PM TGI

MSM8937 GPIO Configuration

GPIO_0	NC	GPIO_41	SCAM_ID	GPIO_82	FM_DATA
GPIO_1	NC	GPIO_42	ACCL_INT1_N	GPIO_83	BT_CTL
GPIO_2	NC	GPIO_43	ALSP_INT_N	GPIO_84	BT_DATA
GPIO_3	WDOG_DISABLE	GPIO_44	MAG_RST_N	GPIO_85	NC
GPIO_4	UART_MSM_TX	GPIO_45	NC	GPIO_86	NC
GPIO_5	UART_MSM_RX	GPIO_46	NC	GPIO_87	NC
GPIO_6	NC	GPIO_47	NC	GPIO_88	NC
GPIO_7	NC	GPIO_48	NC	GPIO_89	NC
GPIO_8	NC	GPIO_49	UIM_BATT_ALM	GPIO_90	NC
GPIO_9	NC	GPIO_50	NC	GPIO_91	KEY_VOL_UP_N
GPIO_10	TP_I2C_SDA	GPIO_51	UIM1_DATA	GPIO_92	NC
GPIO_11	TP_I2C_SCL	GPIO_52	UIM1_CLK	GPIO_93	NC
GPIO_12	NC	GPIO_53	UIM1_RESET	GPIO_94	NC
GPIO_13	NC	GPIO_54	NC	GPIO_95	NC
GPIO_14	SENSOR_I2C_SDA	GPIO_55	UIM2_DATA	GPIO_96	NC
GPIO_15	SENSOR_I2C_SCL	GPIO_56	UIM2_CLK	GPIO_97	NC
GPIO_16	NC	GPIO_57	UIM2_RESET	GPIO_98	NC
GPIO_17	NC	GPIO_58	NC	GPIO_99	NC
GPIO_18	NC	GPIO_59	NC	GPIO_100	RFFE1_CLK
GPIO_19	NC	GPIO_60	LCD_RST_N	GPIO_101	RFFE1_DATA
GPIO_20	ACC_SPI_MOSI	GPIO_61	LCD_ID	GPIO_102	NC
GPIO_21	ACC_SPI_MISO	GPIO_62	NC	GPIO_103	NC
GPIO_22	ACC_SPI_CS	GPIO_63	APP_BOOT_FROM_ROM	GPIO_104	NC
GPIO_23	ACC_SPI_CLK	GPIO_64	TP_RST_N	GPIO_105	GRFC1_SEL
GPIO_24	LCD_TE0	GPIO_65	TP_INT_N	GPIO_106	NC
GPIO_25	NC	GPIO_66	GP_PDM_A0	GPIO_107	GRFC3_SEL
GPIO_26	CAM_MCLK0	GPIO_67	SDCARD_DET_N	GPIO_108	NC
GPIO_27	NC	GPIO_68	NC	GPIO_109	GRFC5_SEL
GPIO_28	CAM_MCLK2	GPIO_69	CDC_PDM_CLK	GPIO_110	GRFC6_SEL
GPIO_29	CAM_I2C_SDA0	GPIO_70	CDC_PDM_SYNC	GPIO_111	GRFC7_SEL
GPIO_30	CAM_I2C_SCL0	GPIO_71	CDC_PDM_TX	GPIO_112	GRFC8_SEL
GPIO_31	NC	GPIO_72	CDC_PDM_RX0	GPIO_113	GRFC9_SEL
GPIO_32	NC	GPIO_73	CDC_PDM_RX1	GPIO_114	GRFC10_SEL
GPIO_33	NC	GPIO_74	CDC_PDM_RX2	GPIO_115	GRFC11_SEL
GPIO_34	FLASH_STROBE_NOW	GPIO_75	BT_SSBI	GPIO_116	GRFC12_SEL
GPIO_35	MCAM1_PWDN	GPIO_76	WL_CMD_DATA_2	GPIO_117	NC
GPIO_36	NC	GPIO_77	WL_CMD_DATA_1	GPIO_118	EXT_GPS_LNA_EN
GPIO_37	FORCE_USB_BOOT	GPIO_78	WL_CMD_DATA_0	GPIO_119	CH0_GSM_TX_PHASE_D0
GPIO_38	NC	GPIO_79	WL_CMD_SET	GPIO_120	RFFE5_CLK
GPIO_39	SCAM_PWDN	GPIO_80	WL_CMD_CLK	GPIO_121	RFFE5_DATA
GPIO_40	SCAM_RST_N	GPIO_81	FM_SSBI	GPIO_122	NC

GPIO_123	NC
GPIO_124	NC
GPIO_125	NC
GPIO_126	NC
GPIO_127	NC
GPIO_128	NC
GPIO_129	NC
GPIO_130	NC
GPIO_131	NC
GPIO_132	NC
GPIO_133	NC

PMI8937 MPP Configuration

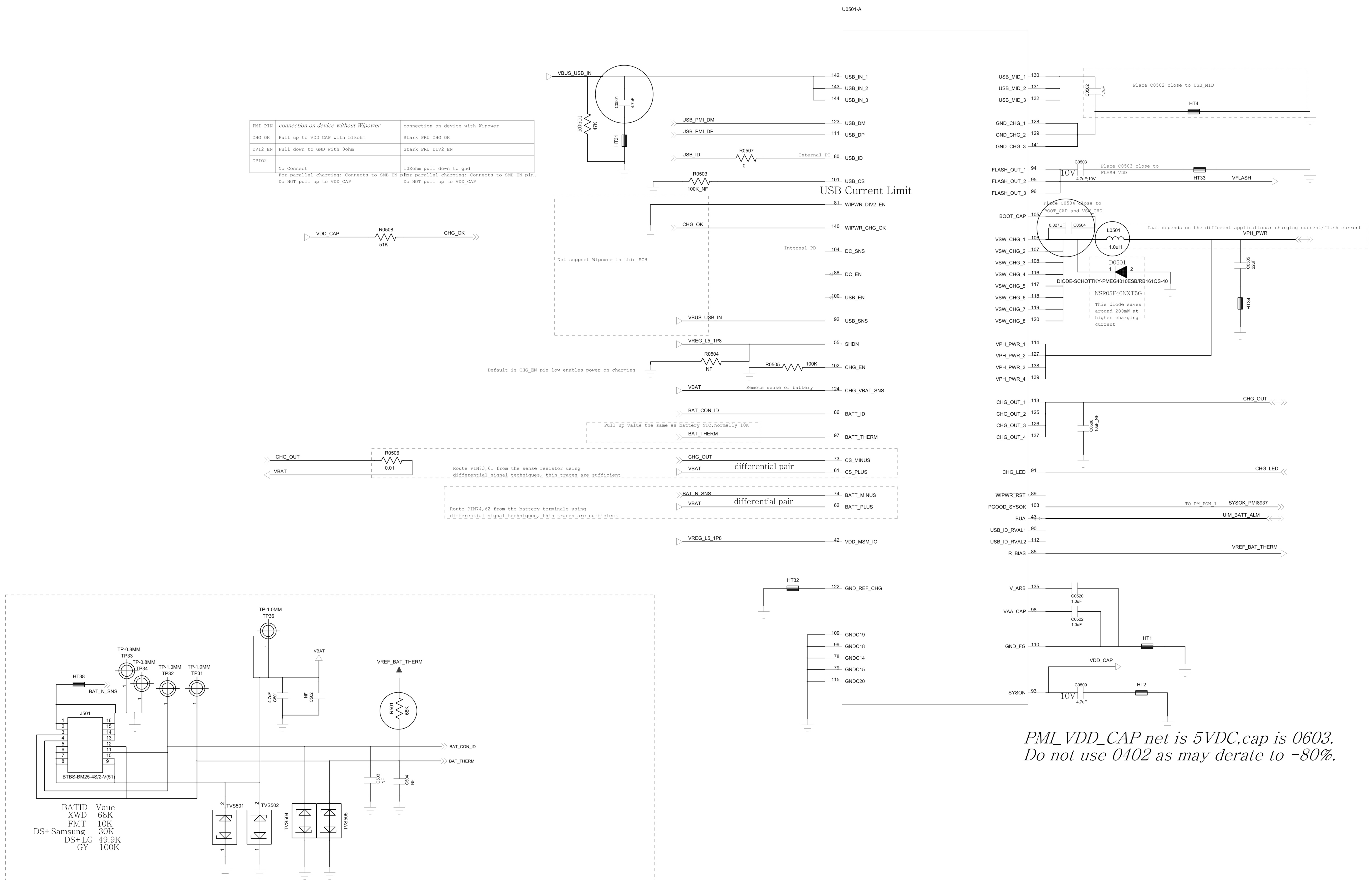
MPP_1	NC
MPP_2	GREEN_LED
MPP_4	FLASH_STROBE_NOW

PM8937 GPIO/MPP Configuration

GPIO_1	NC	MPP_1	VDD_PX_BIAS_MPP_1
GPIO_2	SDCARD_DET_N	MPP_2	NC
GPIO_3	UIM_BATT_ALM	MPP_3	VREF_DAC_MPP_3
GPIO_4	NC	MPP_4	QUIET_THERM
GPIO_5	NC		
GPIO_6	NC		
GPIO_7	NC		
GPIO_8	NC		

GPIO MAP

Title
Size Name Rev
Date: Sheet of



PMI PIN	*connection on device without Wipower*	connection on device with Wipower
CHG_OK	Pull up to VDD_CAP with 51kohm	Stark PRU CHG_OK
DVI2_EN	Pull down to GND with 0ohm	Stark PRU DIV2_EN
GPIO2	No Connect	10Kohm pull down to gnd

For parallel charging: Connects to SMB EN pin. Do NOT pull up to VDD_CAP

For parallel charging: Connects to SMB EN pin. Do NOT pull up to VDD_CAP

BATID	Vaue
XWD	68K
FMT	10K
DS+Samsung	30K
DS+LG	49.9K
GY	100K

BATID Resistor Pull down to GND in BAT Module.
BAT_THERM NTC(68K B=4250) Pull down to GND in BAT Module.

BATTERY CONNECTOR

PMI_VDD_CAP net is 5VDC,cap is 0603.
Do not use 0402 as may derate to -80%.

PMI8937 CHARGER

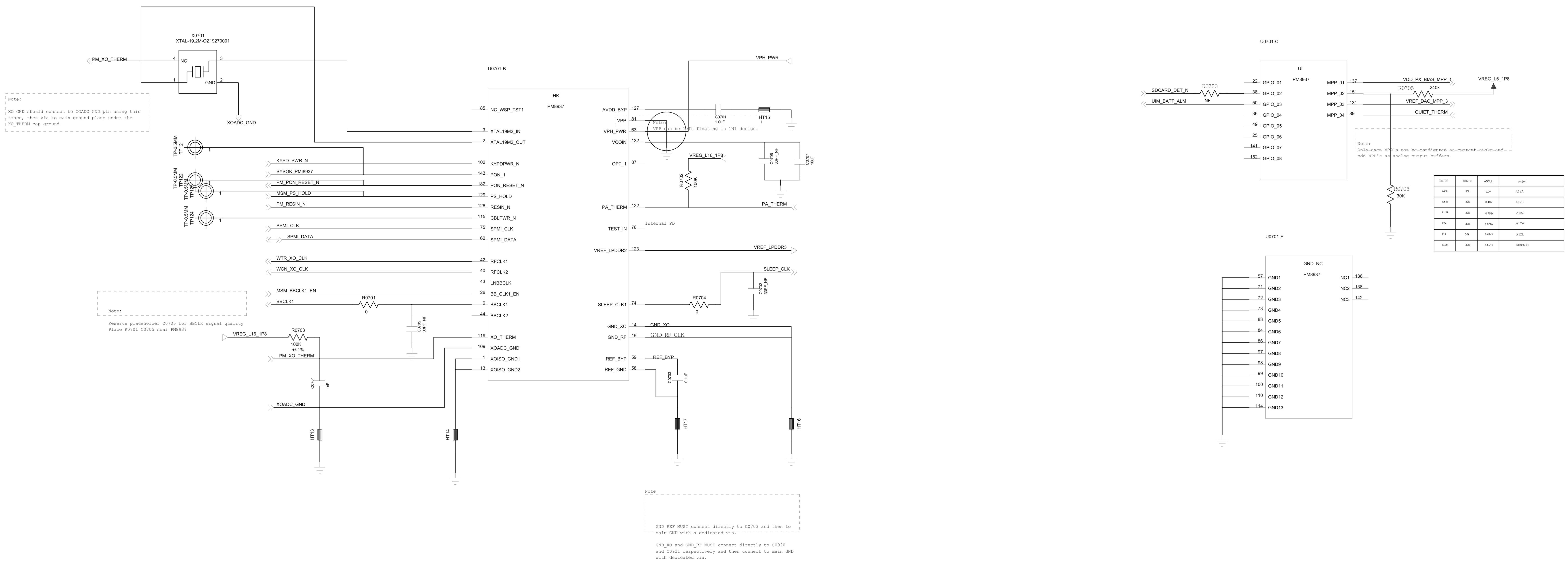
Title

Sheet

Size Name Rev

Date: Sheet of

U0501-B
PM_RESIN_N1
RESIN
SPMI_CLK
SPMI_DATA
KYPD_PWR_N1
KYPD_PWR
PM_PON_RESET_N
PS_HOLD
CLK_IN is not used
CLK_IN
NC1
NC2
NC3
NC4
NC5
GPIO_1
To external SMB charger
GPIO_2
MPP_1
GREEN_LED
MPP_2
MPP_3
FLASH_STROBE_NOW
MPP_4
VPH_PWR
VDD_ADC_LDO
GNDC4
GNDC3
GNDC17
VREG_ADC_LDO
C0603
0.47UF
DVDD_BYP
C0602
0.1uF
AVDD_BYP
C0601
0.47UF
HT7
REF_BYP
C0604
0.1uF
GND_REF
HT8
GNDC6
GNDC9
GNDC10
GNDC12
GNDC13
GNDC8
GNDC16
GNDC21
GNDC22
GNDC23
Prevent leakage on ship mode
Ship Mode PMI.Resin 1.8V and PM.Resin 0V
PM_RESIN_N
D0601
PM_RESIN_N1
KYPD_PWR_N
D0602
KYPD_PWR_N1
Backup, may change to other NPP as needed
VREG_L16_1P8
R0603
100K
QUIET_THERM
NTC0601 placement Ref to 80-VU794-17
Away from heat devices, such as MSM PMU Charger
NTC0601
1%
100K
C0615
U0501-C
Depends on if having boost bypass
VPH_PWR
VDD_TORCH
VFLASH
VDD_FLASH_1
VDD_FLASH_2
VDD_WLED
PGND_WLED
GND_WLED
VDD_DIS_P
47nF for LCD, 1.5nF for AMOLED
HT3
C0605
0.047UF
DIS_N_CAP_REF
GND_DIS_N_REF
VREG_L5_1P8
C0608
0.1uF
VDD_1P8_DIS_N
DISplay
VDD_DIS_N
Place C0609 close to PIN3
C0609
HT5
LCD_CABC
WLED_CABC
internal PD
DIS_SCTRL
For AMOLED,Not needed in LCD mode, leave float if not used
GP_PDM_A0
R0602
100K
From MDM IO or codec
HAP_PWM_IN1
HAP_PWM_IN2
VDD_HAP
C0606
10uF
GND_HAP
HT9
GNDC1
GNDC2
GNDC5
GNDC7
GNDC11
F_LED1
FLASH_LED1
FLASH_LED2
C0616
OVP Progamable MAX 31.7V
VREG_WLED
C0607
4.7uF
35V
HT10
PGND_WLED
Place C0607 close to PIN6,dedicated trace from PIN8 to C0607 PGND and then a dedicated via to main GND at C0607
D0605
R0604
0
LCD_BL_LED_A
L0601
10UH
VSW_WLED
C0611
10uF
HT11
PMI8937 WLED has the function of output isolation/short circuit protection, need external FET and diode if this function is needed.
GND_WLED_I
HT12
WLED_SINK1
LCD_BL_LED_K1
WLED_SINK2
LCD_BL_LED_K2
WLED_SINK3
WLED_SINK4
VDIS_P_FB
VDIS_P_OUT
LCD_VSP
GND_DIS_P
C0612
22uF
HT6
Place C0612 close to PIN5,dedicated trace from PIN4 to C0612 GND and then a dedicated via to main GND at C0612
VSW_DISP_1
L0602
4.7uH
VSW_DISP_2
C0610
10uF
HT35
VDIS_N_FB
VDIS_N_OUT_1
Place C0613 close to PIN1,13
LCD_VSN
VDIS_N_OUT_2
C0613
HT36
L0603
4.7uH
VSW_DIS_N_1
VSW_DIS_N_2
HT37
The current for LCD/AMOLED is different, possible to choose the inductor with smaller Isat based on the different application.
HAP_OUT_P
B0601
1000ohm
HOUTP
Support LRA/ERM
HAP_OUT_N
B0602
1000ohm
HOUTN
PMI8937 Control/Interface
QUALCOMM Technologies,Inc.
5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.
Title
Size
Name
Sheet
Rev
Date:
Sheet
of



PM8937 Control and MPP/Cloc

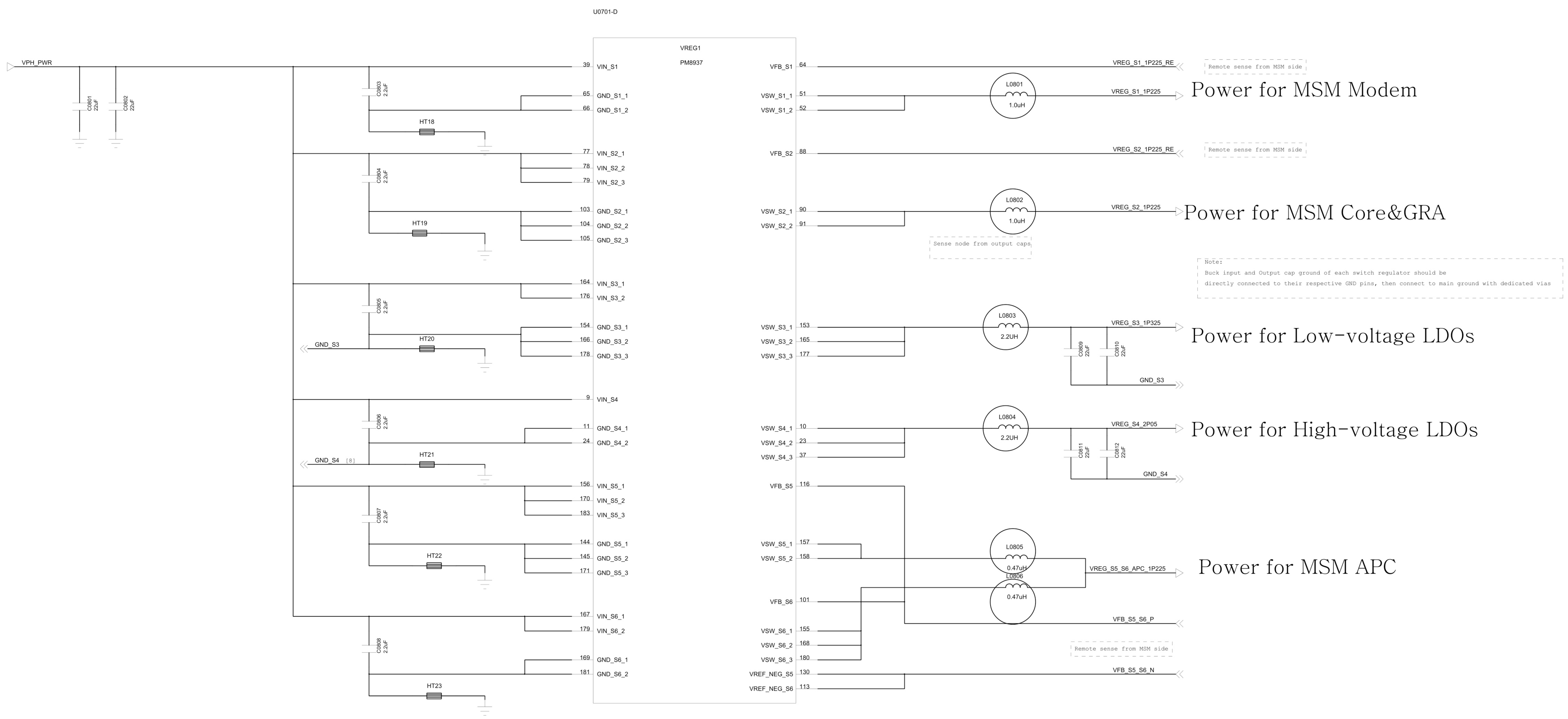
QUALCOMM Technologies,Inc.
5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.

Title

Sheet

Size Name Rev

Date: Sheet of



PM8937 Buck converter

QUALCOMM Technologies,Inc.

5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.

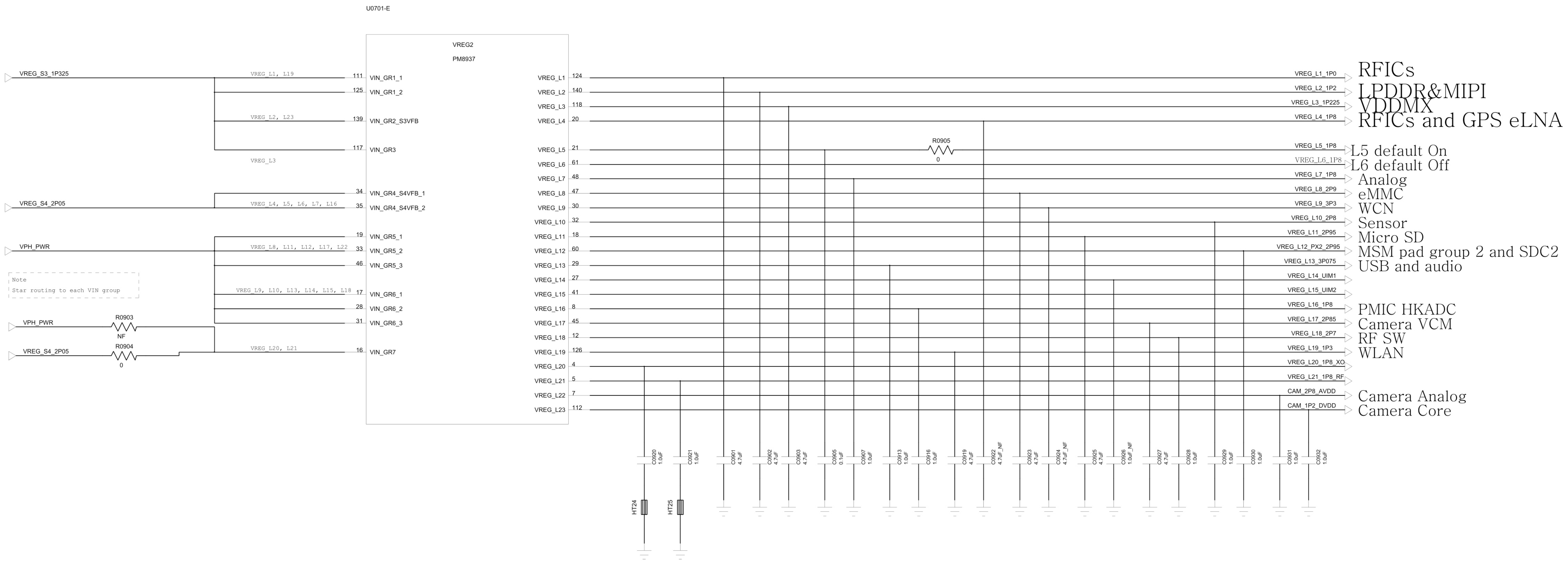
Title

Sheet

Size Name Rev

Date: Sheet of

PM TGI



PSEUDO CAPLESS LDOs

L4*, L6, L8*, L9*, L10, L11*, L12, L14, L15, L17*, L18, L22, L23

L4*, L8*, L9*, L11*, L17*, still need validation as Pseudo-capless

L5, L7, L13, L16 have internal PMIC Loads and require local CAPs.

PM8937 LDO circuits

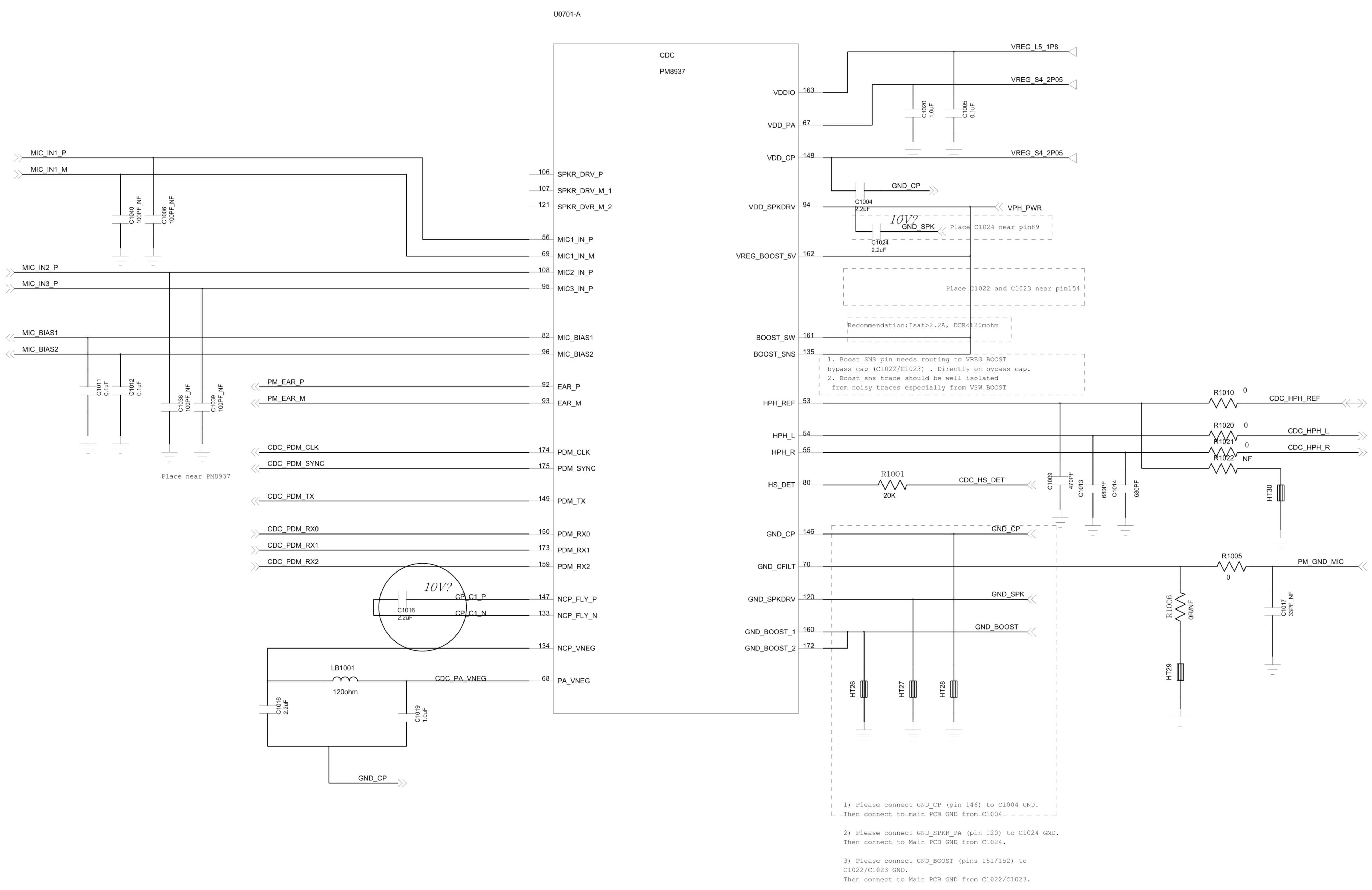
QUALCOMM Technologies,Inc.

5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.

Title

Size	Name	Rev
Date:	Sheet	of

PM TGI

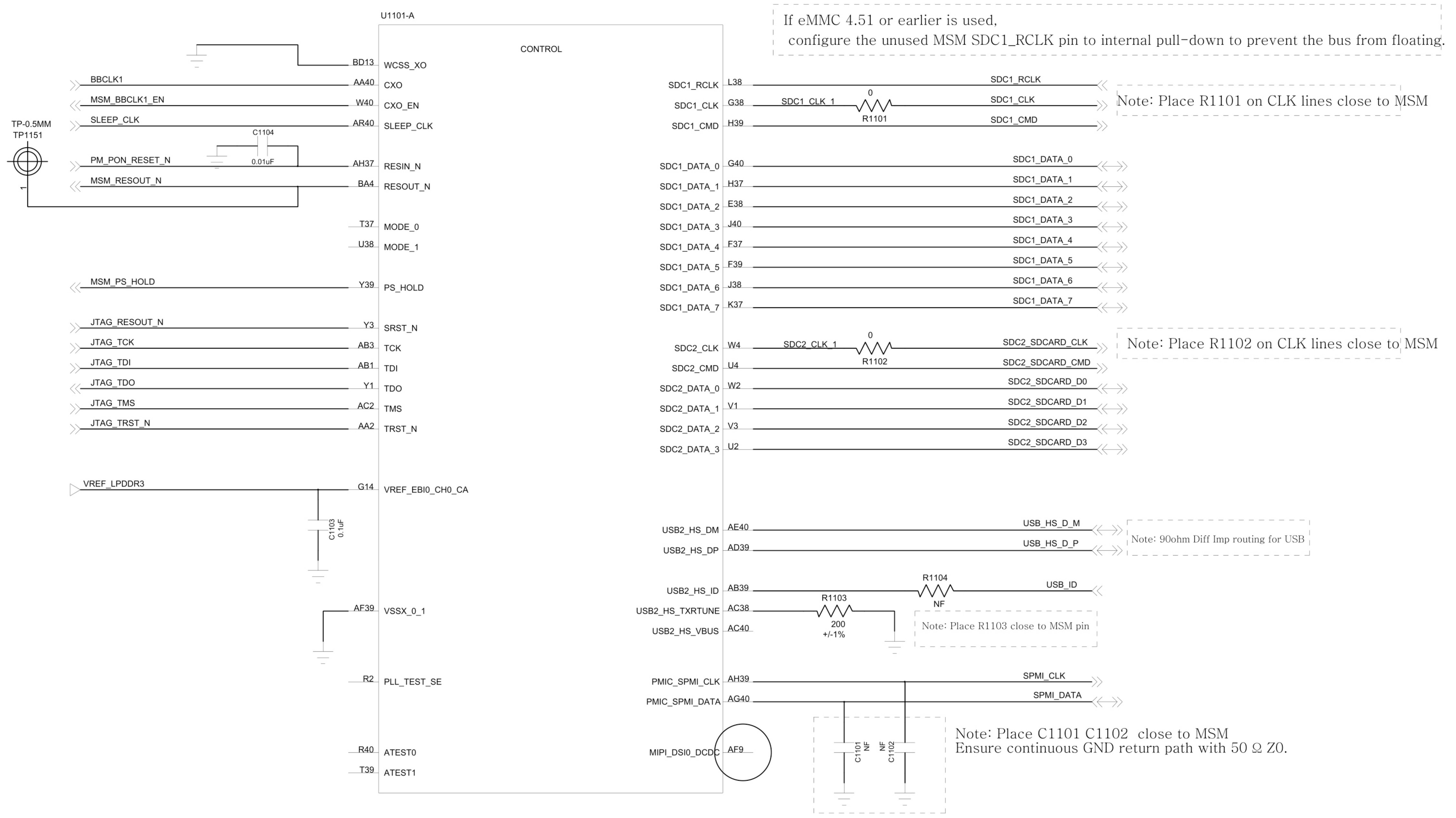


PM8937 Codec

QUALCOMM Technologies,Inc.	5775 Morehouse Drive San Diego, CA 92121-1714 U.S.A.
Title	
Size	Name
Date:	Sheet of

PM TGI

Note: WCSS_XO signal required only for 5GHZ.
When using WCN3615 connect pin BD13 to GND.



L1101 (MPL1608S2R2MHT):
IND-MUTIL-LAYER-2.2UH,+/-20%-750MA 0603

Note
MIPI_DSI can be configured as DCDC or LDO mode.
When configured as LDO mode, pin AF9 should be left floating and L1101 should be DNI.

DC-DC mode - For better power ~3 mA lower

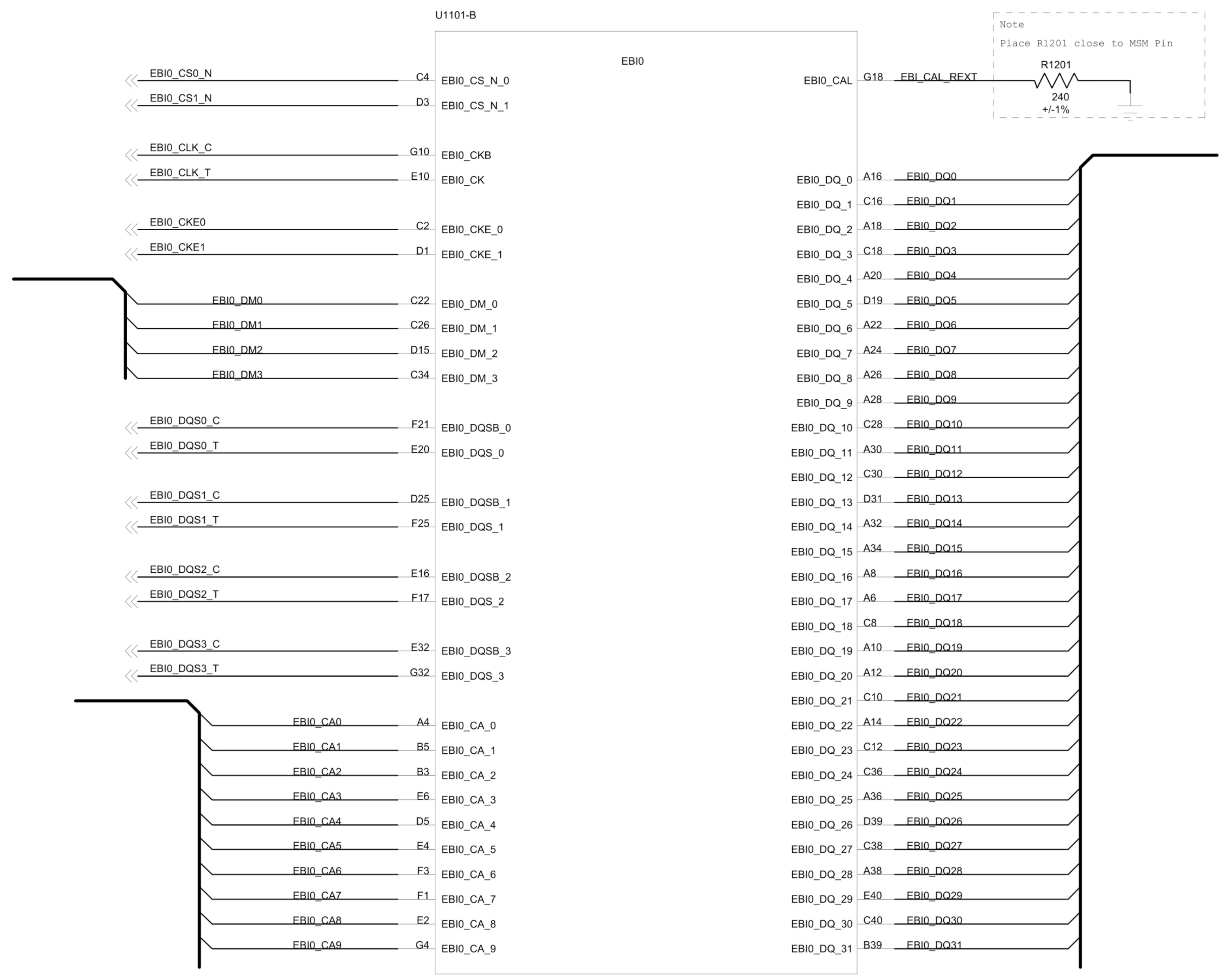
MSM8937 Control

QUALCOMM Technologies,Inc.
5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.

Title

Size	Sheet Name	Rev

Date: Sheet of



MSM8937 EBI

QUALCOMM Technologies, Inc.
5775 Morehouse Drive
San Diego, CA 92121-1714
U.S.A.

Title

Sheet

Size Name Rev

Date: Sheet of