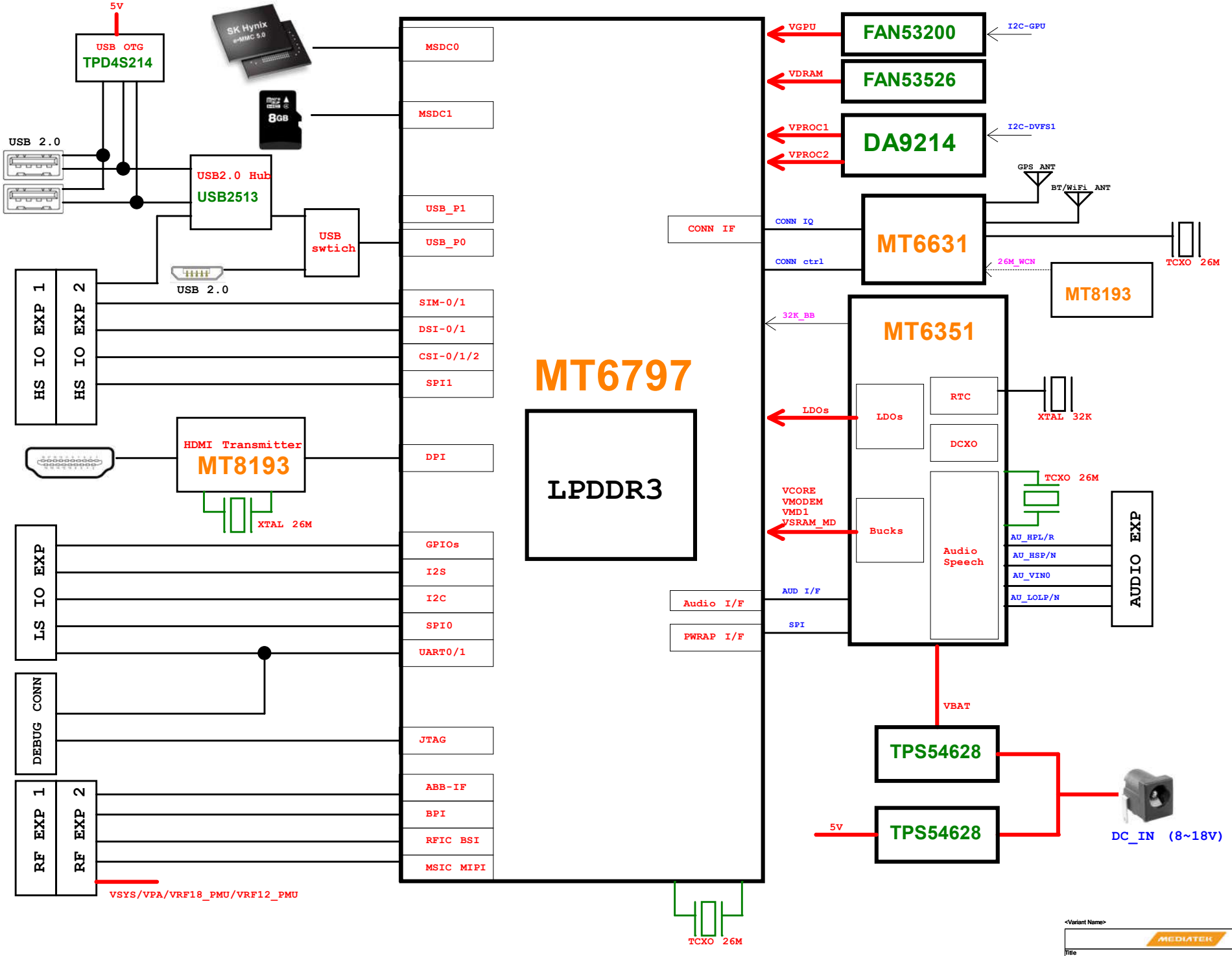


<Variant Name>

MEDIATEK

Title: 01_Block_Diagram

Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 01 of 99

Date	Category	Item
2016.09.13	General	Preliminary release

<Variant Name>

MEDIATEK

Title: 05_Change_Notice

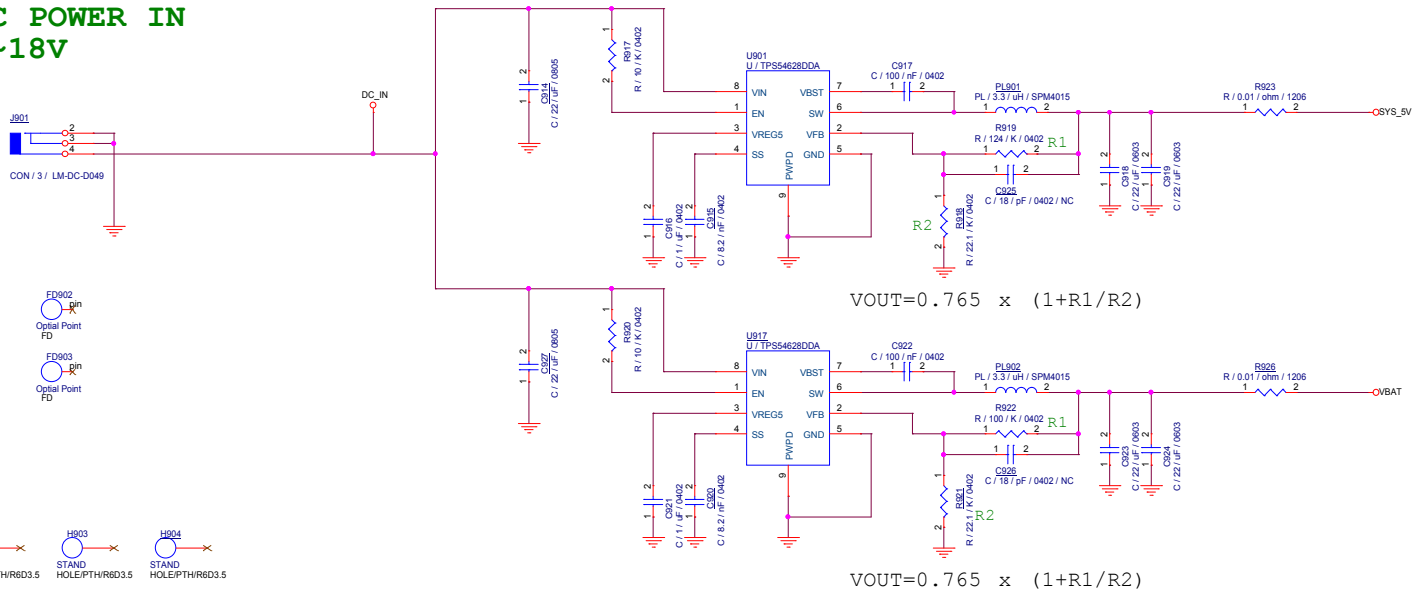
Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 05 of 99

Common EVB features

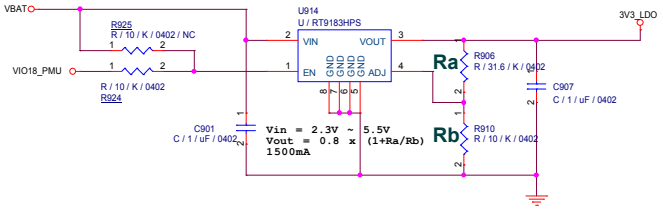
DC POWER IN 8~18V



FD

HOLE

3V3



<Variant Name>

MEDIATEK

Title: 09_Common_LDO_Power

Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 09 of 99

U1001E

MT6797-MWFPOP-950P

VCCK

PROC 2

PROC 1

GPU

MD

SRAMs

Schematic design notice of "10_BB_POWER_1" page.

Note 10-1:
Note 10-2: Differential pairs of buck's remote sense must be placed at PCB
Note 10-3: back side right beneath MT6797 chip.
Note 10-4:

Note 10-5: For PCB layout, the star connection should be implemented in the MT6351's VIO18 output.

Note 10-6: Add D1001 and D1002 schottky diodes to avoid large current during power-on sequence. The VF of D1001 and D1002 should be less than 0.3V when IF is <100mA.

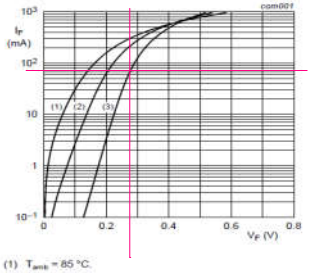


Fig.2 Forward current as a function of forward voltage; typical values.

The purpose of this symbol is used for including POP LPDDR3 in BOM.

POP DDR

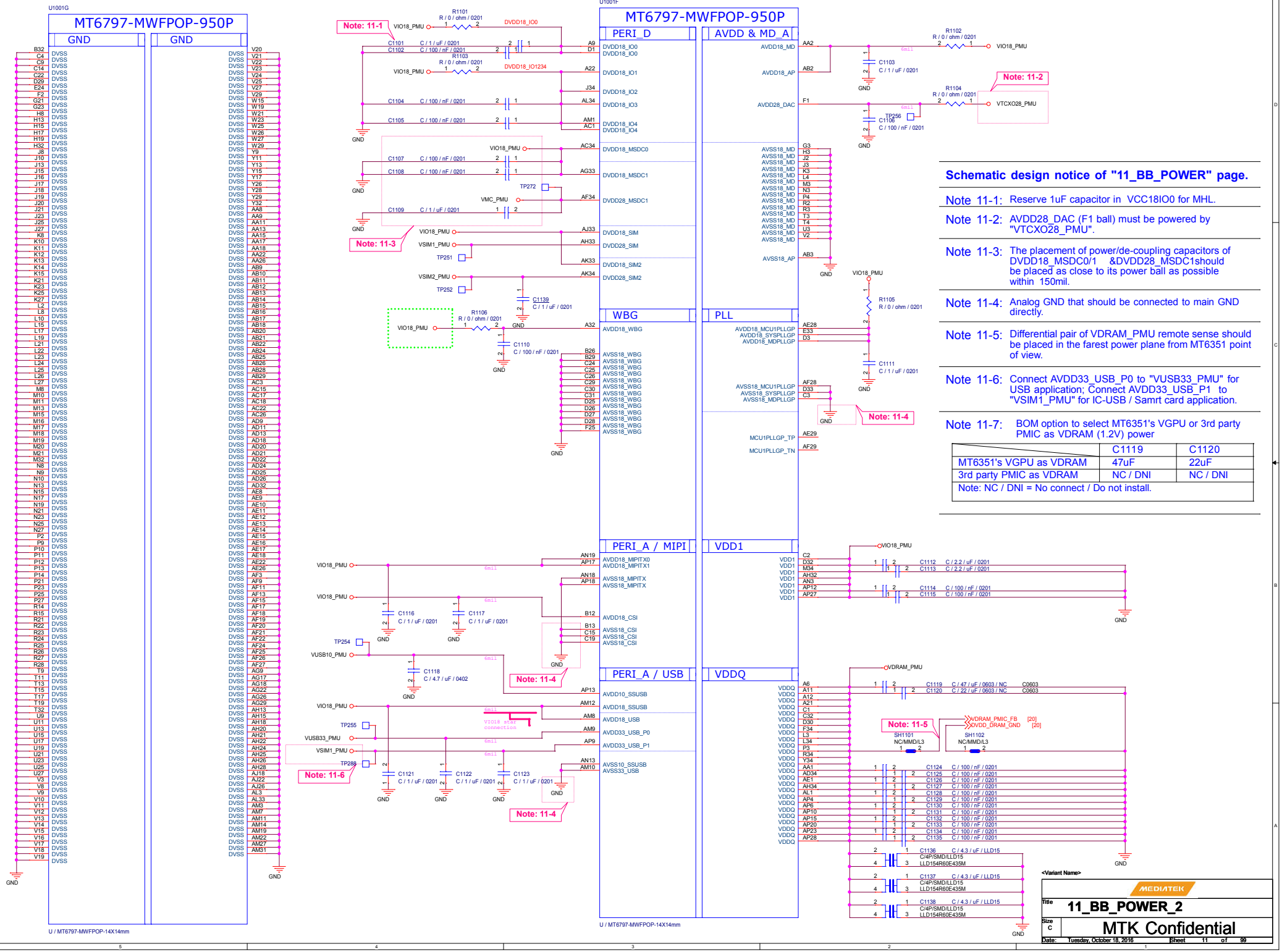
U / H9CKNNNBKTMRPR-NUH

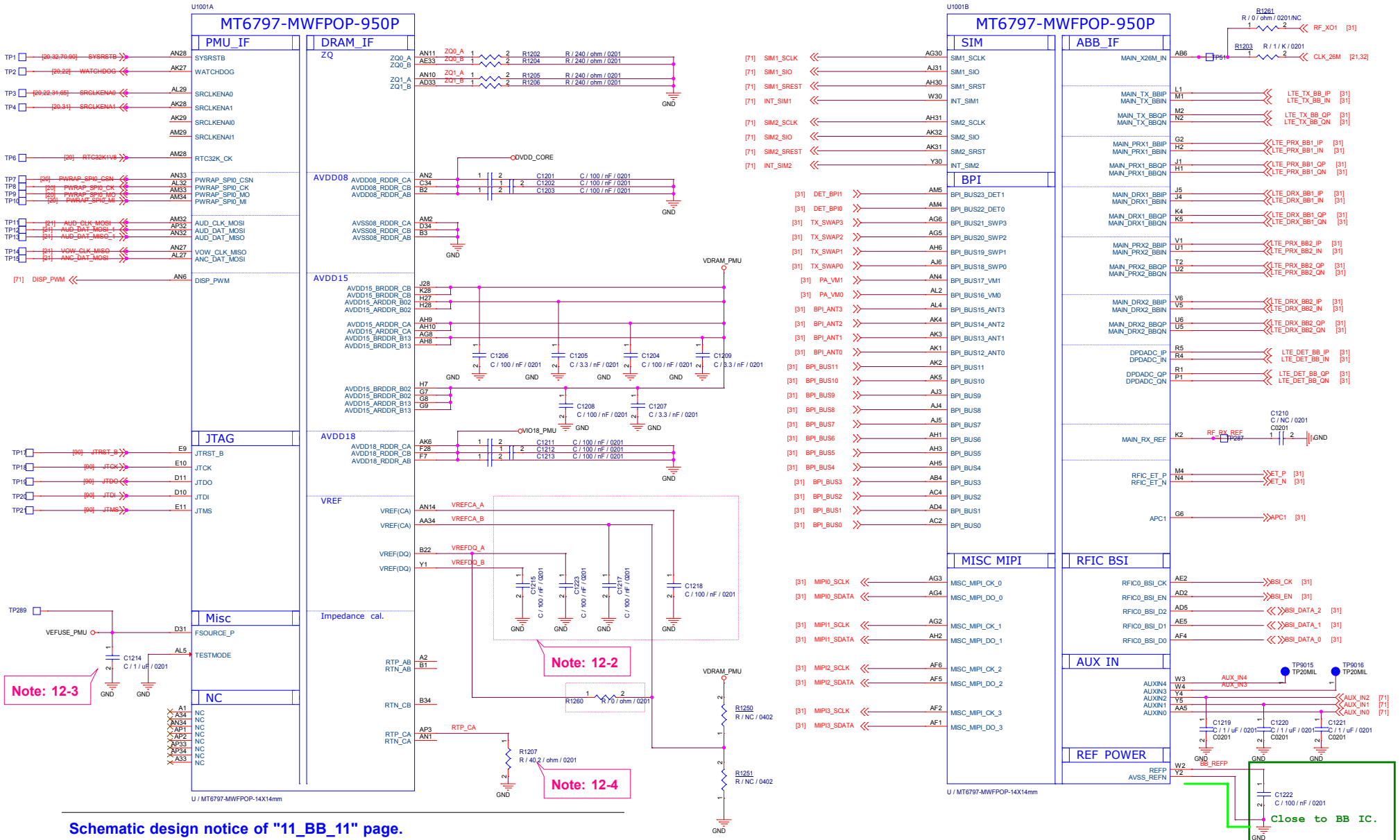
<Variant Name>

MEDIATEK

Title	10_BB_POWER_1
Size C	MTK Confidential
Date: Tuesday, October 18, 2016	Sheet 10 of 99

U / MT6797-MWFPOP-14X14mm


U1001G
MT6797-MWFPOP-950P
GND
GND
U / MT6797-MWFPOP-14X14mm
U1001F
MT6797-MWFPOP-950P
PERI_D
AVDD & MD_A
WBG
PLL
PERI_A / MIPI
VDD1
PERI_A / USB
VDDQ
U / MT6797-MWFPOP-14X14mm
Note: 11-1
Note: 11-2
Note: 11-3
Note: 11-4
Note: 11-5
Note: 11-6
Schematic design notice of "11_BB_POWER" page.
Note 11-1: Reserve 1uF capacitor in VCC18IO0 for MHL.
Note 11-2: AVDD28_DAC (F1 ball) must be powered by "VTCXO28_PMU".
Note 11-3: The placement of power/de-coupling capacitors of DVDD18_MSDC0/1 &DVDD28_MSDC1should be placed as close to its power ball as possible within 150mil.
Note 11-4: Analog GND that should be connected to main GND directly.
Note 11-5: Differential pair of VDRAM_PMU remote sense should be placed in the farest power plane from MT6351 point of view.
Note 11-6: Connect AVDD33_USB_P0 to "VUSB33_PMU" for USB application; Connect AVDD33_USB_P1 to "VSIM1_PMU" for IC-USB / Samrt card application.
Note 11-7: BOM option to select MT6351's VGPU or 3rd party PMIC as VDRAM (1.2V) power
C1119 C1120
MT6351's VGPU as VDRAM 47uF 22uF
3rd party PMIC as VDRAM NC / DNI NC / DNI
Note: NC / DNI = No connect / Do not install.
<Variant Name>
MEDIATEK
Title 11_BB_POWER_2
Size C
MTK Confidential
Date: Tuesday, October 18, 2016 Sheet 11 of 99



Schematic design notice of "11_BB_11" page.

Note 12-1: Apply 1.8V to FSOURCE_P (D31) for eFuse programming.

Note 12-2: The de-coupling cap. of DRAM VREF have to be placed as close to BB as possible.

Note 12-3: The 1uF capacitors of AUXIN0~4 have to be placed as close to BB as possible.

Note 12-4: For impedance calibration of DDRPHY

<Variant Name>

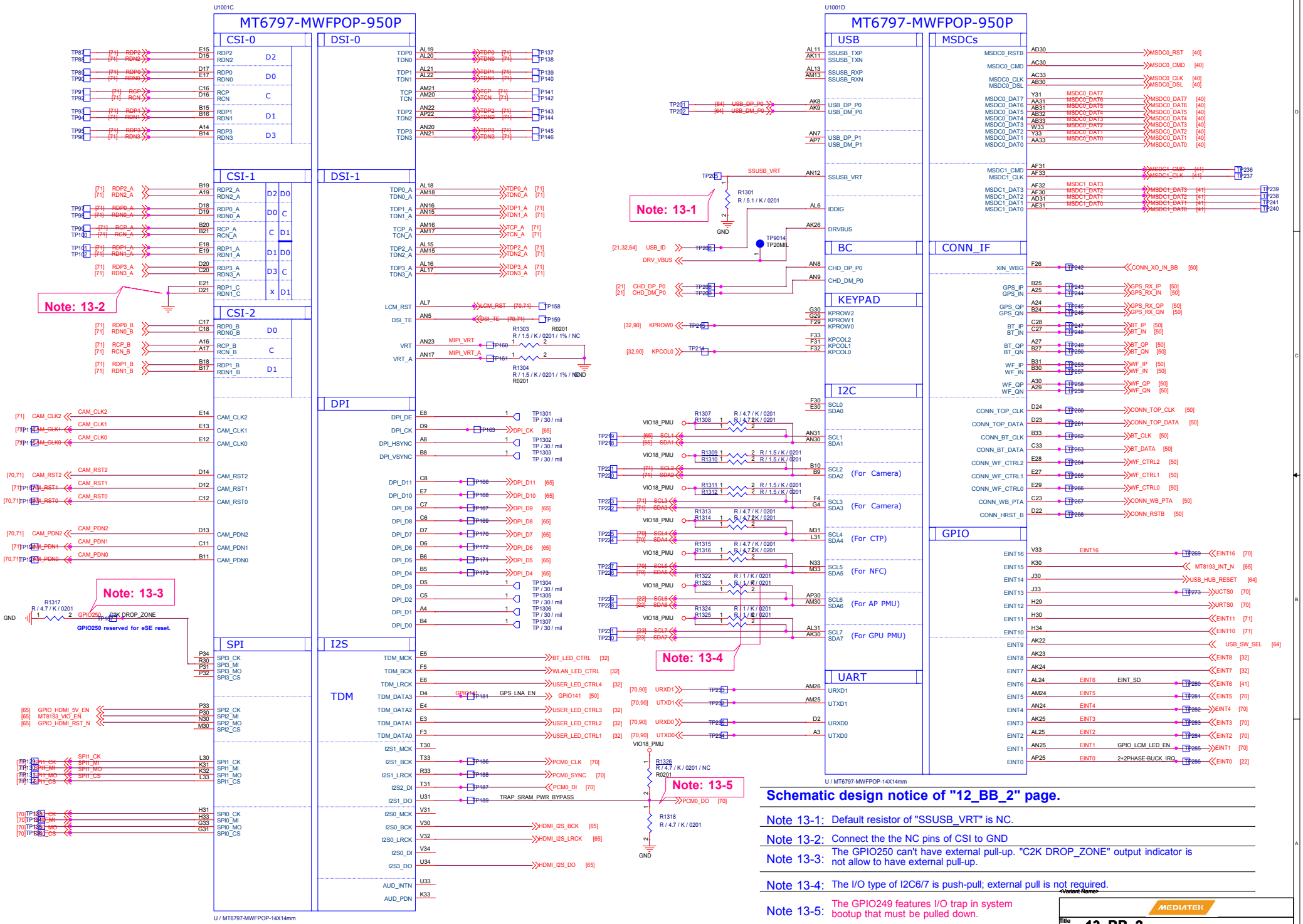
MEDIATEK

Title: 12_BB_1

Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 12 of 99



Schematic design notice of "12_BB_2" page.

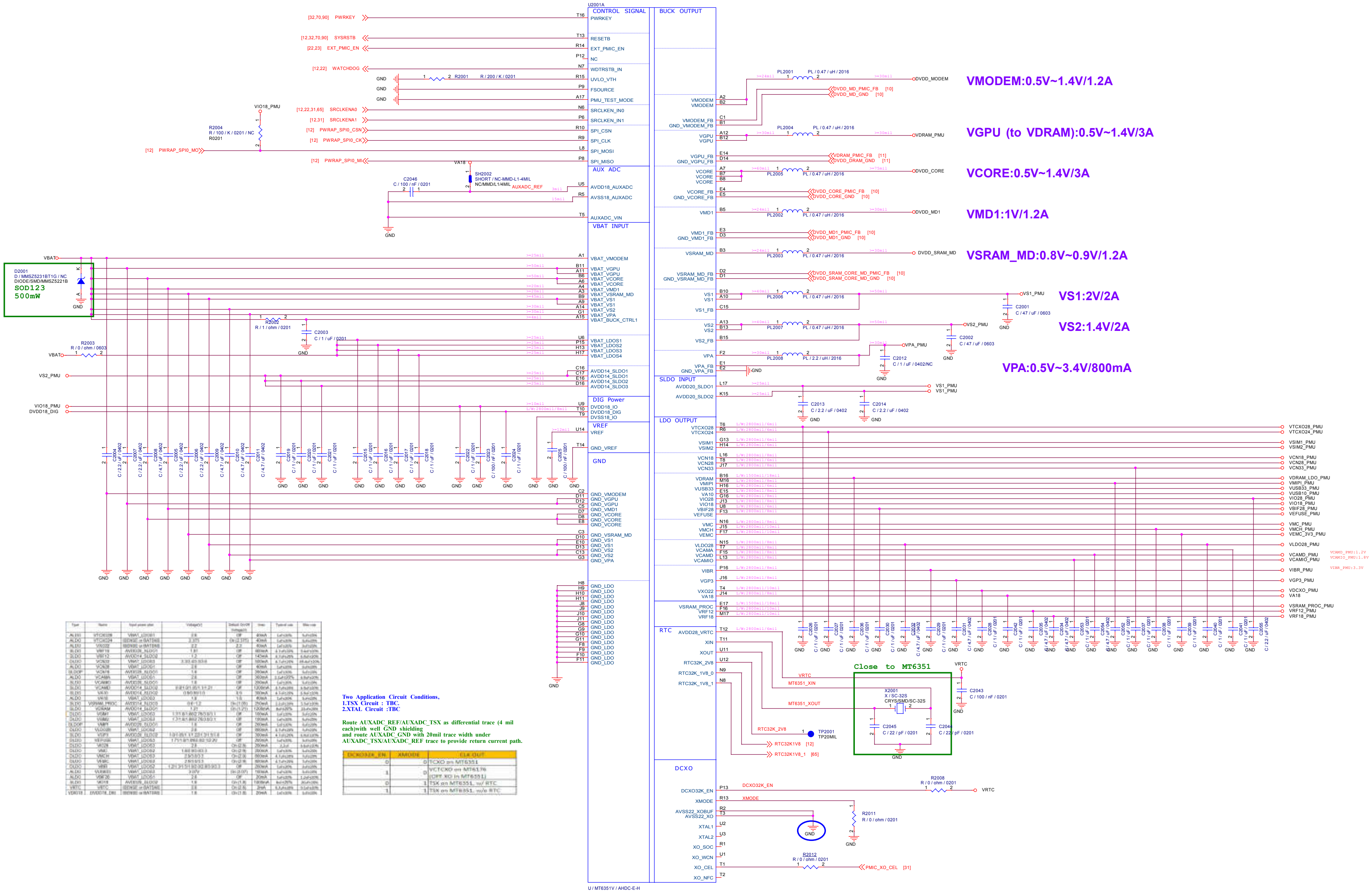
Note 13-1: Default resistor of "SSUSB_VRT" is NC.

Note 13-2: Connect the the NC pins of CSI to GND

Note 13-3: The GPIO250 can't have external pull-up. "C2K DROP_ZONE" output indicator is not allow to have external pull-up.

Note 13-4: The I/O type of I2C6/7 is push-pull; external pull is not required.

Note 13-5: The GPIO249 features I/O trap in system bootup that must be pulled down.



Two Application Circuit Conditions,
1.TSX Circuit : TBC.
2.XTAL Circuit :TBC

Route AUXADC_REF/AUXADC_TSX as differential trace (4 mil each)with well GND shielding
and route AUXADC_GND with 20mil trace width under AUXADC_TSX/AUXADC_REF trace to provide return current path.

Type	Name	Input power pin	Voltage(V)	Default On/Off Voltage(V)	Imax	Typical cap	Max cap
ALDO	VTCXO28	VBAT_LDOS1	2.8	Off	40mA	[illegible]	[illegible]
ALDO	VTCXO24	[illegible] or BATSNS	2.375	On (2.375)	40mA	[illegible]	[illegible]
ALDO	VXO22	[illegible] or BATSNS	2.2	2.2	40mA	[illegible]	[illegible]
SLDO	VRF18	AVDD20_SLDO1	1.81	Off	600mA	[illegible]	[illegible]
SLDO	VRF12	AVDD14_SLDO2	1.2	Off	145mA	[illegible]	[illegible]
DLDO	VCN33	VBAT_LDOS3	[illegible]	Off	500mA	[illegible]	[illegible]
ALDO	VCN28	VBAT_LDOS1	2.8	Off	40mA	[illegible]	[illegible]
SLDOP	VCN18	AVDD20_SLDO1	1.8	Off	300mA	[illegible]	[illegible]
ALDO	VCAMA	VBAT_LDOS1	2.8	Off	300mA	[illegible]	[illegible]
SLDO	VCAMIO	AVDD20_SLDO1	1.8	Off	[illegible]	[illegible]	[illegible]
SLDO	VCAMD	AVDD14_SLDO2	[illegible]	Off	1200mA	[illegible]	[illegible]
SLDO	VA10	AVDD14_SLDO2	[illegible]	[illegible]	300mA	[illegible]	[illegible]
ALDO	VA18	VBAT_LDOS2	1.8	1.8	[illegible]	[illegible]	[illegible]
SLDO	VSRAM_PROC	AVDD14_SLDO3	0.6~1.2	On (1.05)	[illegible]	[illegible]	[illegible]
SLDO	VDRAM	AVDD14_SLDO1	1.21	On (1.21)	1200mA	[illegible]	[illegible]
DLDO	VSIM1	VBAT_LDOS3	[illegible]	Off	100mA	[illegible]	[illegible]
DLDO	VSIM2	VBAT_LDOS3	[illegible]	Off	100mA	[illegible]	[illegible]
SLDOP	VMIPI	AVDD20_SLDO1	1.8	Off	[illegible]	[illegible]	[illegible]
DLDO	VLDO28	VBAT_LDOS2	2.8	Off	[illegible]	[illegible]	[illegible]
SLDO	VGP3	AVDD20_SLDO2	[illegible]	Off	300mA	[illegible]	[illegible]
DLDO	VEFUSE	VBAT_LDOS3	[illegible]	Off	200mA	[illegible]	[illegible]
DLDO	VIO28	VBAT_LDOS3	2.8	On (2.8)	200mA	[illegible]	[illegible]
DLDO	VMC	VBAT_LDOS2	[illegible]	[illegible]	200mA	[illegible]	[illegible]
DLDO	VMCH	VBAT_LDOS3	[illegible]	[illegible]	800mA	[illegible]	[illegible]
DLDO	VEMC	VBAT_LDOS3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DLDO	VIBR	VBAT_LDOS2	[illegible]	Off	200mA	[illegible]	[illegible]
ALDO	VUSB33	VBAT_LDOS3	3.07V	On (3.07)	100mA	[illegible]	[illegible]
ALDO	VBIF28	VBAT_LDOS1	2.8	Off	20mA	[illegible]	[illegible]
SLDO	VIO18	AVDD20_SLDO2	1.8	On (1.8)	1000mA	[illegible]	[illegible]
VRTC	VRTC	[illegible] or BATSNS	2.8	On (2.8)	2mA	[illegible]	[illegible]
VDIO18	DVDD18_DIG	[illegible] or BATSNS	1.8	On (1.8)	20mA	[illegible]	[illegible]

DCXO32K_EN	XMODE	CLK OUT
0	0	TCXO on MT6351
1	0	VCTCXO on MT6176 (OFF XO in MT6351)
0	1	TSX on MT6351, w/ RTC
1	1	TSX on MT6351, w/o RTC

<Variant Name>

Title: 20_POWER_MT6351

Size: D

MTK Confidential

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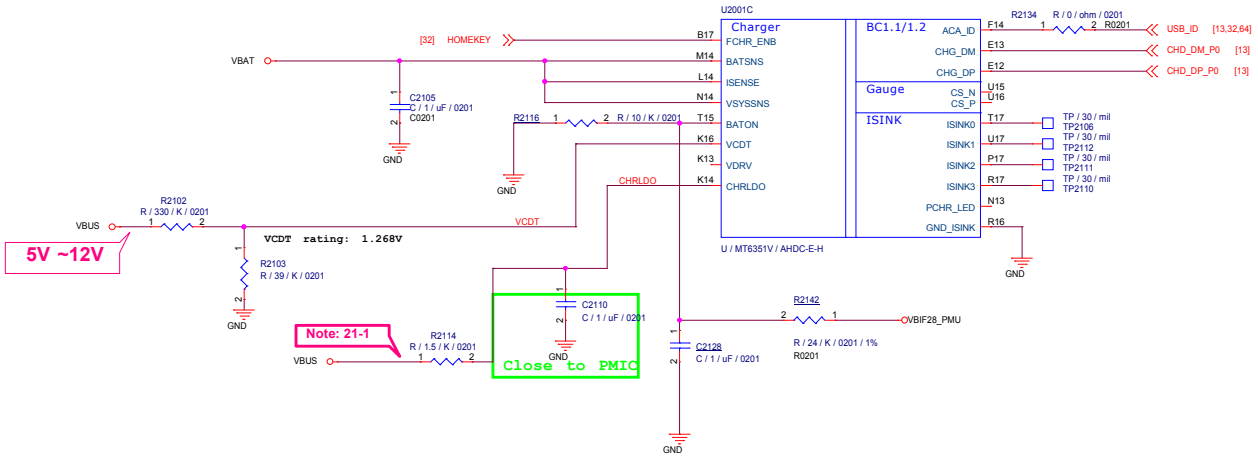

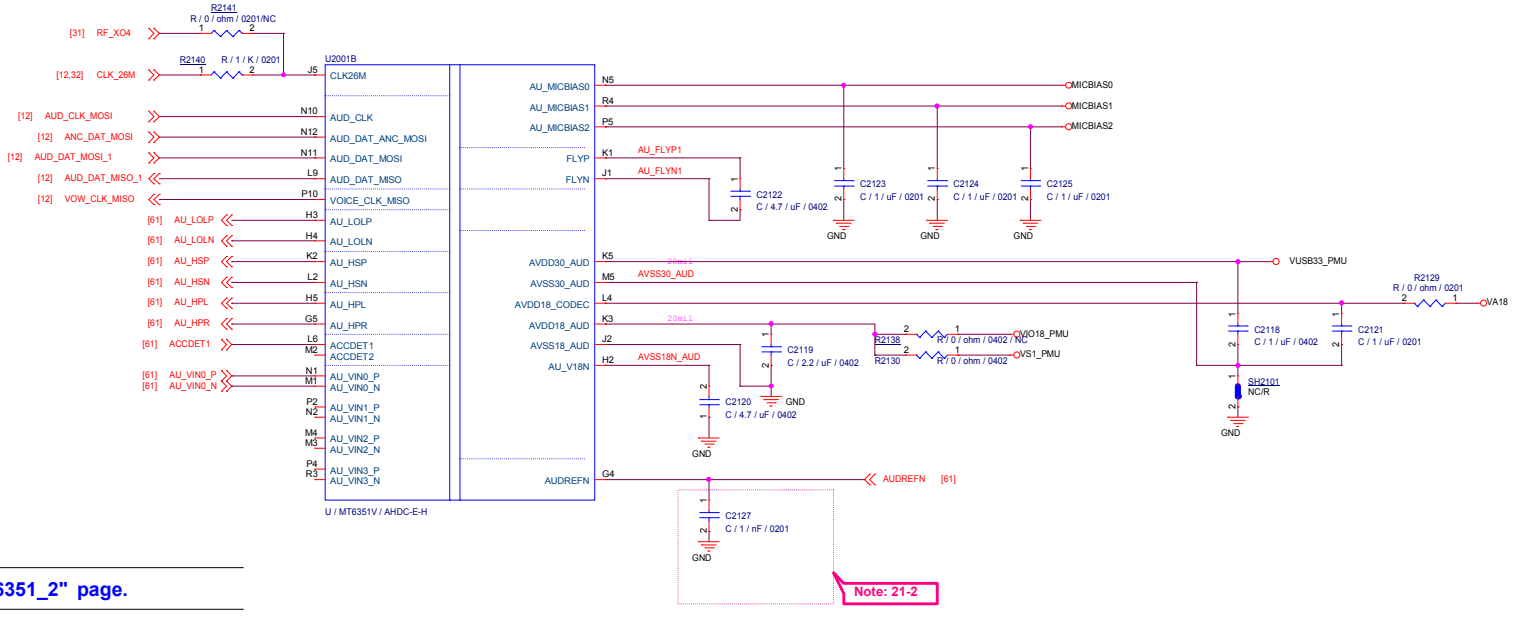

Schematic design notice of "21_POWER_MT6351_2" page.

Note 21-1: Reserve 1.5K in order to give additional power to turn on charger LED driver while low battery.

<Variant Name>

MEDIATEK

Title: 21_POWER_MT6351_2

Size: C

MTK Confidential

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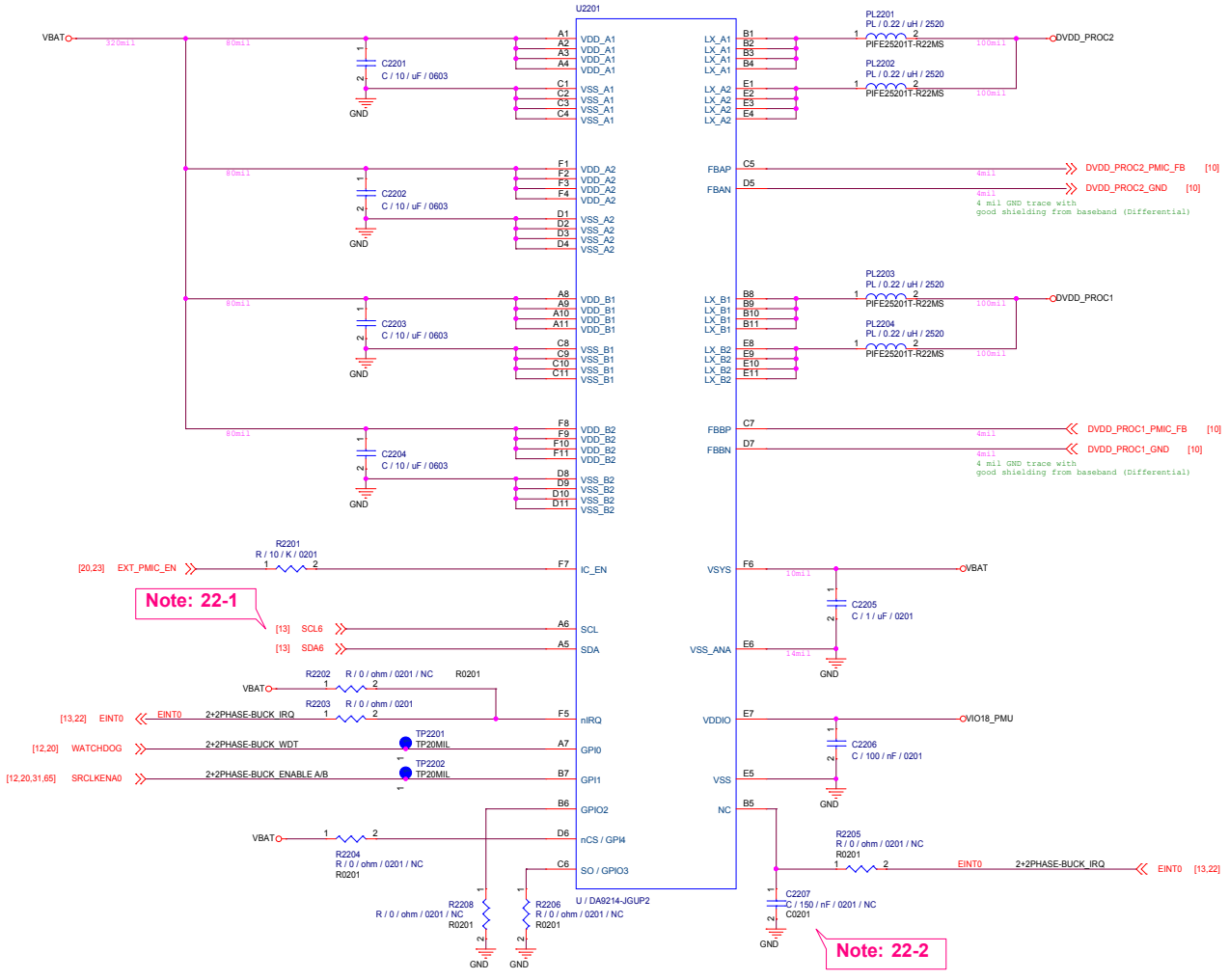
VPROC Buck

MT6313 / 2+2Phase Buck I2C address: 0X6B (Write:0xD6, Read:0xD7)



Schematic design notice of "22_POWER_VPROCs" page.

Note 22-1: Buck EN is controlled by SRCLKEN0 or I2C

Note 22-2: BOM option of 2+2 phase buck

	R2202	R2203	R2204	R2205	R2206	R2208	C2207
DA9214	NC / DNI	0-ohm	NC / DNI	NC / DNI	NC / DNI	NC / DNI	150nF / NC
2nd source	0-ohm	NC / DNI	0-ohm	0-ohm	0-ohm	0-ohm	NC / DNI
NC / DNI = No connect / Do not install.							

<Variant Name>

MEDIATEK

Title: 22_POWER_VPROCs

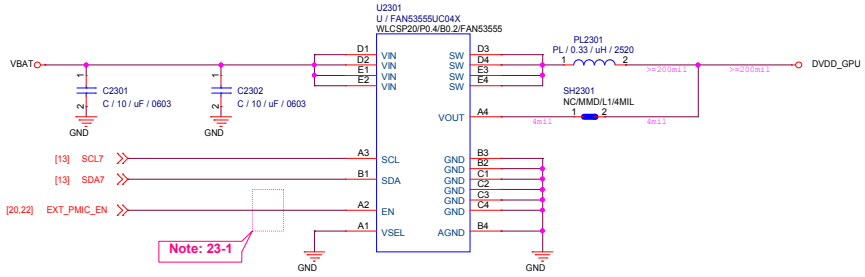
Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 22 of 99

Buck for VGPU

FAN53200 / Buck I2C address: 0X60 (Write:0xC0, Read:0xC1)



Schematic design notice of "23_POWER_VGPU_VM" page.

Note 23-1: FAN53200's EN pin is driven by MT6351.

<Variant Name>

MEDIATEK

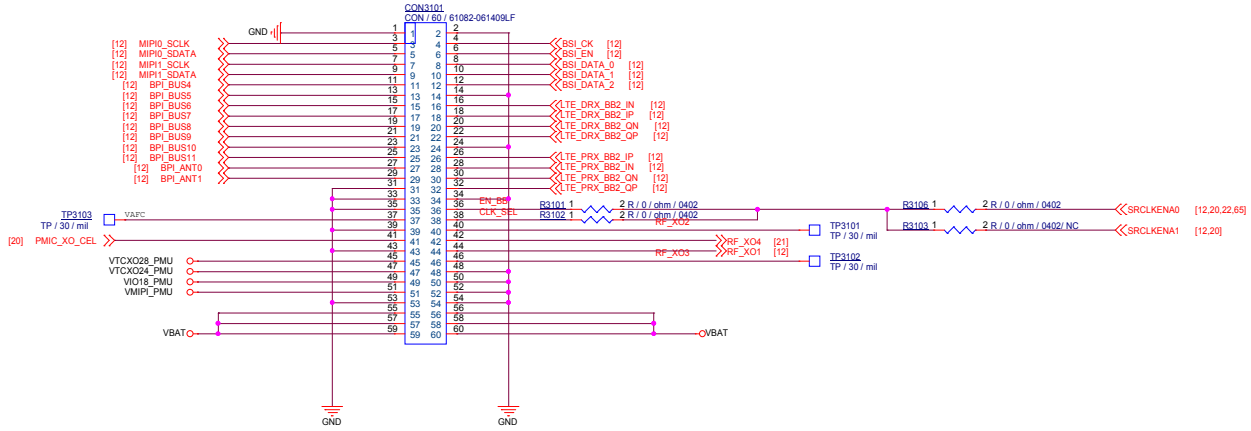
Title: 23_POWER_VGPU_VM

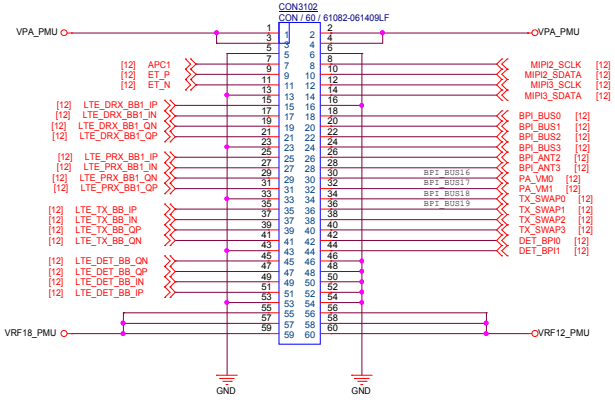
Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 23 of 99

MT6176 RF Connector Interface





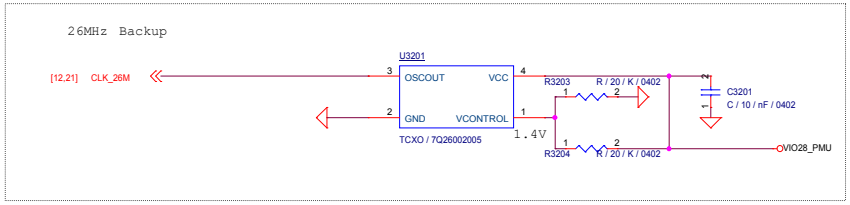
MEDIATEK

Title: 31 MT6176_IC PIN OUT

Size: C

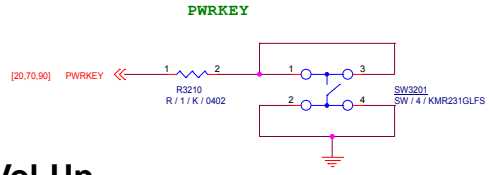
MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 31 of 99

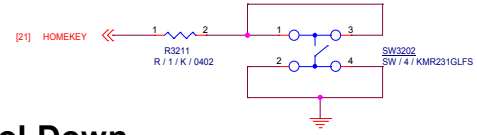


Power Key

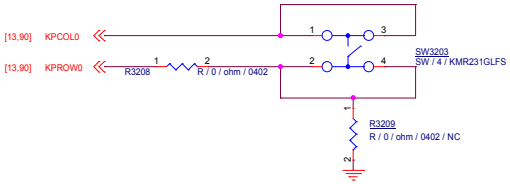
DO NOT put pull-up resistor on PWRKEY

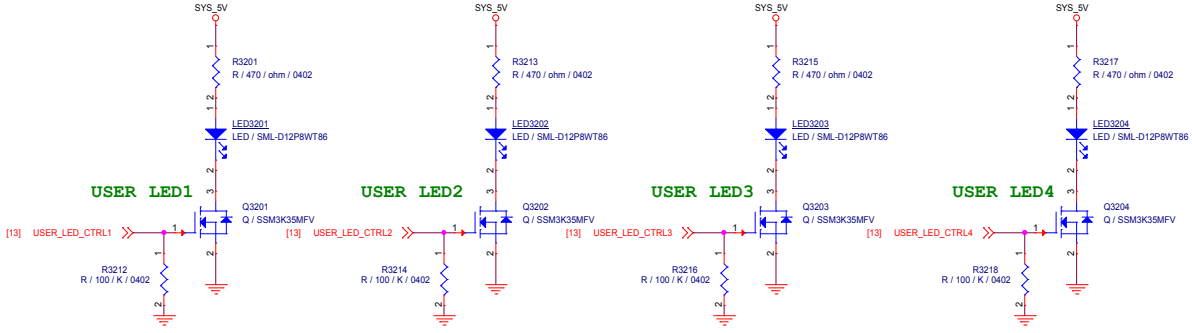


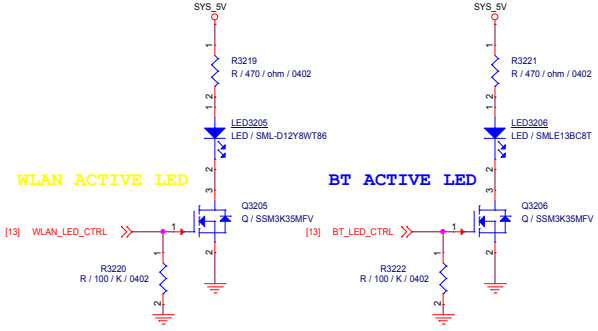
Vol Up



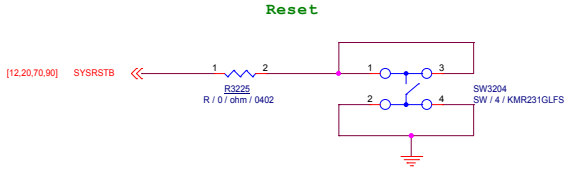
Vol Down

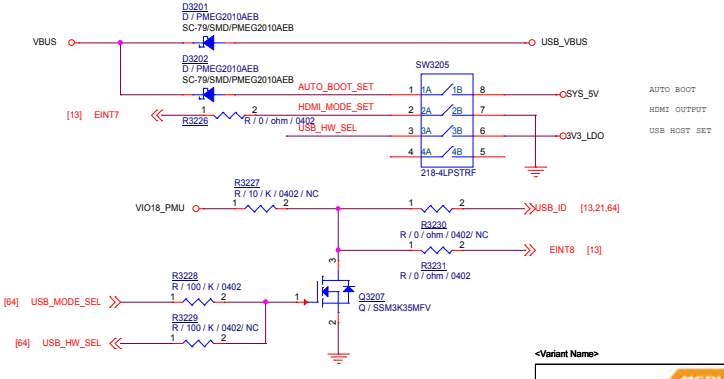






Reset Key





EINT8 will be pulled down if the USB_HW_SEL is switched to BAT.

<Variant Name>

MEDIATEK

Title: 32 KEY_LED_EXT26M

Size: C

MTK Confidential

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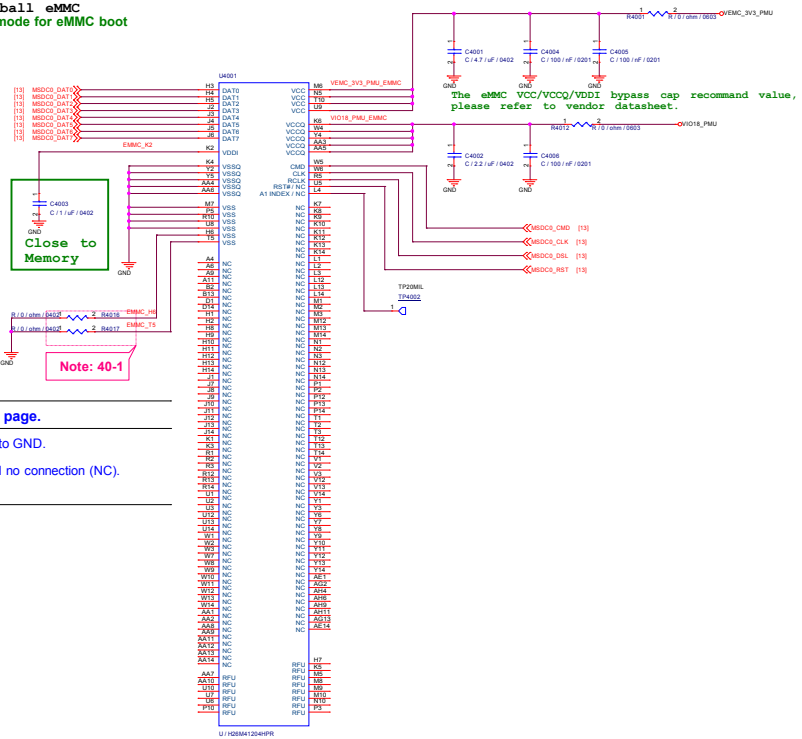


Schematic design notice of "40_MEMORY_eMMC" page.

Note 40-1: For eMMC 5.0, connect eMMC's H6 & T5 pin to GND.

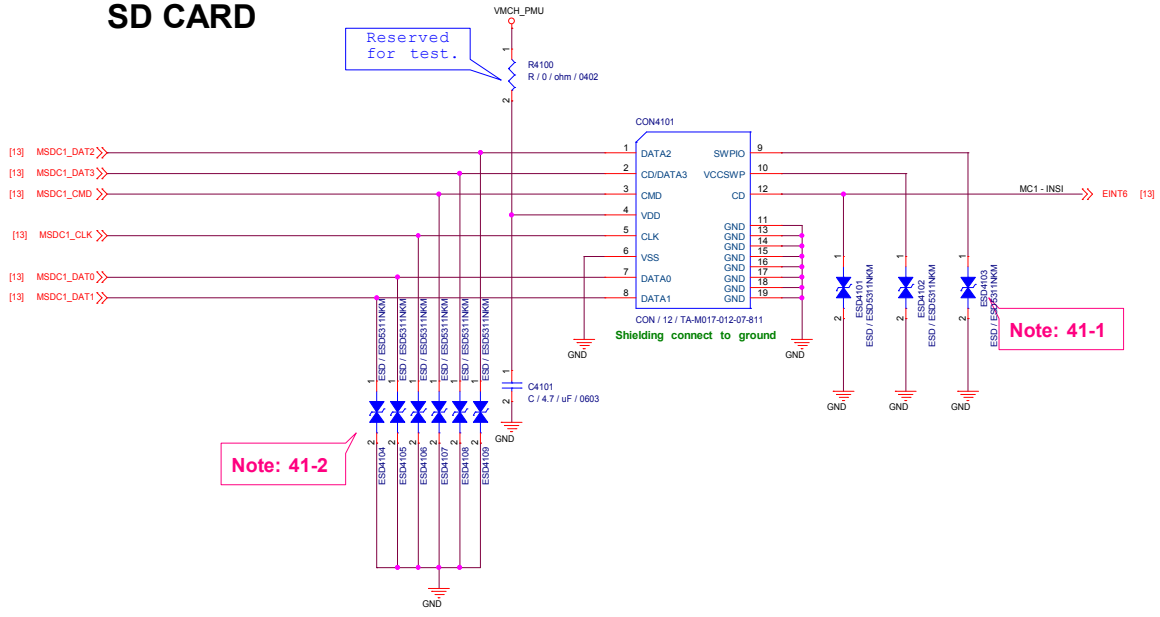
For eMMC 4.5, check eMMC's H6 & T5 is real no connection (NC).

<Variant Name>

MEDIATEK

Title	40_Memory_eMMC
Size	D
	MTK Confidential
Date:	Tuesday, October 18, 2016 Sheet 40 of 99

SD CARD



Schematic design notice of "41_MEMORY_SD Card" page.

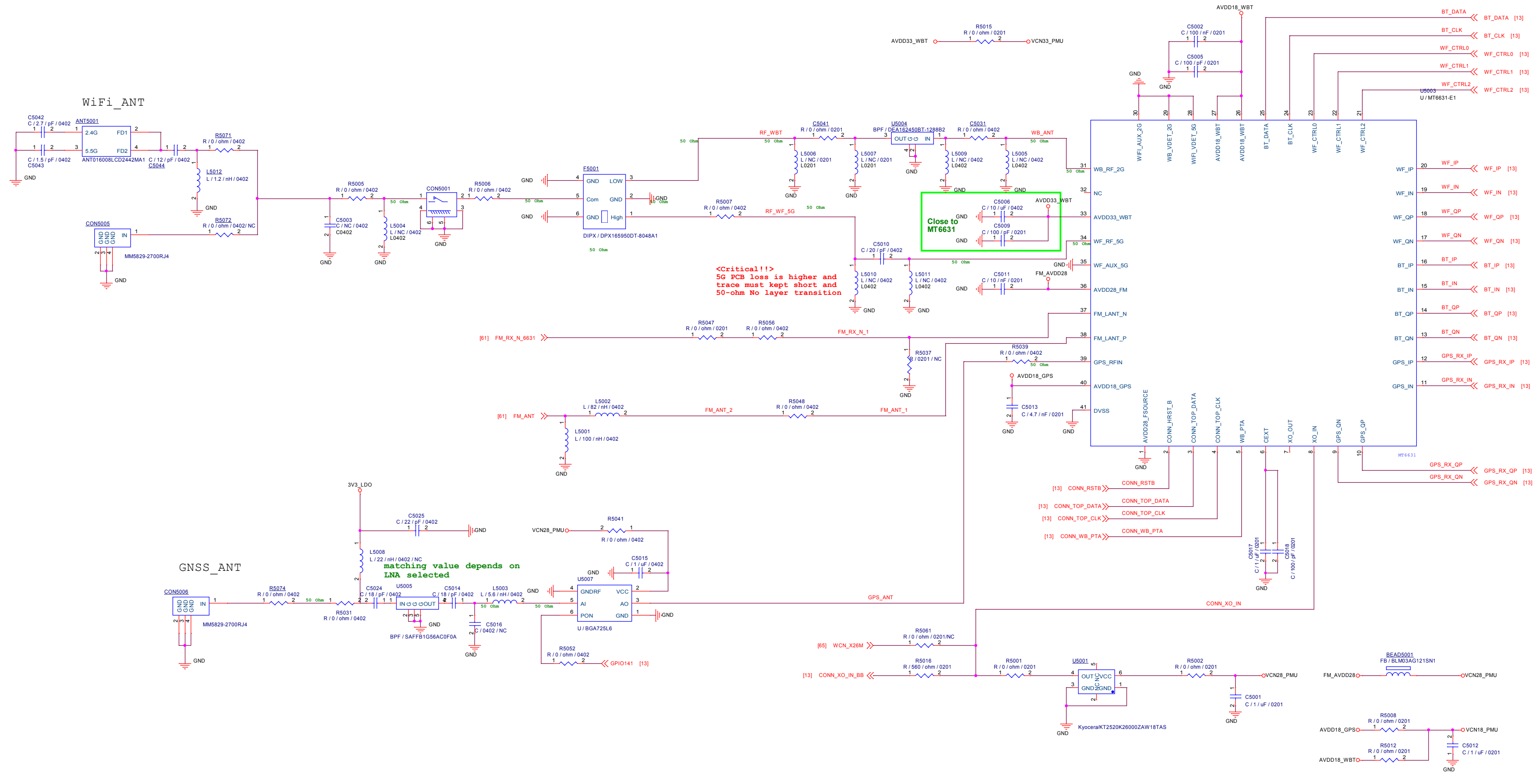
Note 41-1: The equivalent capacitance of ESD protection device must be <=1pF
-- otherwise it will result in NFC card mode function fail.

Note 41-2: Depends on system design to add ESD protection componemt or not.

<Variant Name>

MEDIATEK

Title	41_MEMORY_SD Card
Size C	MTK Confidential
Date: Tuesday, October 18, 2016	Sheet 41 of 99



<Variant Name>

Title: 50_CONNECTIVITY_MT6631

Size: D

MTK Confidential

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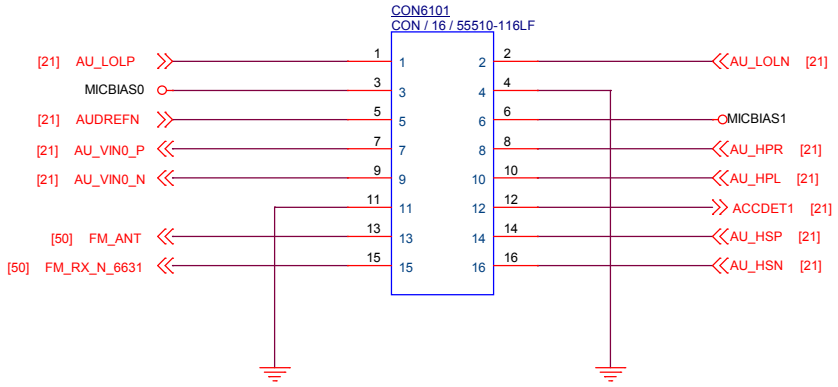
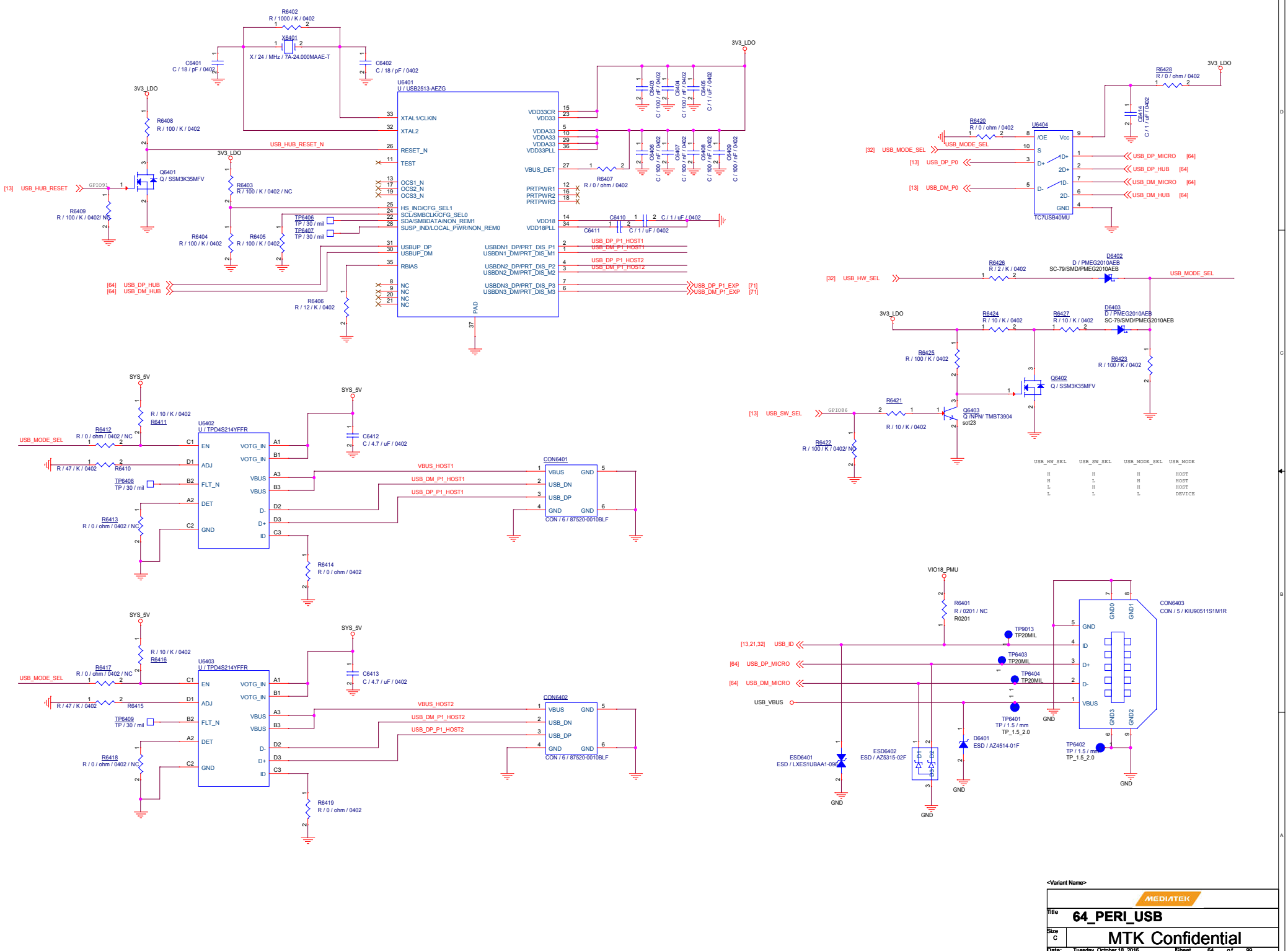
Audio Expansion



<Variant Name>

MEDIATEK

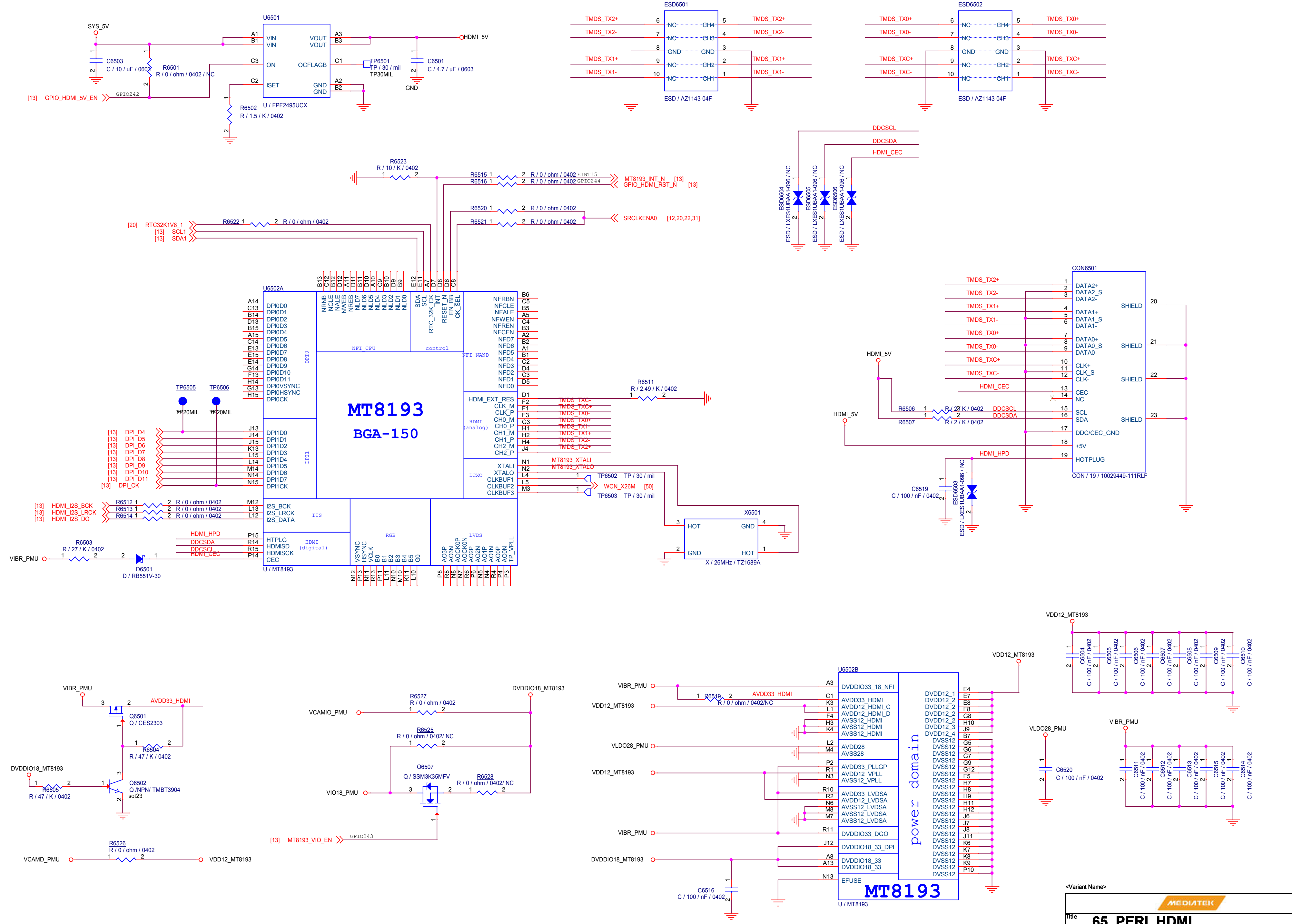
Title	61_AUDIO
Size B	MTK Confidential
Date: Tuesday, October 18, 2016	Sheet 61 of 99



<Variant Name>

MEDIATEK

Title	64_PERI_USB
Size C	MTK Confidential
Date: Tuesday, October 18, 2016	Sheet 64 of 99



<Variant Name>

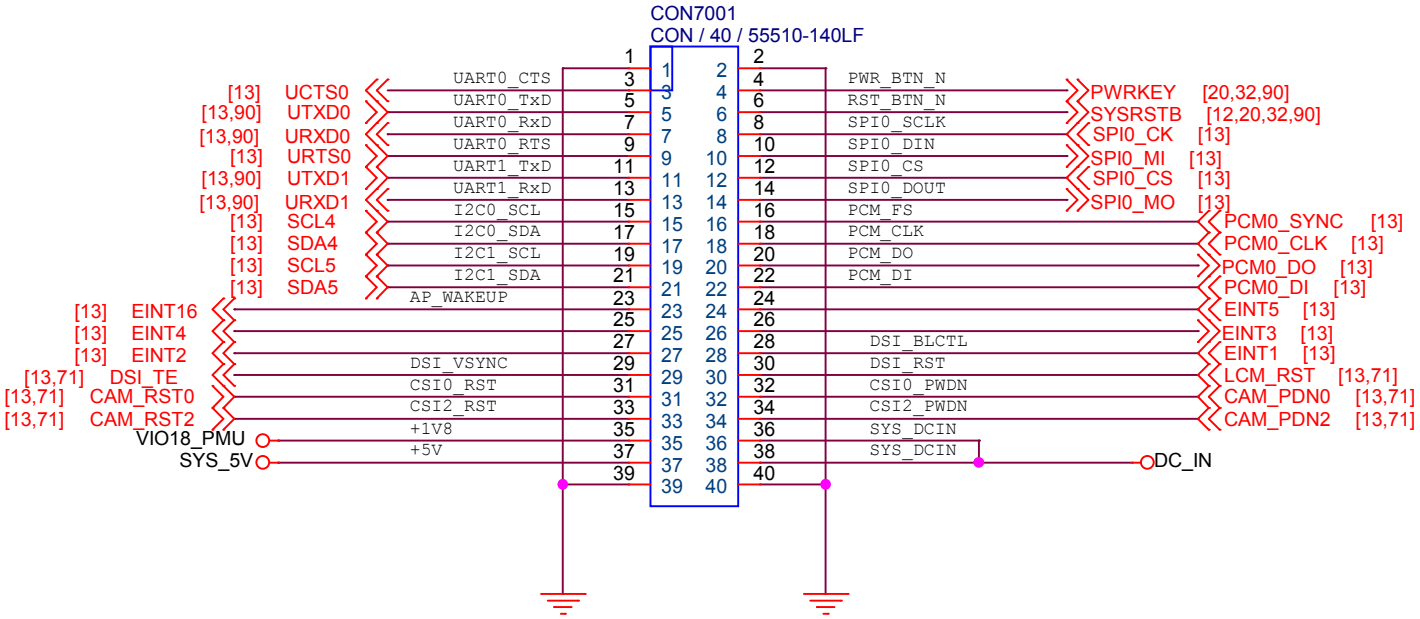
MEDIATEK

Title: 65_PERI_HDMI

Size: C

MTK Confidential

Date: Tuesday, October 18, 2016 | Sheet 65 of 99



<Variant Name>

MEDIATEK

Title **70_LS_IO_EXP**

Size A

MTK Confidential

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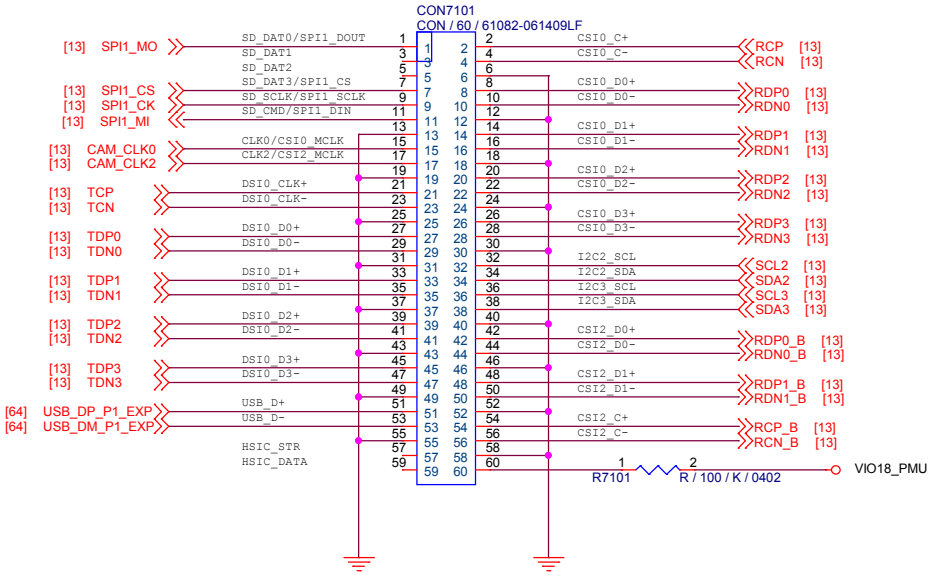
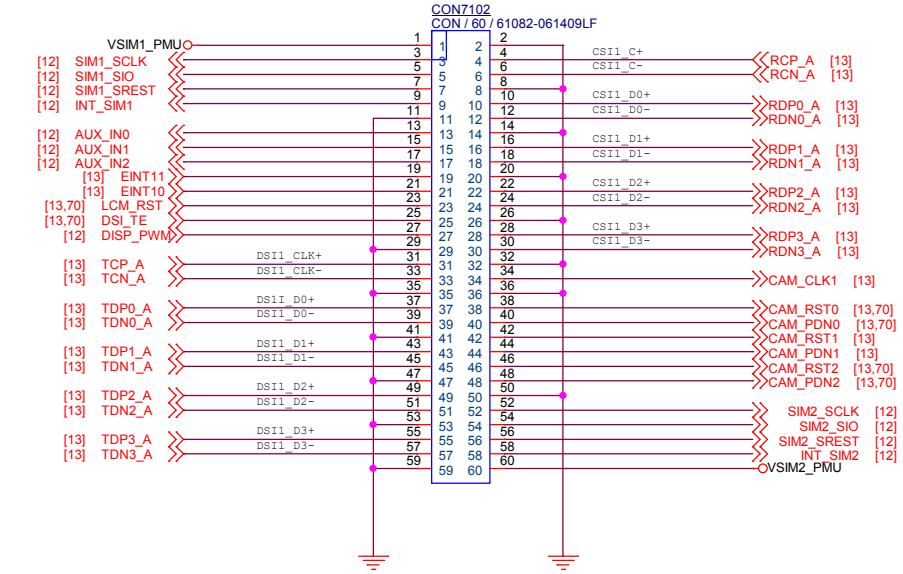


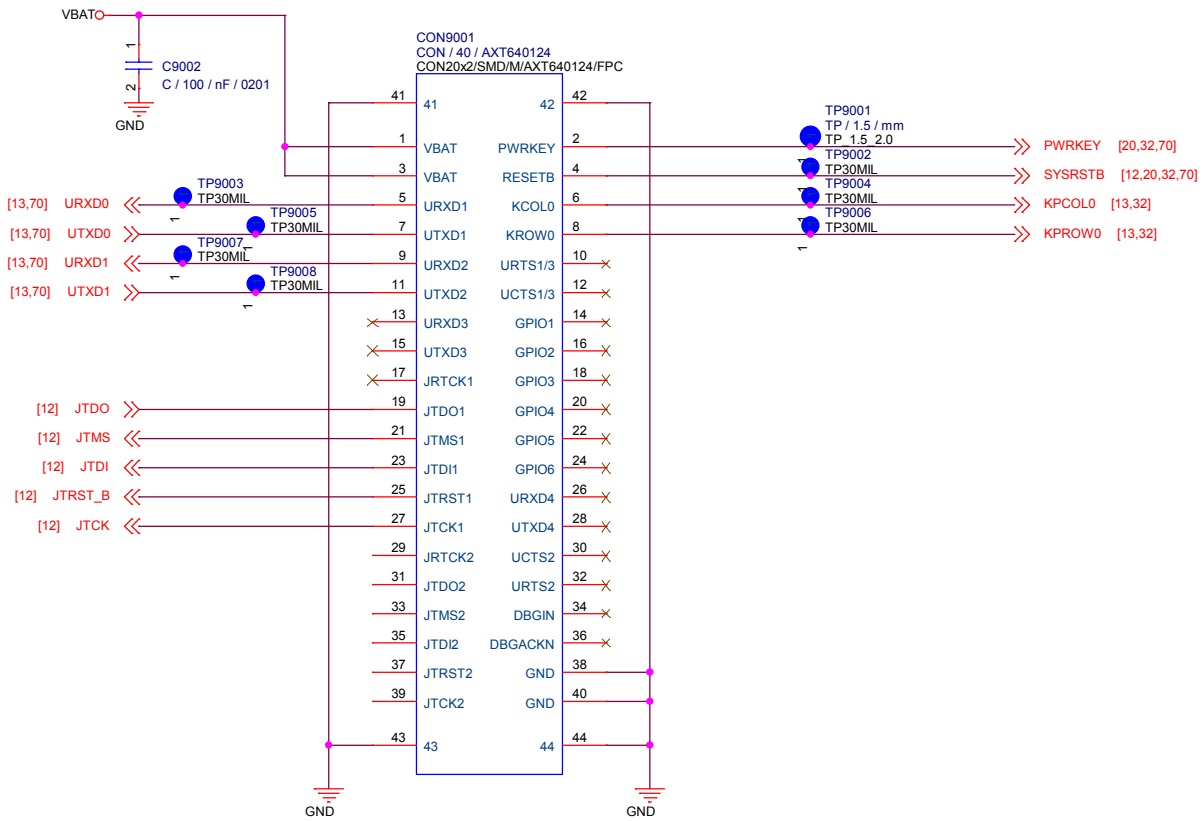


<Variant Name>

MEDIATEK

Title	71_HS_IO_EXP
Size B	MTK Confidential
Date: Tuesday, October 18, 2016	Sheet 71 of 99

MTK Debug I/O



<Variant Name>

MEDIATEK

Title: 90_DEBUG_IO

Size: B

MTK Confidential

Date: Tuesday, October 18, 2016 Sheet 90 of 99