA 2W 3.5mmP — LOAD CONTROL

R408 0402 1K 1% — R411 0402 1K 1% — RL403 SOP4 G3VM-41DY1

ISO400 SM TCMT1103 — R412 0402 10K 1%

R413 0402 1K 1% — RL404 SOP4 G3VM-41DY1

ISO401 SM TCMT1103 — R414 0402 10K 1%

KTS1622 DECOUPLING: C402 0402 100nF 25V X7R — C403 0402 100nF 25V X7R

74LVC1G17 DECOUPLING: C404 0402 100nF 25V X7R

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Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 GPIO, external button and IO interfaces			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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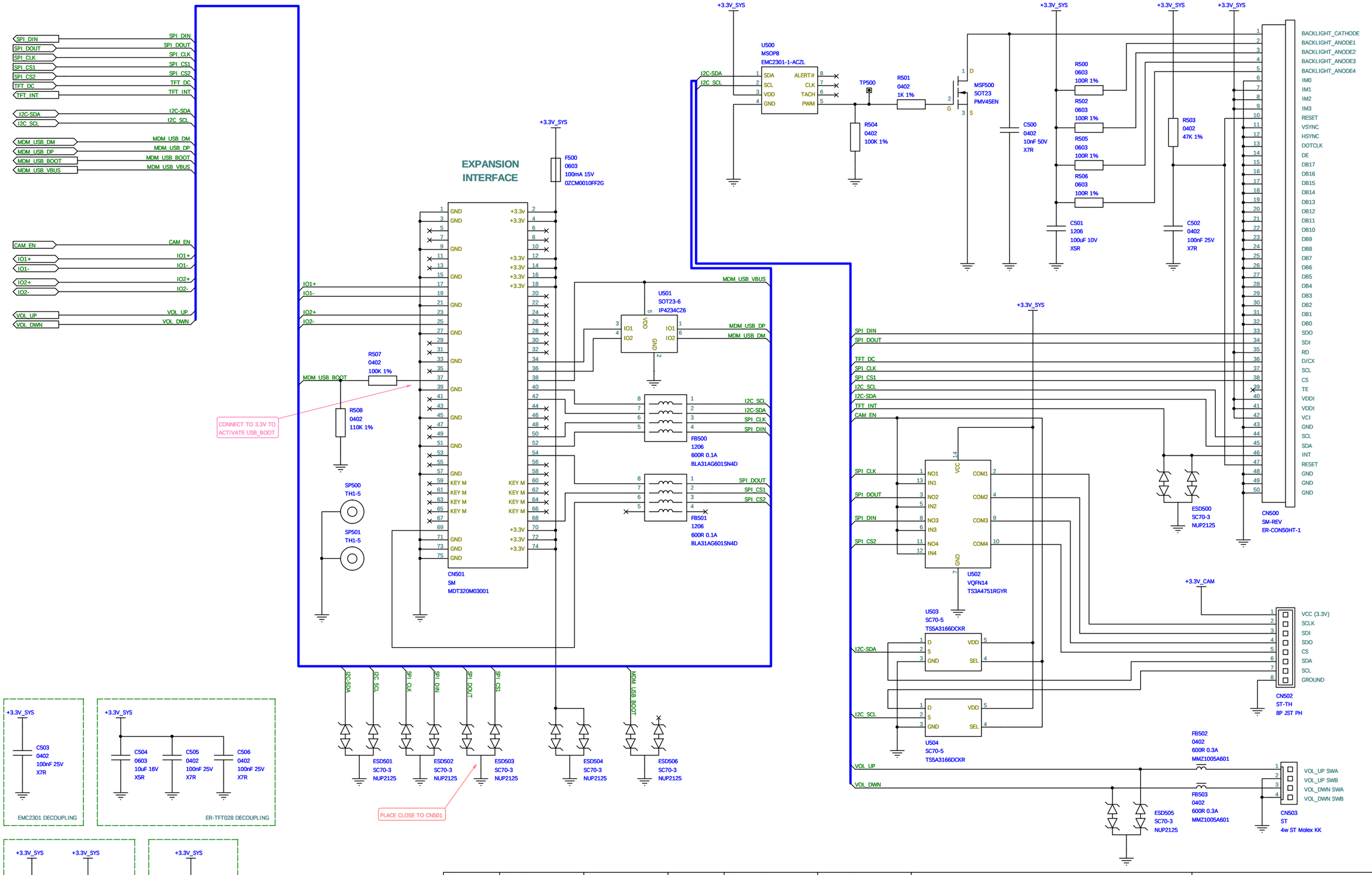

Sheet No: 5	Total Sheets: 8	Technology:	Rev No:	Revision Date:	Create Date: 20/2/23	THIS DOCUMENT IS CONFIDENTIAL AND IS SUPPLIED ON CONDITION IT IS NOT COPIED OR REPRODUCED WITHOUT PRIOR PERMISSION
Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 TFT Display, Camera and Expansion interfaces			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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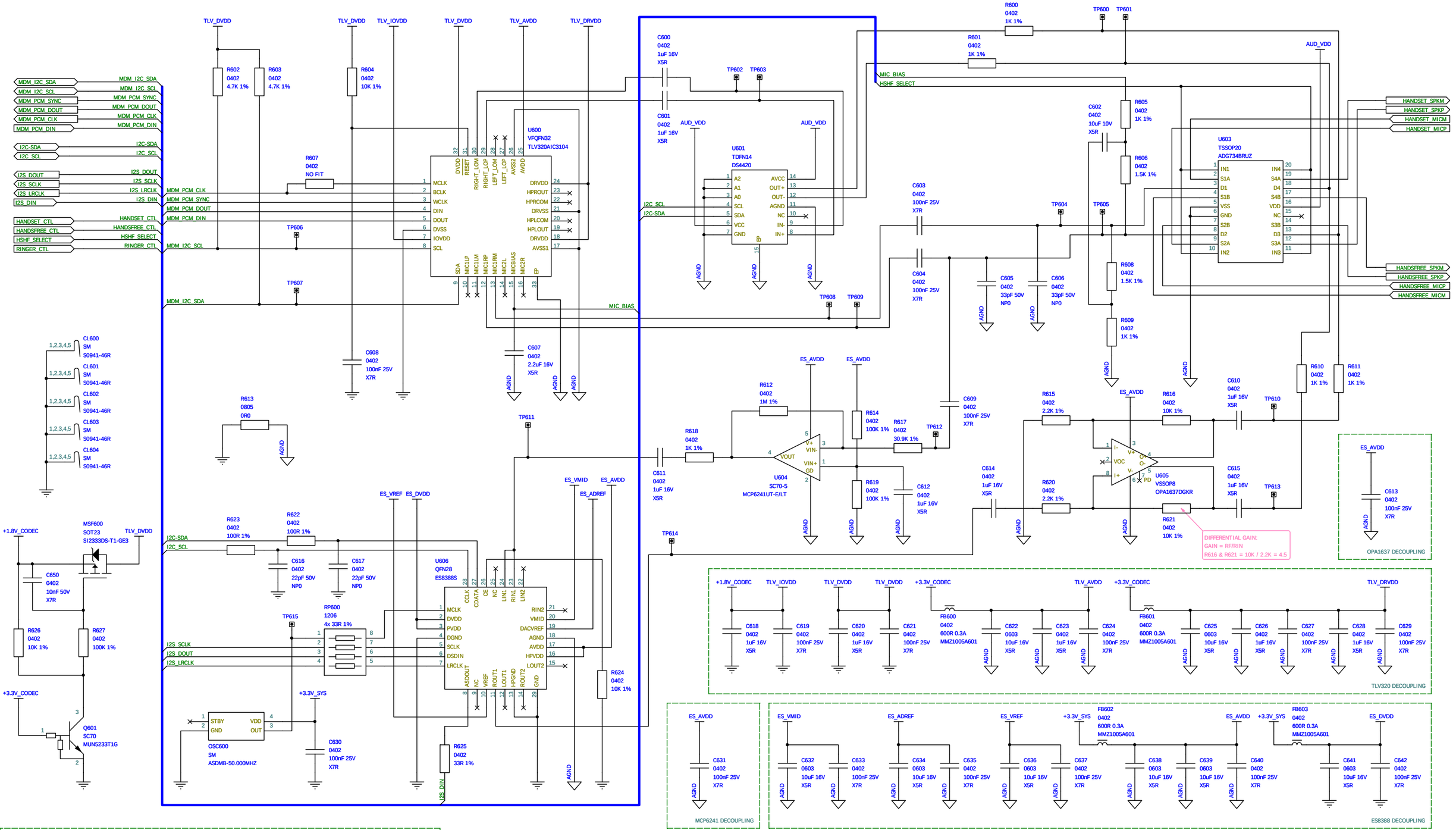

Sheet No: 6	Total Sheets: 8	Technology:	Rev No:	Revision Date:	Create Date: 20/2/23	THIS DOCUMENT IS CONFIDENTIAL AND IS SUPPLIED ON CONDITION IT IS NOT COPIED OR REPRODUCED WITHOUT PRIOR PERMISSION
Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 Audio Codecs, PGA control and audio multiplexor			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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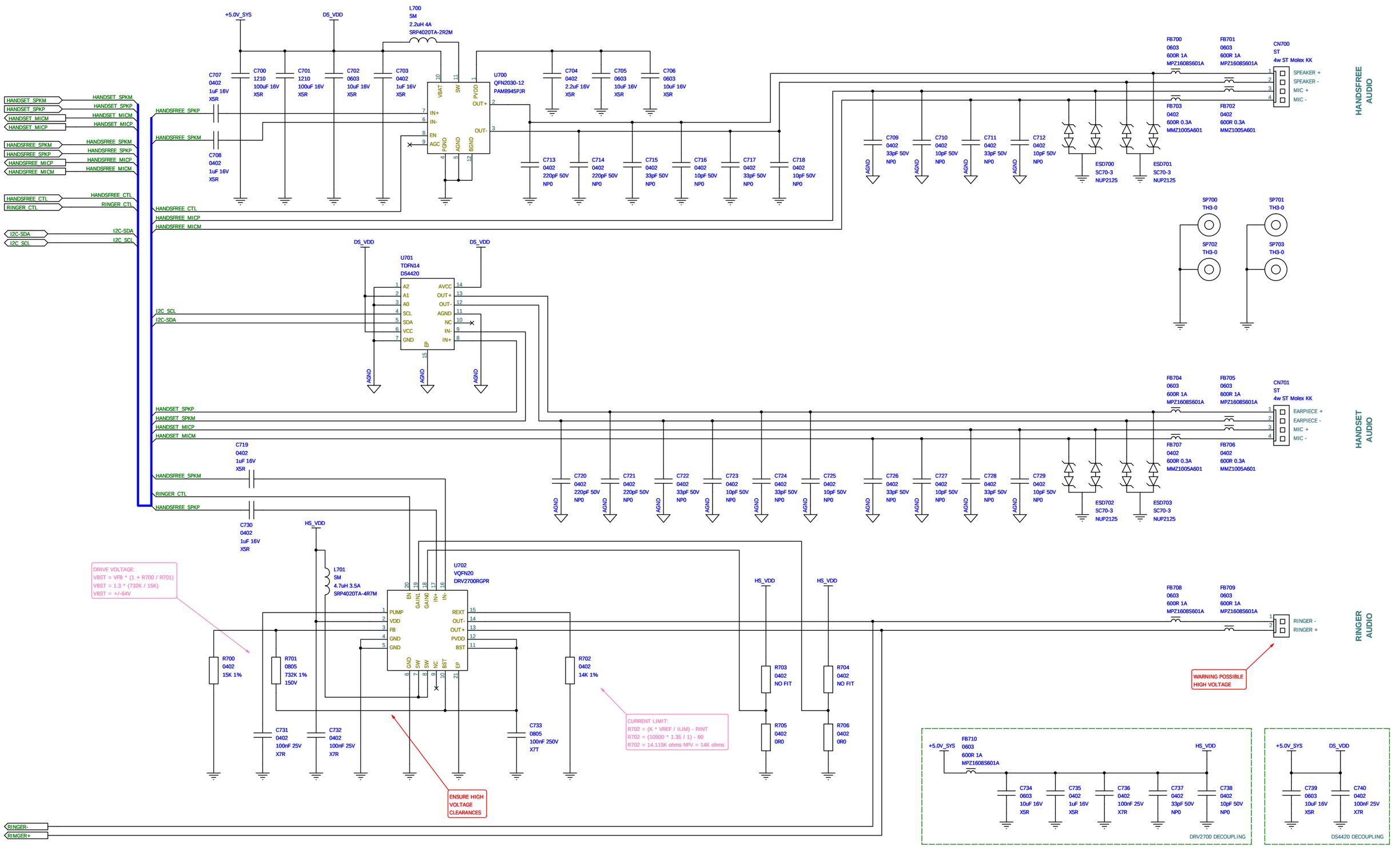

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Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 Audio amplifiers and external audio interfaces			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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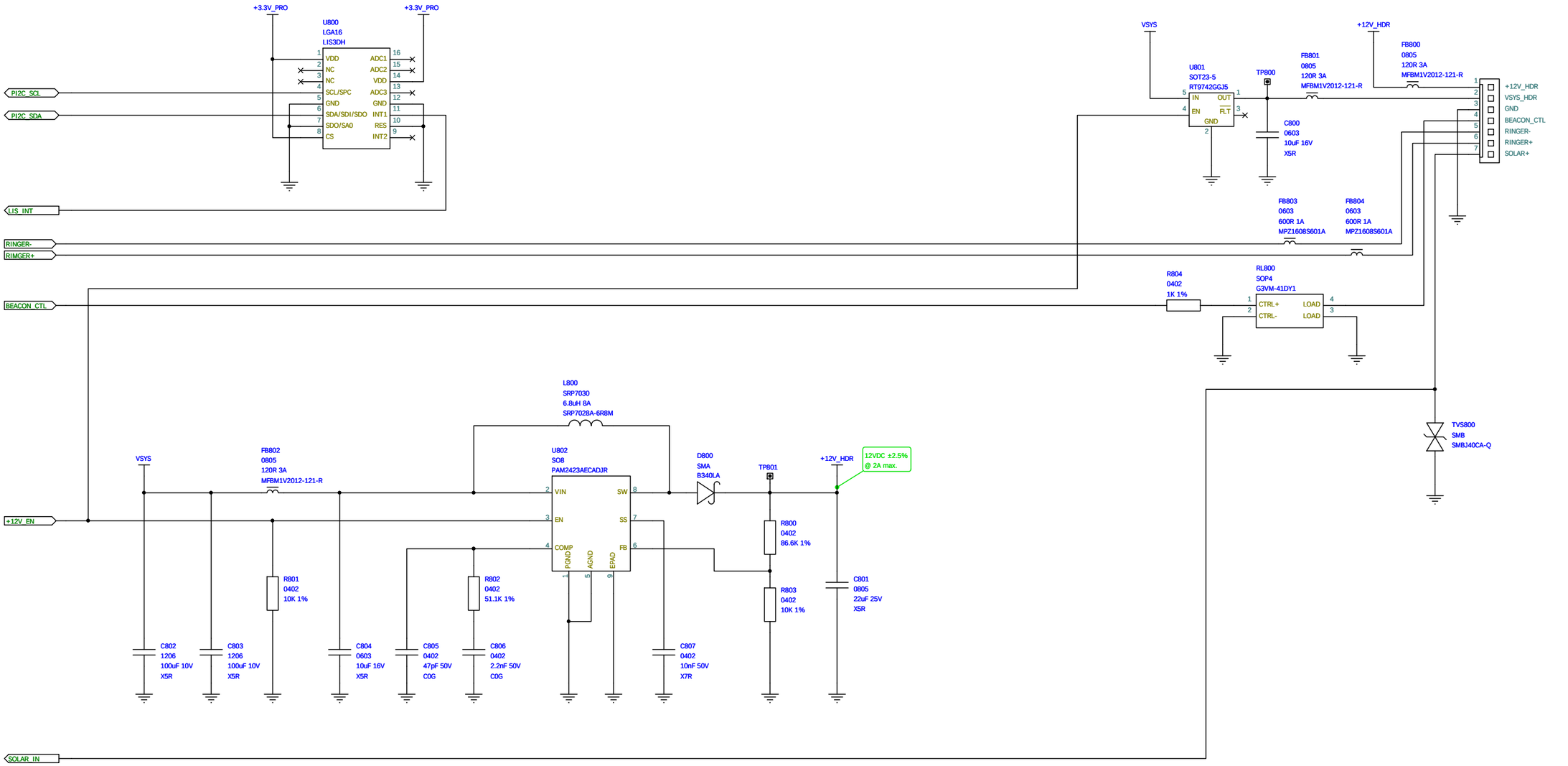

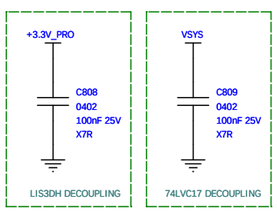

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Firmware?	Drawn By :	PCB Type:	Project Title: GSM Telephone 4 Accelerometer, header unit 12V boost and interface			Client: DAC Limited
Size A3	Approvals:	PCB Material:	Project Reference / Drawing No : DA017			Copyright: 2023-2024 DAC Limited

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GSM Telephone 4 revisions

REVISION	DESCRIPTION
DRAFT A	(20/2/23) CREATE VERSION
DRAFT B	(8/3/23) DRAFT VERSION (CONNECTED USIM_GND TO SYSTEM GND ON RECOMMENDATION FROM QUECTEL SO THAT SIM SWITCH CAN BE POWERED FROM NORMAL 3.3V SUPPLY)
DRAFT C	(13/6/23) DRAFT VERSION (ADDED 5V0_SYS ENABLE TO SYS_EN, ADDED SPST ANALOGUE SWITCHES TO I2C LINES TO ISOLATE THE PROCESSOR I2C AWAY FROM THE SYS_EN CONTROLLED CIRCUITRY)
DRAFT D	(15/8/23) DRAFT VERSION (CHANGED U300 LEVEL TRANSLATOR TO SUPPORT MODEM RI SIGNAL TO ALLOW THE GLOBAL INTERRUPT GATE TO WAKE THE PROCESSOR ON INCOMING URC)
ISSUE 1	(22/9/23) RELEASE VERSION
ISSUE 2	(2/2/24) RELEASE VERSION (MOVED CHARGE CONTROLLER I2C INTERFACE TO PROCESSOR SIDE OF ISOLATION TO ALLOW READ DURING POWER DOWN, REMOVED INPUT VOLTAGE PROTECTION AND INTEGRATED 6~30VDC REGULATION AND POTENTIAL DIVIDER FOR VIN_EXT MONITORING, ADDED VOLUME BUTTON HEADER AND CONNECTION TO GPIO FOR IN CALL VOLUME CONTROL, ADDED CAMERA SPECIFIC 3.3V SUPPLY AND ENABLE LINE FOR CONTROL, CHANGED 5W POWER/BATTERY CONNECTOR TO 2W & 3W CTB TERMINALS, CHANGED SIM CARD TO HIROSE PUSH-PUSH VERSION AND ADDED ESD PROTECTION, UPRATED 3.3V_SYS SUPPLY TO 2A CAPABILITY,
ISSUE 3	(24/10/24) RELEASE VERSION (ADDED HEADER UNIT PIN HEADER AND +12V BOOST SUPPLY AND VSYS SUPPLY OUTPUTS, CHANGED DOOR/BEACON HEADER TO 8PIN VERSION AND ADDED DIGITAL LED OUTPUT AND VSYS OUTPUT FOR LED BOARD DRIVE, ADDED ACCELEROMETER TO THE DESIGN FOR POLE TILT DETECTION)
ISSUE 3A	(8/1/25) RELEASE VERSION (CHANGED R402 TO 470R FOR BETTER LED BOARD BRIGHTNESS DRIVE, ADDED R311 PULLUP TO LIS_INT LINE)
ISSUE 3B	(10/3/25) RELEASE VERSION (REMOVED EXPANSION SIM LINES AND CONNECTED TO ESIM TO ALLOW SELECTION BETWEEN ONBOARD SIMS, UPDATED HEADER UNIT HEADER TO 7WAY FOR RINGER OUTPUT LINES, ADDITIONAL BEACON_CTL SSR AND SOLAR POSITIVE INPUT TO STEERING DIODE TO EXTERNAL POWER INPUT)
ISSUE 3C	(8/5/25) RELEASE VERSION (REMOVED U602 FROM MICROPHONE PATH AS WAS CAUSING PEER END NOISE DURING CALLS, ADDED ENABLE CONTROL TO EXTERNAL POWER PATH TO ALLOW CONTROL)
ISSUE 4	(11/6/25) RELEASE VERSION (CHANGED R612 TO 1M AND R617 TO 30.9K TO COMPENSATE FOR REMOVAL OF U602 PGA DURING AUDIO TEST, ADDED C315 AND C316 FOR ADDITIONAL ESP32 MODULE DECOUPLING, ADDED Q600, Q601, C650, R626-627 FOR TLV320 CODEC (U600) DELAYED +1.8V TO DVDD DELAY (1MS), ADDED ESD506 TO MDM_USB_BOOT INPUT LINE, ADDED 33PF (C317-319) AND 15K (R312) TO SIM CARD INTERFACE, CHANGED ESD302 ON SIM CARD INTERFACE TO SP1001-05 LOW CAPACITANCE ESD PROTECTOR)

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