



Internal Use Only

# MOBILE PHONE **SERVICE MANUAL**

## CAUTION

BEFORE SERVICING THE UNIT, READ THE "SAFETY PRECAUTIONS"  
IN THIS MANUAL



**MODEL : LG-SU960 / LG-KU9600**

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## 가. 제품의 특징점



## 가. 제품의 특징점

### 1. 제품 주요기능

#### 1) 음성통화관련기능

- (1) 음성 서비스 기능 : AMR 지원 (4.75 ~12.2Kbps)
- (2) 다양한 벨소리 기능 : 72poly 기본 벨소리와 D/L 벨소리
- (3) 진동기능 : 착신 음 대신 진동으로 착신신호 감지
- (4) One touch 진동전환기능 : 특정 Touch 버튼을 일정시간 누르고 있으면 바로 진동/신호음 상호전환가능.
- (5) Any Key Answer 기능 : 설정에 따라 호수신시 어떤 키라도 누르면 통화 가능 (END 키 누를 시 소리 묵음)
- (6) Volume조절기능 : 전화벨/키 톤/통화음량 등을 조절
- (7) Mute 기능 : 메뉴키를 이용하여 통화 시 묵음 상태 유지/해제
- (8) 자동 재 발신 기능 : 전화가 연결되지 않았을 경우 3번까지 호 송출 가능
- (9) 긴급 통화 기능 : 비상전화
- (10) 통화 중 전화번호 기능 : 통화 중에 메뉴 Touch 버튼을 눌러 전화번호를 검색 및 전달 할 수 있다  
통화 중 메모 기능 : 통화 중 메모를 저장 할 수 있음
- (11) 단축 Dialing : 아이템당 5개의 전화번호를 2자리 수의 일련번호만 누름으로써 통화 가능
- (12) PIM Phone Book 기능 : 전화번호부에 2000개의 아이템 저장 가능.  
각 아이템마다 14개의 항목저장(이름, 집전화 번호, 휴대전화번호, 회사전화번호, 핸드폰번호, 전자메일주소, 메모, 노트, 멜로디, 생일, 전화화면, 그룹아이디, 사진, 비밀/공개여부)
- (13) Last Number Redial : 최근 통화한 번호를 메모리에서 지우지 않고 send 버튼을 누르면 다시 다이얼링가능
- (14) 자기번호 확인 기능 : 소프트 키를 이용하여 자신의 폰 번호를 확인
- (15) 4자리 국번 지원
- (16) Dual Number 기능
- (17) CNAP(Caller Name Presentation) / CNIP(Calling Number Identification Presentation: 발신자 번호 표시) /CNIR (Calling/Called Name Identification Restriction : 발신자별 수신제한 ) 기능
- (18) 번호 이동성
- (19) Call Time Display기능 : 통화시간표시
- (20) Battery잔량 표시 기능 : 잔여 배터리 잔류량에 따라 레벨을 표시
- (21) Low Battery Alarm : 배터리 전력이 약할 경우 경고음과 메시지 표시
- (22) 자동 Power Saving 기능 : 특정 시간이 지나면 자동으로 전원 절약 모드
- (23) RSSI Display : 수신감도를 나타냄

## 2) 데이터서비스기능 (SMS, 데이터 통신, 무선인터넷, 멀티미디어등)

- (1) SMS 착 발신 기능
- (2) MMS (Multimedia Message Service) : 장문, 사진, SMIL (Streaming Media Integration Language), 동영상(MPEG4) 전송지원
- (3) Spam 차단기능
- (4) 데이터 서비스 기능 : WCDMA, HSDPA 패킷 데이터 지원
- (5) DATA 통신기능 : 모뎀 기능으로 인터넷 이용
- (6) NG Browser : WAP 2.0 지원  
Mobile Flash (유선상의 플래시 애니메이션을 휴대폰과 같은 무선단말기에서 실행하는 것)
- (7) SIS2005 (Simple Image Service 2005) : 텍스트 중심의 환경을 그래픽 중심으로 변환시킨 무선인터넷 원천기술로 휴대폰에 집약된 압축, 전송 기술로써 네오앰텔의 무선인터넷 환경에 최적화된 그래픽 저작물이다. SIS3은 모바일 동영상 압축전송 솔루션으로 통합(convergence) 영상 솔루션 기술임.
- (8) MIDI, 캐릭터 멜로디 D/L 기능
- (9) MP3 기능
- (10) DATA 통신 기능 : HSDPA (일반 데이터 통신: 패킷 통신, 인터넷) 지원

## 3) 화면표시 기능

- (1) Graphic LCD적용 : 제한된 아이콘 이외의 다양한 폰트와 크기, 애니메이션 등이 가능.
- (2) 3D Animation/ 동영상 GUI

## 4) 오디오기능

- (1) MP3구현 (PC에서 D/L함)
- (2) Sound (SPK 1개)

## 5) 카메라기능

- (1) Digital Camera기능 : 내장된 Digital Camera를 이용하여 촬영 및 저장이 가능, 저장된 사진은LCD에서 재생하여 볼 수 있음
- (2) MPEG4 CAMCODER
- (3) 자기 촬영
- (4) 배경 / Filter
- (5) White Balance
- (6) 연속 촬영
- (7) 스티커 촬영 / 분할 촬영 / 파노라마 촬영 / 베스트샷 촬영
- (8) 사진/비디오 앨범 기능
- (9) Auto Focus 기능
- (10) 무비 스튜디오
- (11) 사진 편집

## 6) 인증기능

- (1) OTA : 시스템에서 단말기로 단말기에 필요한 파라미터를 설정하는 서비스.

## 7) 전자수첩기능

- (1) Scheduler기능 : 일정1000개의 아이템 저장, 할 일은 100개 저장, 메모는 100개의 아이템 저장, 그림메모는 20개 저장
- (2) Schedule Alarm기능 : 반복설정(없음/매일/매주/매월/매년)과 각 반복설정에 따른 세부 옵션에 따라 Alarm가능 : 설정한 시각이 되면 알려주는 기능 (시간 및 반복 설정)

## 8) 게임기, 계산기, 시계기능

- (1) 게임 기능
- (2) 계산기 기능 : 기본적인 사칙연산 가능
- (3) 시계기능 : 현재 시간을 기지국으로부터 수신한 시점부터 상태유지
- (4) STOP WATCH 기능
- (5) 세계시간 표시

## 9) PC Interface 기능

- (1) 디지털 카메라급의 편리한 PC Sync : USB를 이용한 빠른 전송.
- (2) D/L 기능, DM 기능 : UART, USB를 이용한 S/W upgrade 및 Diagnostic 기능

## 10) 사용편의 기능

- (1) 기능 Function Key (카메라 등 )
- (2) 편리한 UI / 동영상 GUI
- (3) 오 동작 방지기능 : 일정 시간 사용을 안할 때 일부 키의 Lock을 이용하여 오 동작을 방지하는 기능
- (4) Soft 동작기능 : 기존의 '검색', '메뉴', '저장', '한/영'버튼을 없애고 별도의 2개 키를 할당하여 각각의 메뉴/이벤트 별로 용도가 다르게 쓰임.
- (5) Menu표준안 적용 : 예전의 복잡한 메뉴 트리에서 보다 직관적이고 상관성을 갖는 카테고리 별로 메뉴구성. 이후 출시되는 모든 모델 적용.
- (6) Auto-Lock기능: 각 호송출시 잠금 또는 폰을 켤 때 한번만 잠금 설정
- (7) 잠금/해제 코드 설정/변경 : 잠금 기능을 통해 전화기 사용을 제한
- (8) 메모리 관리 기능 : 메모리 공간을 사진/동영상/mp3가 공용해서 사용함. (고정 할당이 아닌 동적 할당)
- (9) Dial wheel Key적용 : Global Function key로서 진입키를 누를 때 Dial key에 할당된 메뉴가 뜸

12) 제품 신규기능

- (1) WCDMA를 기반으로 한 VT-통화 응용기능 구현
- (2) EQ 및 DBEX 기능 구현
- (3) HSDPA (High Speed Downlink Packet Access): WCDMA Release5 버전으로서 하향 다운로드 속도를 7.2Mbps로 발전시킨 서비스.
- (4) Finger PAD 기능
- (5) Linear Motor 기능을 이용한 다양한 진동 및 진동 벨 기능
- (6) 가속센서를 이용한 Flash 게임 기능

13) 화상통화 기능 추가

- (1) 영상 채팅 : 화상통화 중에 실시간으로 문자를 주고 받을 수 있는 기능
- (2) 이모션 : 제조사에서 제공하는 콘텐츠 전송 또는 카메라 영상을 실시간으로 합성하여 전송
- (3) 대체영상 : 자기 영산 대신 이미지/동영사를 전송하는 서비스

14) 지상파 DMB기능

- (1) 지상파 TV 수신 기능
- (2) TV 화면 Capture 저장 기능
- (3) 방송용 선호채널 설정 기능
- (4) TV 시청 중 전화 수신 기능
- (5) DMB Radio 청취 기능
- (6) TV 동영상 녹화 기능

## 나. 규격 및 SPEC





## 나. 제품의 규격 및 SPEC

### 1. 시스템 구성과 Type

항 목		Type / Spec.
1. Phone Type		DOP Slide
2. 크기		105 x 52.8 x 13.5 mm
3. 무게		134g
4. Battery		1000mAh(Li-Ion)
5. MSM		MSM6290
6. Memory		2Gb SDRAM / 4Gb NAND
7. LCD	크기	3 inch
	Dot 수	240 * 400
	Color 수	262K
	밝기	400cd/m2
	색상(색 재현성)	70%( typ. )
	Frame수 / sec	30fps
	시야각	상하좌우 80도
8. Camera	Pixel	3M + VGA CMOS
	type	CMOS
	전송 속도	Preview : WQVGA 30fps 동영상 Encoding : QVGA 15fps
9. Audio	1) CMX	72Poly
	2) Spk / Rcvr	18X12
	3) Earphone	Stereo Earphone

## 2. 사용 환경

### 1) Phone 사용 환경

항 목	Spec.	단 위
사용 전압	3.7 (Typ), 4.2 (Max)	V
사용 온도	-20 ~ + 50	℃
저장 온도	-30 ~ + 80	℃
습 도	80	%

### 2) TC 사용 환경

항 목	Spec.
입력 전원	AC 110 ~ 240V, 50 ~ 60Hz
정격출력전압	4.2V

### 3. 무선 특성

#### 1) WCDMA 송신부의 전기적 특성

항 목	Spec.	Min	Typ.	Max	단 위
Maximum Output Power	Power class III	21.0	23	25.0	dBm/3.84MHz
Frequency Accuracy	-	-200	-	+200	Hz
Minimum Output Power	-	-	-	-50	dBm/3.84MHz
Occupied Bandwidth	-	-	-	4.6	MHz
Adjacent Channel Leakage Power Ratio	$\Delta f = \pm 5\text{MHz}$	-	-	-33	dBm/3.84MHz
	$\Delta f = \pm 10\text{MHz}$	-	-	-43	dBm/3.84MHz
Error Vector Magnitude(EVM)	-	-	-	17	%
Peak Code Domain Error	-	-	-	15	dBm/3.84MHz
Open Loop Output Power	Ior = -106.7dBm/3.84MHz	-46.7	-	-28.7	dBm/3.84MHz
	Ior = -65.7dBm/3.84MHz	-23.0	-	-5.0	dBm/3.84MHz
	Ior = -25.0dBm/3.84MHz	-0.0	-	14.0	dBm/3.84MHz
Transmit Off Power	-	-	-	-56	dBm/3.84MHz
Spectrum Emission Mask	$\Delta f = 2.5 \sim 3.5\text{MHz}$	$-35 - 15 * (\Delta f - 2.5)$			dBc/30KHz
	$\Delta f = 3.5 \sim 7.5\text{MHz}$	$-35 - 1 * (\Delta f - 3.5)$			dBc/1MHz
	$\Delta f = 7.5 \sim 8.5\text{MHz}$	$-39 - 10 * (\Delta f - 7.5)$			dBc/1MHz
	$\Delta f = 8.5 \sim 12.5\text{MHz}$	-49			dBc/1MHz
Transmit Spurious Emission	9kHz ~ 150kHz			-36	dBm
	150kHz ~ 30MHz			-36	dBm
	30MHz ~ 1GHz			-36	dBm
	1GHz ~ 12.5GHz			-30	dBm

## 2) WCDMA 수신부의 전기적 특성

항 목	Spec.	Min	Typ.	Max	단 위
Reference Sensitivity Level	BER < 0.1%	-	-	-106.7	dBm/3.84MHz
Maximum Input Level	Pin = -25dBm	-	-	0.1	BER(%)
Adjacent Channel Selectivity(ACS)	Jammer (Modulation) = -52dBm/3.84MHz $\Delta f = \pm 5\text{MHz}$ BER < 0.001%	-	-	-103	dBm/3.84MHz
In Band Blocking	Jammer (Modulation) = -56dBm/3.84MHz $\Delta f = \pm 10\text{MHz}$ BER < 0.001%	-	-	-103.7	dBm/3.84MHz
	Jammer (Modulation) = -44dBm/3.84MHz $\Delta f = \pm 15\text{MHz}$ BER < 0.001%	-	-	-103.7	dBm/3.84MHz
Inter-modulation Desensitization	Jammer 1(CW) = -46dBm Jammer 2( Modulation) = -46dBm/3.84MHz $\Delta f = \pm 10\text{MHz}$ BER < 0.001%	-	-	-103.7	dBm/3.84MHz
	Jammer 1 = -46dBm(CW) Jammer 2( Modulation) = -46dBm/3.84MHz $\Delta f = \pm 20\text{MHz}$ BER < 0.001%	-	-	-103.7	dBm/3.84MHz
Spurious Emissions	30kHz ~ 1GHz	-	-	-57	dBm/30kHz
	1GHz ~ 1.92GHz	-	-	-47	dBm/1MHz
	1.92GHz ~ 1.98GHz	-	-	-60	dBm/3.84MHz
	1.98GHz ~ 2.11GHz	-	-	-47	dBm/3.84MHz
	2.11GHz ~ 2.17GHz	-	-	-60	dBm/3.84MHz
	2.17GHz ~ 12.75GHz	-	-	-47	dBm/1MHz

### 3) HSDPA 송/수신부의 전기적 특성

	항 목	Spec.	Min	Typ.	Max	단 위	
송 신	5.2.A Maximum Output Power with HS-DPCCH	$1/15 \leq \beta c/\beta d \leq 12/15$ $13/15 \leq \beta c/\beta d \leq 15/8$ $15/7 \leq \beta c/\beta d \leq 15/0$	21 20 19	23 22.5 22	25 25 25	dBm/3.84MHz	
	5.7A HS-DPCCH	MAX / 0dBm	Step 0	0 dBm +/- 1 dB			dB
			Step 1 – Step 0	6 dB +/- 2.3 dB			dB
			Step 2 – Step 3	1 dB +/- 0.6 dB			dB
			Step 5 – Step 4	0 dB +/- 0.6 dB			dB
			Step 6 – Step 7	5 dB +/- 2.3 dB			dB
	5.9A Spectrum Emission Mask with HS-DPCCH	$\Delta f = 2.5 \sim 3.5\text{MHz}$	$-35 - 15 * (\Delta f - 2.5)$			dBc/30KHz	
		$\Delta f = 3.5 \sim 7.5\text{MHz}$	$-35 - 1 * (\Delta f - 3.5)$			dBc/1MHz	
		$\Delta f = 7.5 \sim 8.5\text{MHz}$	$-39 - 10 * (\Delta f - 7.5)$			dBc/1MHz	
		$\Delta f = 8.5 \sim 12.5\text{MHz}$	-49			dBc/1MHz	
5.10A Adjacent Channel Leakage Power Ratio with HS-DPCCH	$\Delta f = \pm 5\text{MHz}$	-	-	-33	dBm/3.84MHz		
	$\Delta f = \pm 10\text{MHz}$	-	-	-43	dBm/3.84MHz		
5.13.1A Error Vector Magnitude (EVM) with HS-DPCCH	MAX Power -20 dBm	-	-	17.5	%		
수 신	6.3A Maximum Input Level for HS-PDSCH Reception	Pin = -25dBm	-	-	10	BLER(%)	

#### 4) 지상파DMB 전기적 특성

항목	Spec.	Min	Typ.	Max	단위
Sensitivity	BER $10^{-4}$ 이하 @Viterbi Decoder Output			-95	dBm
Maximum Input Power	BER $10^{-4}$ 이하 @Viterbi Decoder Output	-10			dBm
Adjacent Channel Selectivity	BER $10^{-4}$ 이하 @Viterbi Decoder Output 조건 만족시의 인접채널 신호와의 레벨차이	30			dB
Far-off Selectivity	BER $10^{-4}$ 이하 @Viterbi Decoder Output 조건 만족시의 $\pm 5\text{MHz}$ 떨어진 신호와의 레벨차이	40			dB
Acquisition time after Synchronization loss	10초 이상 신호를 차단한 후에 $\pm 500\text{Hz}$ 벗어난 신호인가 시 동기를 잡는데 까지 걸리는 시간			3	sec
Performance in a Rayleigh Channel	A. Urban(@25Km/s) 조건에서의 감도 (BER $10^{-4}$ 이하@Viterbi Decoder Output)			-75	dBm
	B. Rural(@120Km/s) 조건에서의 감도 (BER $10^{-4}$ 이하@Viterbi Decoder Output)			-75	dBm
	C. SFN(@60Km/s) 조건에서의 감도 (BER $10^{-4}$ 이하@Viterbi Decoder Output)			-75	dBm
무선감도	BER $10^{-4}$ 이하@Viterbi Decoder Output			TBD	dBm

- 주파수 범위 174 ~ 216 MHz (Ch7 ~ Ch13)
- System Bandwidth 1.536 MHz

#### 4. 부가 기능 특성

##### 1) 소모 전류

항 목	Specification
	WCDMA
1. Sleep Mode	2.5 mA 이하
2. Sleep : Ear jack 연결 시	3.5 mA 이하
3. Idle Mode	180 mA 이하
4. 대기전류(Sleep & Idle 평균)	5mA 이하
5. Talk Mode	Full Rate, target power 23dBm 700 mA @ Avg
6. No SVC Mode	180 mA 이하
7. Power Off Mode	450 uA 이하

##### 2) 배터리 표준사용시간

구분	Specification	측정 조건
대기 시간 및 대기전류 (WCDMA)	160시간 이상 5mA 이하	DRX 7 @ BATT 용량 : 1000mA/h
통화 시간 (WCDMA)	150 분 이상	12dBm @ BATT 용량 :1000mA/h (RB TEST Mode시)
충전 시간	150 분 이하	Phone off

◆ Battery : 1000mA/h Battery 사용

### 3) VT 표준 사용 시간

구분	Specification	측정 조건(BATTERY =800mAh 기준)
통화시간 (WCDMA)	90분 이상	VPWR = 4.0[V] ,Target Power =0[dBm] ,RB Test 시
	80분 이상	VPWR = 4.0[V] ,Target Power =12[dBm] ,RB Test 시
	50분 이상	VPWR = 4.0[V] ,Target Power =23[dBm] ,RB Test 시

◆ Battery : 1000mAh Battery 사용

### 4) RSSI 표시

Antenna BAR	Specification	단위
	WCDMA	
6→5	-94.0 ~ -97.0	dBm
5→4	-97.0 ~ -100.0	
4→3	-100.0 ~ -103.0	
3→2	-103.0 ~ -106.0	
2→1	-106.0 ~ -109.0	
1→0	-109.0 ~ -112.0	
No SVC	-112.0 이하	

◆ RSSI 측정 시 Power 변동 후 10초 이상의 공백 후 측정해야 함.  
(RSSI의 Stability를 확보하기 위한 시간임.)

### 5) Battery Bar 표시

Battery Bar 개수(slide open상태)	Specification
BAR 3 → 2 개(slide open상태)	3.74 ± 0.07 (3.67 ~ 3.81)
BAR 2 → 1 개(slide open상태)	3.66 ± 0.07 (3.59 ~ 3.73)
BAR 1 → 0개 & LVA(Low Voltage Alarm) & 깜박임(slide open상태)	3.58 ± 0.07 (3.51 ~ 3.65)
LBA & 깜박임 → POWER OFF(slide close 상태)	Idle : 3.32 이하 Call : 3.32 이하

◆ Battery BAR 측정 시 전압 강하 후 10초 이상의 공백 후 측정해야 함.  
(Battery BAR의 Stability를 확보하기 위한 시간임)

◆ Battery BAR 측정 시 (조명설정->표준)으로 설정한 후 측정해야 함.



6) DMB Bar 표시

BAR 개수	Specification	측정 기준
BAR 5 개	240 이하	CER (Channel Error Rate)
BAR 4 개	240 ~ 360	
BAR 3 개	360 ~ 500	
BAR 2 개	500 ~ 700	
BAR 1 개	700 ~ 1200	
BAR 0 개(No Service)	12000 이상	

7) 벨소리 음압

구 분	Specification	측정 조건
60% 곡	Min 60dBspl	1 m 거리
100% 곡	Min 55dBspl	1 m 거리

5. 시험 측정 방법 및 규정

- 1) 전기적 특성 측정 방법  
: 제품 성능 시험 업무 절차서 LG(43)-G-0001-20(WCDMA) 및 LG(45)-B-4602-51(CDMA) 표준 시험 방법에 준한다.
- 2) 신뢰성 시험 방법  
: 제품 신뢰성 시험 업무 절차서 LG(45)-B-4602-54 표준 시험 방법에 준한다.
- 3) U/I 검증 시험방법  
: U/I 인정 시험 절차서 LG(45)-B-4602-53 표준 시험 방법에 준한다.
- 4) Field Test 방법  
: FIELD TEST 업무 절차서 LG(45)-B-4602-52 표준 시험 방법에 준한다.

6. 신기능 추가에 따른 시험 방법 및 SPEC. 정의

- S/W적인 신기능은 사용설명서에 언급된 방법에 준한다.

# 단말 디버그 화면 - SU960

## ☐ SKT WCDMA Mode

```

* SKT WCDMA Mode
DLCH:      ULCH:
PLMN:
SD:        NOM:    LAC/RAC:
Cell:
MM Cause:  state/substate/avail
GMM Cause: state/substate/avail
SM Cause:  DRX:    BLER:
RRC:       RSSI/Tx:
ASET:
RSCP:
Eclo:
NSET:
NRSCP:
NEclo:
NV IMEI:
IMSI_P:
TMSI:      PTMSI:
MSISDN:
    
```

### [SKT WCDMA Mode] - 항목별 설명

DLCH : 단말이 잡고 있는 downlink WCDMA channels  
 ULCH : 단말이 잡고 있는 uplink WCDMA channels  
 Ex) SKT: 10737/9787

PLMN : MCC (mobile country code) MNC (mobile network code)  
 Ex) SKT: 450 05

SD : 현재 단말이 지원 가능한 서비스 도메인  
 Ex) CS (Circuit switched), PS (Packet switched), CSPS

NOM (Network mode of operation) : 망 동작 모드  
 Ex) 1 (Combined 로 등록 및 서비스), 2 (CS, PS 각각 등록 및 서비스)

LAC (Location Area Code)/RAC (Routing Area Code): CS/PS용 지역 코드  
 Cell : 현재 cell 의 정보: MSC\_RNC\_Node-B\_Sector\_Freq\_RFU  
 Ex) 9\_9\_55\_1\_1\_0

MM (Mobility Management) Cause, state, substate, servicestate: MM 도메인  
 에서 망으로부터 받은 reject cause, MM state, substate, service 상태 정  
 보 Ex) 0x0 IDLE/NORMAL

GMM (GPRS MM) Cause, state, substate, servicestate: GMM 도메인에서 망  
 으로부터 받은 reject cause, GMM state, substate, service 상태 정보  
 Ex) 0x0 REG/NORMAL

SM (Session Management) Cause : SM 에서 망으로부터 받은 reject cause  
 DRX (Discontinuous Reception cycle length) : sleep에서 깨어나는 주기  
 Ex) DRX cycle length가 6인 경우 :  $2^6 = 640\text{ms}$

BLER: Block Error Rate 정보

RRC (Radio Resource Control): RRC state 정보

RSSI/Tx : RSSI, Tx power dbm

ASET: Active SET의 PSC 정보

RSCP: Active SET의 RSCP (Received Signal Channel Power) 정보

Eclo: Active SET의 Energy / Inteference 정보

NASET: Neighbor SET의 PSC 정보

NRSCP : Neighbor SET의 RSCP 정보

NEclo : Neighbor SET의 Energy / Inteference 정보

NV IMEI : 단말의 IMEI 정보

IMSI\_P : 삽입한 카드의 IMSI\_P 정보

TMSI : 위치등록 결과 망에서 받은 TMSI 정보

PTMSI : 위치등록 결과 망에서 받은 PTMSI 정보

MSISDN : 삽입한 카드의 MSISDN 정보

# 단말 디버그 화면 - KU9600

## □ KTF WCDMA Mode

### \* KTF WCDMA Info

**UARFCN:**      **PLMN:**  
**CN:**          **Cell:**  
**LAC/RAC:**  
**MM Cause:**      **state/substate/avail**  
**GMM Cause:**      **state/substate/avail**  
**SM Cause:**  
**RRC:**          **RSSI: DRX:**  
**RSCP:**  
**Eclo:**  
**ASET:**  
**RSCP:**  
**Eclo:**

### [KTF WCDMA Mode] - 항목별 설명

UARFCN : 단말이 잡고 있는 downlink WCDMA channels

PLMN : MCC (mobile country code) MNC (mobile network code)

Ex) SKT: 450 05

CN : 현재 단말이 지원 가능한 서비스 도메인

Ex) CS (Circuit switched), PS (Packet switched), CSPS

LAC (Location Area Code)/RAC (Routing Area Code): CS/PS용 지역 코드

Cell : 현재 cell 의 정보: MSC\_RNC\_Node-B\_Sector\_Freq.\_RFU

Ex) 9\_9\_55\_1\_1\_0

MM (Mobility Management) Cause, state, substate, servicestate: MM 도메인에서 망으로부터 받은 reject cause, MM state, substate, service 상태 정보  
Ex) 0x0 IDLE/NORMAL

GMM (GPRS MM) Cause, state, substate, servicestate: GMM 도메인에서 망으로부터 받은 reject cause, GMM state, substate, service 상태 정보  
Ex) 0x0 REG/NORMAL

SM (Session Management) Cause : SM 에서 망으로부터 받은 reject cause

DRX (Discontinuous Reception cycle length) : sleep에서 깨어나는 주기

Ex) DRX cycle length가 6인 경우 :  $2^6 = 640\text{ms}$

RRC (Radio Resource Control): RRC state 정보

RSSI : RSSI

ASET: Active SET의 PSC 정보

RSCP: Active SET의 RSCP (Received Signal Channel Power) 정보

Eclo: Active SET의 Energy / Inteference 정보

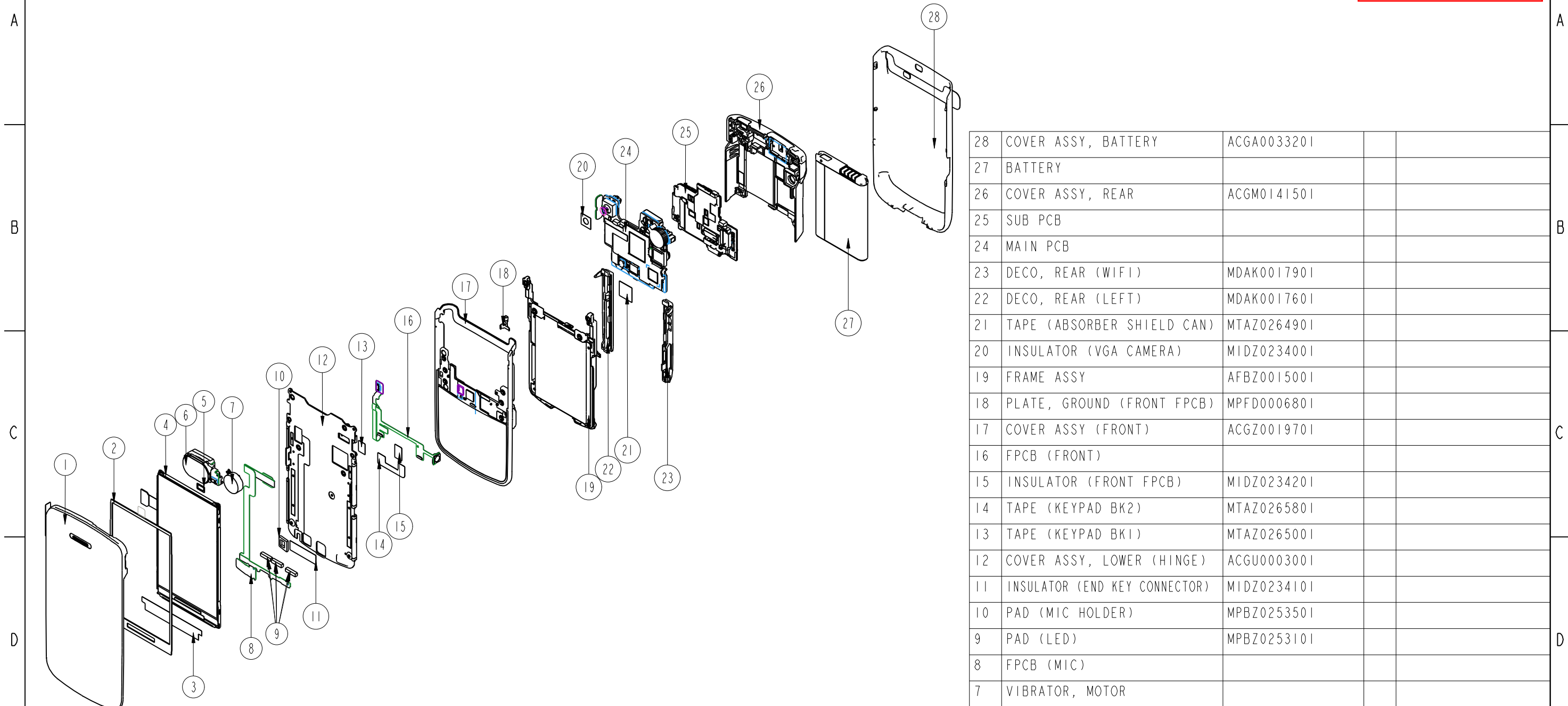
## □ WCDMA Debug screen 용어 풀이

- (1) **CELL ID** : 단말이 잡고 있는 WCDMA channel  
Ex) SKT : 10664, 10689, 10713, 10737  
KTF : 10812, 10836, 10787, 10763
- (2) **PLMN** : MCC(mobile country code) + MNC(mobile network code)  
Ex ) SKT : 450+05, KTF : 450 + 08
- (3) **CN ID** : CS과 PS관련하여, 단말이 지원가능한 모드  
Ex) CS, PS, CSPA
- (4) **Network mode** : network mode  
Ex) NET I : PS를 통해 CS 등록 시도, NET II : CS, PS 각 등록 시도
- (5) **LAC/RAC** : LAC = Location Area Code, RAC = Routina Area Code
- (6) **DRX cycle length** : sleep에 들어갔다 나오는 주기  
Ex : Drx cycle length가 7인 경우 :  $2^7 = 128\text{msec}$  -> 1.28초
- (7) **RSSI** : 원래 개념은 Rx power이나, 퀄컴 소스상 Rx power + Ec/Io 으로 구현
- (8) **RX/TX** : Rx power/ Tx power
- (9) **BLER** : Transport Block Error Rate
- (10) **Battery Raw Level** : Battery Level의 AD변환값을 표시
- (11) **LNA/PAM state** : LNA 및 Power Amp.(PAM)의 상태를 표시
- (12) **Temperature Raw Level** : 온도 Level의 AD변환값을 표시
- (13) **MM state/MM substate/MM service state** : MM관련 state  
Ex) IDLE/NORMAL/AVAILABLE인 상태가 CS쪽 정상 등록 상태임
- (14) **GMM state/GMM substate/GMM service state** : GMM관련 state  
Ex) IDLE/NORMAL/AVAILABLE인 상태가 PS쪽 정상 등록 상태임
- (15) **RRC state** : RRC 관련 state  
Ex) 통화중은 CELL DCH로 표기, 평소 DISCONNECT상태
- (16) **L1 state** : Layer 1관련 state
- (17) **IMSI** : USIM에 저장되는 정보. IMSI를 가지고 등록 시도
- (18) **TMSI** : 등록 성공 된 경우, 망으로 부터 MM쪽으로 할당받는 정보(CS)
- (19) **PTMSI** : 등록 성공 된 경우, 망으로 부터 GMM쪽으로 할당받는 정보(PS)
- (20) **MSISDN** : USIM에 저장되어 있는 단말의 전화번호
- (21) **ASET PSC** : Active Set의 Primary Scrambling Code
- (22) **RSCP** : Active Set의 각 RSCP
- (23) **Ec/Io** : Active Set의 각 Ec/Io
- (24) **NSET PSC** : Neighbor Set의 각 RSCP
- (25) **Ec/Io** : Neighbor Set의 각 Ec/Io

## 다. 분해 조립도

Revision				
rev.	Contents	Engineer	Approver	Date
1.0	초도발령			

LGE Internal Use Only



SCALE 0.500

28	COVER ASSY, BATTERY	ACGA0033201		
27	BATTERY			
26	COVER ASSY, REAR	ACGM0141501		
25	SUB PCB			
24	MAIN PCB			
23	DECO, REAR (WIFI)	MDAK0017901		
22	DECO, REAR (LEFT)	MDAK0017601		
21	TAPE (ABSORBER SHIELD CAN)	MTAZ0264901		
20	INSULATOR (VGA CAMERA)	MIDZ0234001		
19	FRAME ASSY	AFBZ0015001		
18	PLATE, GROUND (FRONT FPCB)	MPFD0006801		
17	COVER ASSY (FRONT)	ACGZ0019701		
16	FPCB (FRONT)			
15	INSULATOR (FRONT FPCB)	MIDZ0234201		
14	TAPE (KEYPAD BK2)	MTAZ0265801		
13	TAPE (KEYPAD BK1)	MTAZ0265001		
12	COVER ASSY, LOWER (HINGE)	ACGU0003001		
11	INSULATOR (END KEY CONNECTOR)	MIDZ0234101		
10	PAD (MIC HOLDER)	MPBZ0253501		
9	PAD (LED)	MPBZ0253101		
8	FPCB (MIC)			
7	VIBRATOR, MOTOR			
6	SPEAKER MODULE			
5	PAD, SPEAKER (SENSOR)	MPBN0077901		
4	LCD MODULE			
3	GASKET (LCD)	MGAZ0077301		
2	PAD, LCD	MPBG0098701		
1	COVER ASSY (UPPER IML)	ACGZ0020201		
No	Part Name	Part Number	Q'ty	Remark

Material							
Unit	Scale	Size	Sheet	Designed By	Model Name	LG-SU960	
mm	1.000	A3	1/1	Date	Drawing Name	PHONE ASSY	
				Approved By	Drawing Number	APEY0849601	
				Date			

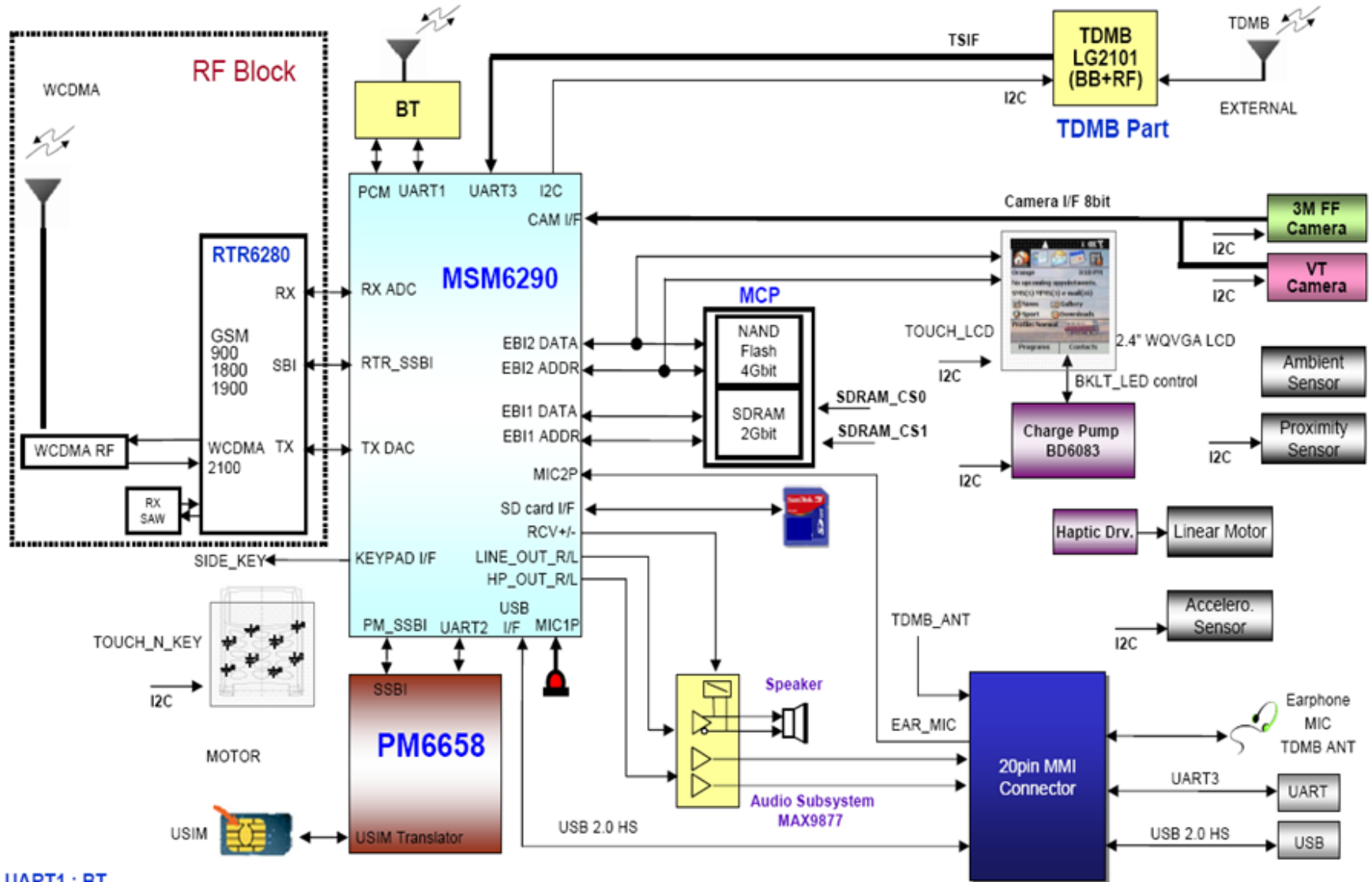
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## 라. 블록도



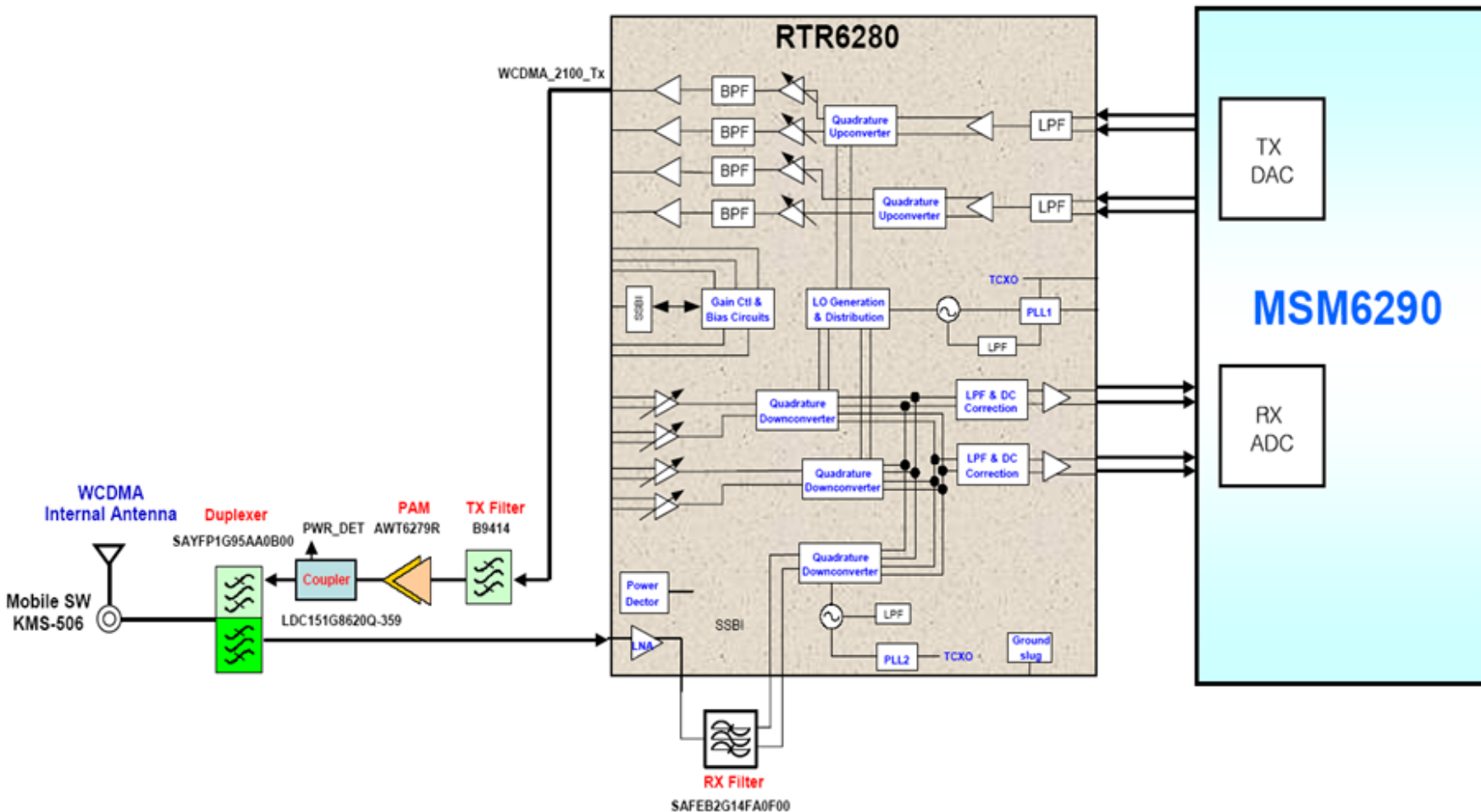
# 1. SU960/KU9600 Entire Block Diagram - WCDMA



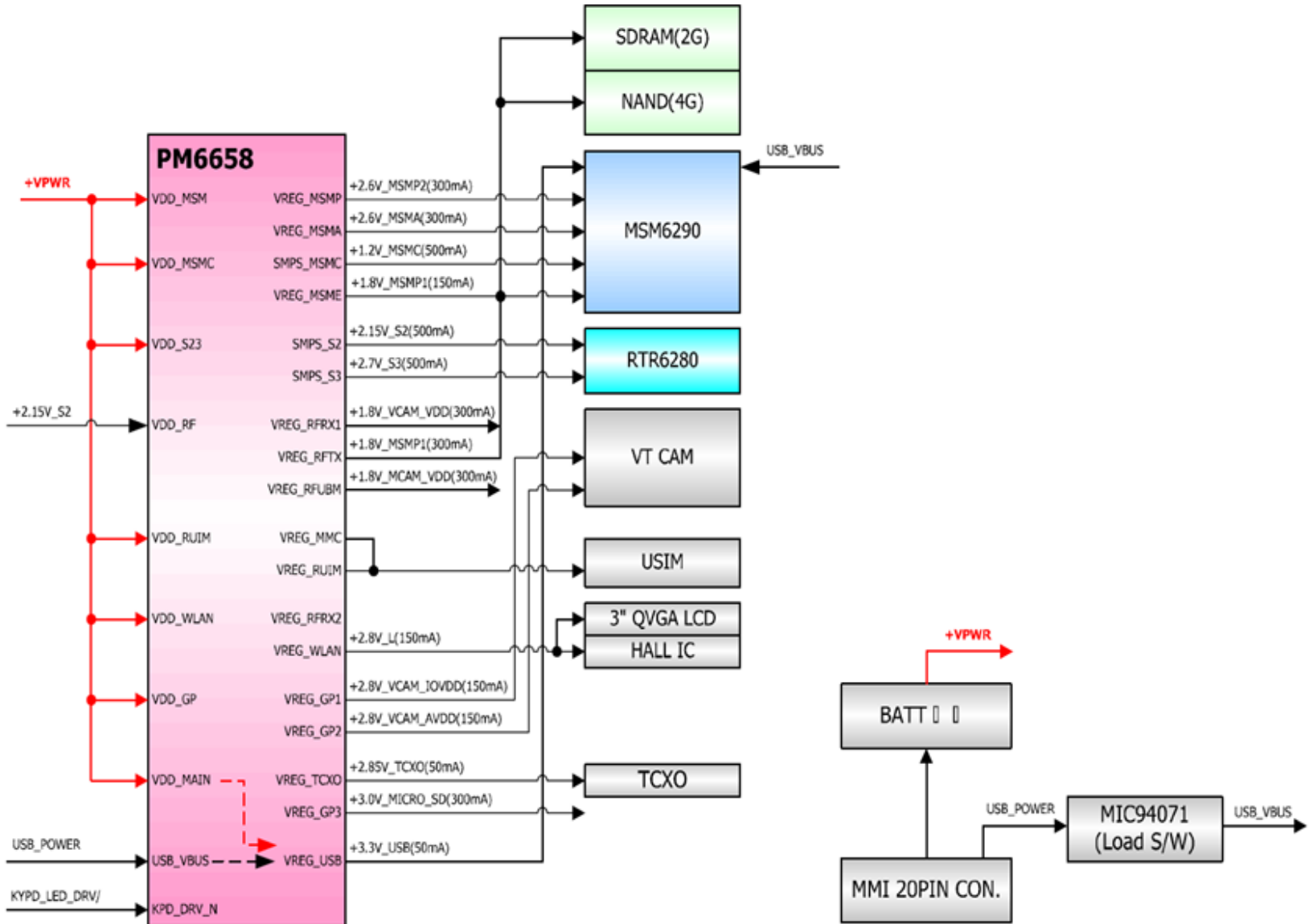
UART1 : BT  
 UART2 : USIM  
 UART3 : TSIF & DP



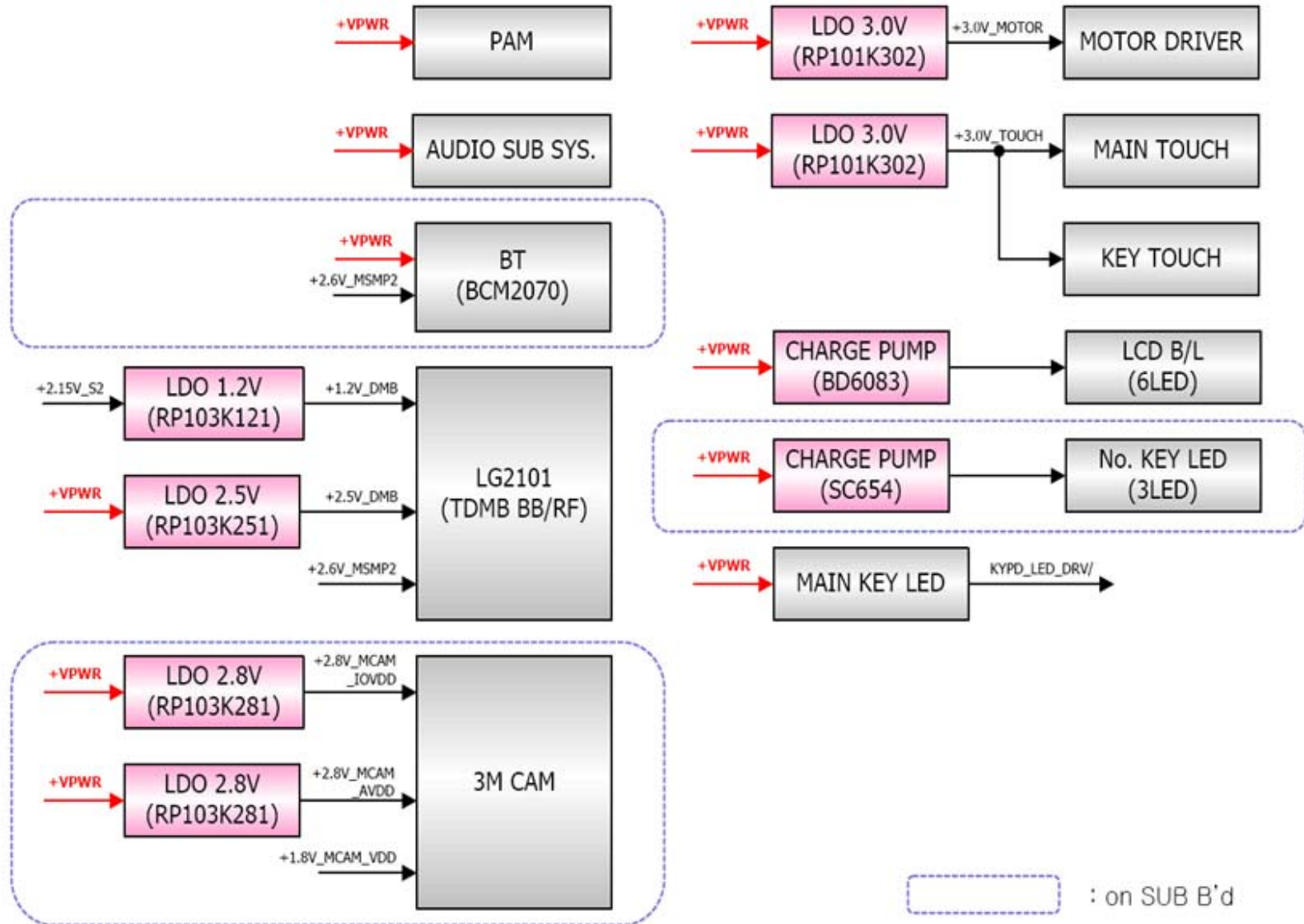
## 2. RF Block Diagram - WCDMA



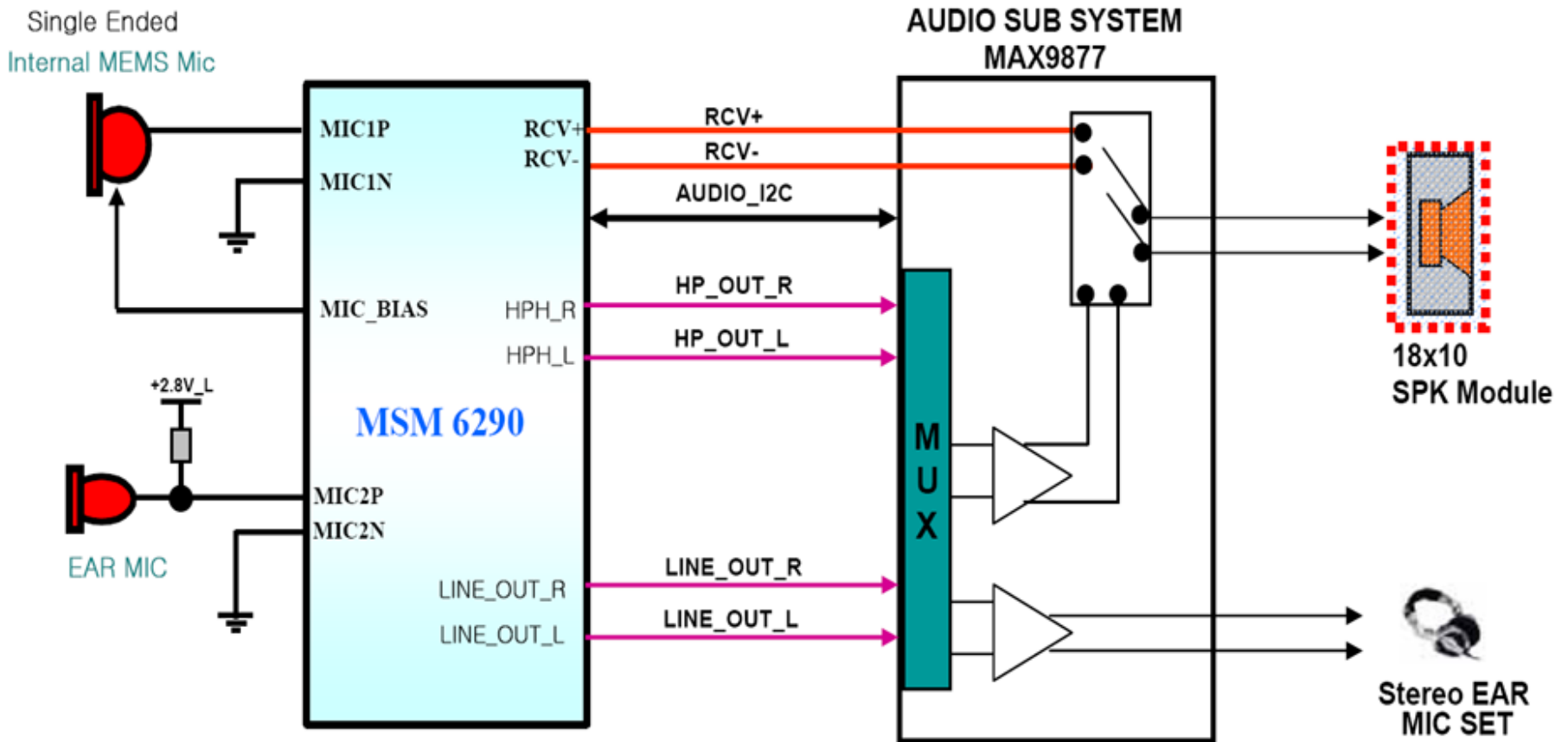
### 3. Power Block Diagram(1) – WCDMA



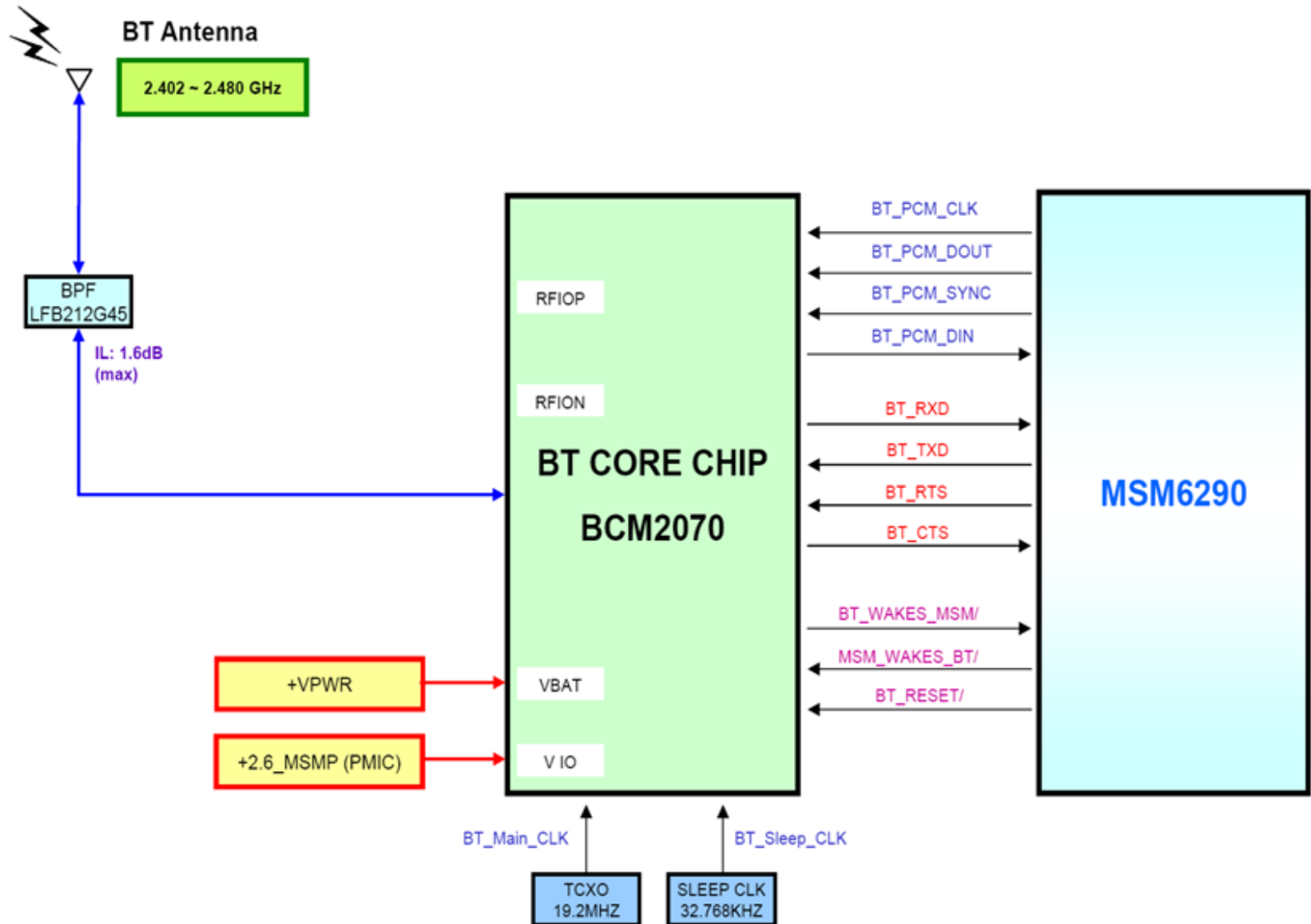
# 4. Power Block Diagram(2) – WCDMA



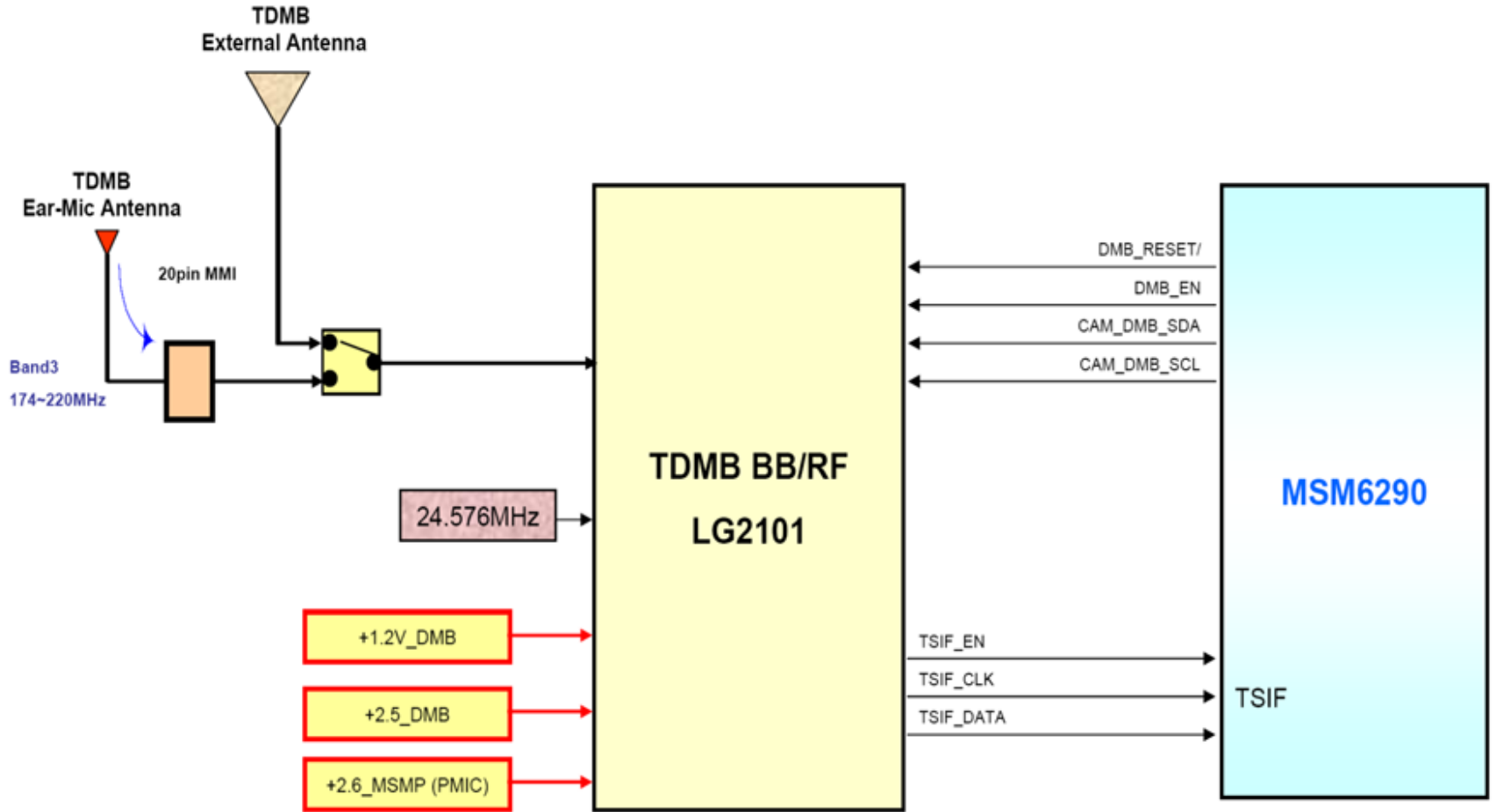
# 5. Audio Block Diagram



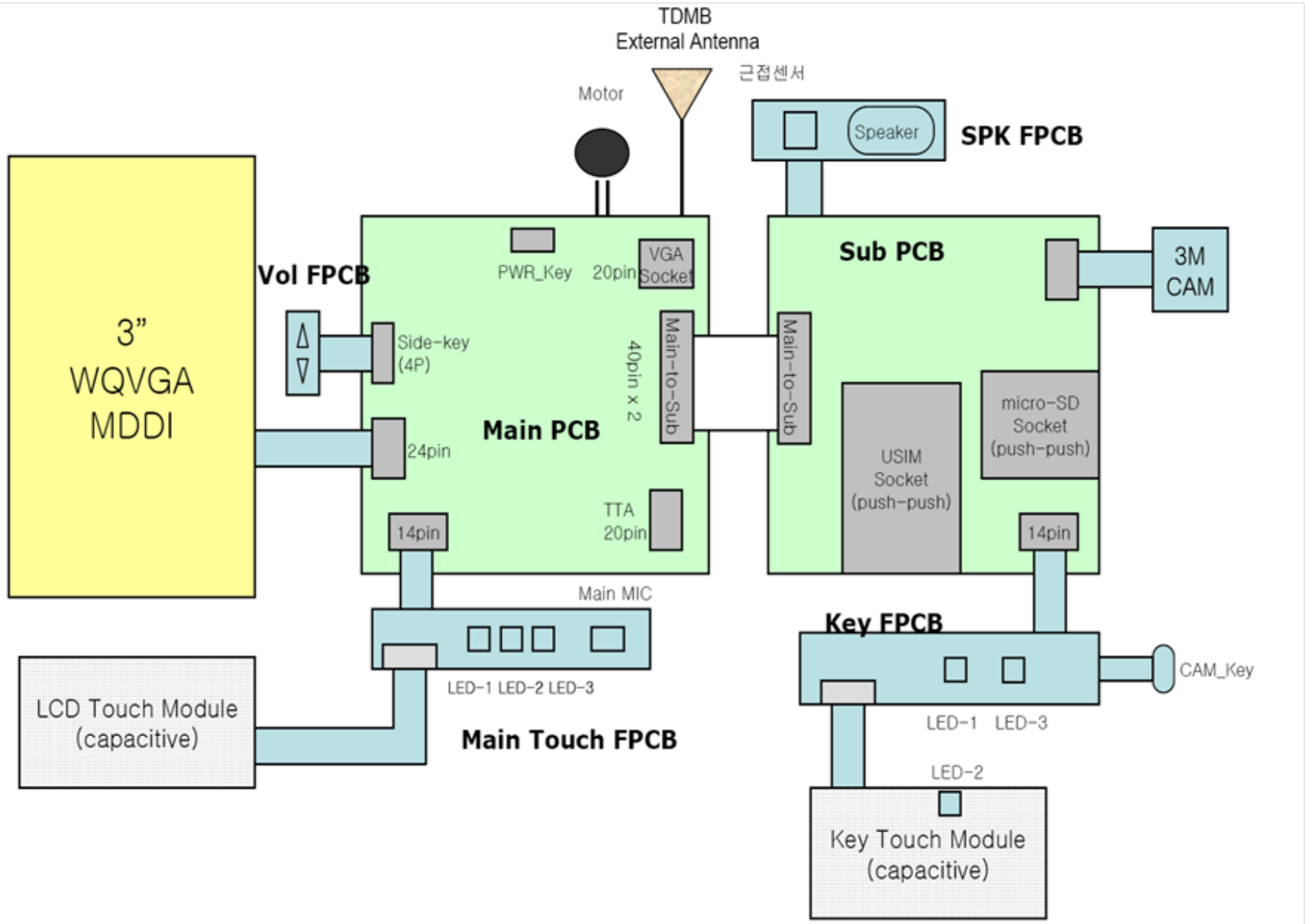
# 6. Bluetooth Block Diagram



# 7. TDMB Block Diagram - WCDMA



# 8. PCB Structure

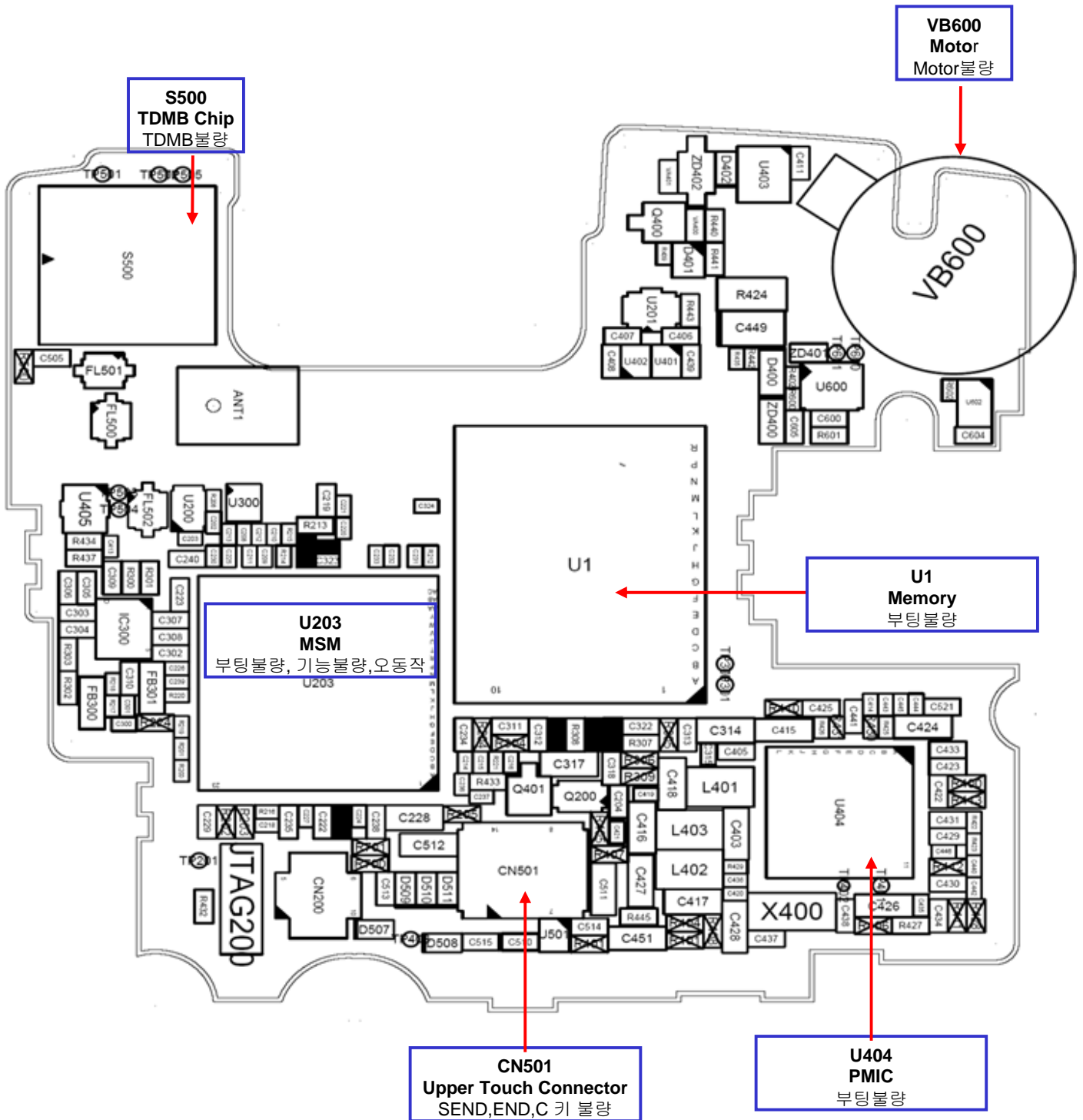


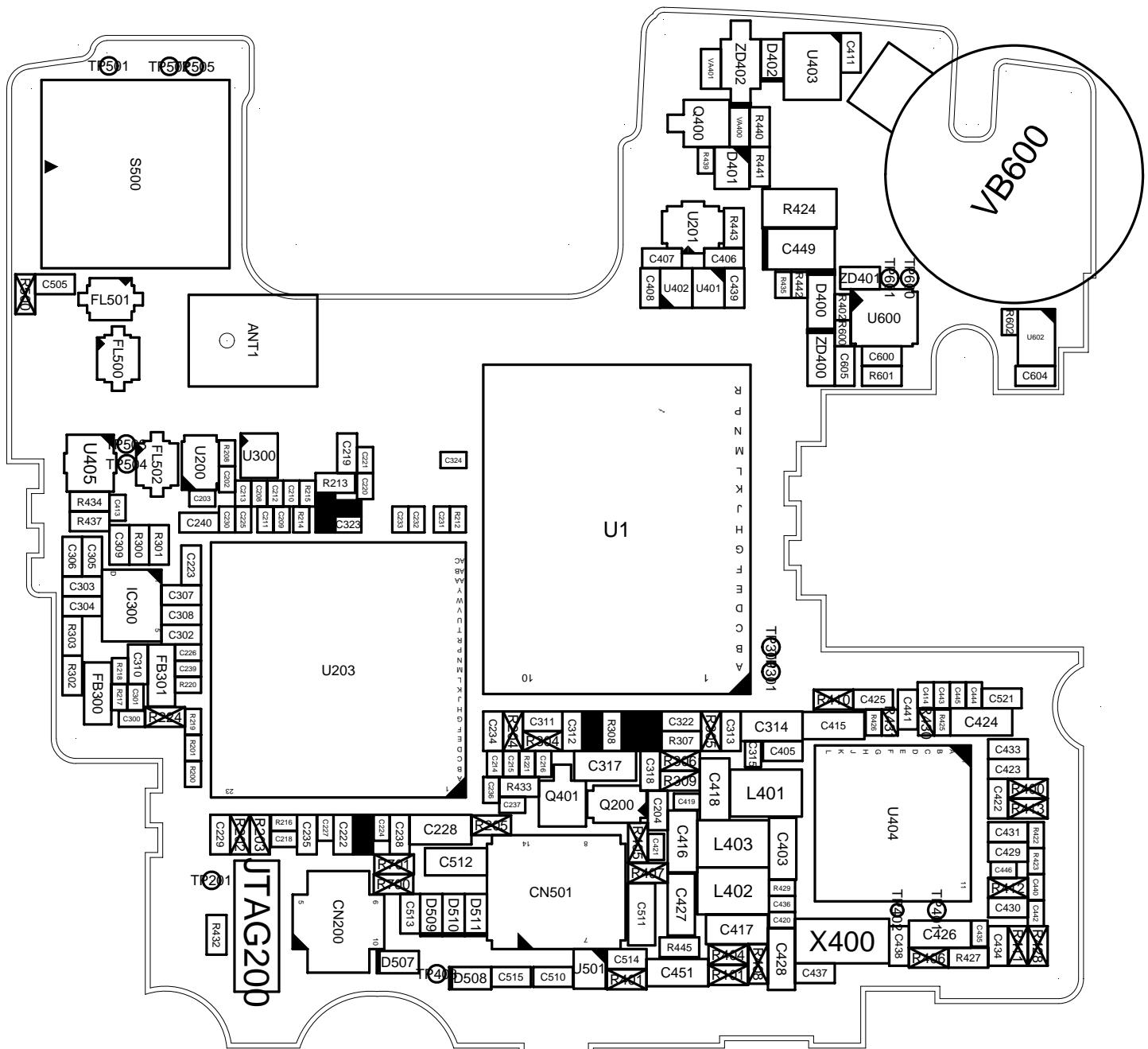
## 마. 부품 배치 및 One Point 수리법



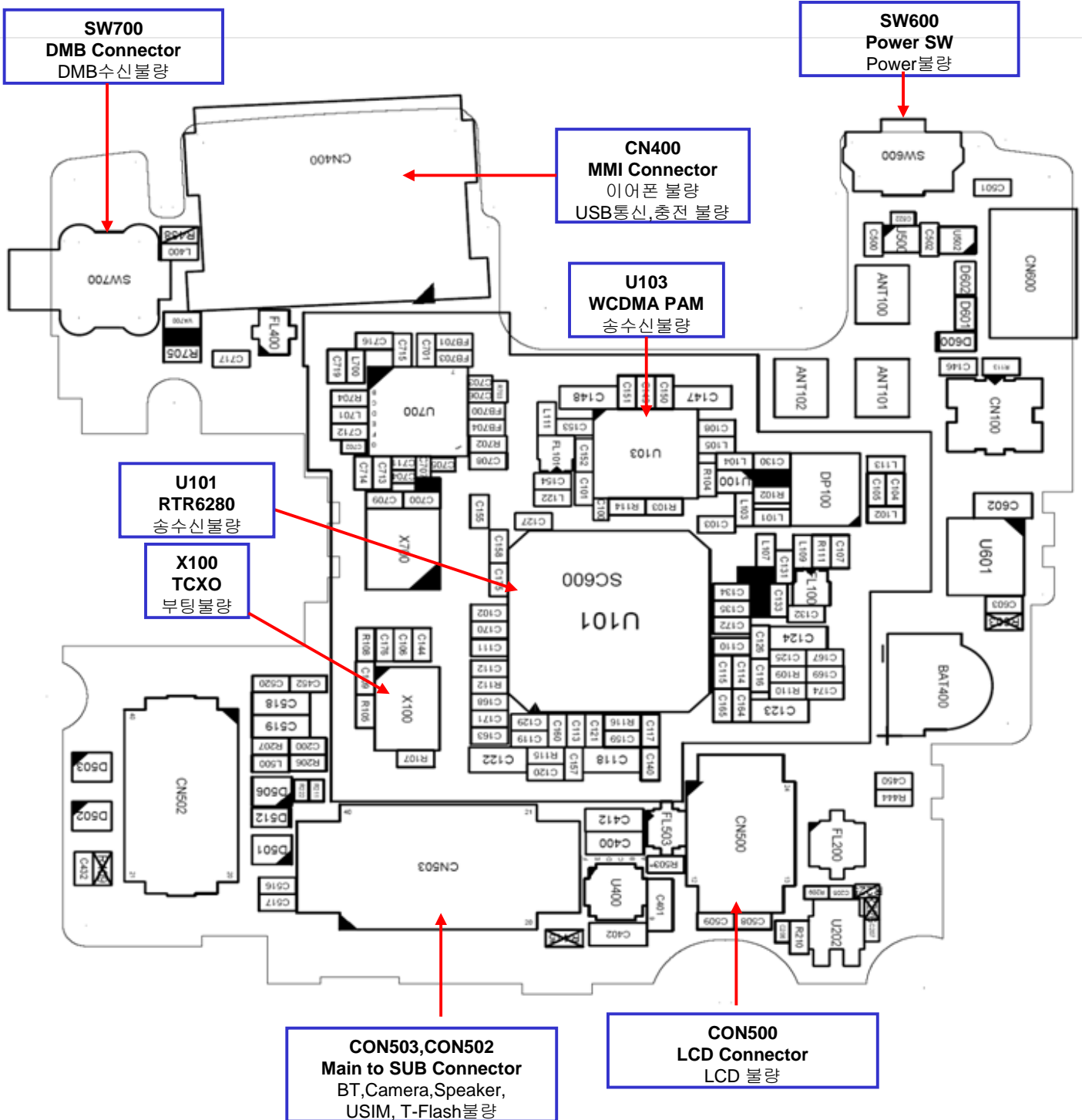


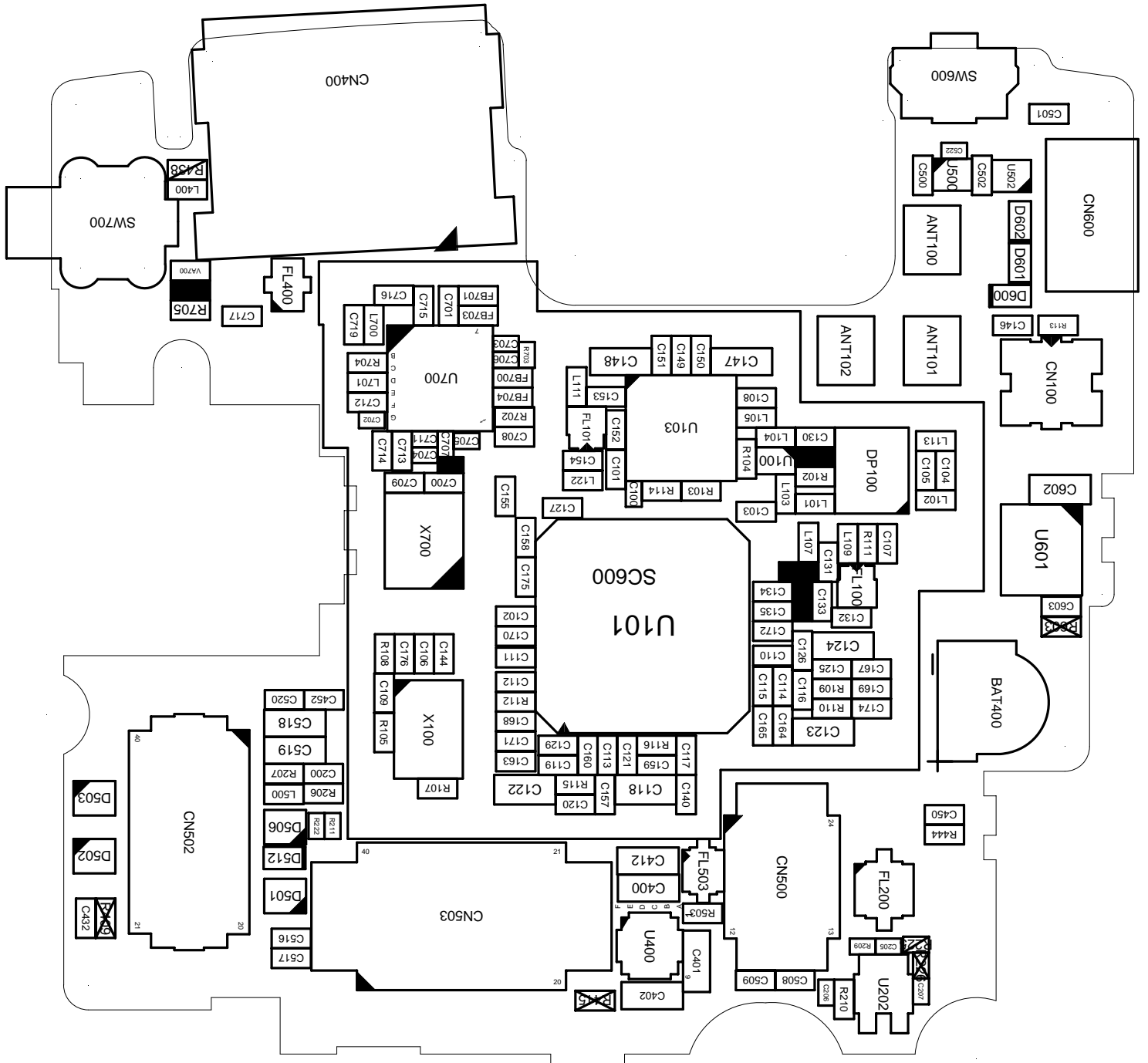
# MAIN\_TOP



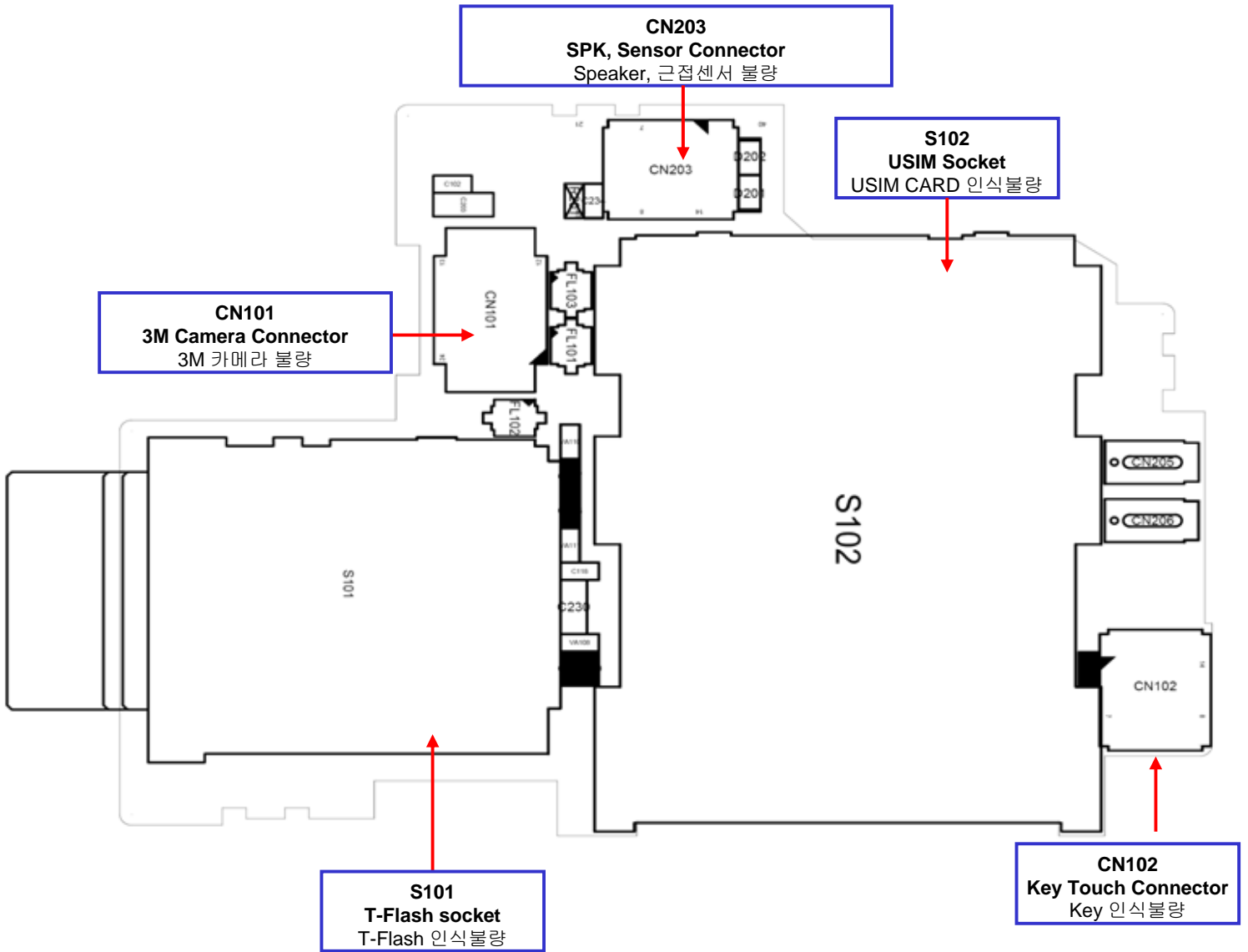


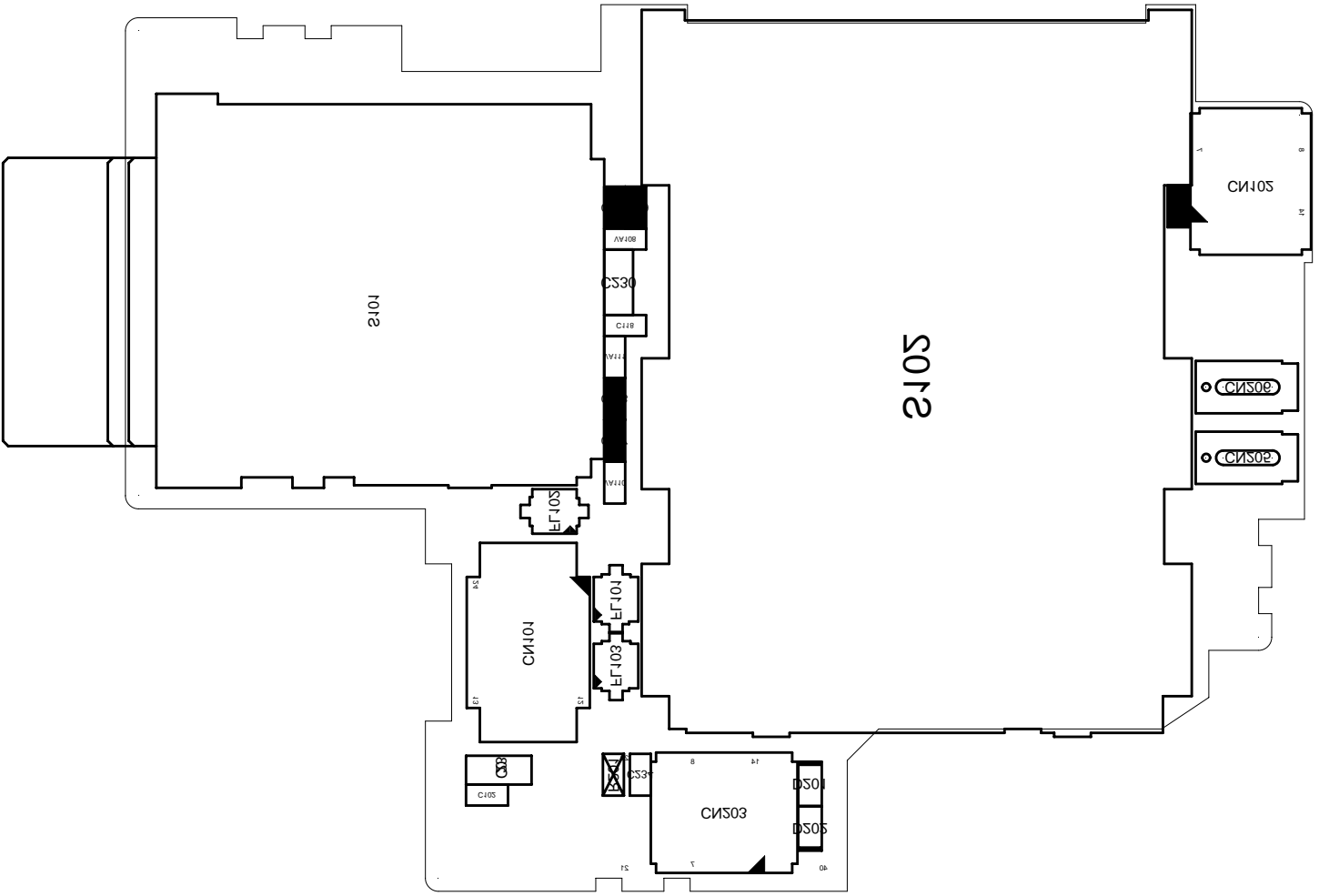
# MAIN\_BOTTOM



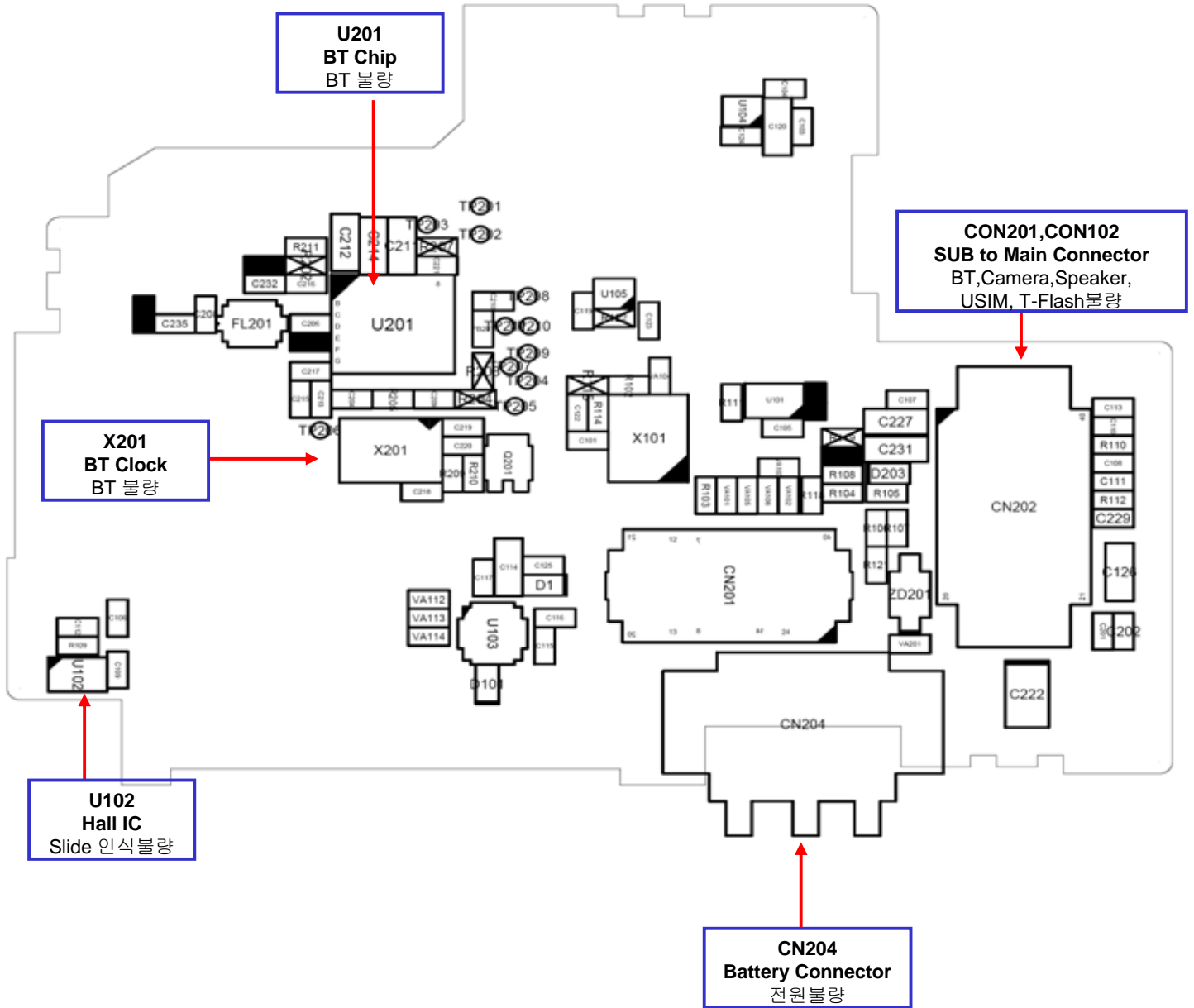


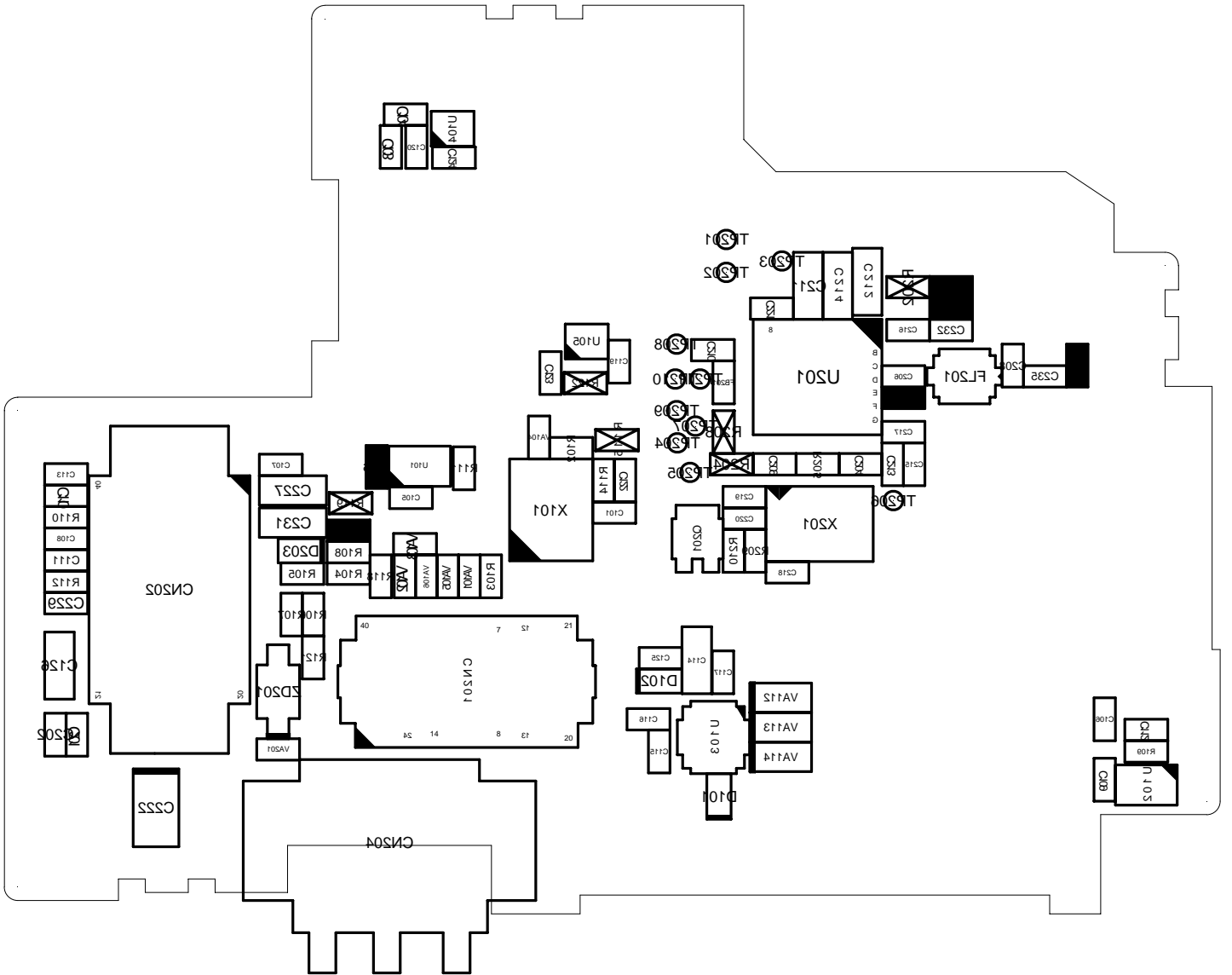
# SUB\_TOP





# SUB\_BOT



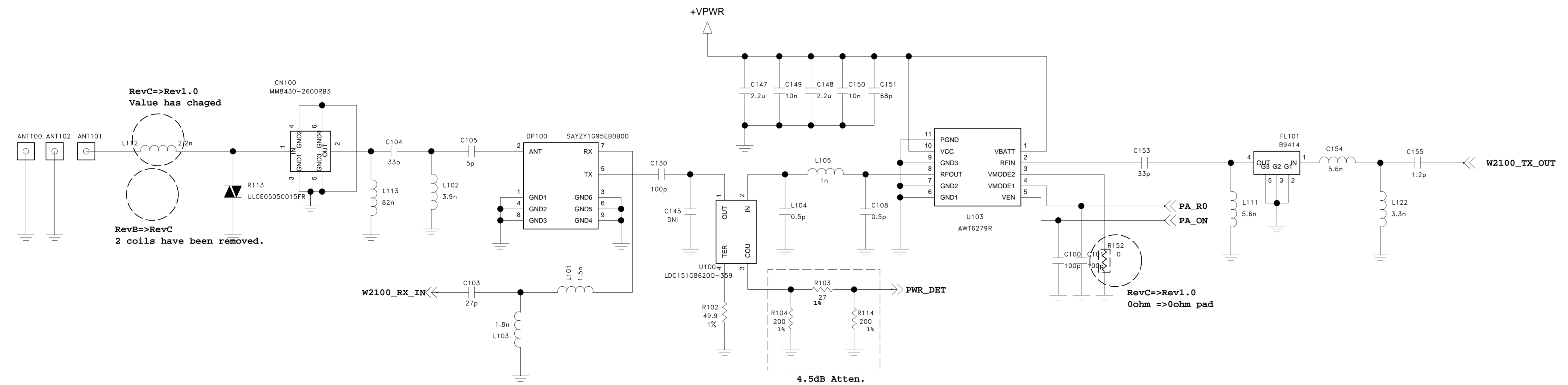




## 바. 회로도

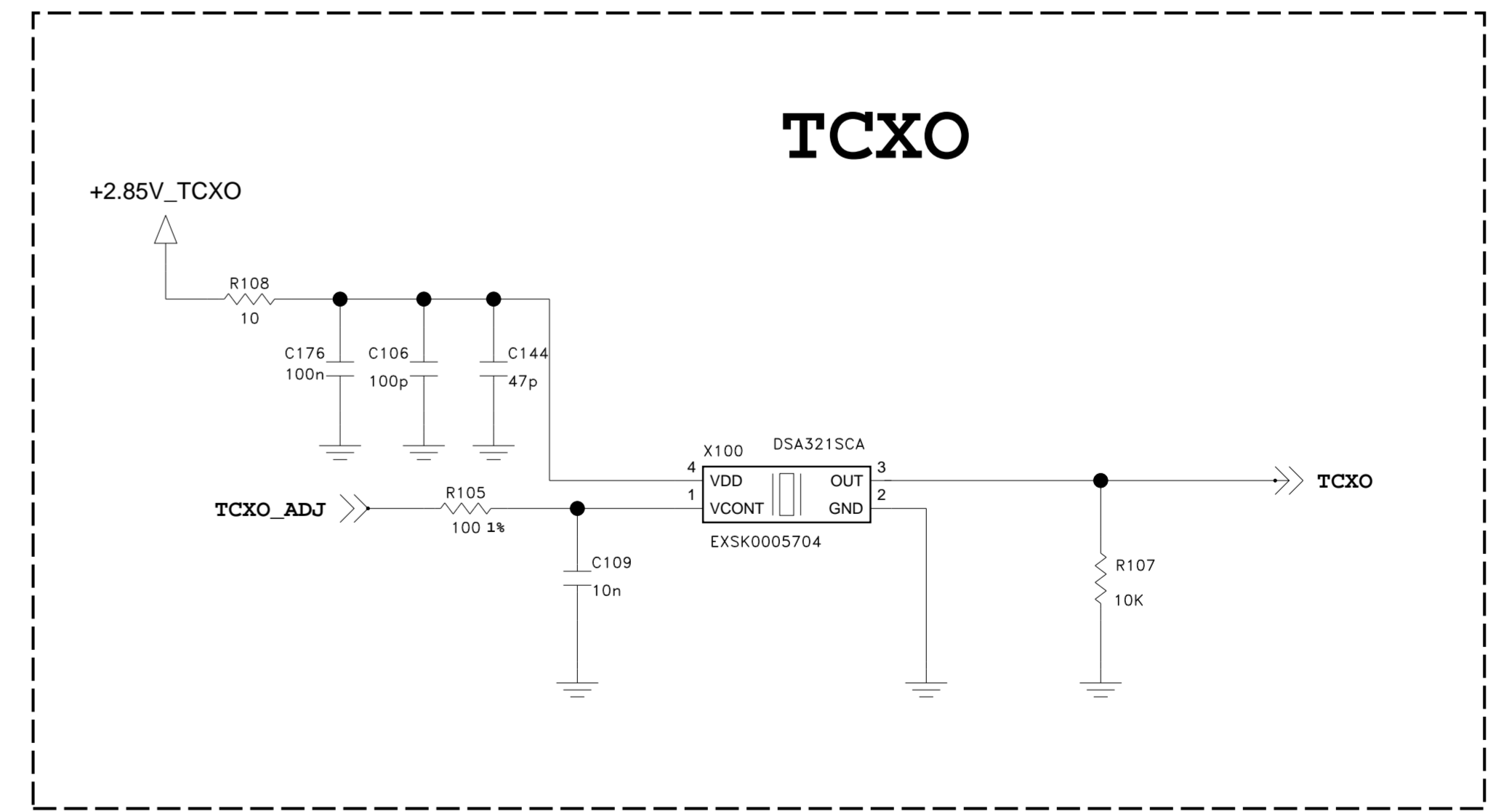
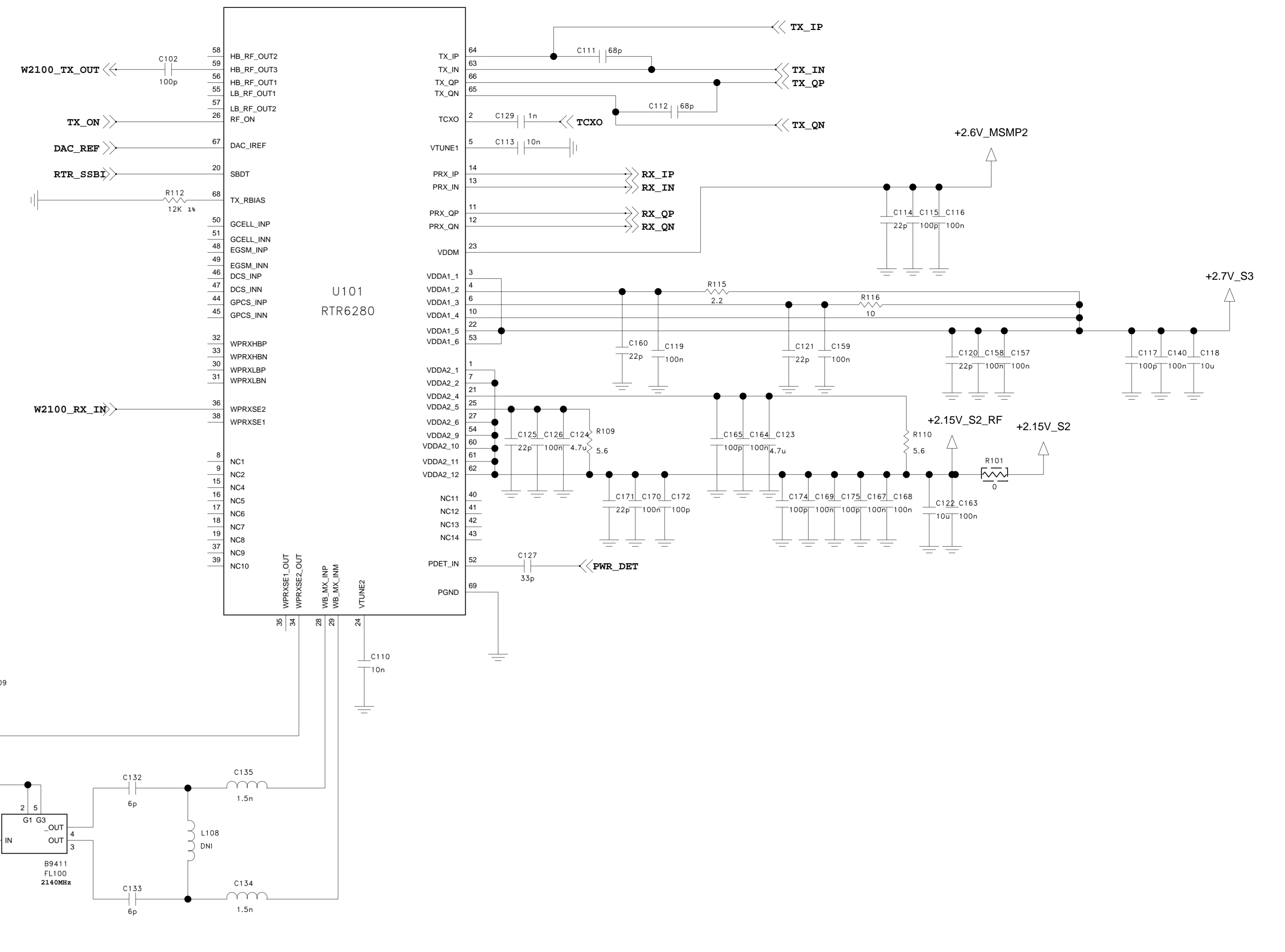


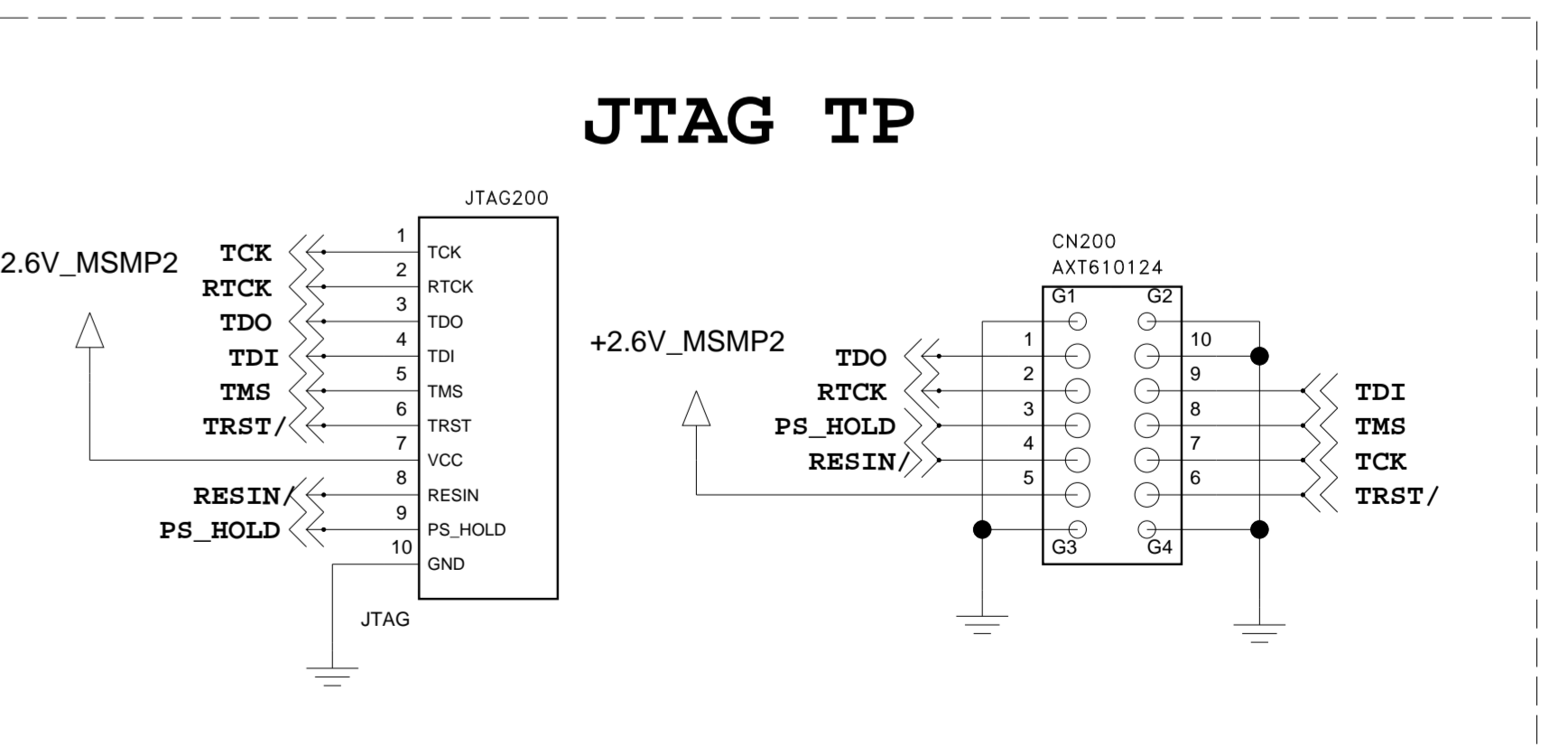
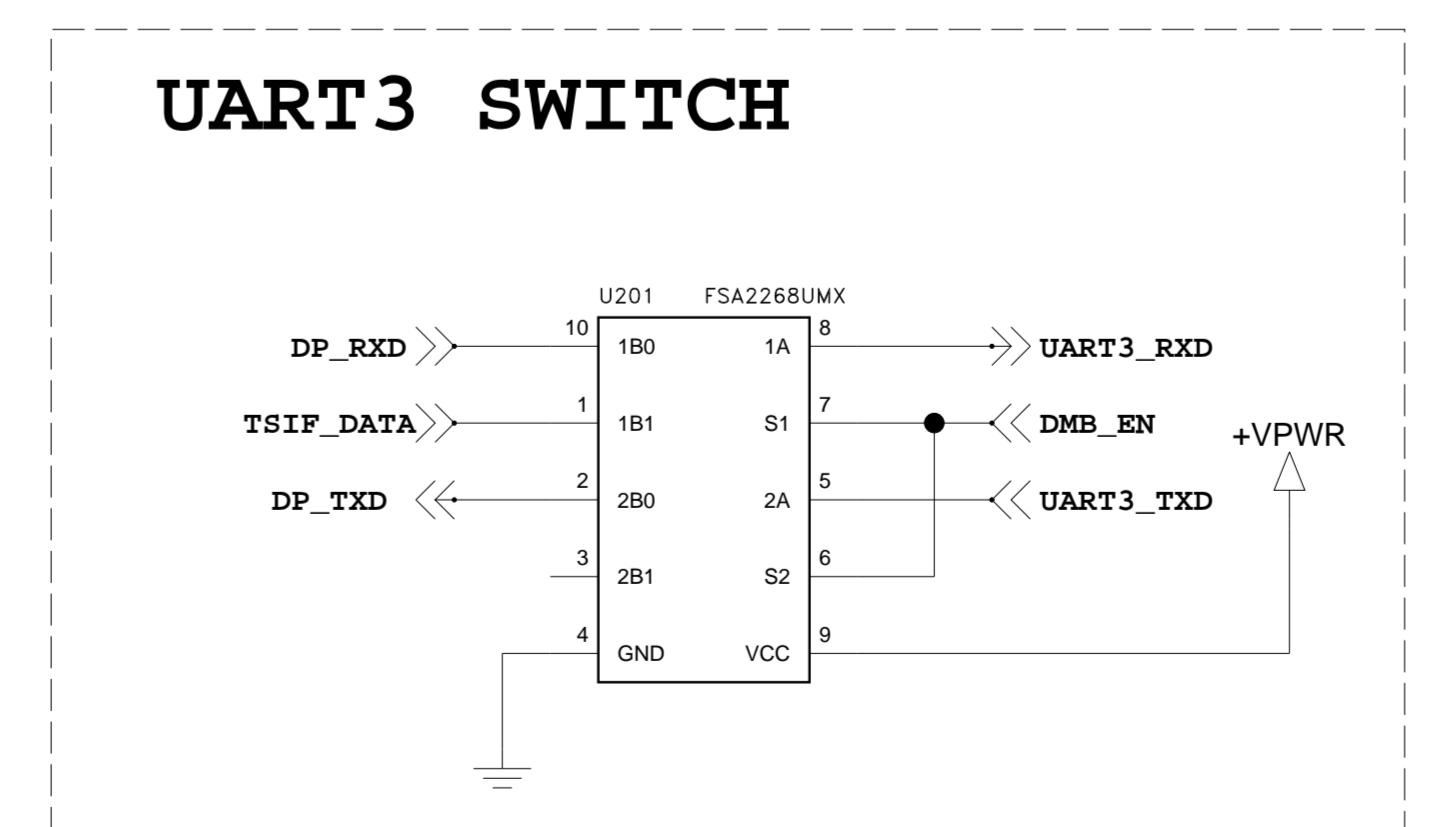
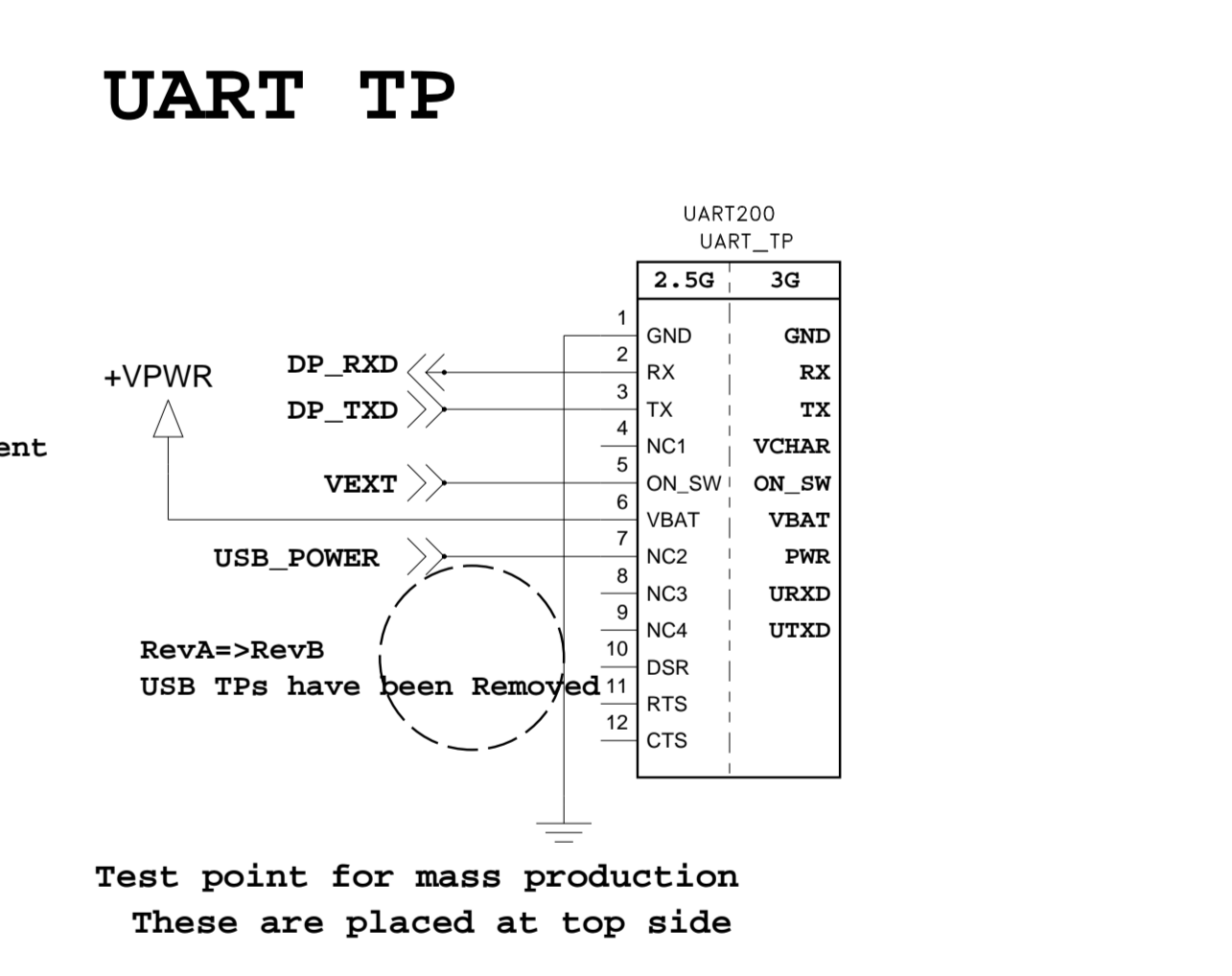
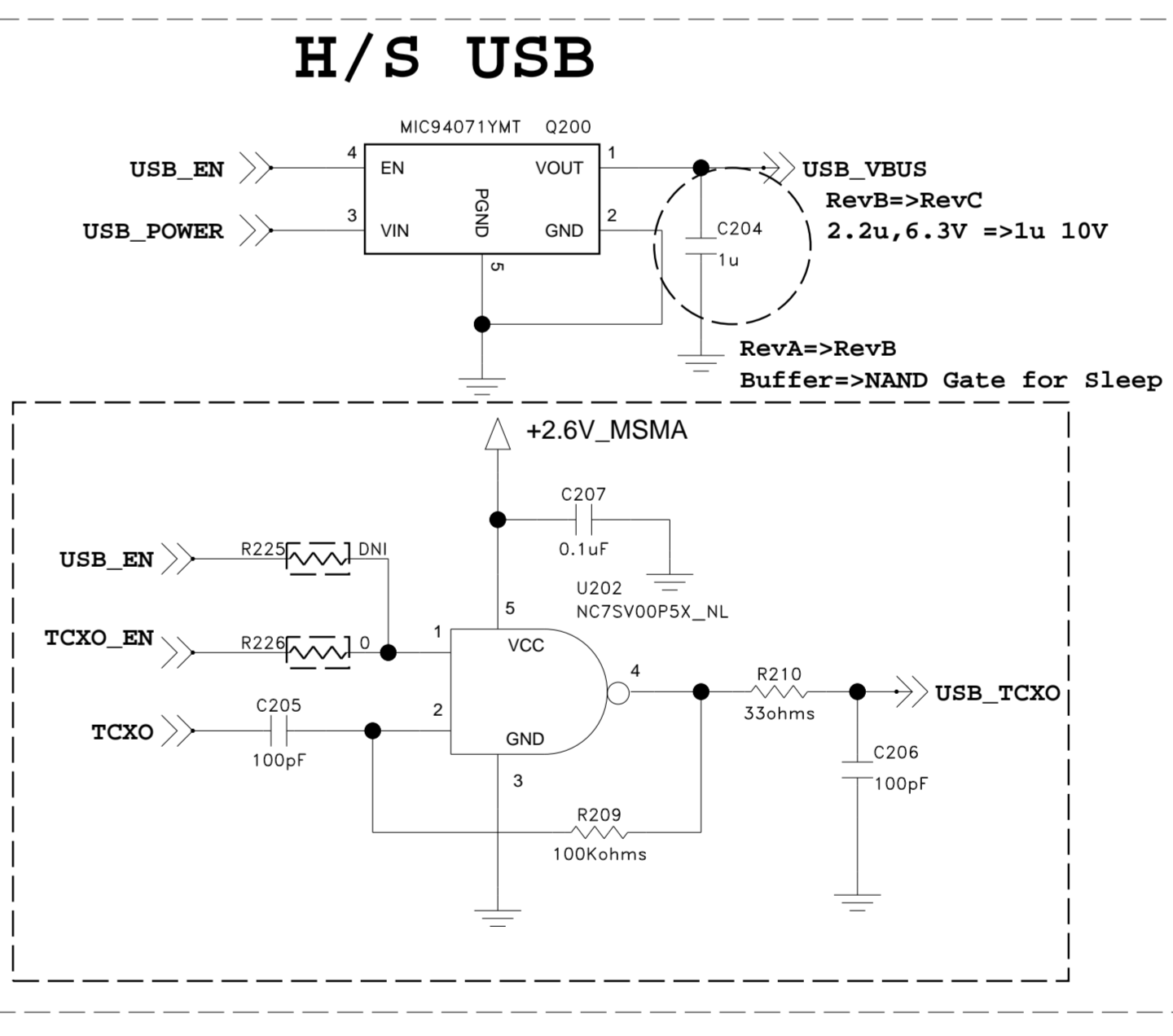
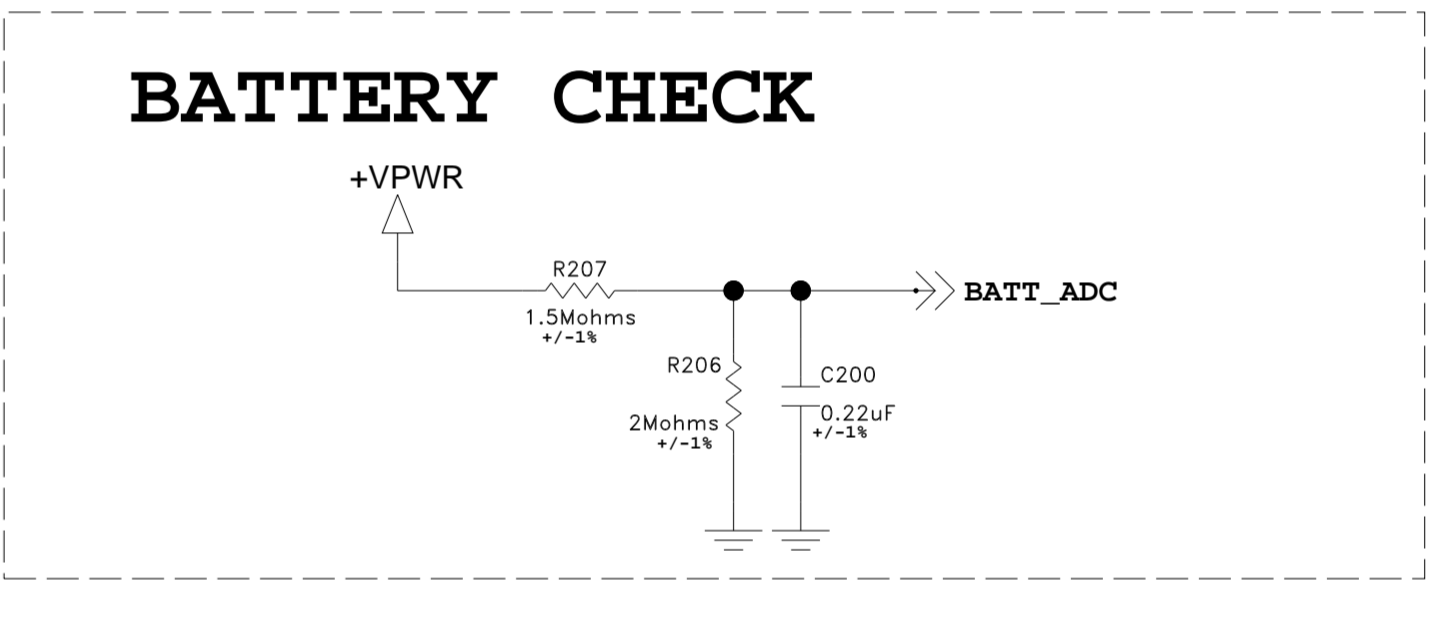
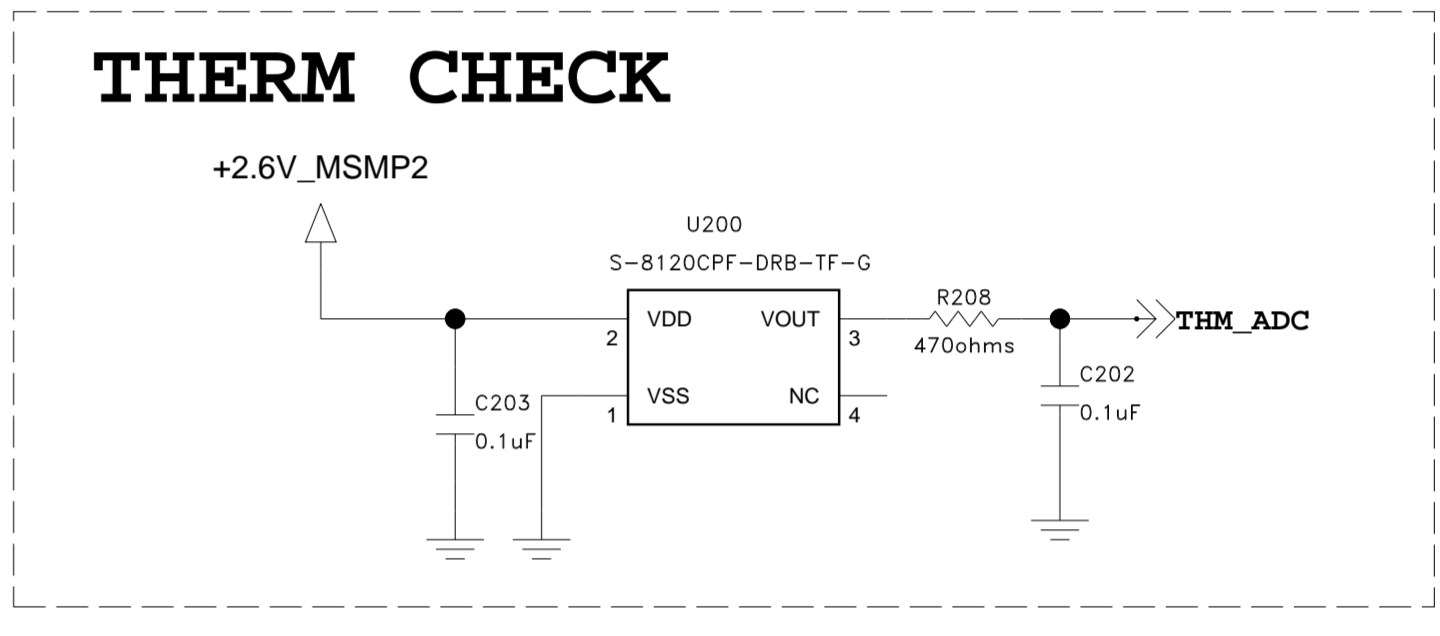
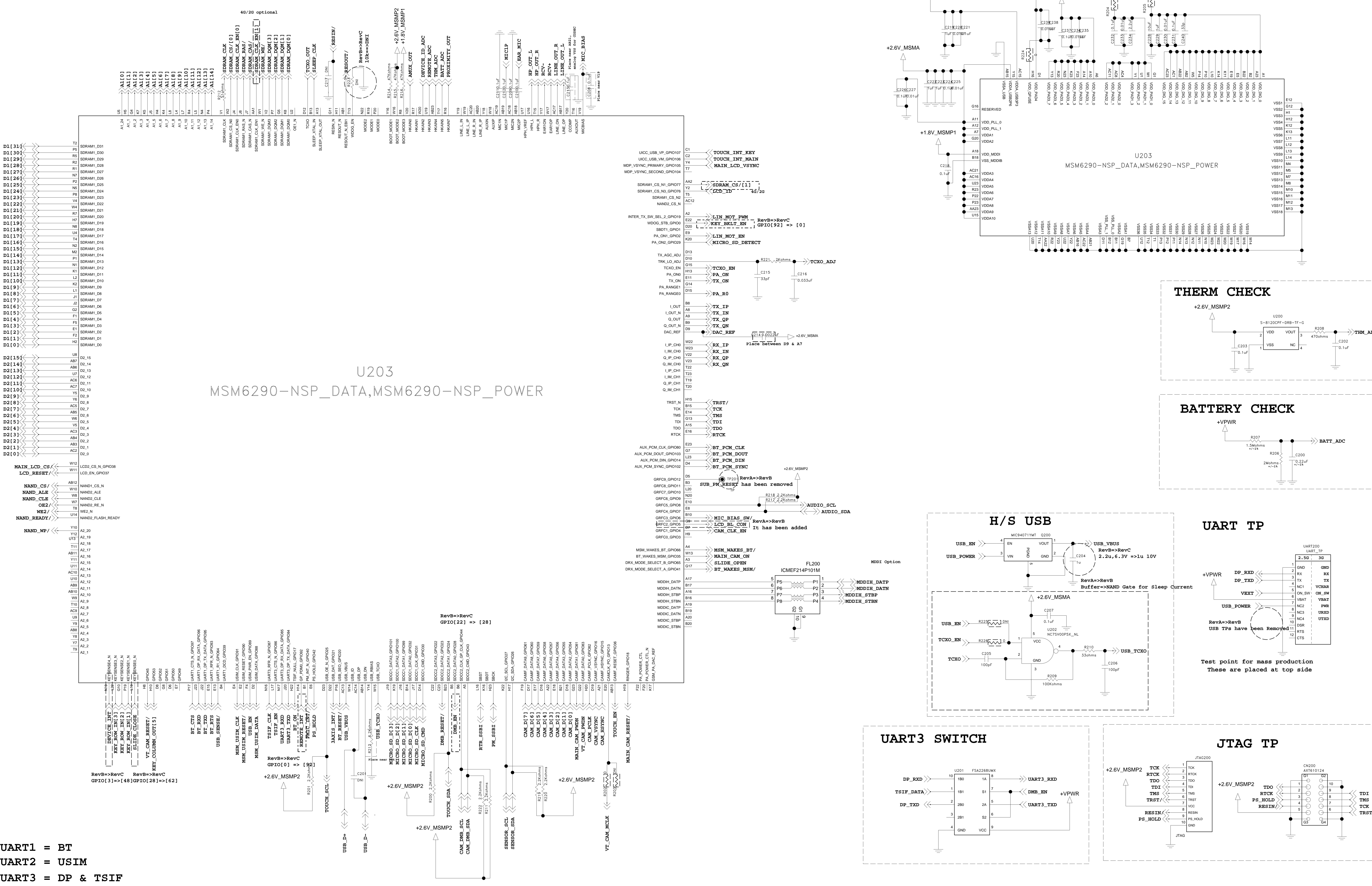
# WCDMA



Place C147 and C148 close to pin 1(VBATT) and pin 10(Vcc).  
These capacitors can affect the RF performance

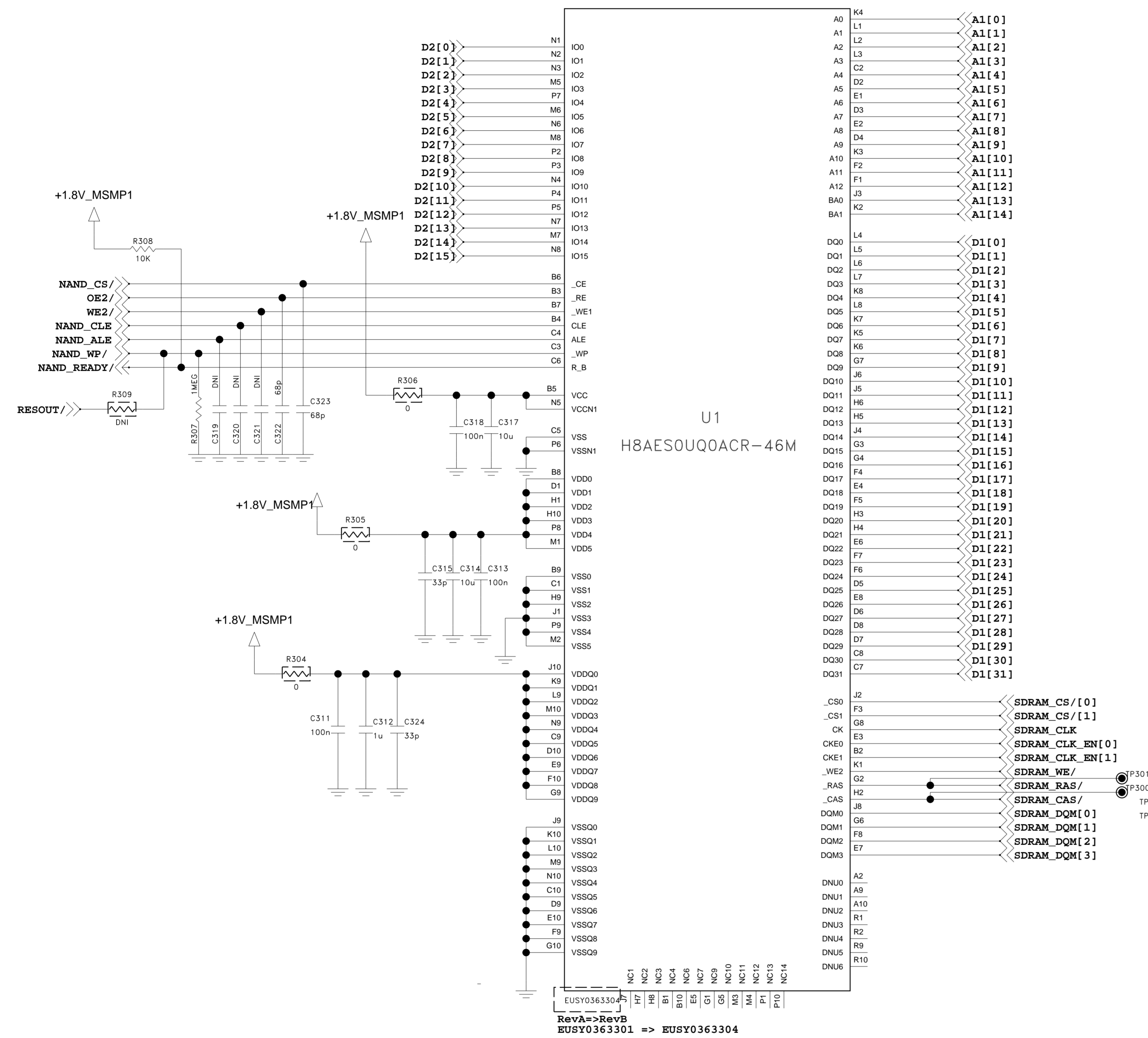
RevC=>Rev1.0  
Ochm =>0ohm pad



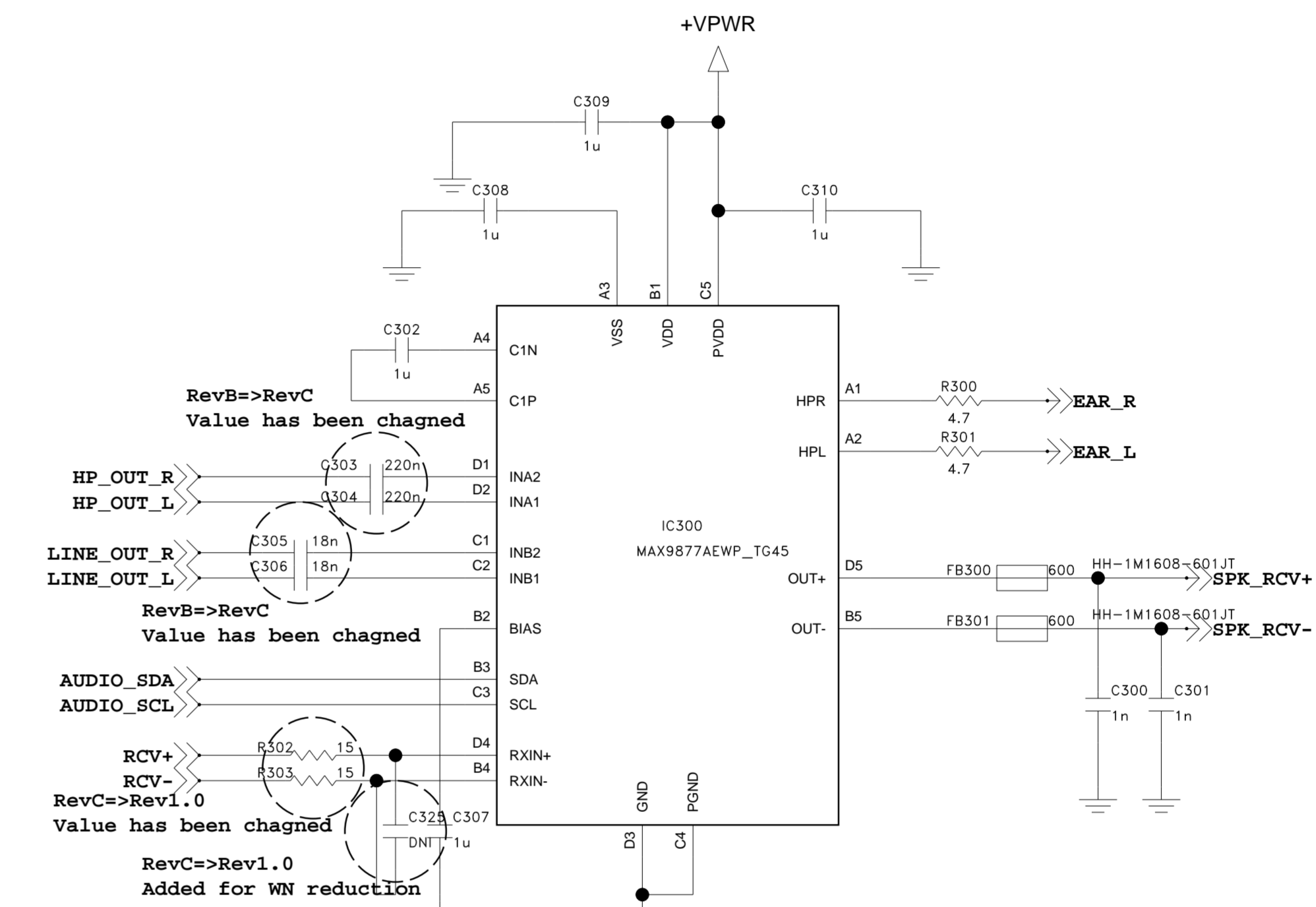


UART1 = BT  
UART2 = USIM  
UART3 = DP & TSIF

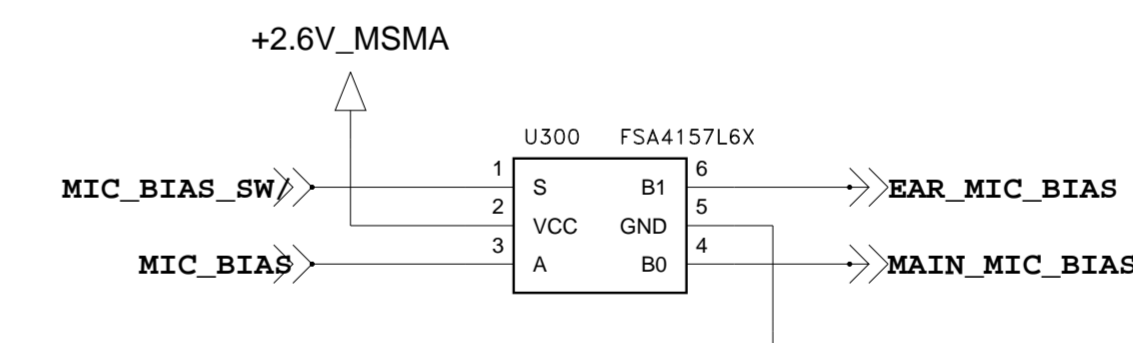
### MCP (4Gb/2Gb) (Large Block)



### Audio Sub System

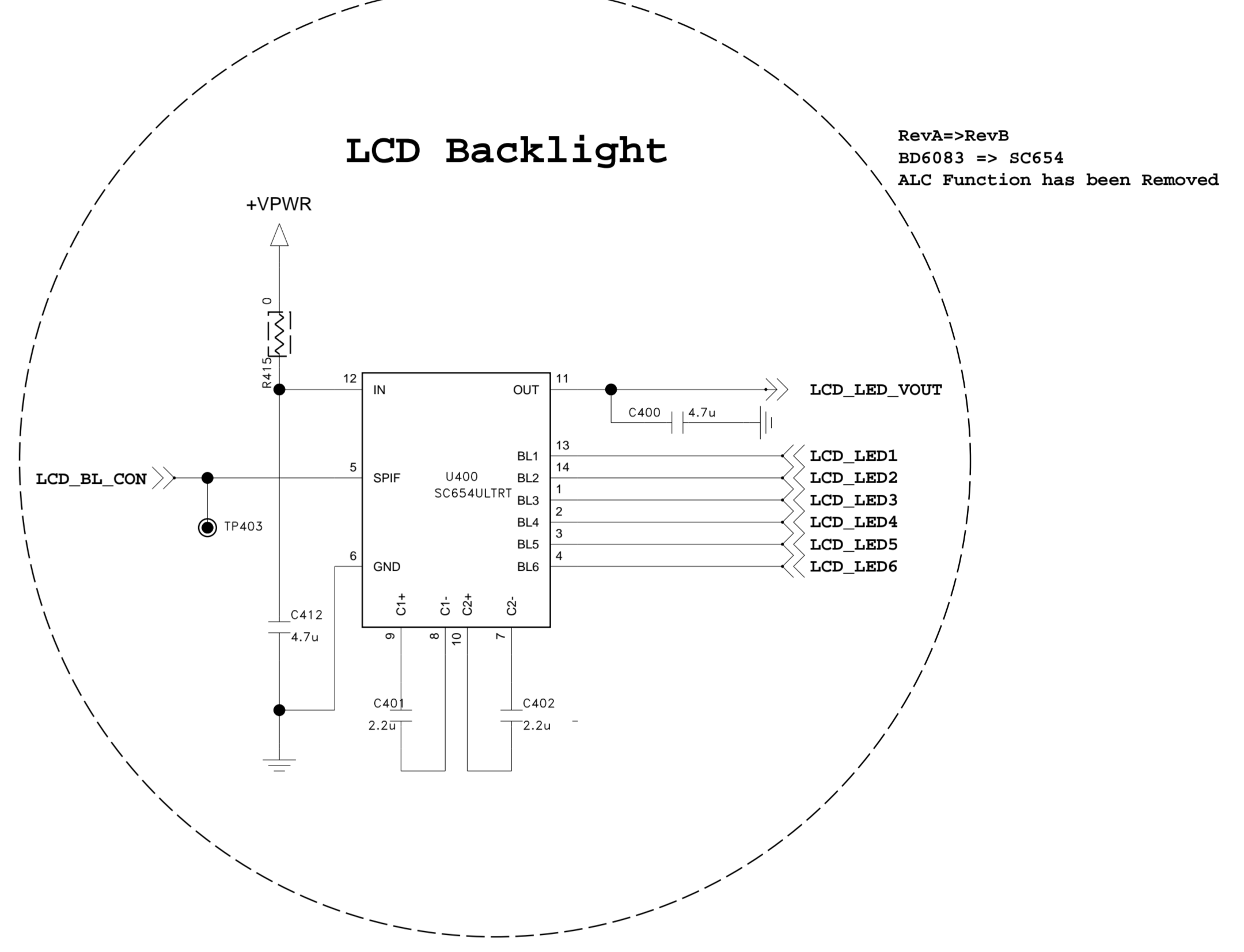
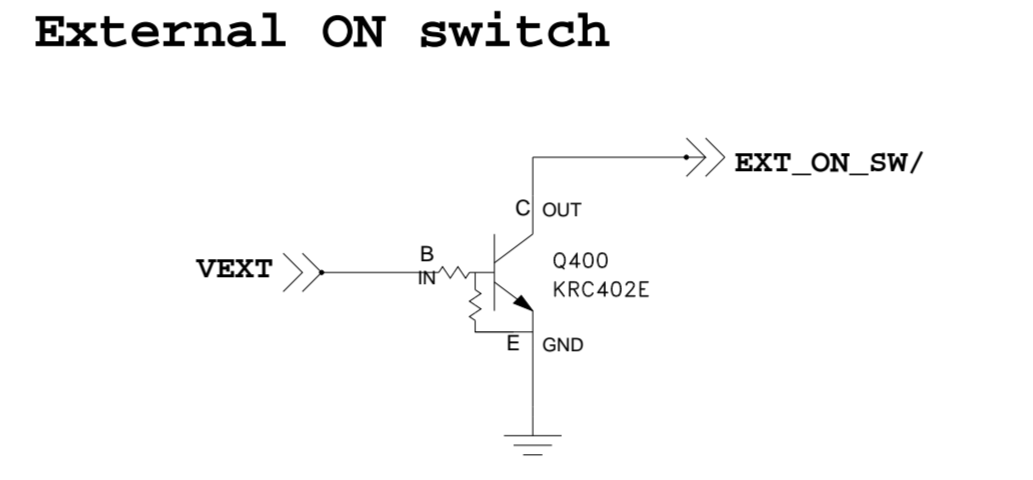
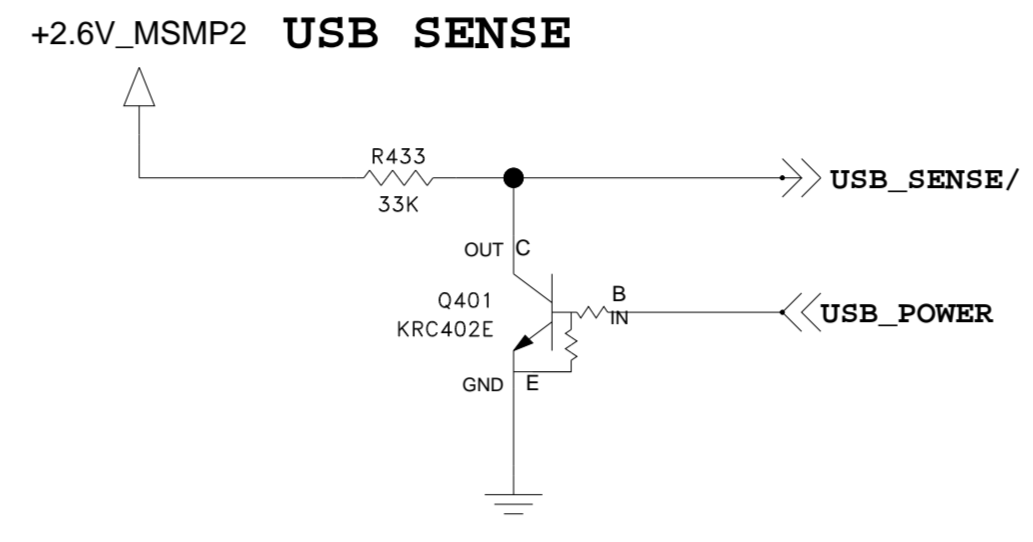
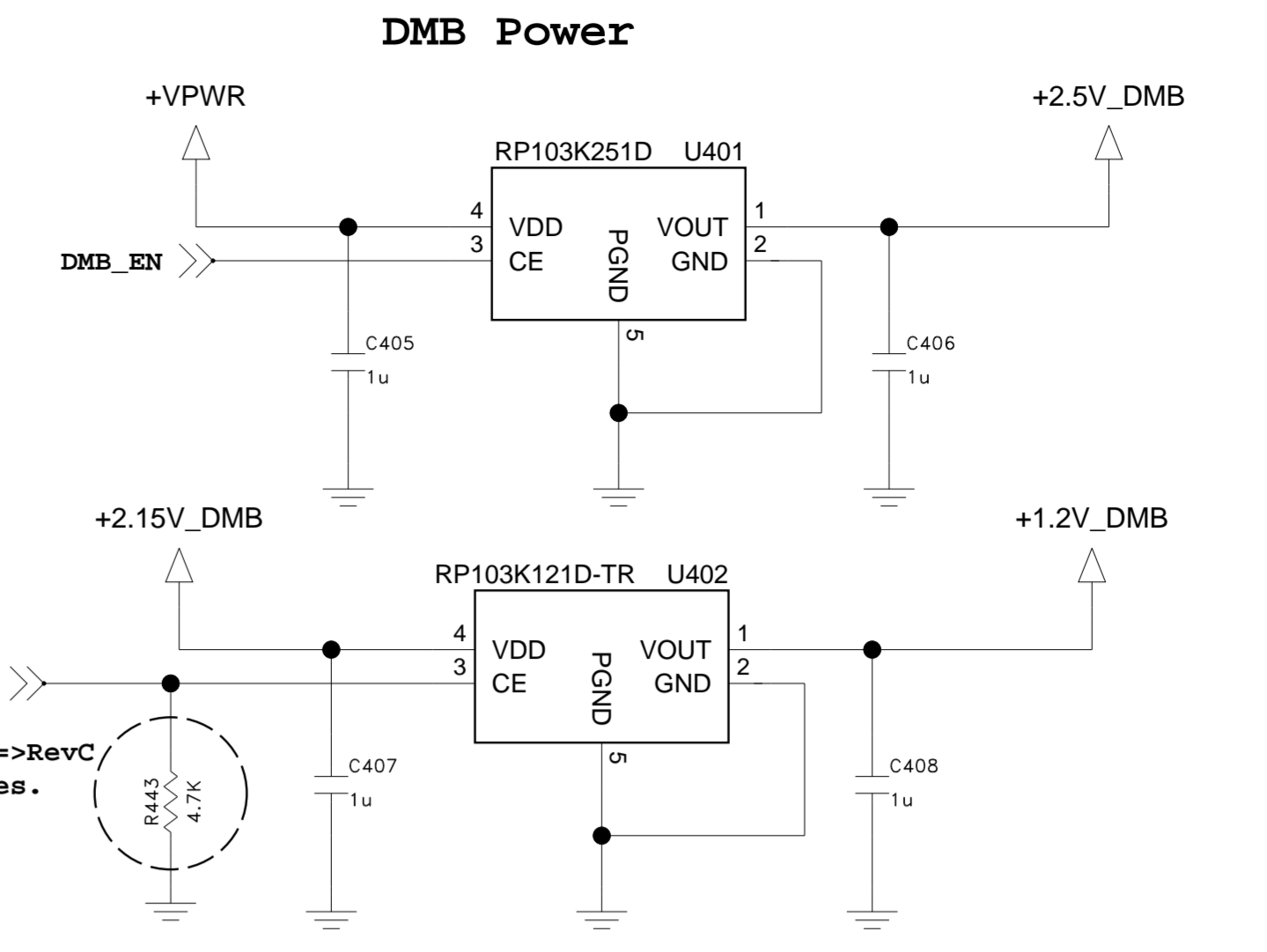
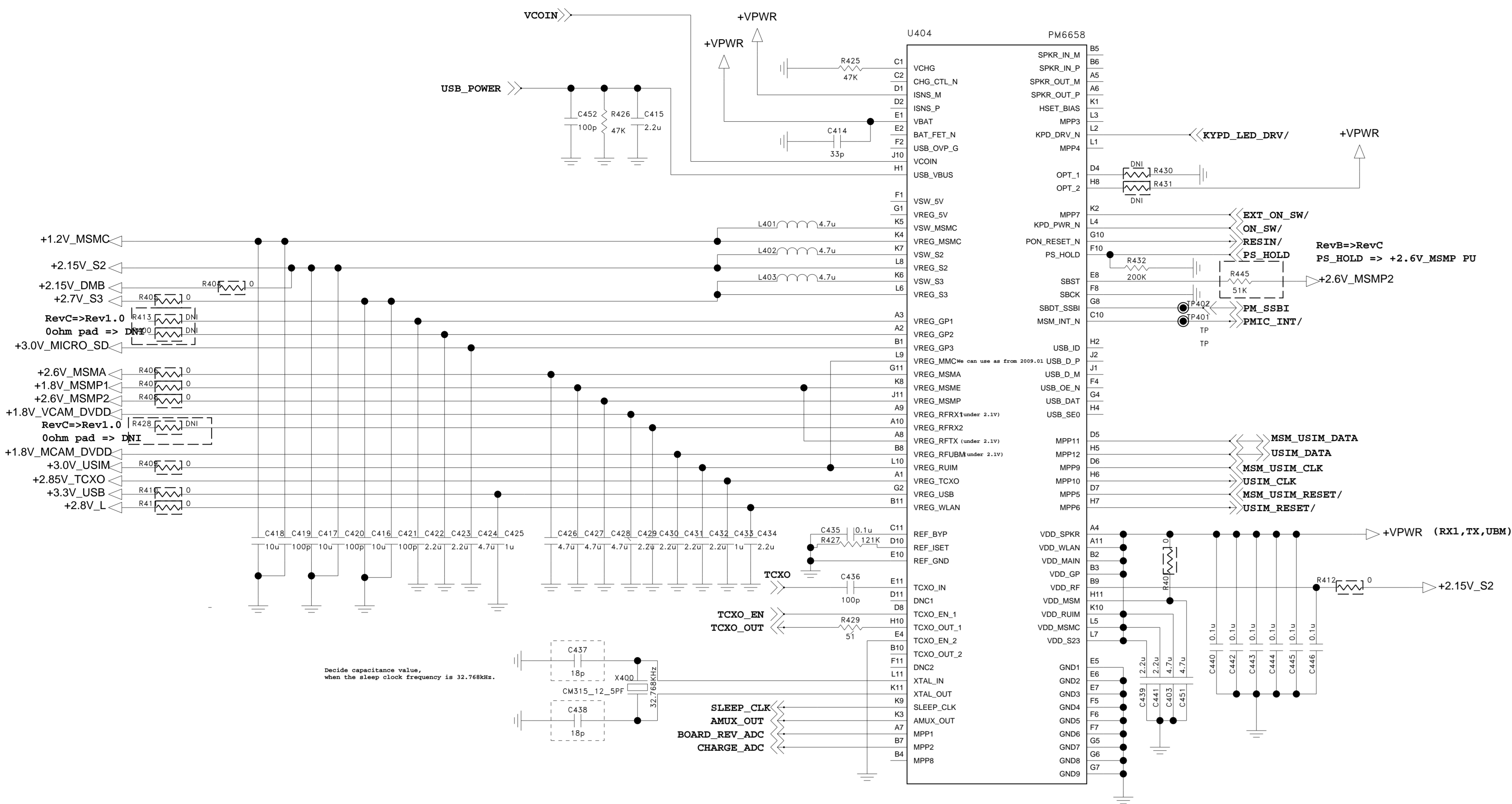


### MIC BIAS SW



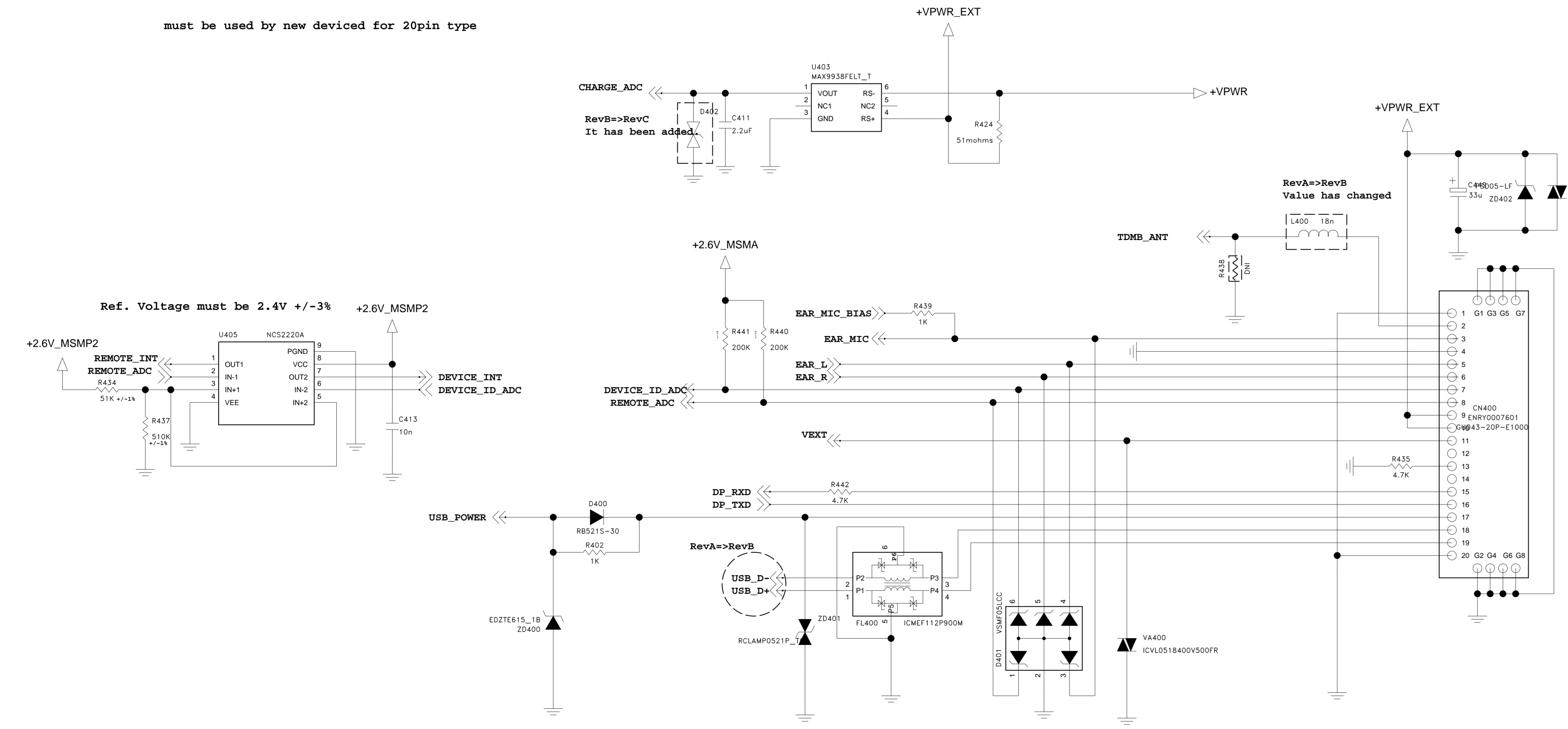
Power Part

Power PM6658



TTA 20PIN CONNECTOR Basic Circuit

must be used by new device for 20pin type



PCB REV. CHECK

RevC=>Rev1.0 Value changed

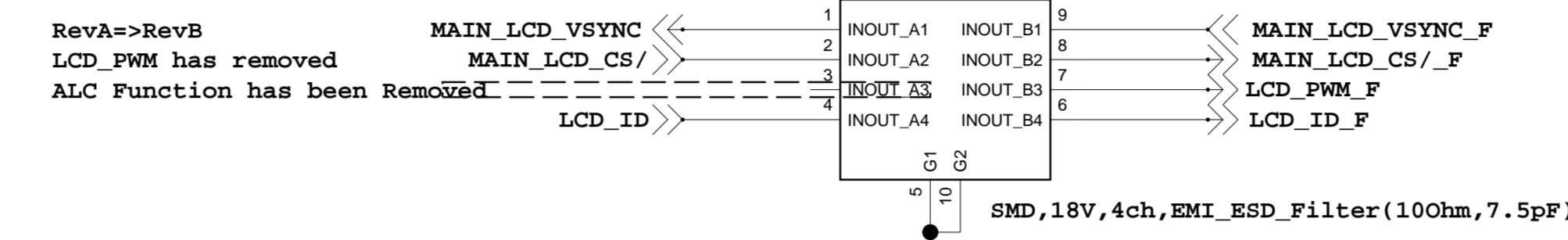
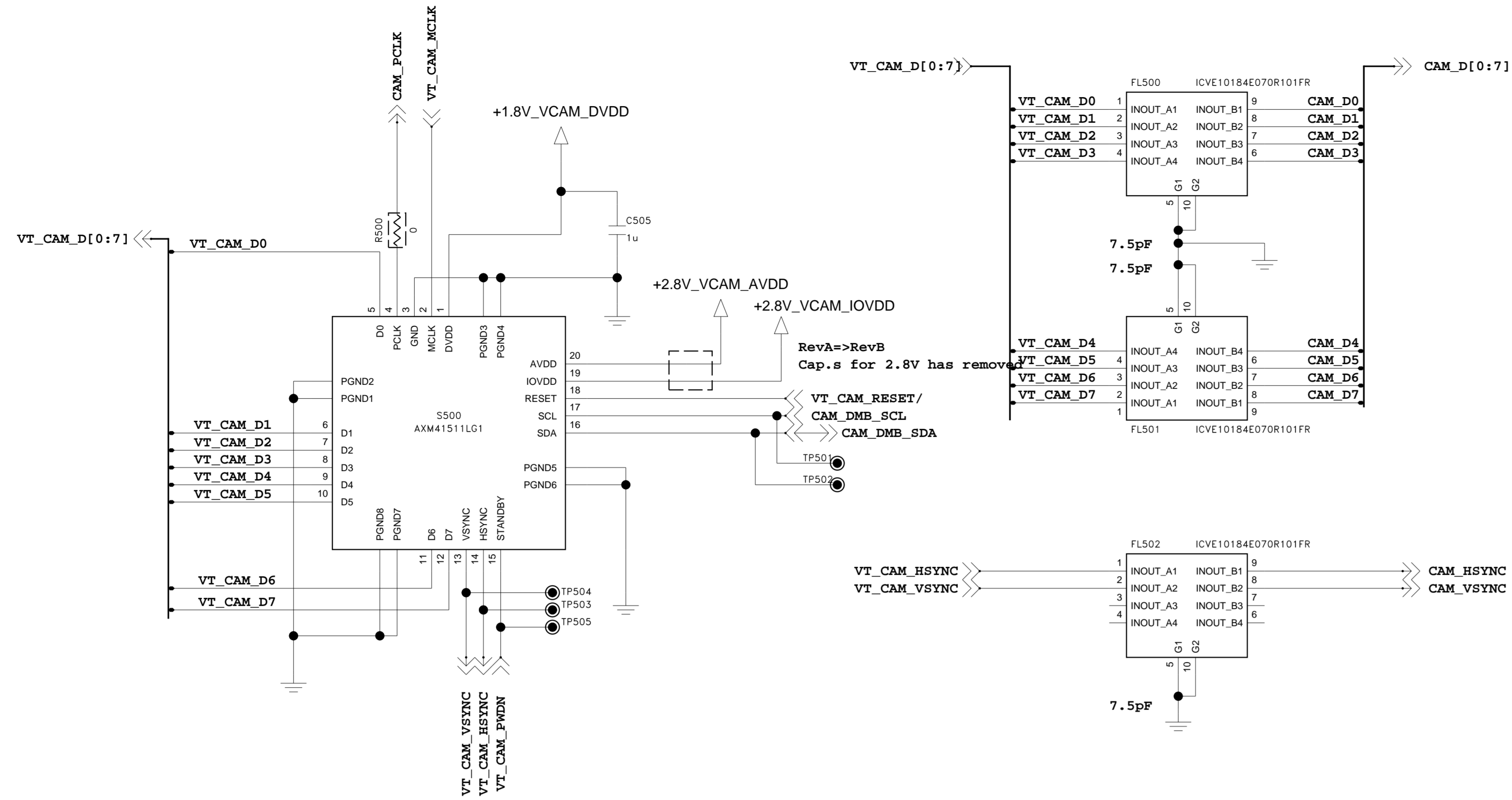
Revision	R506	R508	ADC_HEX
A	100K	5.6k	07,15
B	100K	12k	16,24
C	100K	19.1k	25,33
D	100K	27k	34,42
E	100K	47k	53,61
F	100K	56k	62,70
1.0	100K	75k	71,82
1.1	100K	100k	83,95
1.2	100K	130k	96,A9
1.3	100K	178k	AA,BD

Normal / Normal  
LS : ENRY0007601  
HS : ENRY0008301

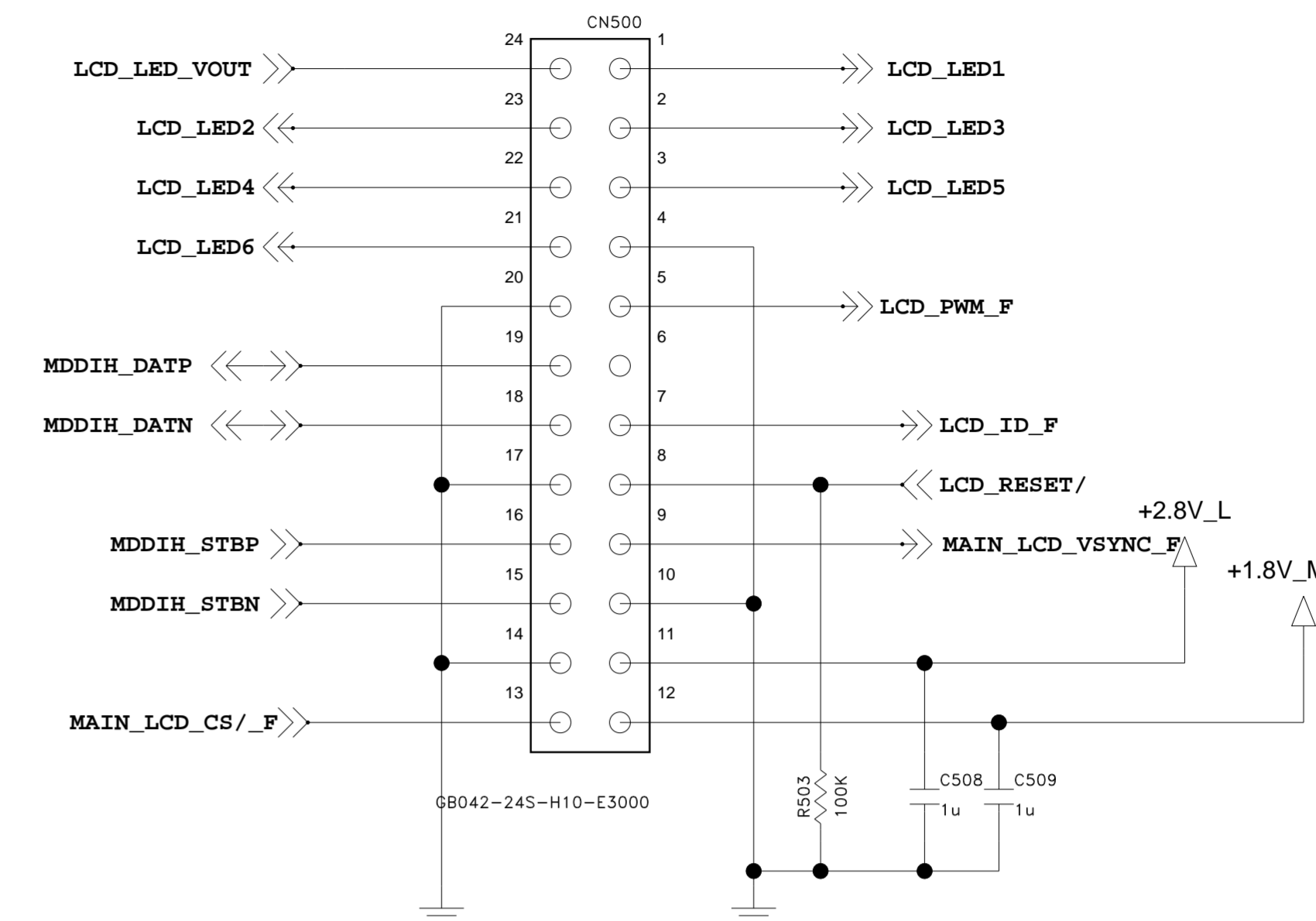
Normal / Reverse  
LS : ENRY0008201  
HS : ENRY0008401

Offset / Normal  
LS : ENRY0007901

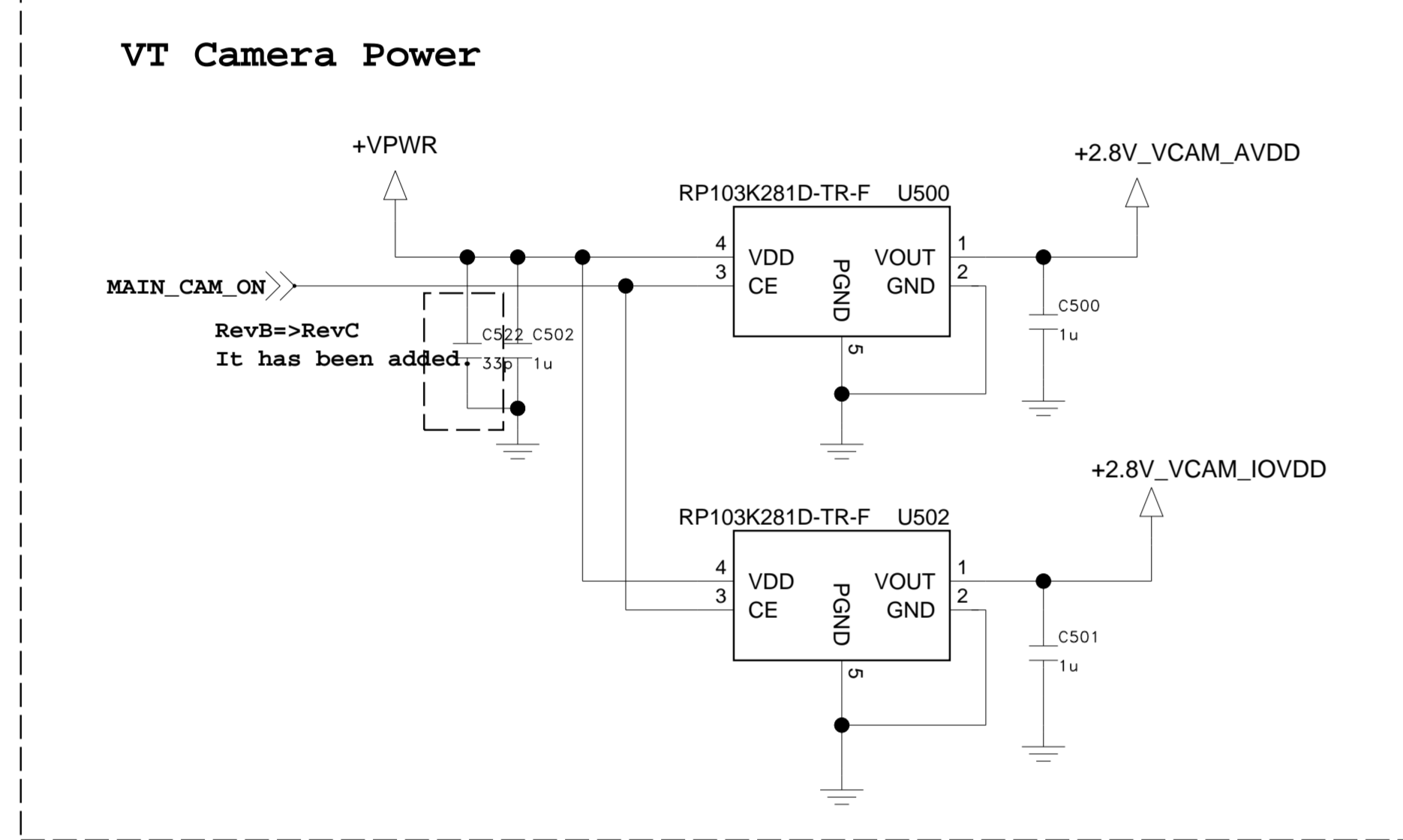
Offset / Reverse  
LS : ENRY0008601



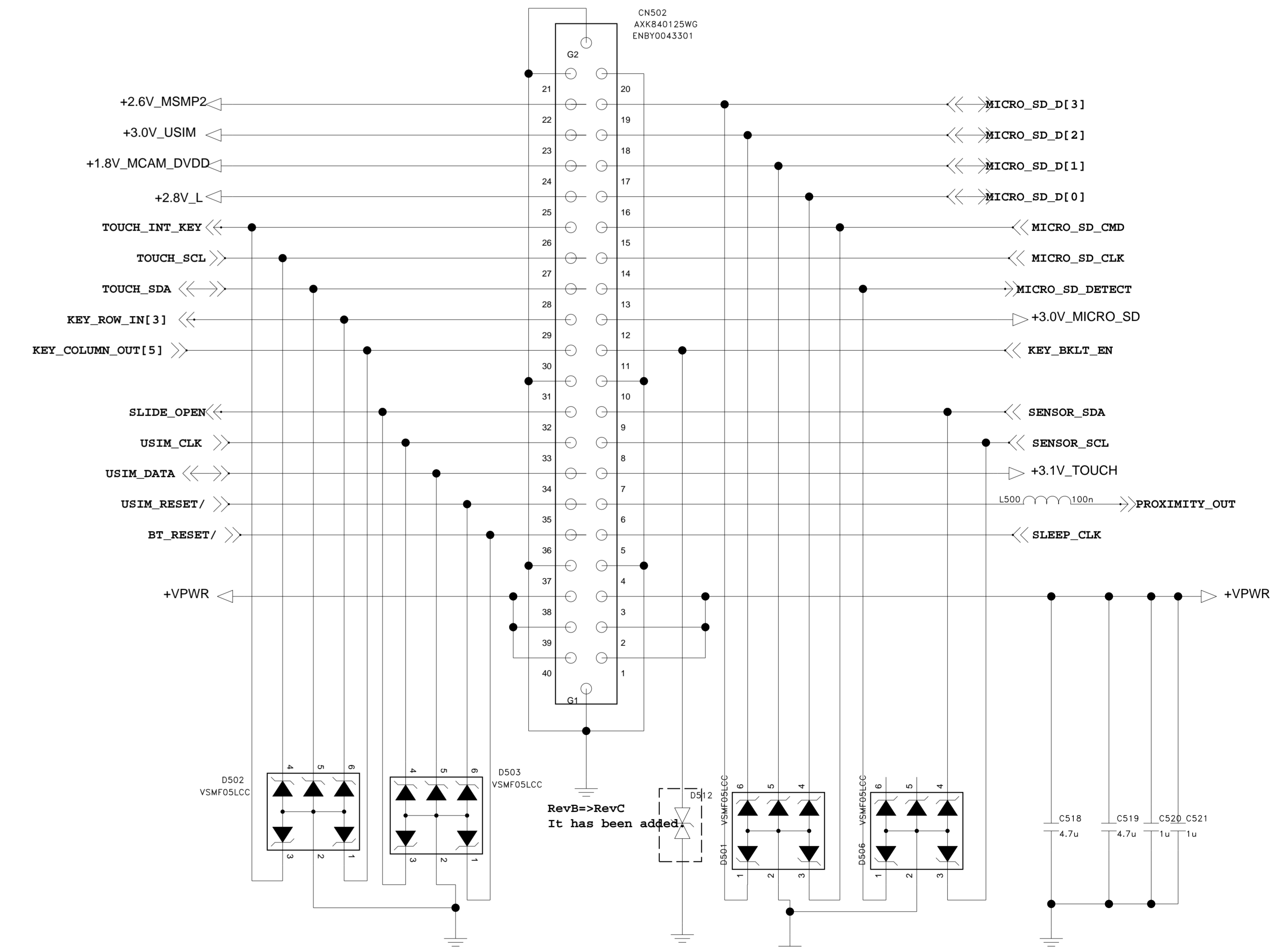
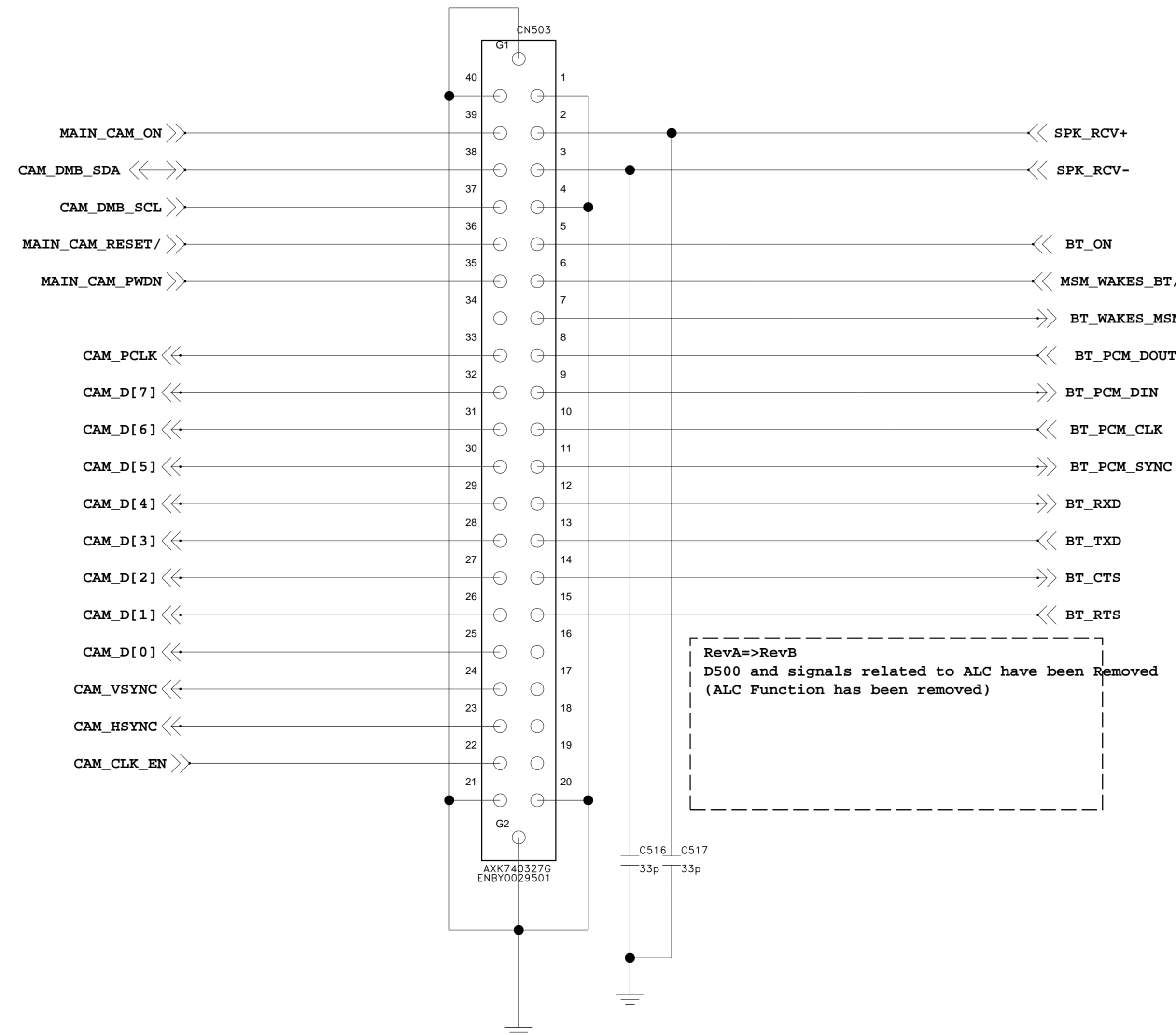
### LCD IF CONNECTOR



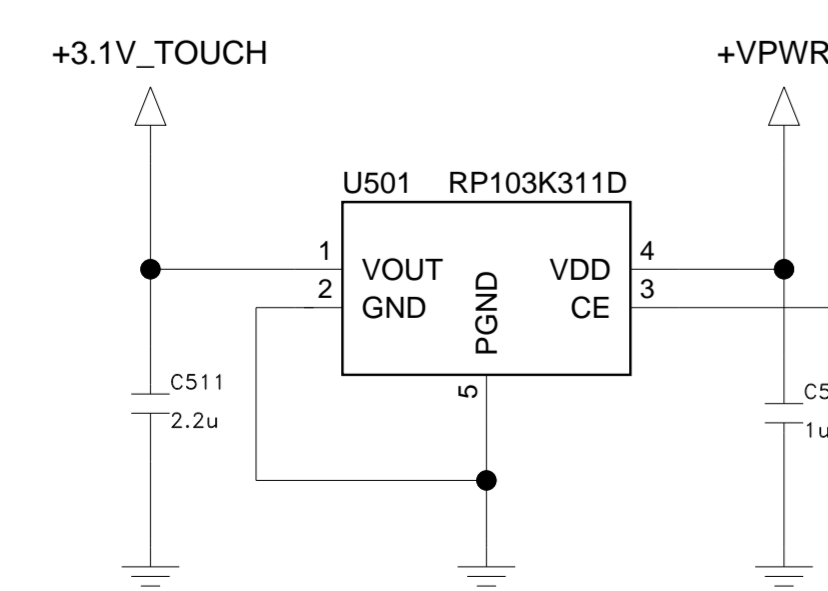
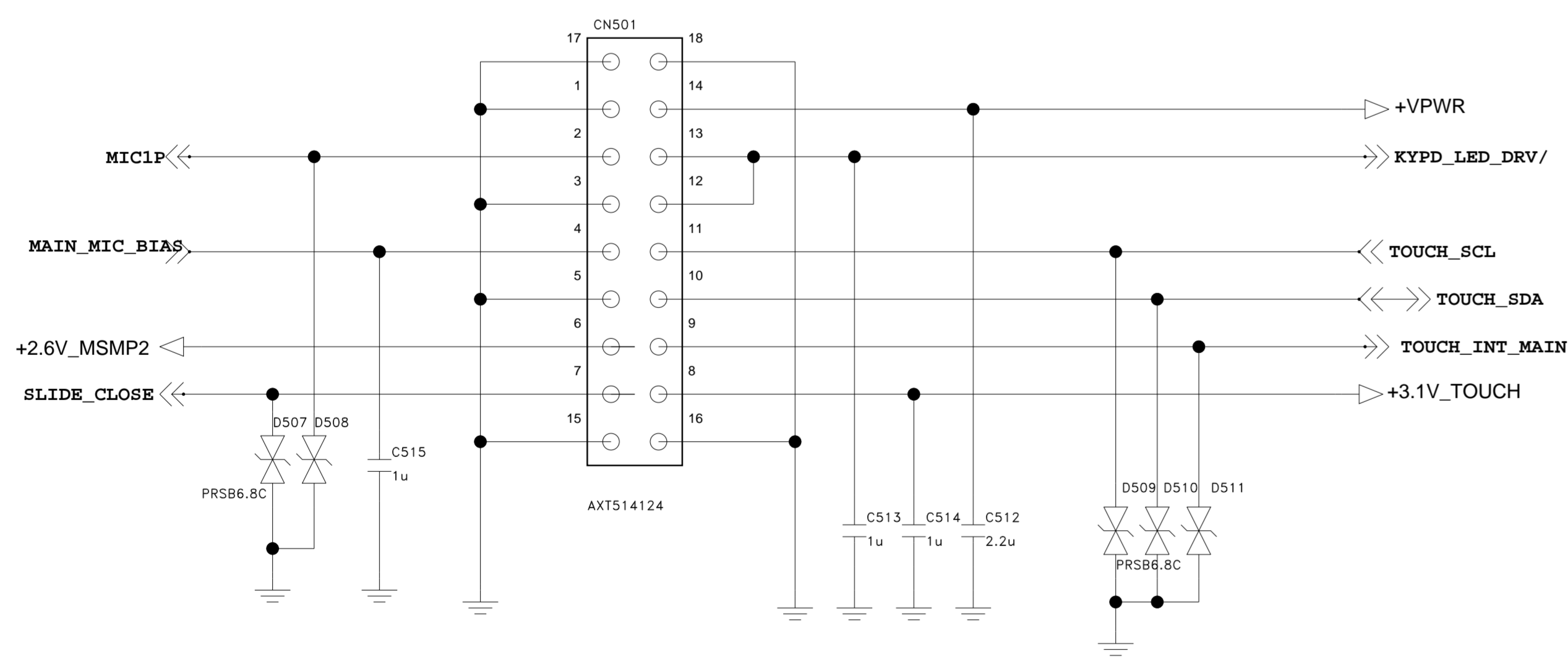
RevA->RevB  
Changed One Dual LDO to 2 Single LDOs.

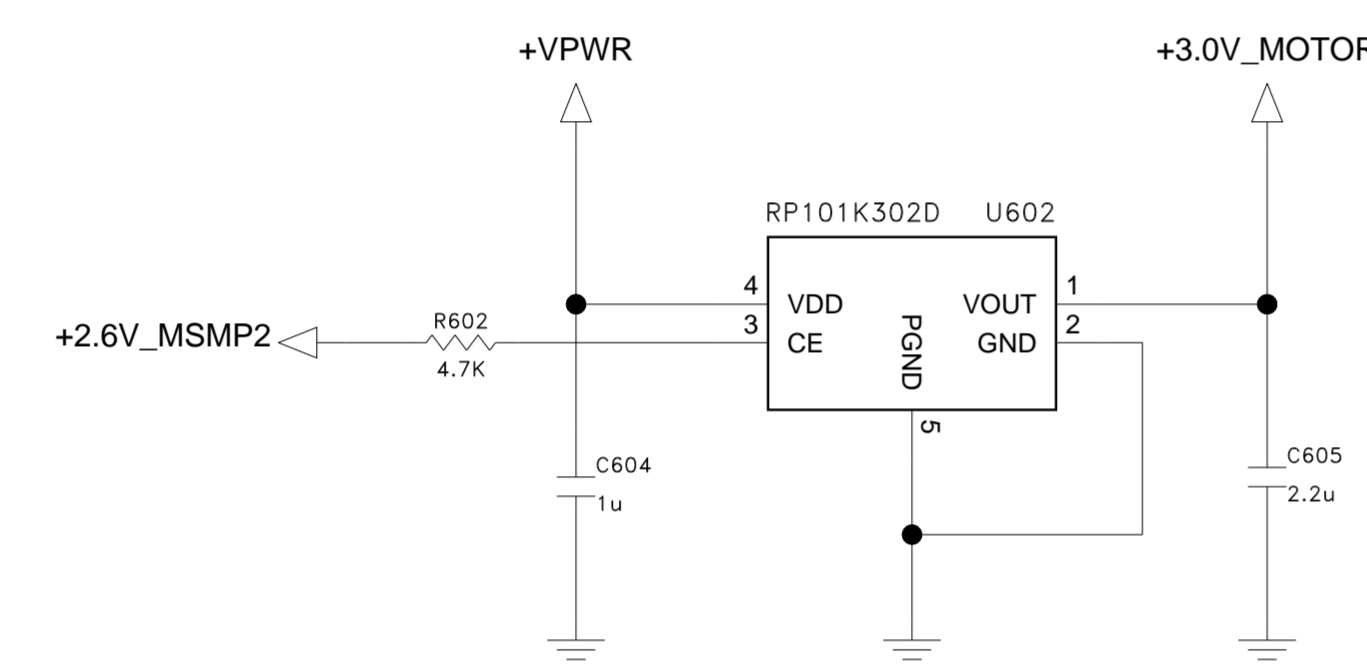
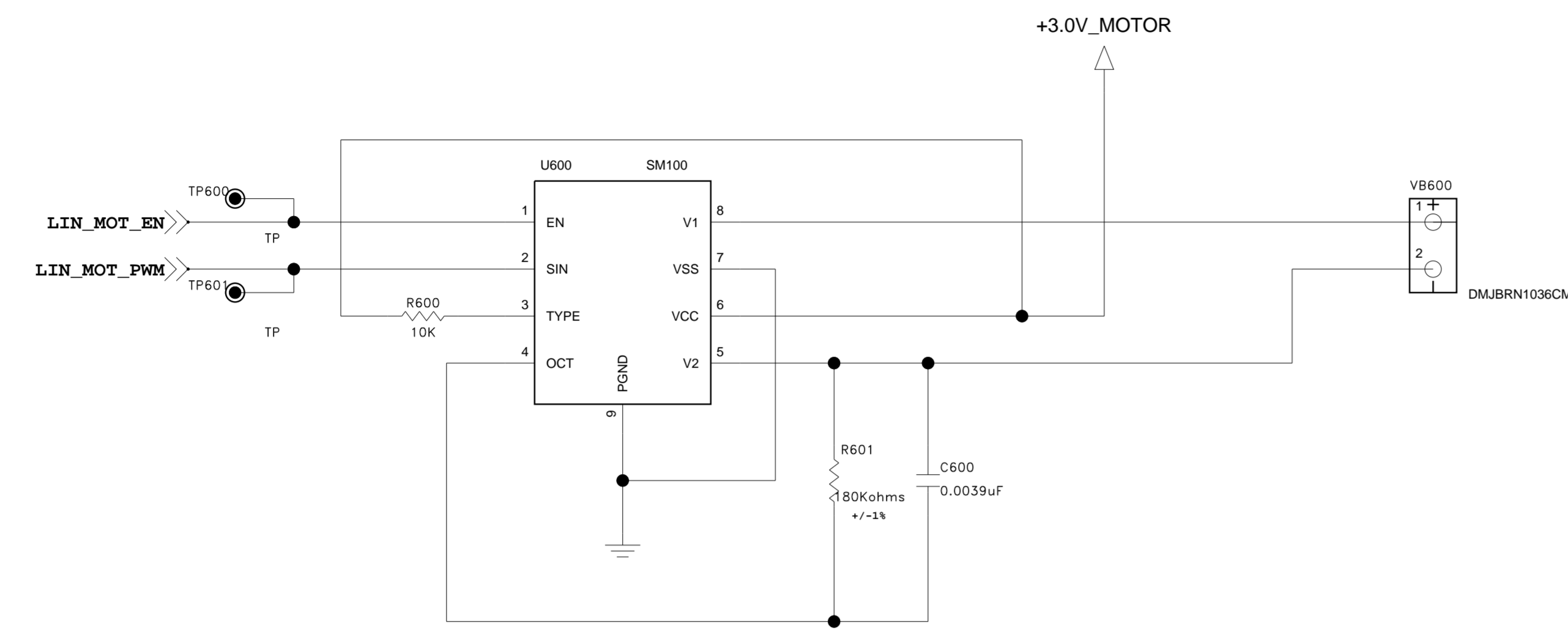


### MAIN-TO-SUB CONNECTOR

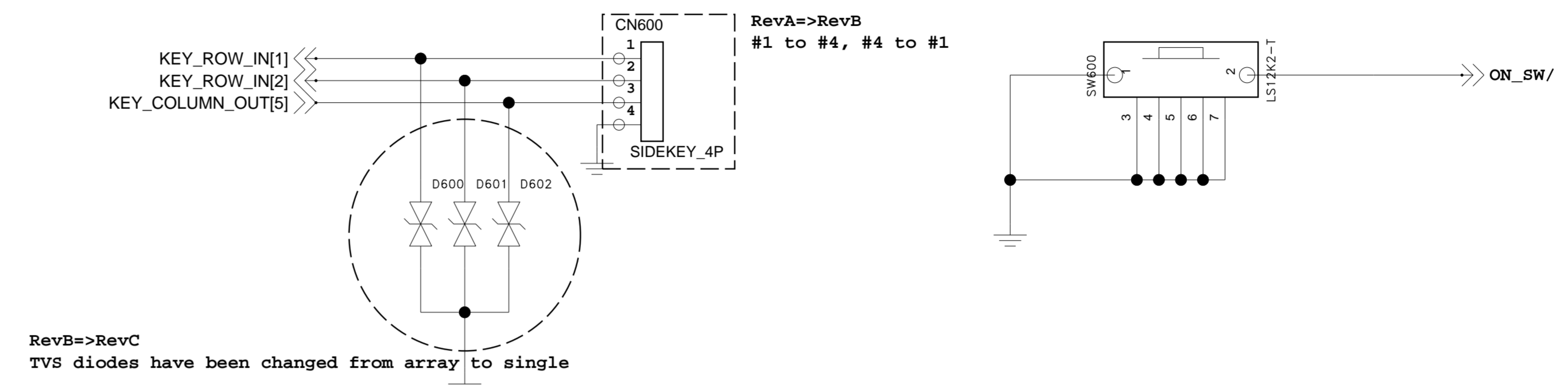
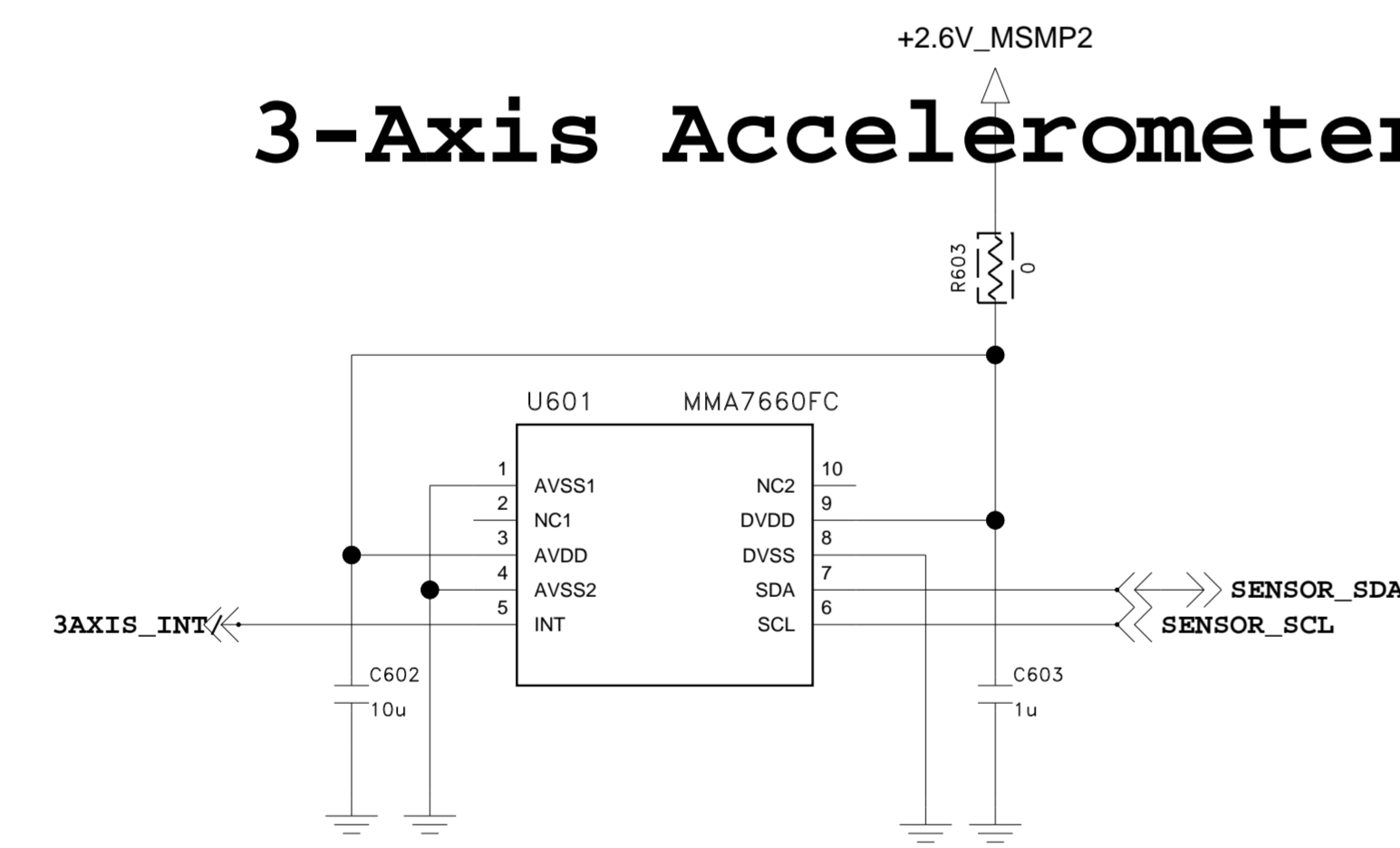


### MAIN TOUCH IF CONNECTOR



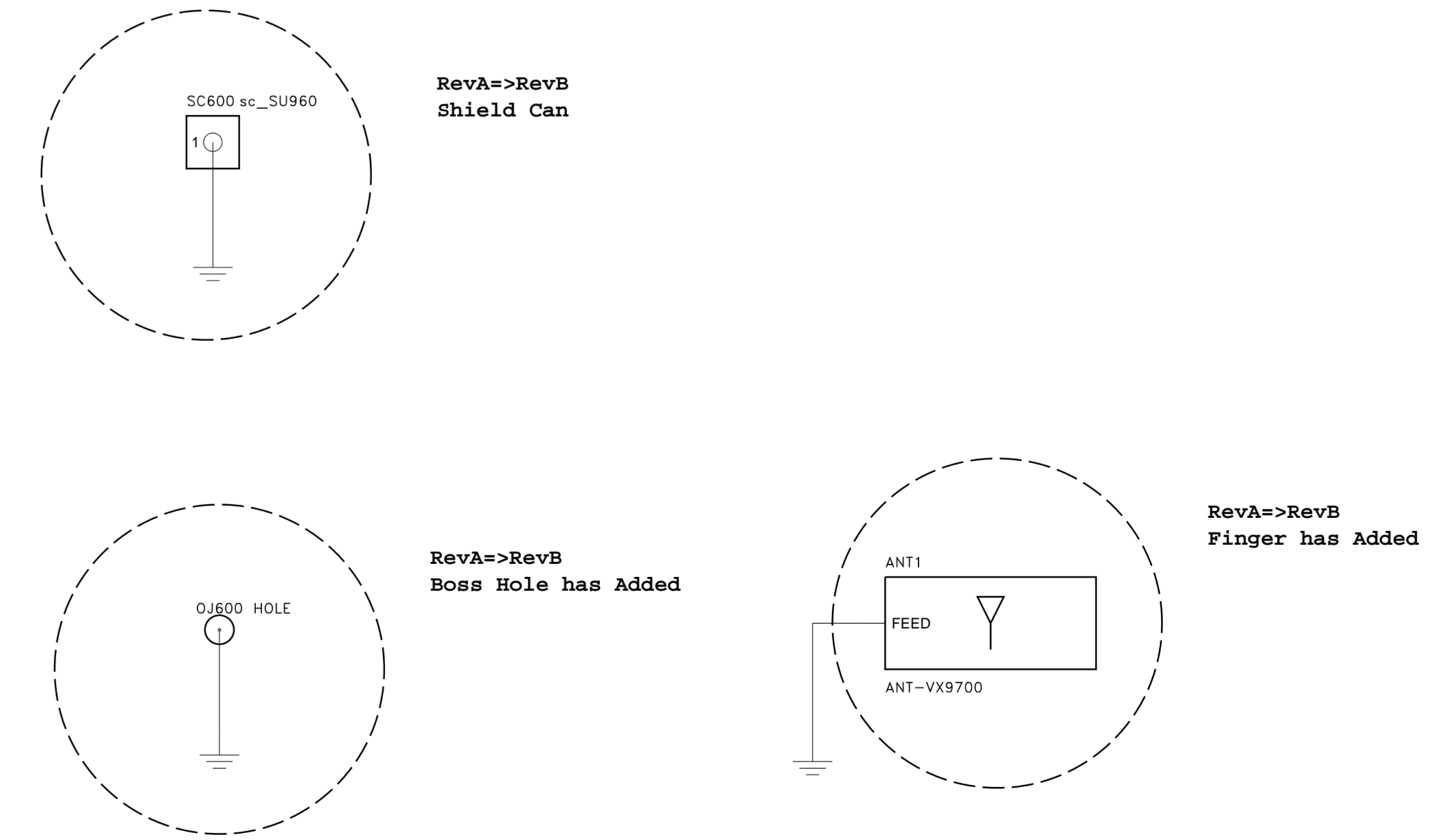


### 3-Axis Accelerometer

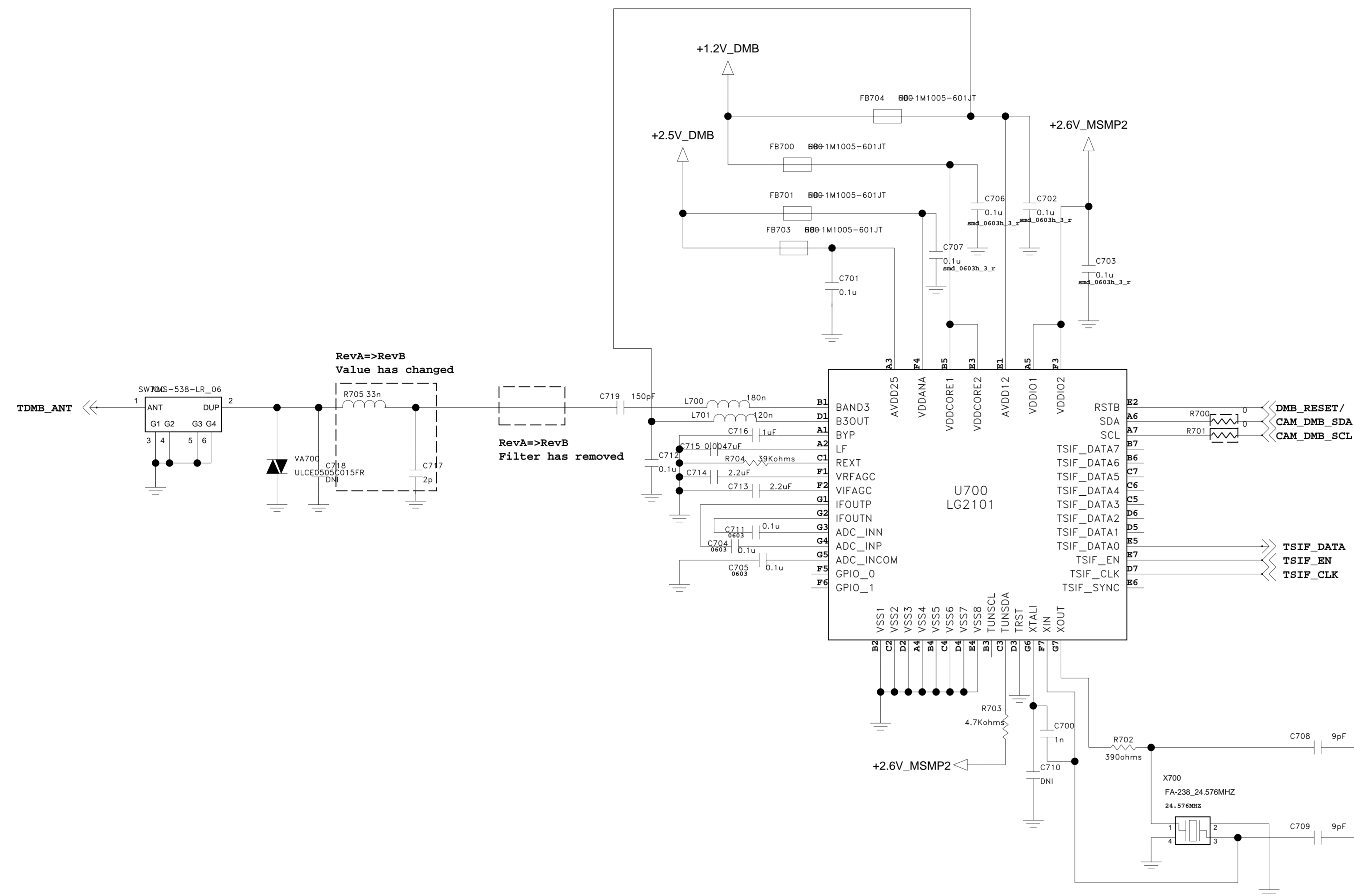


	KEY-OUT[5]
KEY-IN[0]	
KEY-IN[1]	VOL_UP
KEY-IN[2]	VOL_DOWN
KEY-IN[3]	CAMERA / MT

### SMT Shield Can for RF

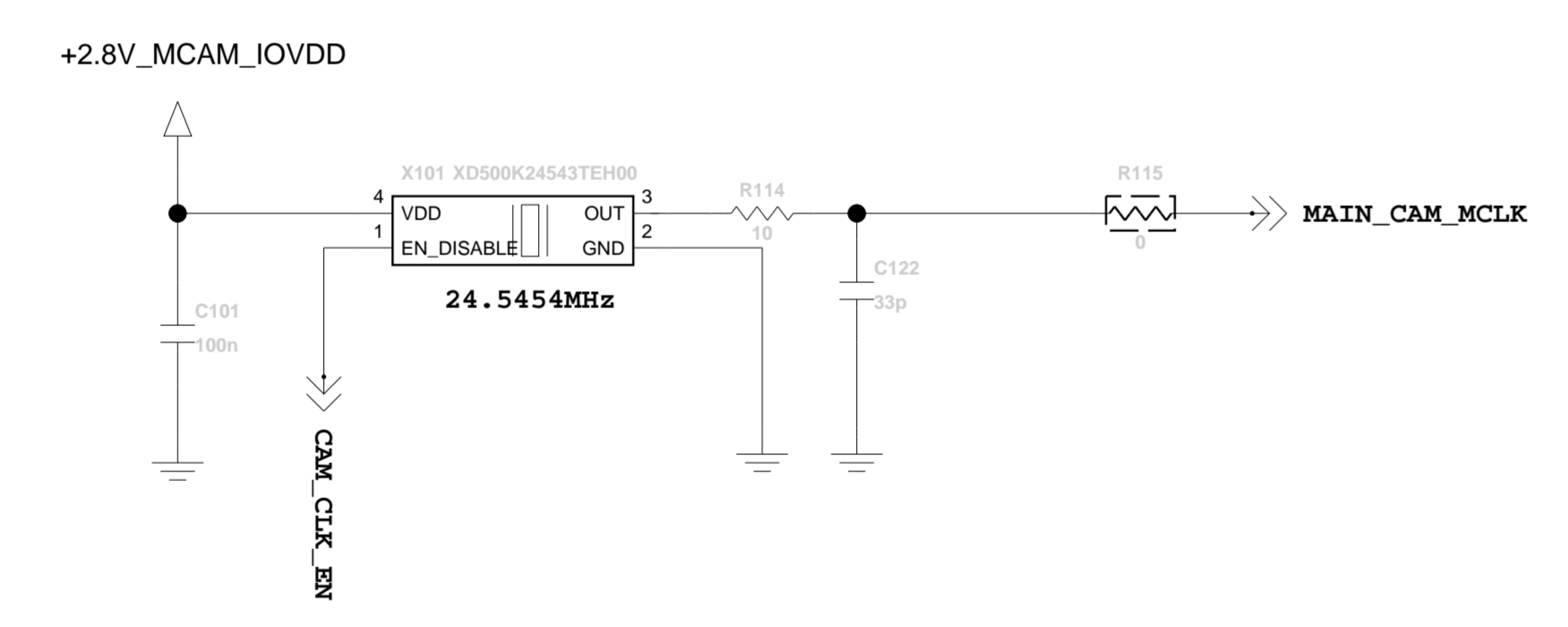
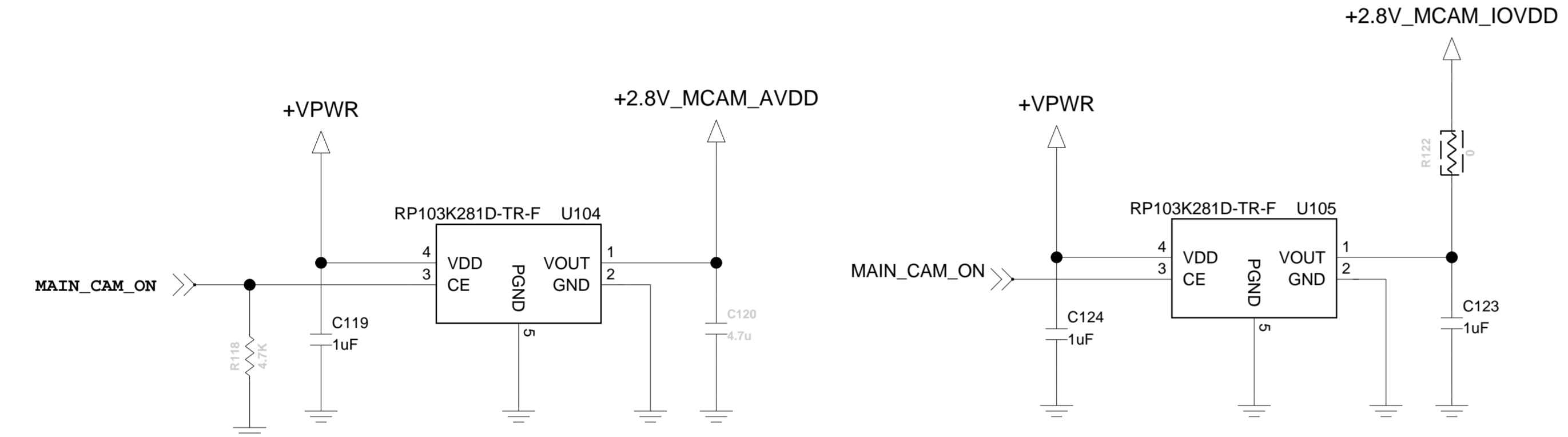
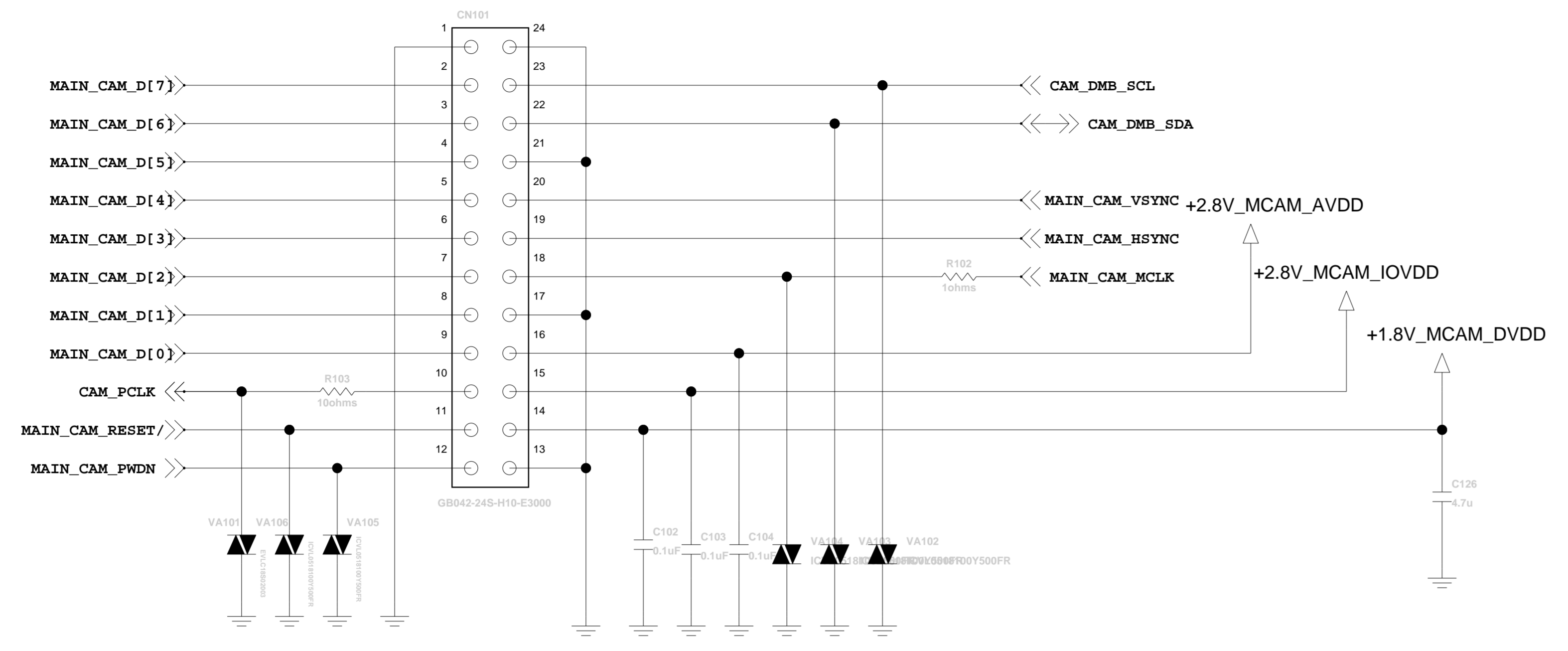


# TDMB RF\_BB PART

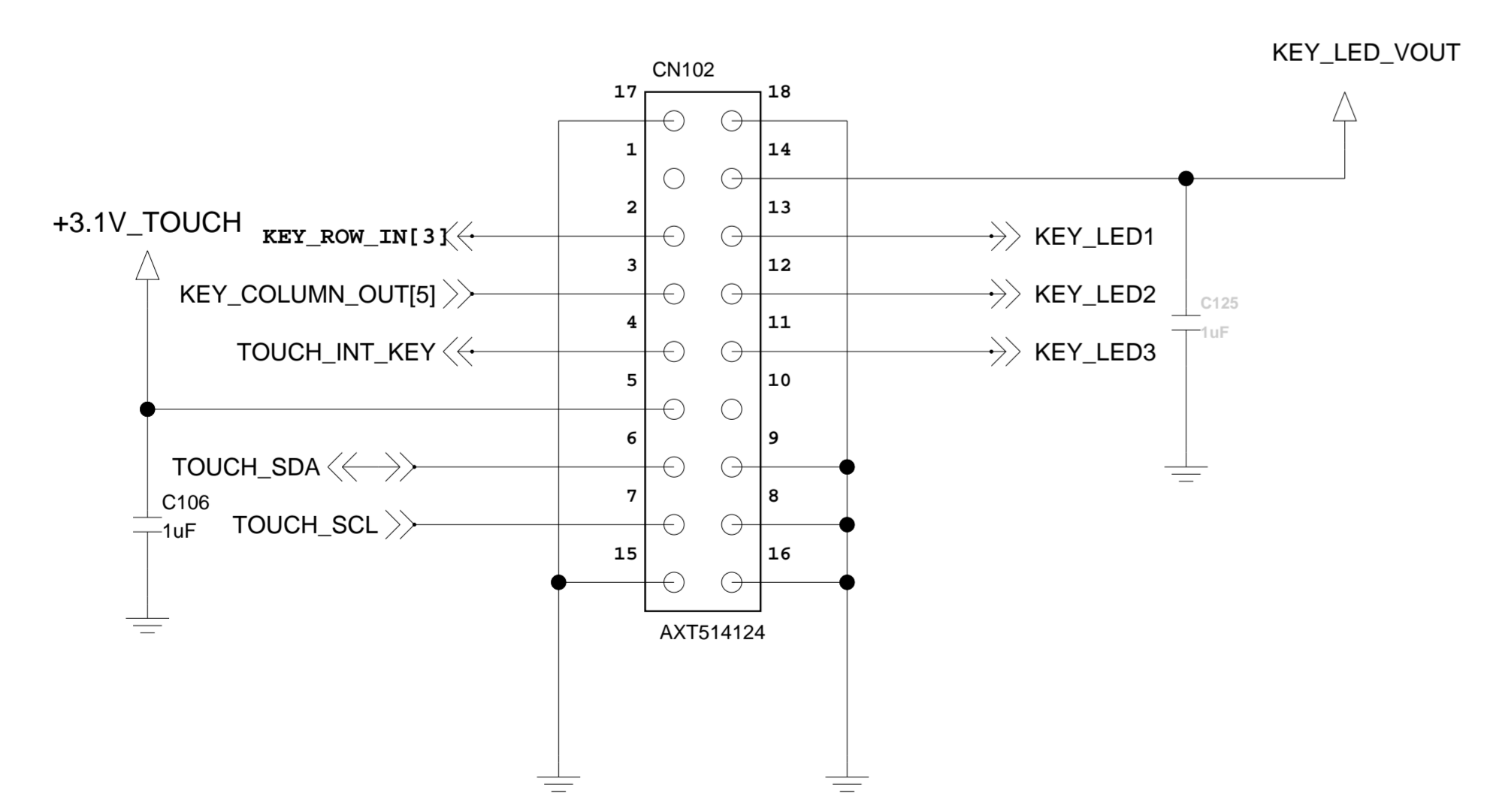




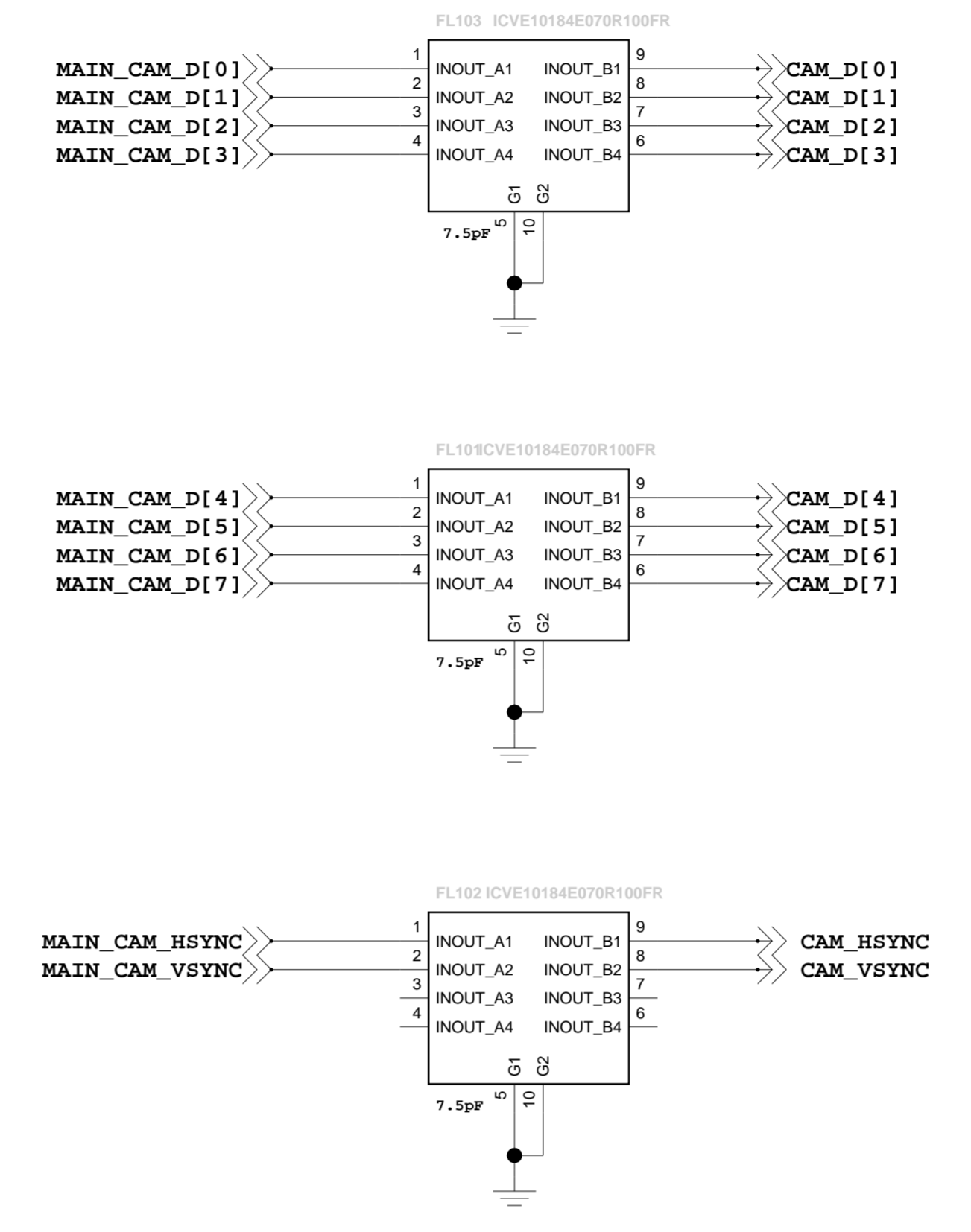
# 3M FF CAMERA CONNECTOR



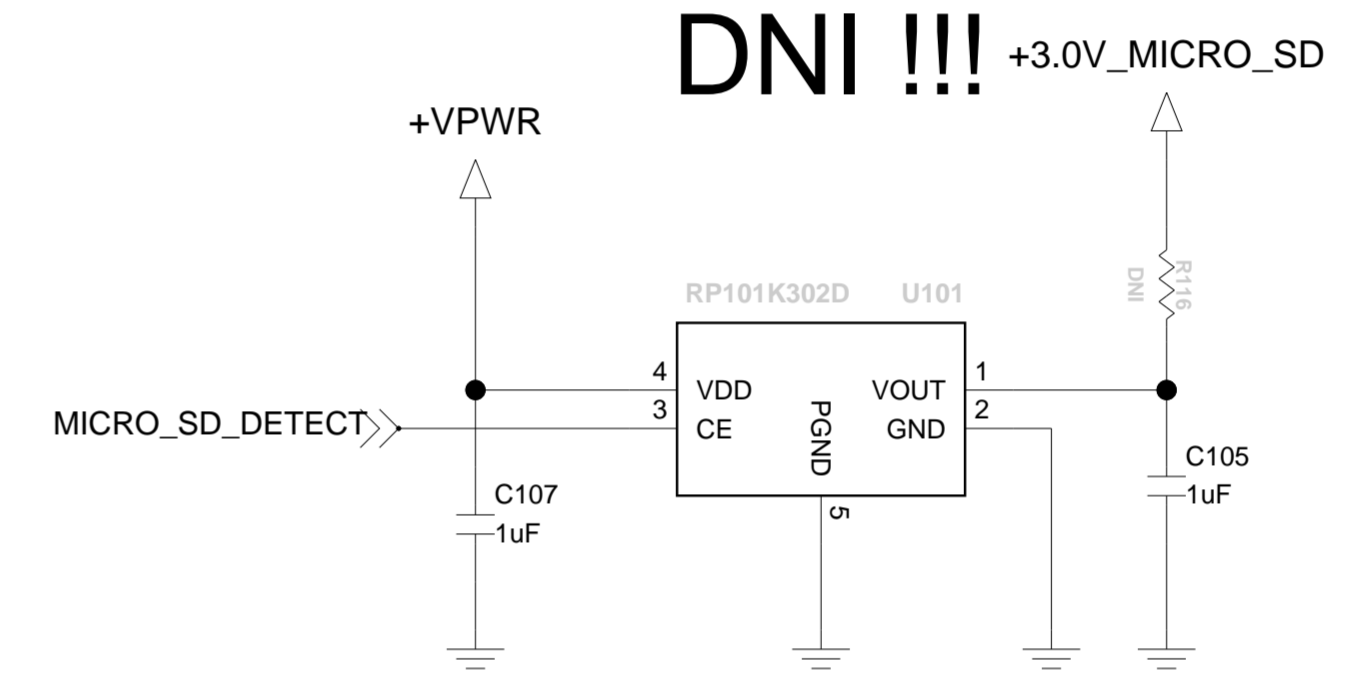
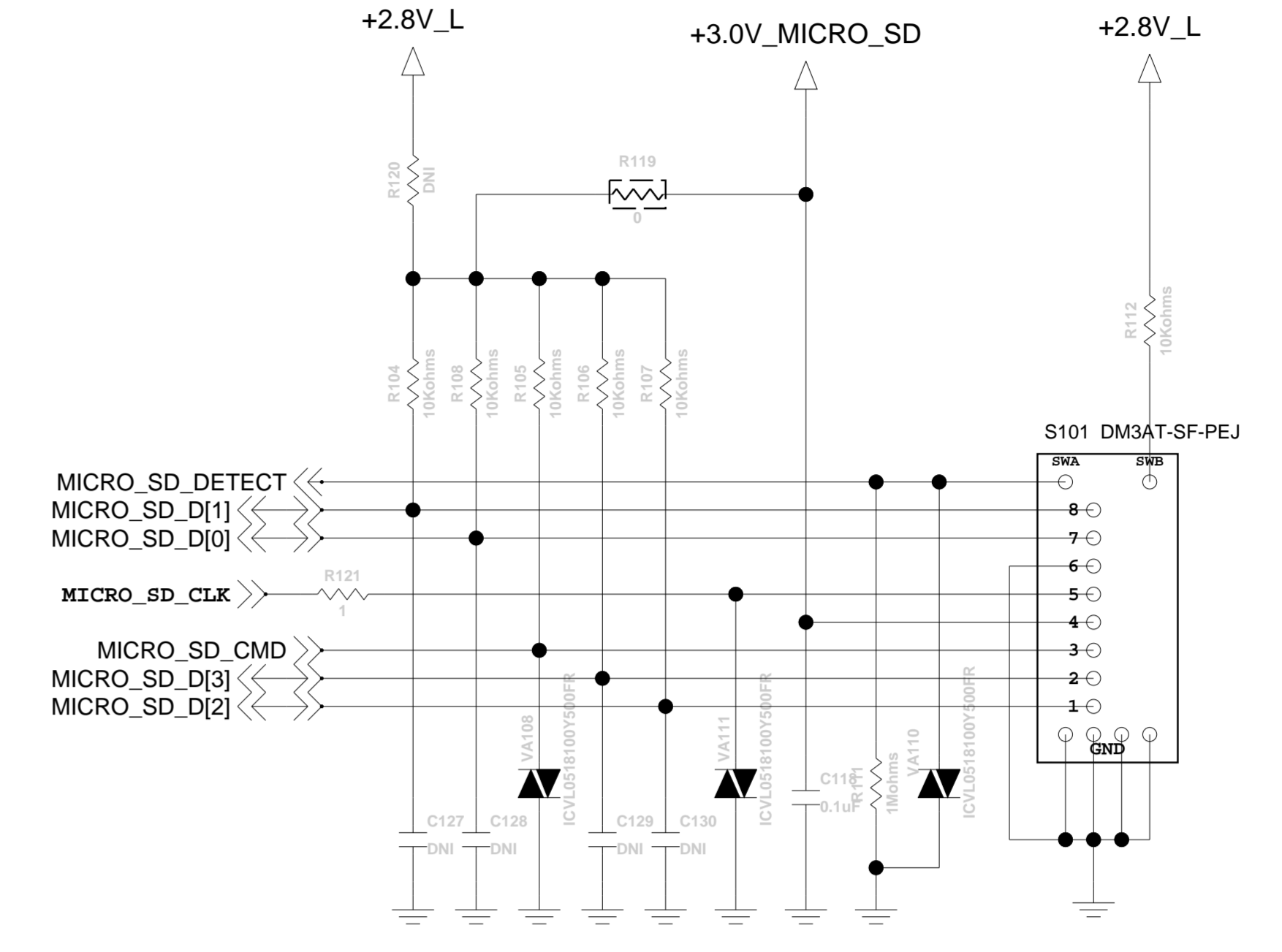
# Slide Touch Key Connector



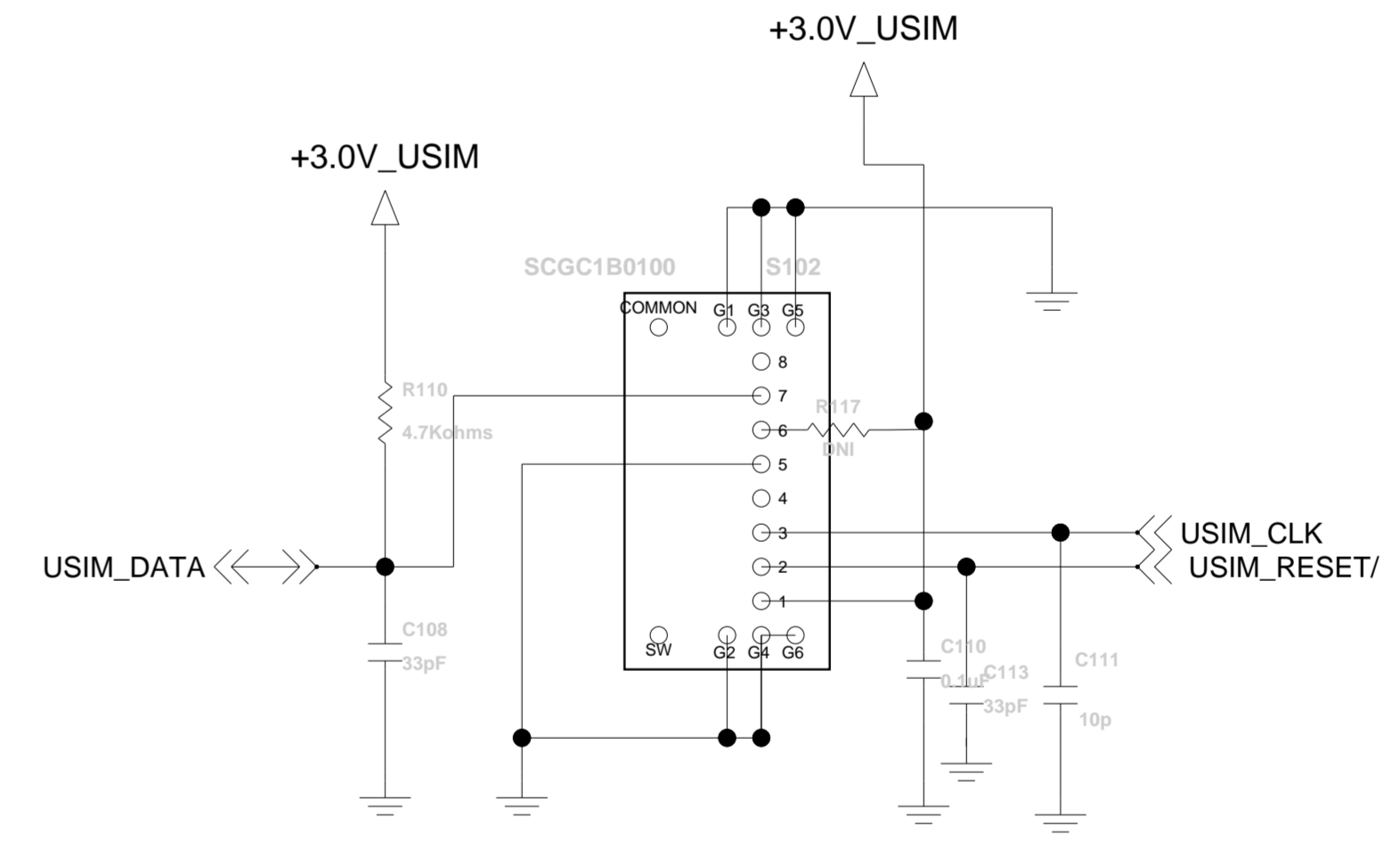
# CAM EMI Filter\_10ohm\_7.5pF



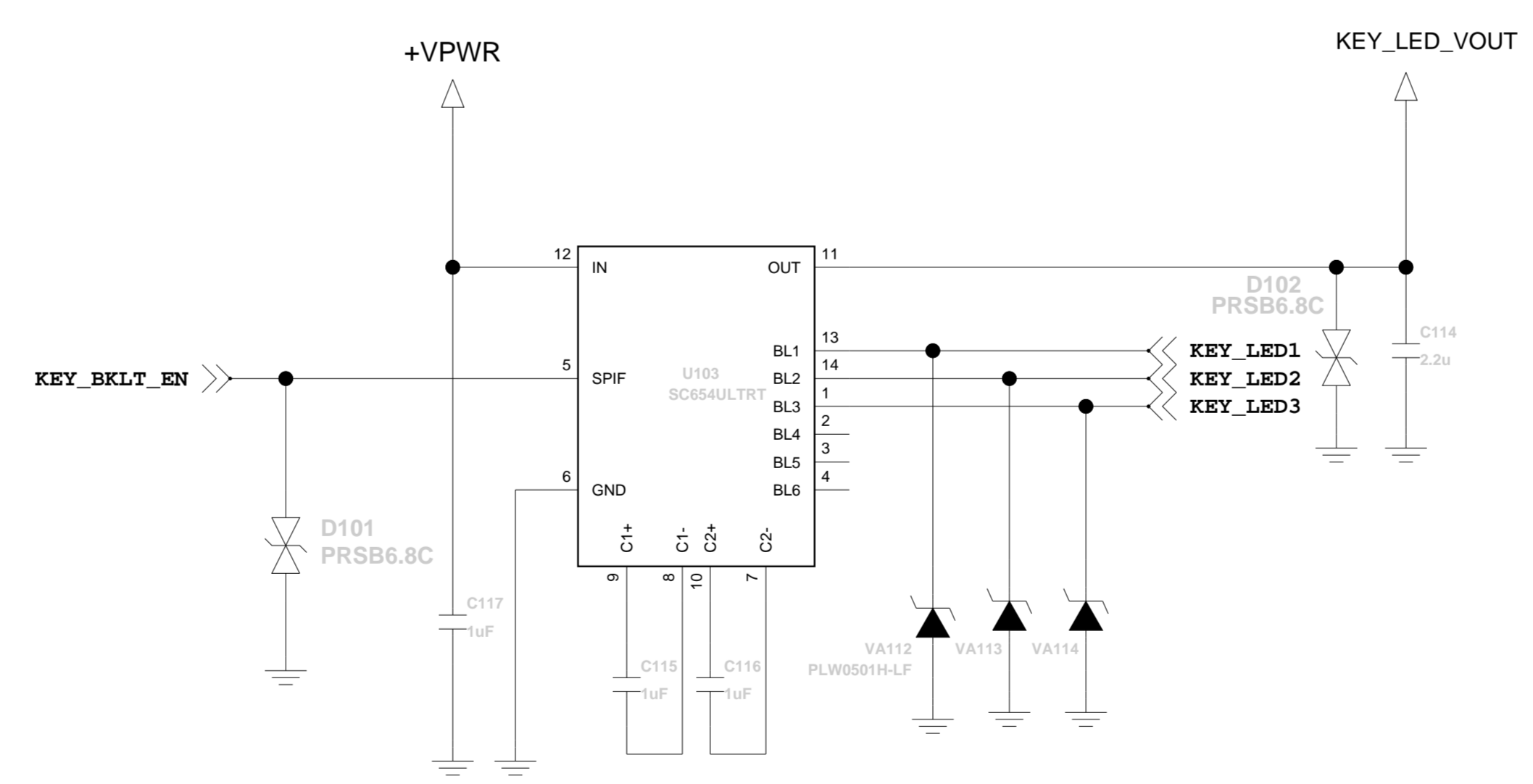
# MICRO-SD SOCKET



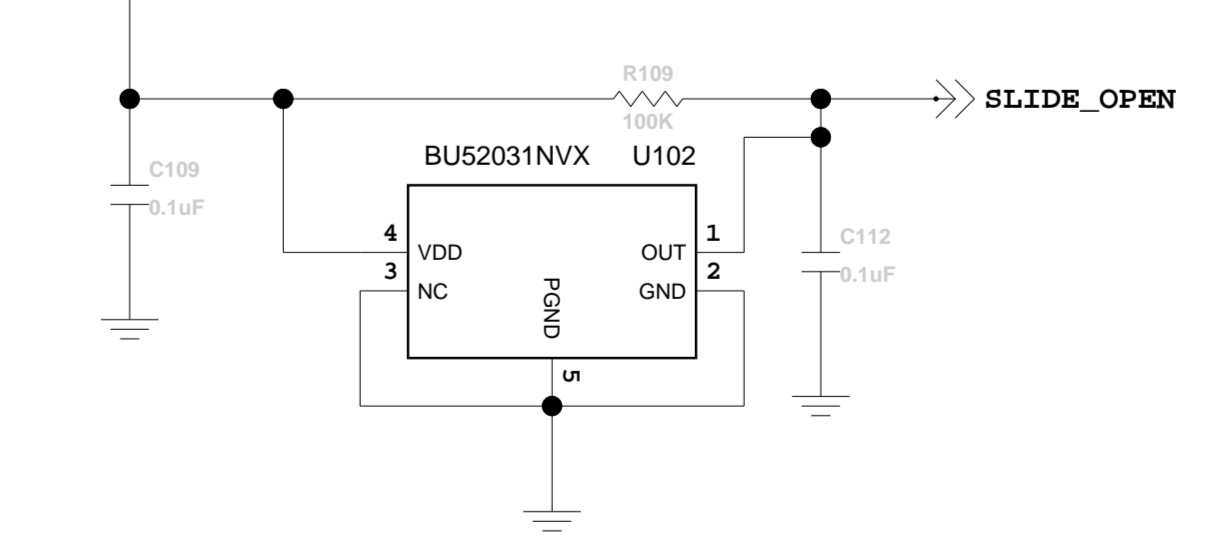
# USIMCARD SOCKET



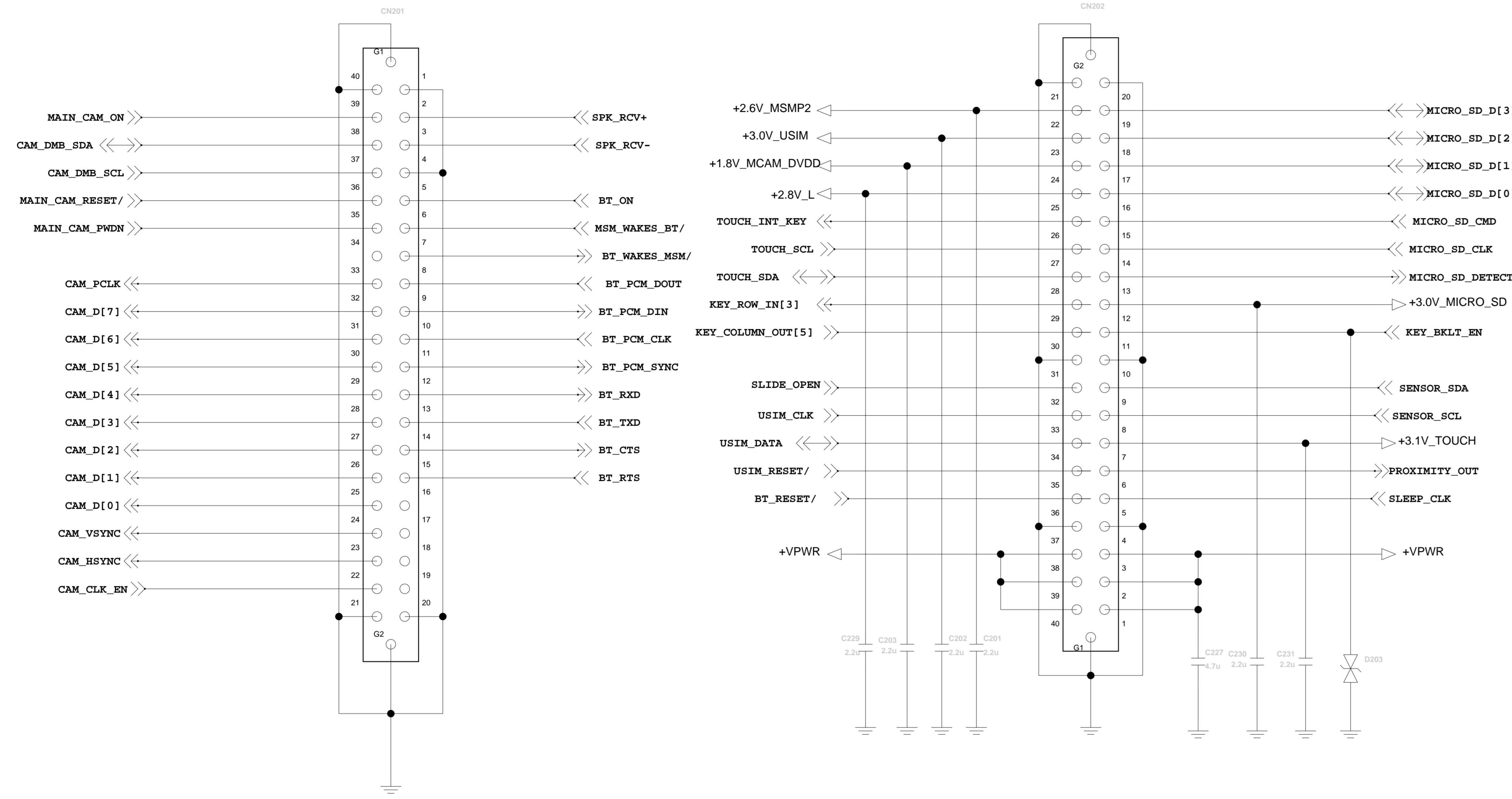
# Key Back Light



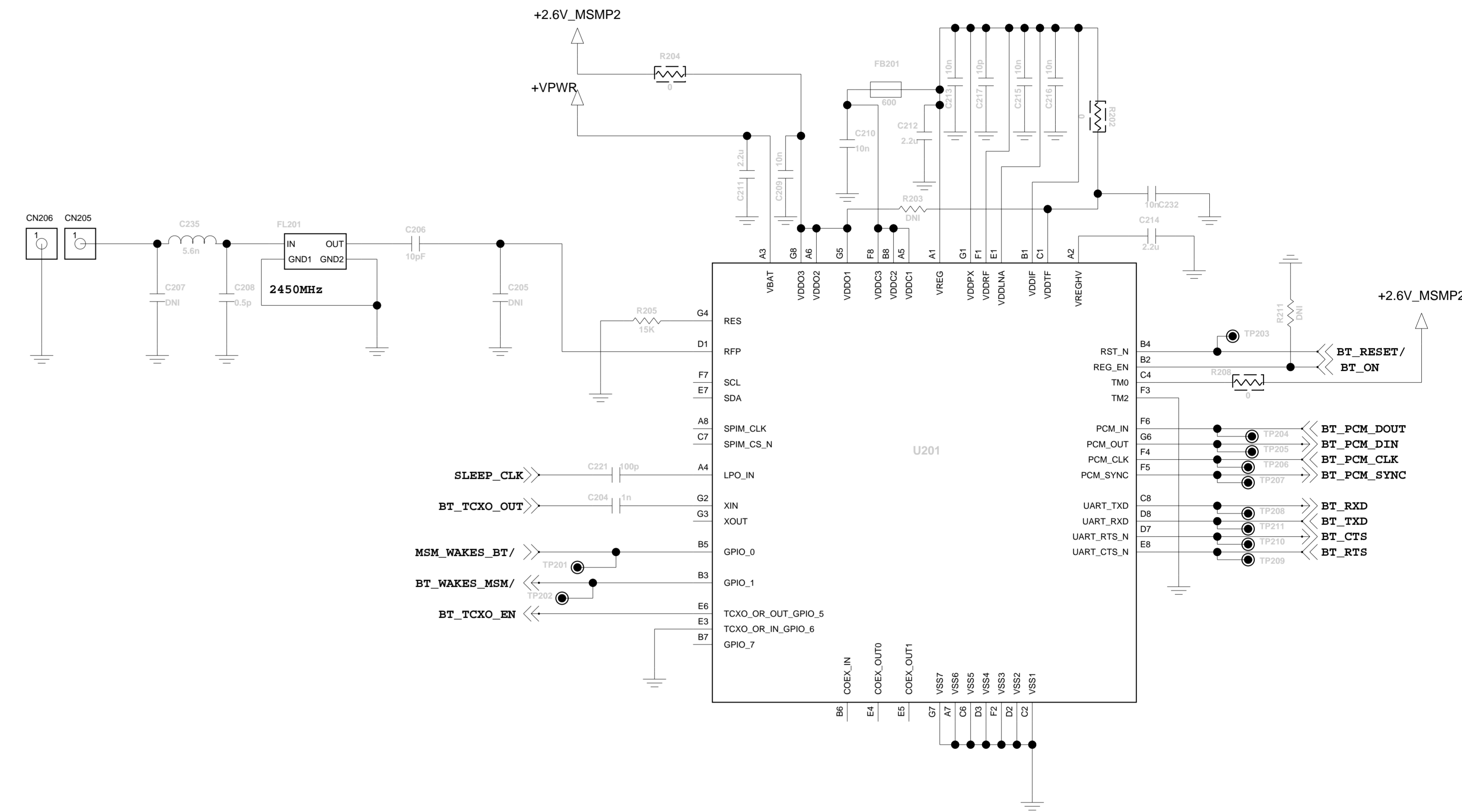
# HALL IC



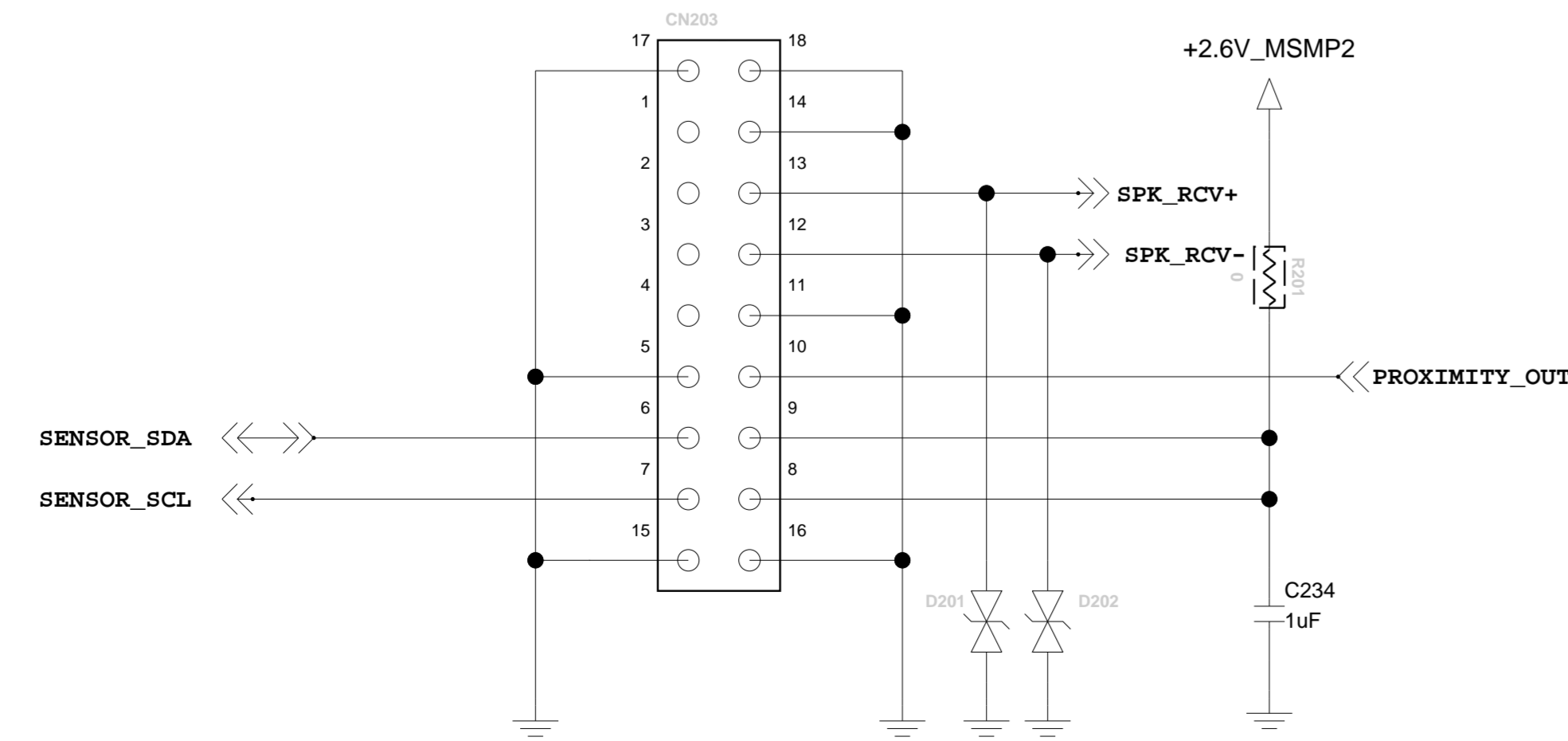
# MAIN TO SUB CONNECTOR



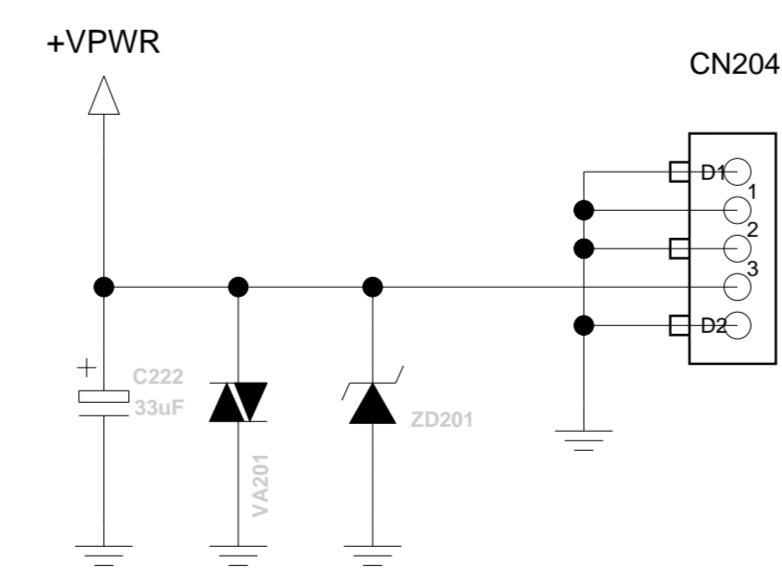
# Bluetooth(Class2)



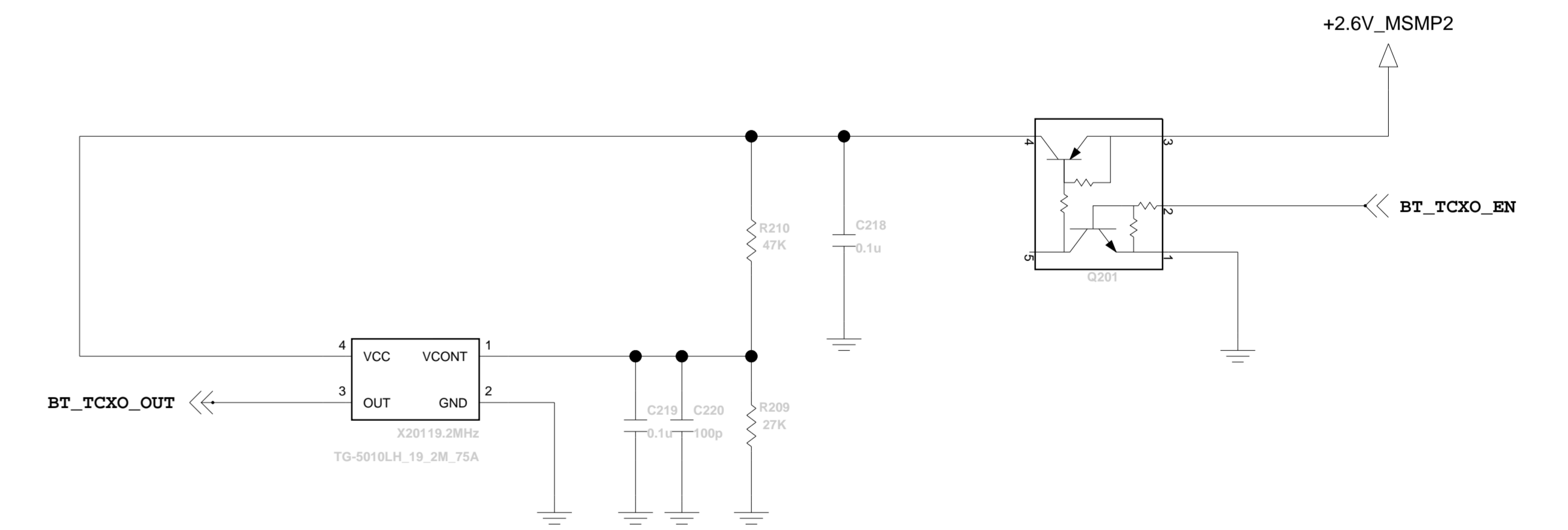
# SPK MODULE IF CONNECTOR



# BATTERY CONTACT



# Additional TCXO BLOCK.

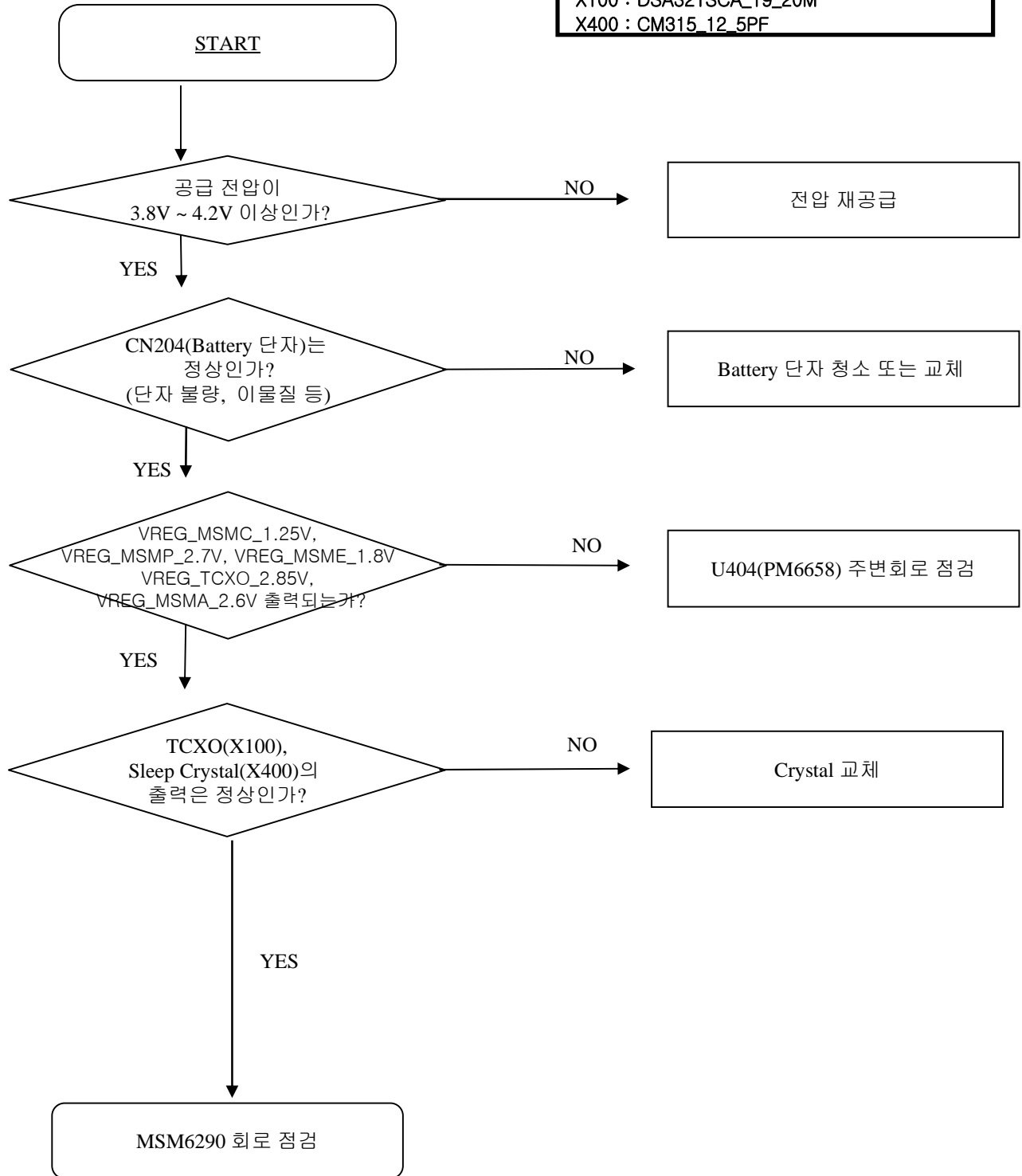


## 사. 주요기능 수리방법



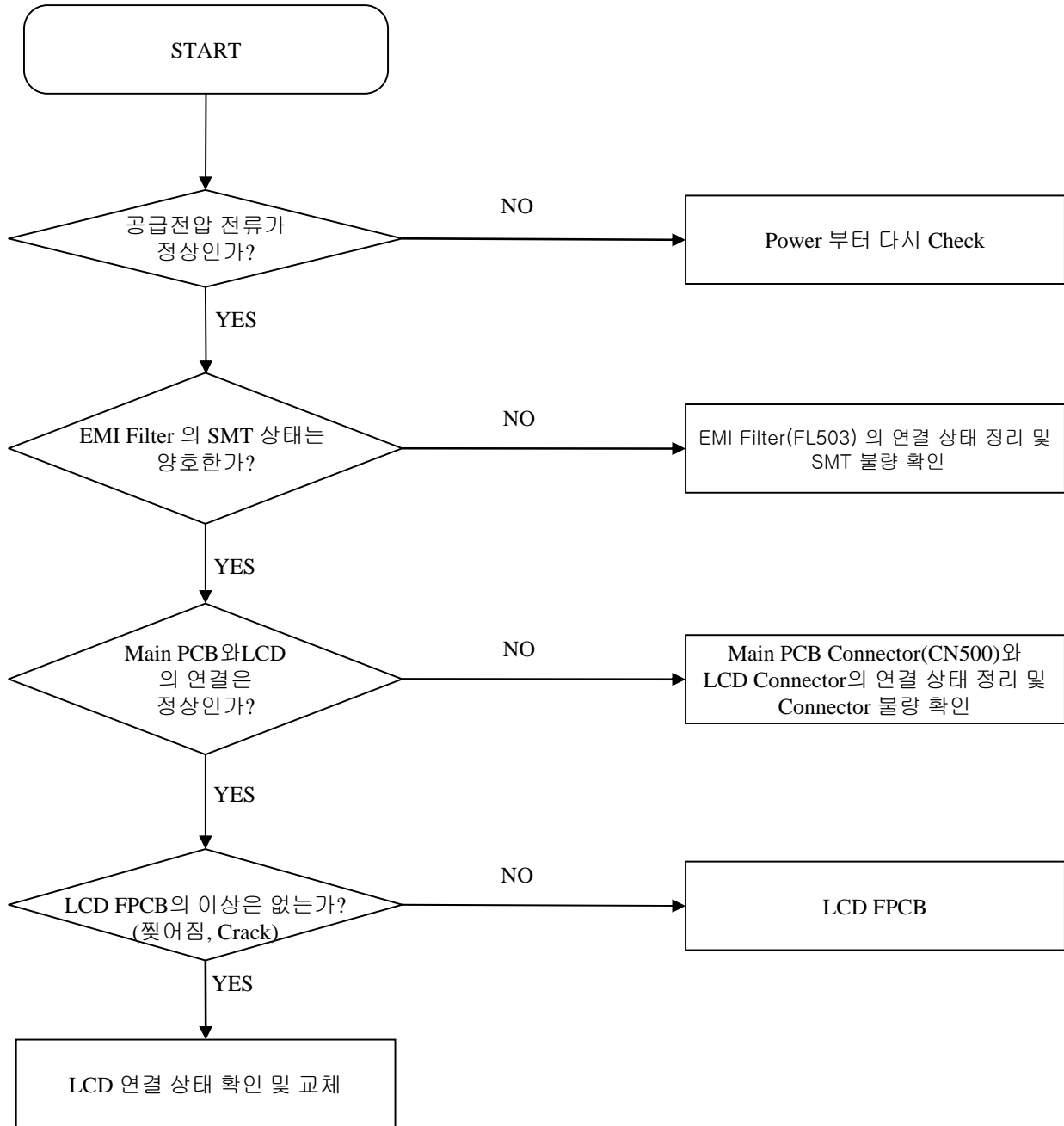
# 1. POWER가 들어 오지 않을 때

CN204 : KQ03LE-3R  
 U404 : PM6658  
 X100 : DSA321SCA\_19\_20M  
 X400 : CM315\_12\_5PF



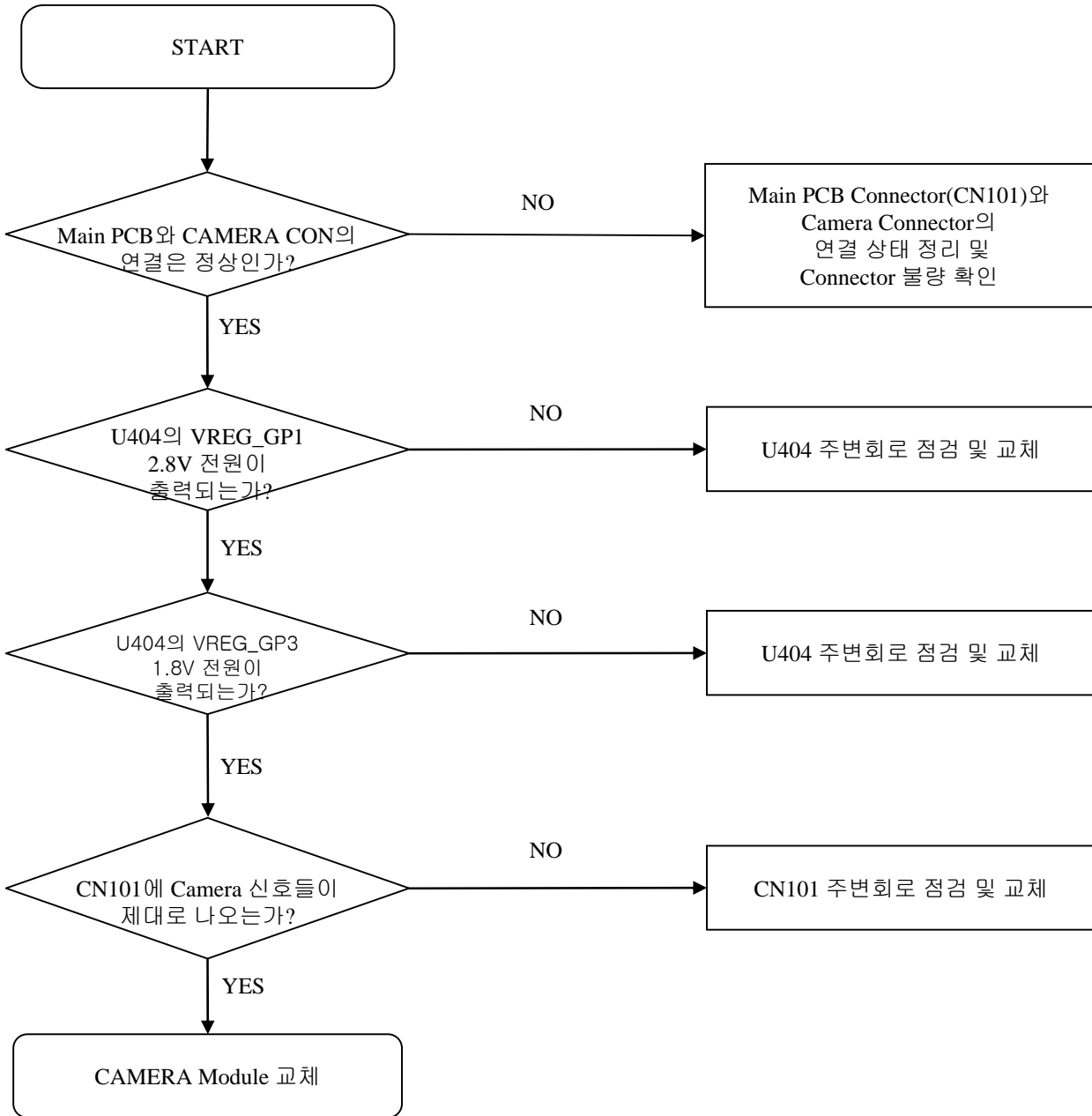
## 2. LCD가 켜지지 않을 때

CN500 :GB042-24S  
FL503 : ICMF214P101M



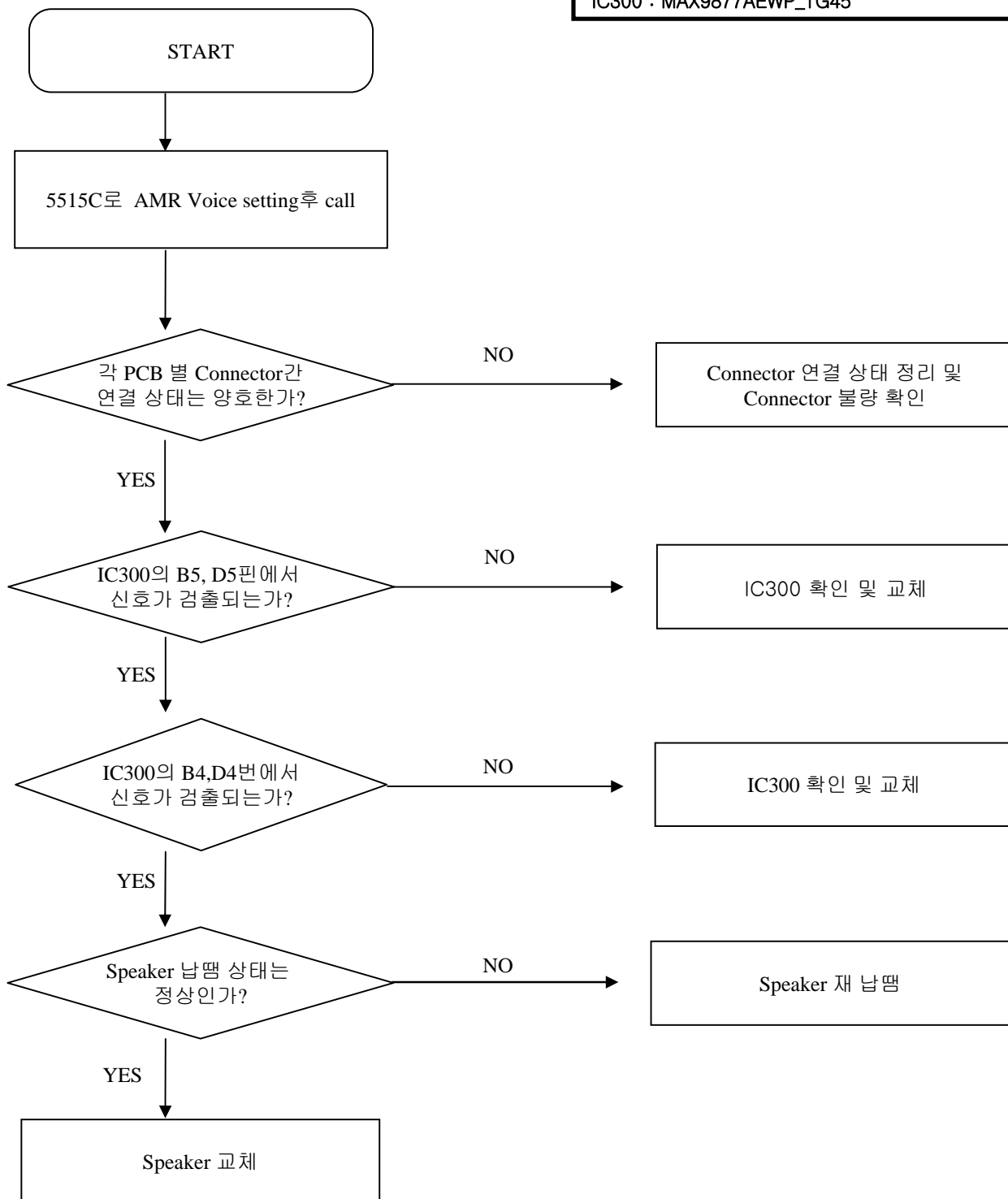
### 3. 3M CAMERA 작동이 안될 때

CN101 : GB042-24S  
U404 : PM6658



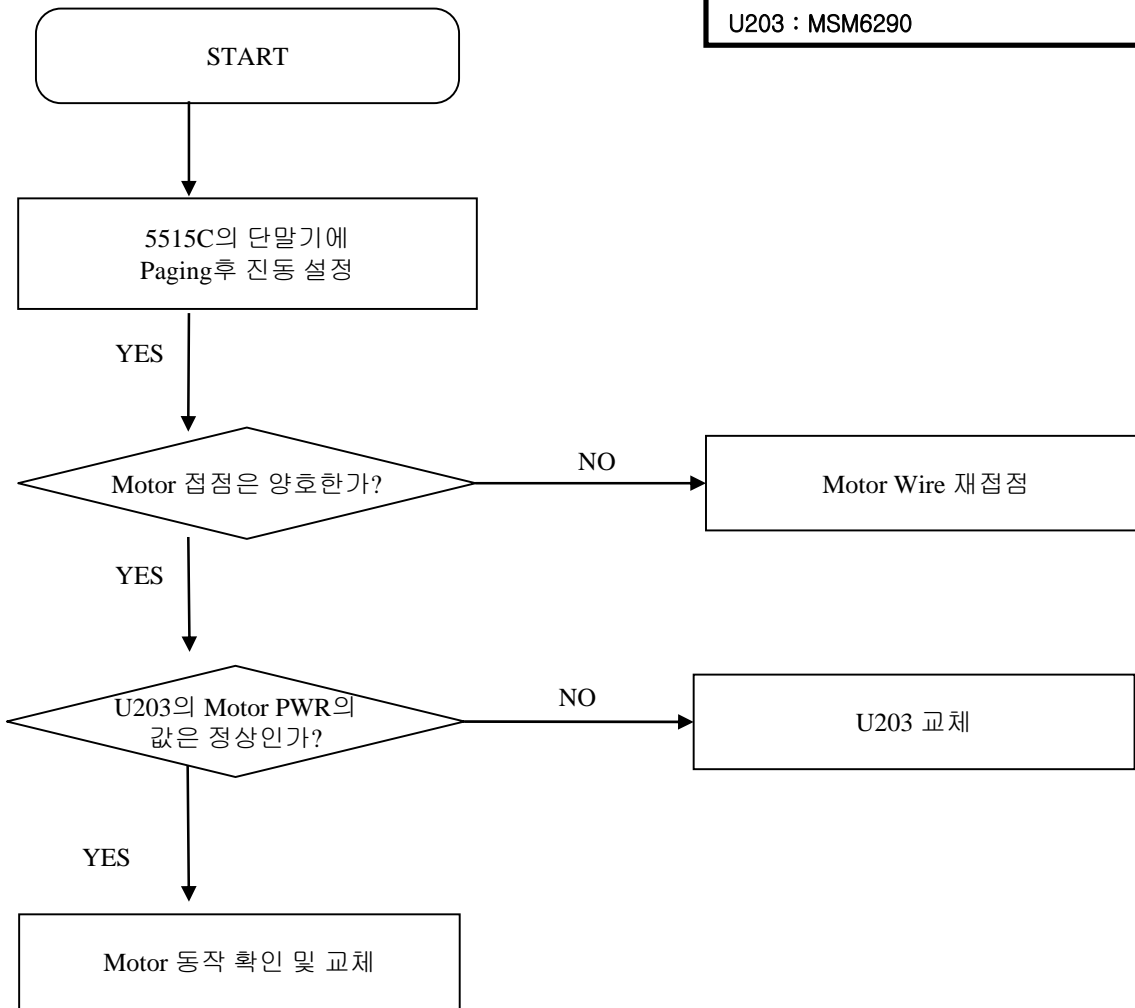
#### 4. 수화음이 잘 들리지 않을 때

IC300 : MAX9877AEWP\_TG45



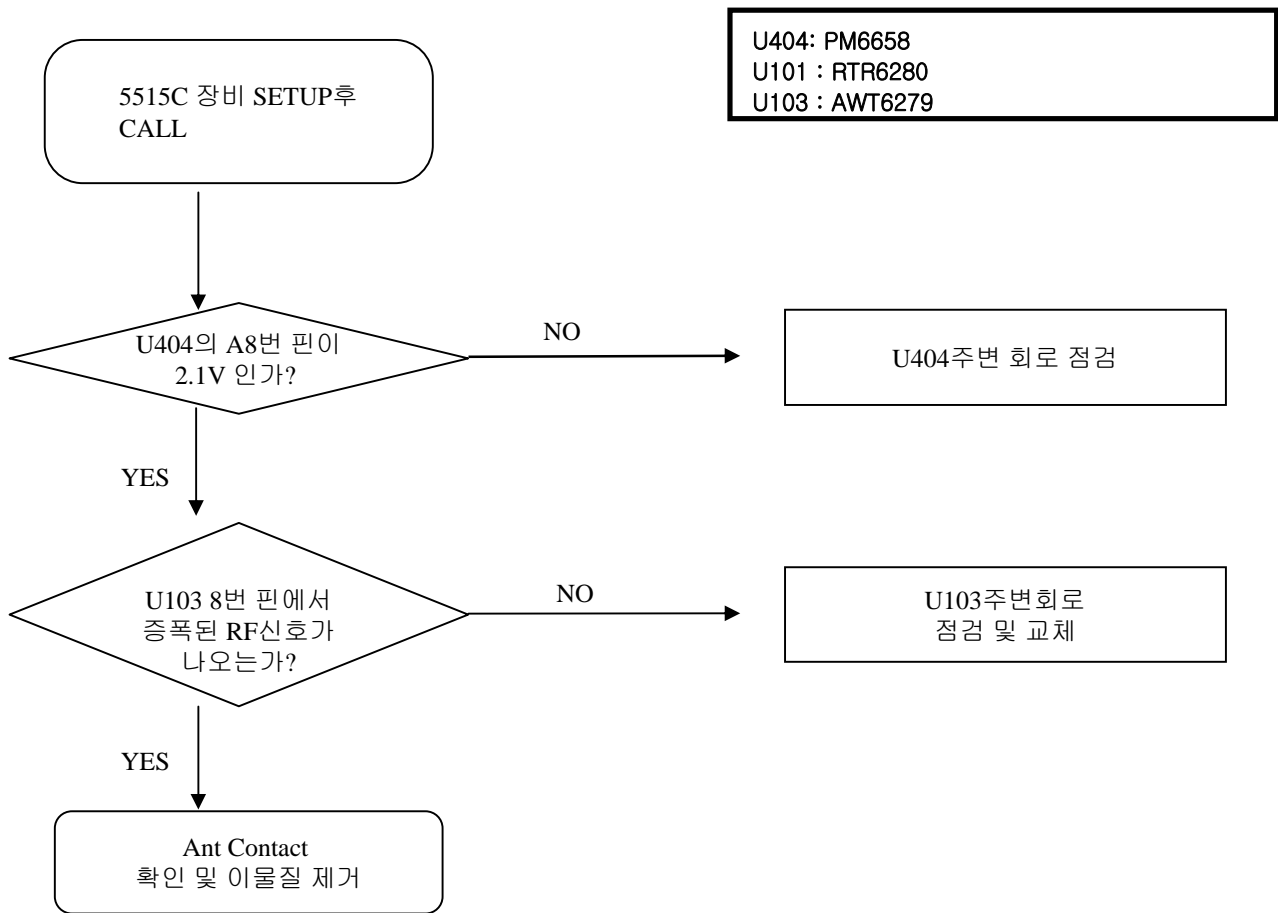
## 5. 진동이 되지 않을 때

U203 : MSM6290



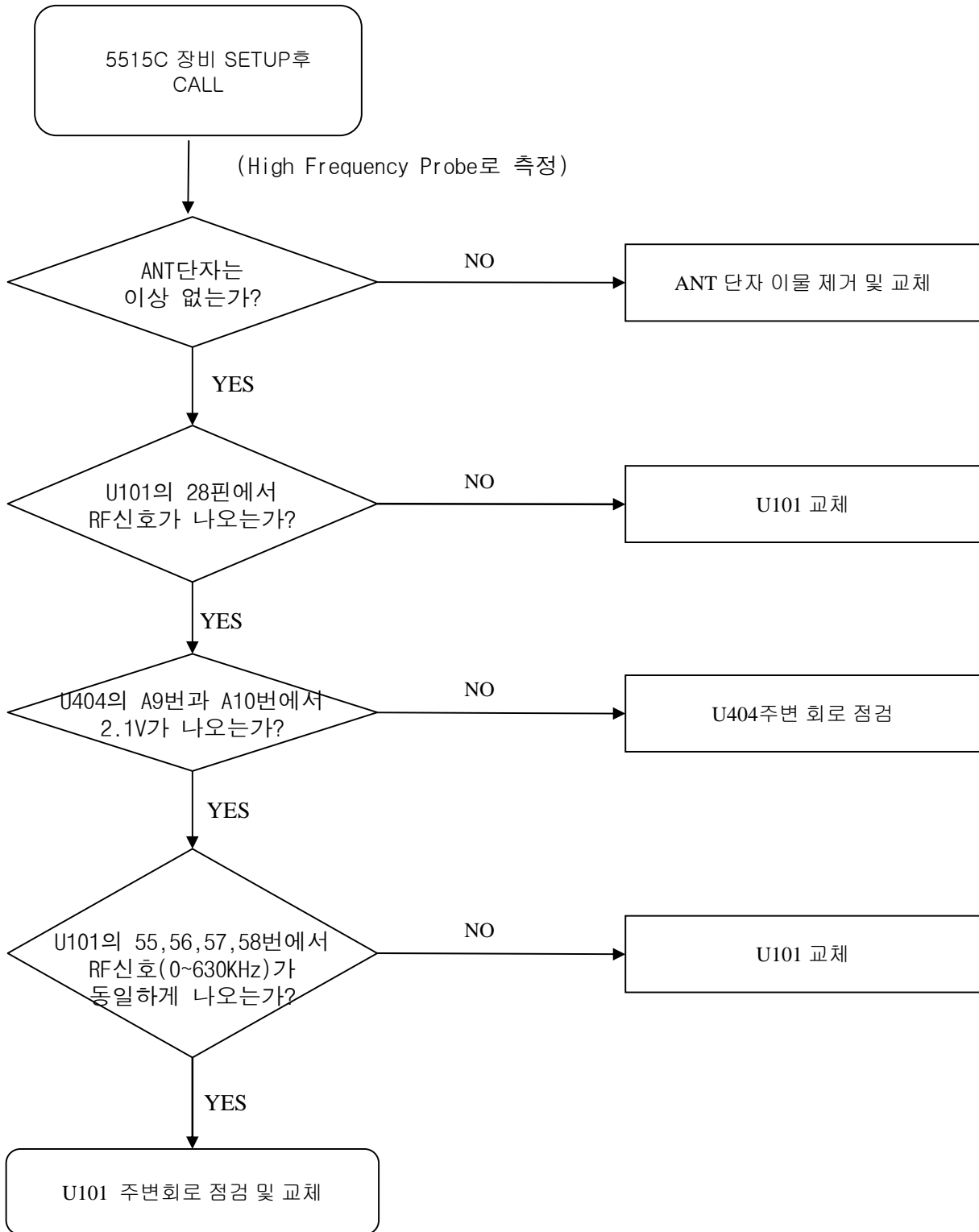


## 6. Tx POWER(WCDMA)가 나오지 않을 때



## 7. 수신 감도가 좋지 않을 때

U404 : PM6658  
U101 : RTR6280



## 아. 부품목록



LG-KU9600 Main Componet list					
Design No.	품번	품명	Maker PN	Maker	수량
C132,C133	ECCH0000107	Chip	MCH155A060DK	ROHM	2
C437,C438	ECCH0000113	Chip	MCH155A180J	ROHM	2
C114,C120,C121,C125, C160,C171	ECCH0000115	Chip	MCH155A220JK	ROHM	6
C103	ECCH0000117	Chip	MCH155C270J	ROHM	1
C144	ECCH0000122	Chip	MCH155A470JK	ROHM	1
C129	ECCH0000143	Chip	MCH155CN102KK	ROHM	1
C700	ECCH0000143	Chip	MCH155CN102KK	ROHM	1
C715	ECCH0000151	Chip	MCH152CN472KK	SAMSUNG	1
C109	ECCH0000155	Chip	MCH153CN103KK		1
C110	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C113	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C149	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C150	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C176	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C719	ECCH0000187	Chip	GRM36C0G151J50PT	MURATA	1
C234	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C411	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C422	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C423	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C429	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C430	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C431	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C432	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C434	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C439	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C441	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C511	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C605	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C713	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C714	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C155	ECCH0000701	Chip	C1005C0G1H1R2CT	TDK	1
C701	ECCH0002001	Chip	C1005JB0J104KT	TDK	1
C712	ECCH0002001	Chip	C1005JB0J104KT	TDK	1
C603	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C147	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C415	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C512	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1

C148	ECCH0005603	Chip	GRM39X5R225K10	MURATA	1
C401	ECCH0005603	Chip	GRM39X5R225K10	MURATA	1
C402	ECCH0005603	Chip	GRM39X5R225K10	MURATA	1
C118	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C122	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C228	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C314	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C317	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C416	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C417	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C418	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C602	ECCH0005604	Chip	GRM188R60J106ME47D	MURATA	1
C123	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C124	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C424	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C426	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C427	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C428	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C400	ECCH0007802	Chip	CV105X5R475M10AT	AVX-KYOCERA	1
C403	ECCH0007802	Chip	CV105X5R475M10AT	AVX-KYOCERA	1
C412	ECCH0007802	Chip	CV105X5R475M10AT	AVX-KYOCERA	1
C451	ECCH0007802	Chip	CV105X5R475M10AT	AVX-KYOCERA	1
C518	ECCH0007802	Chip	CV105X5R475M10AT	AVX-KYOCERA	1
C519	ECCH0007802	Chip	CV105X5R475M10AT	AVX-KYOCERA	1
C202	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C203	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C207	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C208	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C209	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C210	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C211	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C212	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C213	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C218	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C221	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C224	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C226	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C231	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
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C237	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C435	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
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C442	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
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C444	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C445	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C446	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C702	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C703	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C704	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C705	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C706	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C707	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C711	ECCH0009101	Chip	C0603X5R0J104KT	TDK	1
C100	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C205	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C206	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C419	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C420	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C421	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C436	ECCH0009103	Chip	C0603C0G1H101JT	TDK	1
C215	ECCH0009104	Chip	C0603C0G1H330JT	TDK	1
C315	ECCH0009104	Chip	C0603C0G1H330JT	TDK	1
C324	ECCH0009104	Chip	C0603C0G1H330JT	TDK	1
C414	ECCH0009104	Chip	C0603C0G1H330JT	TDK	1
C522	ECCH0009104	Chip	C0603C0G1H330JT	TDK	1
C220	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C225	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C227	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C230	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C233	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C236	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C239	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C413	ECCH0009106	Chip	C0603X7R1C103KT	TDK	1
C216	ECCH0009203	Chip	GRM033R60J333K	MURATA	1
C323	ECCH0009206	Chip	GRM0335C1E680J	MURATA	1
C214	ECCH0009230	Chip	GRM033R61A222K	MURATA	1
C449	ECTH0005203	Chip	TCTP1A336M8R	ROHM	1
C717	ECZH0000803	Chip	C1005C0G1H020CT	TDK	1
C105	ECZH0000806	Chip	C1005C0G1H050CT	TDK	1
C708	ECZH0000810	Chip	C1005C0G1H090DT	TDK	1
C709	ECZH0000810	Chip	C1005C0G1H090DT	TDK	1
C101	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C102	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1

C106	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C107	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C115	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C117	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C130	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C131	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C165	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C172	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C174	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C175	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C452	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C104	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C127	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C153	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C240	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C516	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C517	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C111	ECZH0000844	Chip	C1005C0G1H680JT	TDK	1
C112	ECZH0000844	Chip	C1005C0G1H680JT	TDK	1
C151	ECZH0000844	Chip	C1005C0G1H680JT	TDK	1
C322	ECZH0000844	Chip	C1005C0G1H680JT	TDK	1
C108	ECZH0001002	Chip	C1005CH1H0R5BB	TDK	1
L104	ECZH0001002	Chip	C1005CH1H0R5BB	TDK	1
C305	ECZH0001102	Chip	C1005X7R1C183KT	TDK	1
C306	ECZH0001102	Chip	C1005X7R1C183KT	TDK	1
C600	ECZH0001120	Chip	C1005X7R1H392KT	TDK	1
C204	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C219	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C222	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C223	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C229	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C235	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C238	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C302	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C307	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C308	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C309	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C310	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C312	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C405	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C406	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C407	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1

C408	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C425	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C433	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C450	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C500	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C501	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C502	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C505	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C508	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C509	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C510	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C513	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C514	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C515	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C520	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C521	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C604	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C716	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C200	ECZH0001216	Chip	C1005X5R1A224KT	TDK	1
C303	ECZH0001216	Chip	C1005X5R1A224KT	TDK	1
C304	ECZH0001216	Chip	C1005X5R1A224KT	TDK	1
C116	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C119	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C126	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C140	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C157	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C158	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C159	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C163	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C164	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C167	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C168	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C169	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C170	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C311	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C313	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C318	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C300	ECZH0025920	Chip	GRM033R71C102K	MURATA	1
C301	ECZH0025920	Chip	GRM033R71C102K	MURATA	1
ZD400	EDNY0013602	DIODE	EDZTE615_1B	ROHM	1
D400	EDSY0011901	DIODE,SWITCHING	RB521S-30	ROHM	1
ZD402	EDTY0008601	DIODE,TVS	PSD05-LF	PROTEK	1



D402	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D507	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D508	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D509	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D510	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D511	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D512	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D600	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D601	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D602	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
ZD401	EDTY0009601	DIODE,TVS	RCLAMP0521P_TCT	SEMTECH	1
D401	EDTY0009801	DIODE,TVS	VSMF05LCC	PROTEK	1
D501	EDTY0009801	DIODE,TVS	VSMF05LCC	PROTEK	1
D502	EDTY0009801	DIODE,TVS	VSMF05LCC	PROTEK	1
D503	EDTY0009801	DIODE,TVS	VSMF05LCC	PROTEK	1
D506	EDTY0009801	DIODE,TVS	VSMF05LCC	PROTEK	1
L400	ELCH0001052	Chip	1005GC2T18NJLF	FILKOR	1
C154	ELCH0001054	Chip	1005GC2T5N6SLF	FILKOR	1
L111	ELCH0001054	Chip	1005GC2T5N6SLF	FILKOR	1
L101	ELCH0001404	Chip	LL1005-FHL1N5S_	TAIYO-YUDEN	1
L103	ELCH0001412	Chip	LL1005-FHL1N8S	TOKO	1
L102	ELCH0001420	Chip	LL1005-FH3N9S	TOKO	1
L107	ELCH0003816	Chip	LQG15HS3N6S02D		1
L700	ELCH0003830	Chip	LQG15HSR18J02D	MURATA	1
L701	ELCH0003843	Chip	LQG15HSR12J02	MURATA	1
L109	ELCH0003844	Chip	LQG15HS2N0S02	MURATA	1
L105	ELCH0004703	Chip	1005GC2T1N0S00	FILKOR	1
C134	ELCH0004707	Chip	1005GC2T1N5S00	FILKOR	1
C135	ELCH0004707	Chip	1005GC2T1N5S00	FILKOR	1
L122	ELCH0004709	Chip	1005GC2T3N3S00	FILKOR	1
L113	ELCH0004717	Chip	1005GC2T82NJ00	FILKOR	1
L112	ELCH0004721	Chip	1005GC2T2N2S00	FILKOR	1
R705	ELCH0004725	Chip	1005GC2T33NS00	FILKOR	1
L500	ELCH0004727	Chip	1005GC2TR10J00	FILKOR	1
L401	ELCP0008004	Chip	MIPF2016D4R7	FDK	1
L402	ELCP0008004	Chip	MIPF2016D4R7	FDK	1
L403	ELCP0008004	Chip	MIPF2016D4R7	FDK	1
CN503	ENBY0029501	connector	AXK740327G	MATSUSHITA	1
CN500	ENBY0034201	connector	GB042-24S-H10-E3000	LS-MTRON	1
CN502	ENBY0043301	connector	AXK840125WG	MATSUSHITA	1
CN200	ENBY0045201	connector	AXT610124	PANASONIC	1

CN501	ENBY0045801	connector	AXT514124	PANASONIC	1
CN400	ENRY0007601	CONNECTOR,I/O	GU043-20P-E1000	LS-MTRON	1
S500	ENSY0021801	CONN,SOCKET	AXM41511LG1	PANASONIC	1
CN100	ENWY0001801	CONN,RF SWITCH	MM8430-2600RB3	MURATA	1
SW700	ENWY0005901	CONN,RF SWITCH	KMS-538-LR_06	HIROSE	1
Q400	EQBN0012401	TR,BJT,NPN	KRC402E	KEC	1
Q401	EQBN0012401	TR,BJT,NPN	KRC402E	KEC	1
Q200	EQFP0009301	TR,FET	MIC94071YMT	MICREL	1
R103	ERHY0000193	Chip	MCR01MZSJ270	ROHM	1
R111	ERHY0000241	Chip	MCR01MZSJ102	ROHM	1
R443	ERHY0000254	Chip	MCR01MZSJ472	ROHM	1
R212	ERHY0009311	Chip	MCR006MZPF51R0	ROHM	1
R429	ERHY0009311	Chip	MCR006MZPF51R0	ROHM	1
R402	ERHY0009504	Chip	MCR006MZPJ102	ROHM	1
R439	ERHY0009504	Chip	MCR006MZPJ102	ROHM	1
R600	ERHY0009505	Chip	MCR006MZPJ103	ROHM	1
R209	ERHY0009506	Chip	MCR006MZPJ104	ROHM	1
R200	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R201	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R211	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R217	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R218	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R219	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R220	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R222	ERHY0009516	Chip	MCR006MZPJ222	ROHM	1
R435	ERHY0009526	Chip	MCR006MZPJ472	ROHM	1
R442	ERHY0009526	Chip	MCR006MZPJ472	ROHM	1
R602	ERHY0009526	Chip	MCR006MZPJ472	ROHM	1
R703	ERHY0009526	Chip	MCR006MZPJ472	ROHM	1
R214	ERHY0009527	Chip	MCR006MZPJ473	ROHM	1
R215	ERHY0009527	Chip	MCR006MZPJ473	ROHM	1
R216	ERHY0009527	Chip	MCR006MZPJ473	ROHM	1
R425	ERHY0009527	Chip	MCR006MZPJ473	ROHM	1
R426	ERHY0009527	Chip	MCR006MZPJ473	ROHM	1
R423	ERHY0009536	Chip	MCR006YZPF1003	ROHM	1
R208	ERHY0009541	Chip	MCR006YZPF4700	ROHM	1
R221	ERHY0009592	Chip	MCR006YZPJ202	ROHM	1
R207	ERHY0013401	Chip	MCR01MZSF1504	ROHM	1
R424	ERHY0019501	Chip	UCR10EVHFSR051	ROHM	1
R422	ERHY0024401	Chip	MCR006YZPF7502	ROHM	1
R105	ERHZ0000201	Chip	MCR01MZSF1000	ROHM	1

R112	ERHZ0000212	Chip	MCR01MZSF1202		1
R601	ERHZ0000231	Chip	MCR01MZSF1803	ROHM	1
R104	ERHZ0000235	Chip	MCR01MZSF2000	ROHM	1
R114	ERHZ0000235	Chip	MCR01MZSF2000	ROHM	1
R440	ERHZ0000238	Chip	MCR01MZSF2003	ROHM	1
R441	ERHZ0000238	Chip	MCR01MZSF2003	ROHM	1
R210	ERHZ0000270	Chip	MCR01MZSF33R0	ROHM	1
R704	ERHZ0000279	Chip	MCR01MZSF3902	ROHM	1
R102	ERHZ0000291	Chip	MCR01MZSF49R9	ROHM	1
R434	ERHZ0000295	Chip	MCR01MZSF5102	ROHM	1
R437	ERHZ0000296	Chip	MCR01MZSF5103	ROHM	1
R213	ERHZ0000307	Chip	MCR01MZSF6201	ROHM	1
R108	ERHZ0000402	Chip	MCR01MZSJ100	ROHM	1
R116	ERHZ0000402	Chip	MCR01MZSJ100	ROHM	1
R107	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R308	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R444	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R503	ERHZ0000406	Chip	MCR01MZSJ104	ROHM	1
R307	ERHZ0000407	Chip	MCR01MZSJ105	ROHM	1
R302	ERHZ0000419	Chip	MCR01MZSJ150	ROHM	1
R303	ERHZ0000419	Chip	MCR01MZSJ150	ROHM	1
R432	ERHZ0000439	Chip	MCR01MZSJ204	ROHM	1
R115	ERHZ0000456	Chip	MCR01MZSJ2R2	ROHM	1
R433	ERHZ0000466	Chip	MCR01MZSJ333	ROHM	1
R702	ERHZ0000474	Chip	MCR01MZSJ391	ROHM	1
R300	ERHZ0000488	Chip	MCR01MZSJ4R7	ROHM	1
R301	ERHZ0000488	Chip	MCR01MZSJ4R7	ROHM	1
R445	ERHZ0000493	Chip	MCR01MZSJ513	ROHM	1
R109	ERHZ0000545	Chip	MCR01MZSJ5R6		1
R110	ERHZ0000545	Chip	MCR01MZSJ5R6		1
R206	ERHZ0003601	Chip	MCR01MZSF2004	ROHM	1
R427	ERHZ0004201	Chip	MCR01MZSF1213	ROHM	1
SW600	ESCY0004401	SWITCH,TACT	LS12K2-T	CITIZEN	1
U403	EUSY0178502	IC	MAX9938FELT_T	MAXIM	1
U300	EUSY0186502	IC	FSA4157L6X	FAIRCHILD	1
U600	EUSY0200803	IC	SM100	SYNCOAM	1
U202	EUSY0216301	IC	NC7SV00P5X_NL	FAIRCHILD	1
U200	EUSY0312401	IC	S-8120CPF-DRB-TF-G	SEIKO	1
U101	EUSY0344002	IC	RTR6280		1
U405	EUSY0346701	IC	NCS2220A	SCG	1
U404	EUSY0350001	IC	PM6658	QUALCOMM	1
U500	EUSY0355701	IC	RP103K281D-TR-F	RICOH	1

U502	EUSY0355701	IC	RP103K281D-TR-F	RICOH	1
IC300	EUSY0360201	IC	MAX9877AEWP_TG45	MAXIM	1
U1	EUSY0363304	IC	H8AES0UQ0ACR-46M	HYNIX	1
U203	EUSY0363401	IC	MSM6290-NSP_DATA	QUALCOMM	1
U201	EUSY0363501	IC	FSA2268UMX	FAIRCHILD	1
U602	EUSY0365101	IC	RP101K302D	RICOH	1
U400	EUSY0369701	IC	SC654ULTRT	SEMTECH	1
U401	EUSY0372401	IC	RP103K251D	DIABELL	1
U501	EUSY0372801	IC	RP103K311D	RICOH	1
U402	EUSY0374201	IC	RP103K121D-TR	RICOH	1
U601	EUSY0378301	IC	MMA7660FC	MOTOROLA	1
U700	EUSY0385701	IC	LG2101	LGE	1
X100	EXSK0005704	IC	DSA321SCA		1
X400	EXXY0024301	X-TAL	CM315_12_5PF	CITIZEN	1
X700	EXXY0025601	X-TAL	FA-238_24.576MHZ	EPSON	1
SC600	MCBA0058401	shield can	sc_SU960	LOCAL	1
ANT1	MCIA0019501	CONTACT,ANTENNA	ANT-VX9700	LGE	1
U100	SCDY0004301	COUPLER	LDC151G8620Q-359	MURATA	1
DP100	SDMY0001202	DUPLEXER,IMT	SAYZY1G95EB0B00	MURATA	1
VA400	SEVY0004401	VARISTOR	ICVL0518400V500FR	INNOCHIP	1
VA401	SEVY0004401	VARISTOR	ICVL0518400V500FR	INNOCHIP	1
R113	SEVY0007301	VARISTOR	ULCE0505C015FR	INNOCHIP	1
VA700	SEVY0007301	VARISTOR	ULCE0505C015FR	INNOCHIP	1
FB700	SFBH0000903	FILTER,BEAD,CHIP	HB-1M1005-601JT	CERATECH	1
FB701	SFBH0000903	FILTER,BEAD,CHIP	HB-1M1005-601JT	CERATECH	1
FB703	SFBH0000903	FILTER,BEAD,CHIP	HB-1M1005-601JT	CERATECH	1
FB704	SFBH0000903	FILTER,BEAD,CHIP	HB-1M1005-601JT	CERATECH	1
FB300	SFBH0001503	FILTER,BEAD,CHIP	HH-1M1608-601JT	CERATECH	1
FB301	SFBH0001503	FILTER,BEAD,CHIP	HH-1M1608-601JT	CERATECH	1
FL500	SFEY0011401	FILTER,EMI/POWER	ICVE10184E070R101FR	INNOCHIP	1
FL501	SFEY0011401	FILTER,EMI/POWER	ICVE10184E070R101FR	INNOCHIP	1
FL502	SFEY0011401	FILTER,EMI/POWER	ICVE10184E070R101FR	INNOCHIP	1
FL503	SFEY0011701	FILTER,EMI/POWER	ICVE10184E070R100FR	INNOCHIP	1
FL200	SFEY0015901	FILTER,EMI/POWER	ICMEF214P101M	INNOCHIP	1
FL400	SFEY0016301	FILTER,EMI/POWER	ICMEF112P900M	INNOCHIP	1
FL100	SFSY0035001	FILTER,SAW	B9411	EPCOS	1
FL101	SFSY0035101	FILTER,SAW	B9414	EPCOS	1
VB600	SJMY0008510	VIBRATOR,MOTOR	DMJBRN1036CM	SAMSUNG	1
U103	SMPY0016601	PAM	AWT6279R	ANADIGICS	1
BAT400	SMZY0023501	MODULE,ETC	311HR-VG1	TAIYO_YUDEN	1

# LG -KU9600 / LG-SU960 SUB CL

LGE Internal Use Only

LG-KU9600 Sub Component list					
Design No.	품번	품명	Maker PN	Maker	수량
C206	ECCH0000110	Chip	MCH155A100D	ROHM	1
C217	ECCH0000110	Chip	MCH155A100D	ROHM	1
C111	ECCH0000115	Chip	MCH155A220JK	ROHM	1
C204	ECCH0000143	Chip	MCH155CN102KK	ROHM	1
C209	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C210	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C213	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C215	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C216	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C232	ECCH0000155	Chip	MCH153CN103KK	ROHM	1
C102	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C103	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C104	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C109	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C110	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C112	ECCH0000182	Chip	GRM36X5R104K10PT	MURATA	1
C201	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C202	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C229	ECCH0000198	Chip	CL05A225MQ5NNNC	SAMSUNG	1
C105	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C106	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C107	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C119	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C123	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C124	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C234	ECCH0004904	Chip	GRM155R60J105KE19D	MURATA	1
C114	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C203	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C211	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C212	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C214	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C230	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C231	ECCH0005602	Chip	GRM39X5R225K16	MURATA	1
C126	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C227	ECCH0006201	Chip	C1608X5R0J475KT	TDK	1
C120	ECCH0017601	Chip	CL05A475MQ5NRNC	SAMSUNG	1
C222	ECTH0005203	Chip	TCTP1A336M8R	ROHM	1
C220	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1

C221	ECZH0000813	Chip	C1005C0G1H101JT	TDK	1
C108	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C113	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C122	ECZH0000830	Chip	C1005C0G1H330JT	TDK	1
C208	ECZH0001002	Chip	C1005CH1H0R5BB	TDK	1
C115	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C116	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C117	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C125	ECZH0001215	Chip	C1005X5R1A105KT	TDK	1
C101	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C118	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C218	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
C219	ECZH0003103	Chip	GRM36X7R104K10PT	MURATA	1
ZD201	EDTY0008601	DIODE,TVS	PSD05-LF	PROTEK	1
D101	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D102	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D201	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D202	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
D203	EDTY0008606	DIODE,TVS	PRSB6.8C	PROTEK	1
VA112	EDTY0008610	DIODE,TVS	PLW0501H-LF	PROTEK	1
VA113	EDTY0008610	DIODE,TVS	PLW0501H-LF	PROTEK	1
VA114	EDTY0008610	DIODE,TVS	PLW0501H-LF	PROTEK	1
C235	ELCH0001407	INDUCTOR,CHIP	LL1005-FH5N6S	TOKO	1
CN202	ENBY0029501	Connector	AXK740327G	MATSUSHITA	1
CN101	ENBY0034201	Connector	GB042-24S-H10-E3000	LS-MTRON	1
CN201	ENBY0043301	Connector	AXK840125WG	MATSUSHITA	1
CN102	ENBY0045801	Connector	AXT514124	PANASONIC	1
CN203	ENBY0045801	Connector	AXT514124	PANASONIC	1
S101	ENSY0020901	Connector	DM3AT-SF-PEJ	HIROSE	1
S102	ENSY0023001	Connector	SCGC1B0100	ALPS	1
CN205	ENZY0026301	Connector	KQ01A-1_3H	HIROSE	1
CN206	ENZY0026301	Connector	KQ01A-1_3H	HIROSE	1
CN204	ENZY0026901	Connector	KQ03LQ-3R	HIROSE	1
Q201	EQBA0000602	TR,BJT,ARRAY	KRX102E	KEC	1
R118	ERHY0000254	Chip	MCR01MZSJ472	ROHM	1
R205	ERHZ0000221	Chip	MCR01MZSF1502	ROHM	1
R209	ERHZ0000258	Chip	MCR01MZSF2702	ROHM	1
R210	ERHZ0000287	Chip	MCR01MZSF4702	ROHM	1
R103	ERHZ0000402	Chip	MCR01MZSJ100	ROHM	1
R114	ERHZ0000402	Chip	MCR01MZSJ100	ROHM	1
R104	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R105	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1

R106	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R107	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R108	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R112	ERHZ0000405	Chip	MCR01MZSJ103	ROHM	1
R109	ERHZ0000406	Chip	MCR01MZSJ104	ROHM	1
R111	ERHZ0000407	Chip	MCR01MZSJ105	ROHM	1
R102	ERHZ0000434	Chip	MCR01MZSJ1R0	ROHM	1
R121	ERHZ0000434	Chip	MCR01MZSJ1R0	ROHM	1
R110	ERHZ0000485	Chip	MCR01MZSJ472	ROHM	1
U104	EUSY0355701	IC	RP103K281D-TR-F	RICOH	1
U105	EUSY0355701	IC	RP103K281D-TR-F	RICOH	1
U102	EUSY0362601	IC	BU52031NVX	ROHM	1
U101	EUSY0365101	IC	RP101K302D	RICOH	1
U103	EUSY0369701	IC	SC654ULTRT	SEMTECH	1
U201	EUSY0382201	IC	BCM2070CB0KUFBXG	BROADCOM	1
X201	EXSK0007802	VCTCXO	TG-5010LH_19_2M_75A	EPSON	1
X101	EXSY0022801	OSCILLATOR	XD500K24543TEH00	EXA	1
VA101	SEVY0004001	VARISTOR	EVLC18S02003	AMOTECH	1
VA102	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA103	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA104	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA105	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA106	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA108	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA110	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA111	SEVY0004301	VARISTOR	ICVL0518100Y500FR	INNOCHIP	1
VA201	SEVY0004401	VARISTOR	ICVL0518400V500FR	INNOCHIP	1
FB201	SFBH0008101	FILTER,BEAD,CHIP	BLM15AB601SN1	MURATA	1
FL201	SFCY0000901	FILTER,CERAMIC	LFB212G45SG8A166	MURATA	1
FL101	SFEY0011701	FILTER,EMI/POWER	ICVE10184E070R100FR	INNOCHIP	1
FL102	SFEY0011701	FILTER,EMI/POWER	ICVE10184E070R100FR	INNOCHIP	1
FL103	SFEY0011701	FILTER,EMI/POWER	ICVE10184E070R100FR	INNOCHIP	1

