P874: GT218, DDR3 MEMORY 64MX16/128MX16

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-10874-BASE-200	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0000	600-10874-0000-200	GT218-300, 589/1402/790, 512MB/64bit, 64Mx16 DDR3, DVI-DL+VGA, DT
2	SKU0001	600-10874-0001-200	GT218-325, 589/1402/790, 512MB/64bit, 64Mx16 DDR3, DVI-DL+VGA, DT
3	SKU0002	600-10874-0002-200	GT218-300-Ax,589/1402/790, 512MB/64bit, 64Mx16 DDR3, DVI-DL+VGA, DT
4	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
5	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
6	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
10	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	P874 Overview

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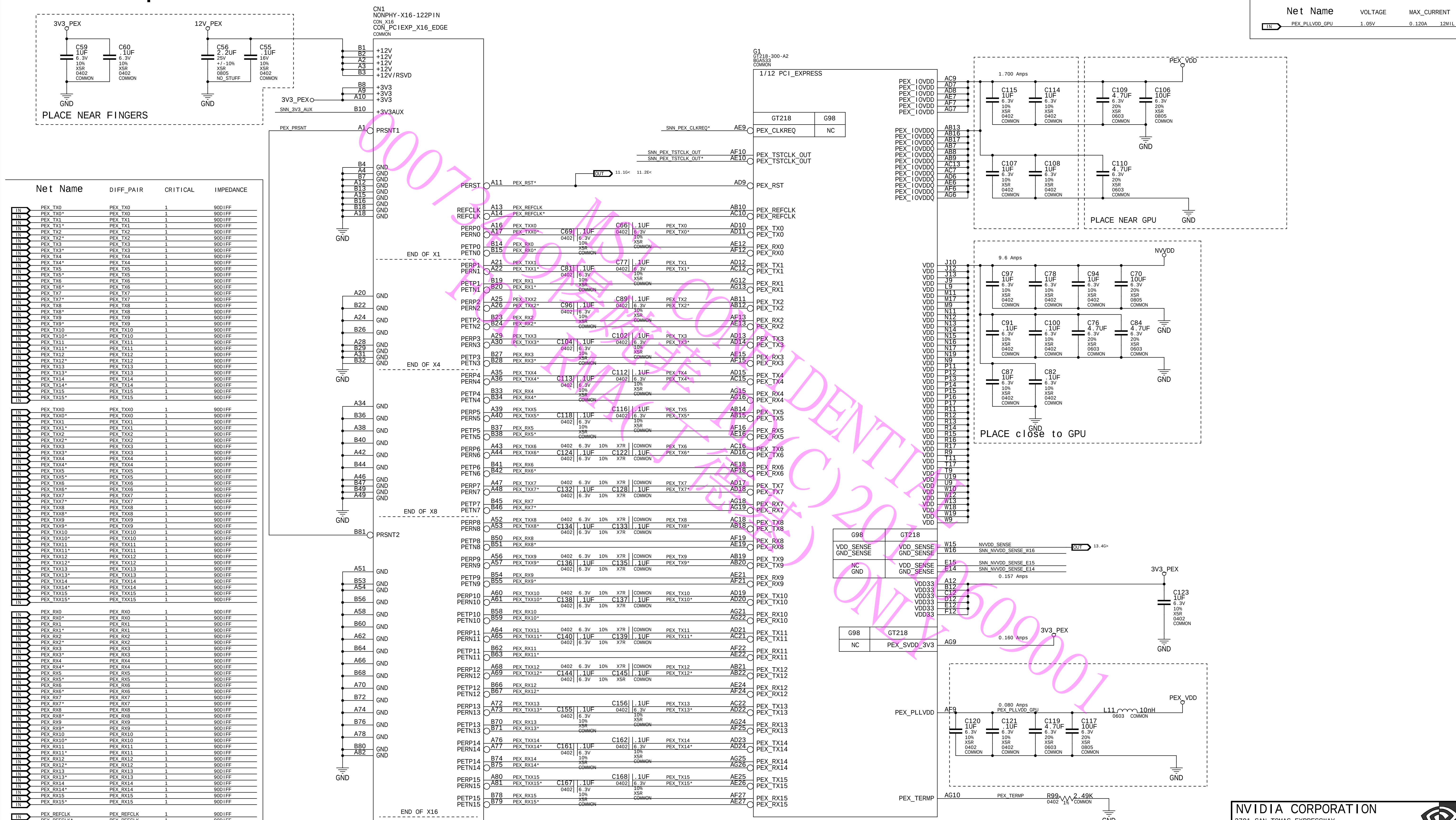
PCI Express Interface



Net Name	DIFF_PAIR	CRITICAL	IMPEDANCE
PEX_TX0	PEX_TX0	1	90DIFF
PEX_TX0*	PEX_TX0	1	90DIFF
PEX_TX1	PEX_TX1	1	90DIFF
PEX_TX1*	PEX_TX1	1	90DIFF
PEX_TX2	PEX_TX2	1	90DIFF
PEX_TX2*	PEX_TX2	1	90DIFF
PEX_TX3	PEX_TX3	1	90DIFF
PEX_TX3*	PEX_TX3	1	90DIFF
PEX_TX4	PEX_TX4	1	90DIFF
PEX_TX4*	PEX_TX4	1	90DIFF
PEX_TX5	PEX_TX5	1	90DIFF
PEX_TX5*	PEX_TX5	1	90DIFF
PEX_TX6	PEX_TX6	1	90DIFF
PEX_TX6*	PEX_TX6	1	90DIFF
PEX_TX7	PEX_TX7	1	90DIFF
PEX_TX7*	PEX_TX7	1	90DIFF
PEX_TX8	PEX_TX8	1	90DIFF
PEX_TX8*	PEX_TX8	1	90DIFF
PEX_TX9	PEX_TX9	1	90DIFF
PEX_TX9*	PEX_TX9	1	90DIFF
PEX_TX10	PEX_TX10	1	90DIFF
PEX_TX10*	PEX_TX10	1	90DIFF
PEX_TX11	PEX_TX11	1	90DIFF
PEX_TX11*	PEX_TX11	1	90DIFF
PEX_TX12	PEX_TX12	1	90DIFF
PEX_TX12*	PEX_TX12	1	90DIFF
PEX_TX13	PEX_TX13	1	90DIFF
PEX_TX13*	PEX_TX13	1	90DIFF
PEX_TX14	PEX_TX14	1	90DIFF
PEX_TX14*	PEX_TX14	1	90DIFF
PEX_TX15	PEX_TX15	1	90DIFF
PEX_TX15*	PEX_TX15	1	90DIFF
PEX_TXX0	PEX_TXX0	1	90DIFF
PEX_TXX0*	PEX_TXX0	1	90DIFF
PEX_TXX1	PEX_TXX1	1	90DIFF
PEX_TXX1*	PEX_TXX1	1	90DIFF
PEX_TXX2	PEX_TXX2	1	90DIFF
PEX_TXX2*	PEX_TXX2	1	90DIFF
PEX_TXX3	PEX_TXX3	1	90DIFF
PEX_TXX3*	PEX_TXX3	1	90DIFF
PEX_TXX4	PEX_TXX4	1	90DIFF
PEX_TXX4*	PEX_TXX4	1	90DIFF
PEX_TXX5	PEX_TXX5	1	90DIFF
PEX_TXX5*	PEX_TXX5	1	90DIFF
PEX_TXX6	PEX_TXX6	1	90DIFF
PEX_TXX6*	PEX_TXX6	1	90DIFF
PEX_TXX7	PEX_TXX7	1	90DIFF
PEX_TXX7*	PEX_TXX7	1	90DIFF
PEX_TXX8	PEX_TXX8	1	90DIFF
PEX_TXX8*	PEX_TXX8	1	90DIFF
PEX_TXX9	PEX_TXX9	1	90DIFF
PEX_TXX9*	PEX_TXX9	1	90DIFF
PEX_TXX10	PEX_TXX10	1	90DIFF
PEX_TXX10*	PEX_TXX10	1	90DIFF
PEX_TXX11	PEX_TXX11	1	90DIFF
PEX_TXX11*	PEX_TXX11	1	90DIFF
PEX_TXX12	PEX_TXX12	1	90DIFF
PEX_TXX12*	PEX_TXX12	1	90DIFF
PEX_TXX13	PEX_TXX13	1	90DIFF
PEX_TXX13*	PEX_TXX13	1	90DIFF
PEX_TXX14	PEX_TXX14	1	90DIFF
PEX_TXX14*	PEX_TXX14	1	90DIFF
PEX_TXX15	PEX_TXX15	1	90DIFF
PEX_TXX15*	PEX_TXX15	1	90DIFF
PEX_RX0	PEX_RX0	1	90DIFF
PEX_RX0*	PEX_RX0	1	90DIFF
PEX_RX1	PEX_RX1	1	90DIFF
PEX_RX1*	PEX_RX1	1	90DIFF
PEX_RX2	PEX_RX2	1	90DIFF
PEX_RX2*	PEX_RX2	1	90DIFF
PEX_RX3	PEX_RX3	1	90DIFF
PEX_RX3*	PEX_RX3	1	90DIFF
PEX_RX4	PEX_RX4	1	90DIFF
PEX_RX4*	PEX_RX4	1	90DIFF
PEX_RX5	PEX_RX5	1	90DIFF
PEX_RX5*	PEX_RX5	1	90DIFF
PEX_RX6	PEX_RX6	1	90DIFF
PEX_RX6*	PEX_RX6	1	90DIFF
PEX_RX7	PEX_RX7	1	90DIFF
PEX_RX7*	PEX_RX7	1	90DIFF
PEX_RX8	PEX_RX8	1	90DIFF
PEX_RX8*	PEX_RX8	1	90DIFF
PEX_RX9	PEX_RX9	1	90DIFF
PEX_RX9*	PEX_RX9	1	90DIFF
PEX_RX10	PEX_RX10	1	90DIFF
PEX_RX10*	PEX_RX10	1	90DIFF
PEX_RX11	PEX_RX11	1	90DIFF
PEX_RX11*	PEX_RX11	1	90DIFF
PEX_RX12	PEX_RX12	1	90DIFF
PEX_RX12*	PEX_RX12	1	90DIFF
PEX_RX13	PEX_RX13	1	90DIFF
PEX_RX13*	PEX_RX13	1	90DIFF
PEX_RX14	PEX_RX14	1	90DIFF
PEX_RX14*	PEX_RX14	1	90DIFF
PEX_RX15	PEX_RX15	1	90DIFF
PEX_RX15*	PEX_RX15	1	90DIFF
PEX_REFCLK	PEX_REFCLK	1	90DIFF
PEX_REFCLK*	PEX_REFCLK	1	90DIFF

Net Name	MIN_WIDTH	MAX_WIDTH
PEX_PRSNT	6MIL	
PEX_TERMP	6MIL	

Net Name	VOLTAGE	MAX_CURRENT	
PEX_PLLVDD_GPU	1.05V	0.120A	12MIL

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	PCI Express Interface

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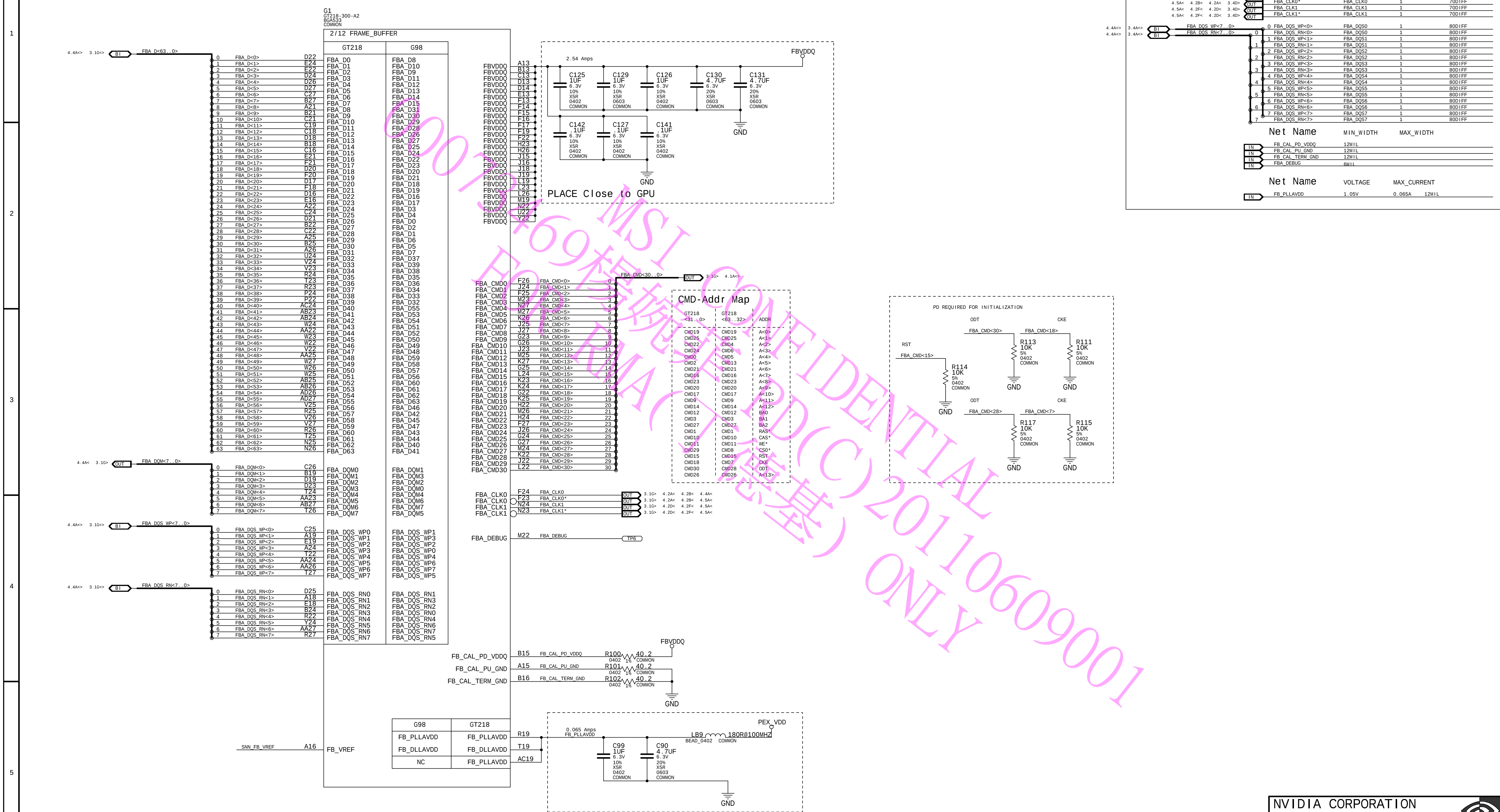
Frame Buffer Interface



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Frame Buffer Interface

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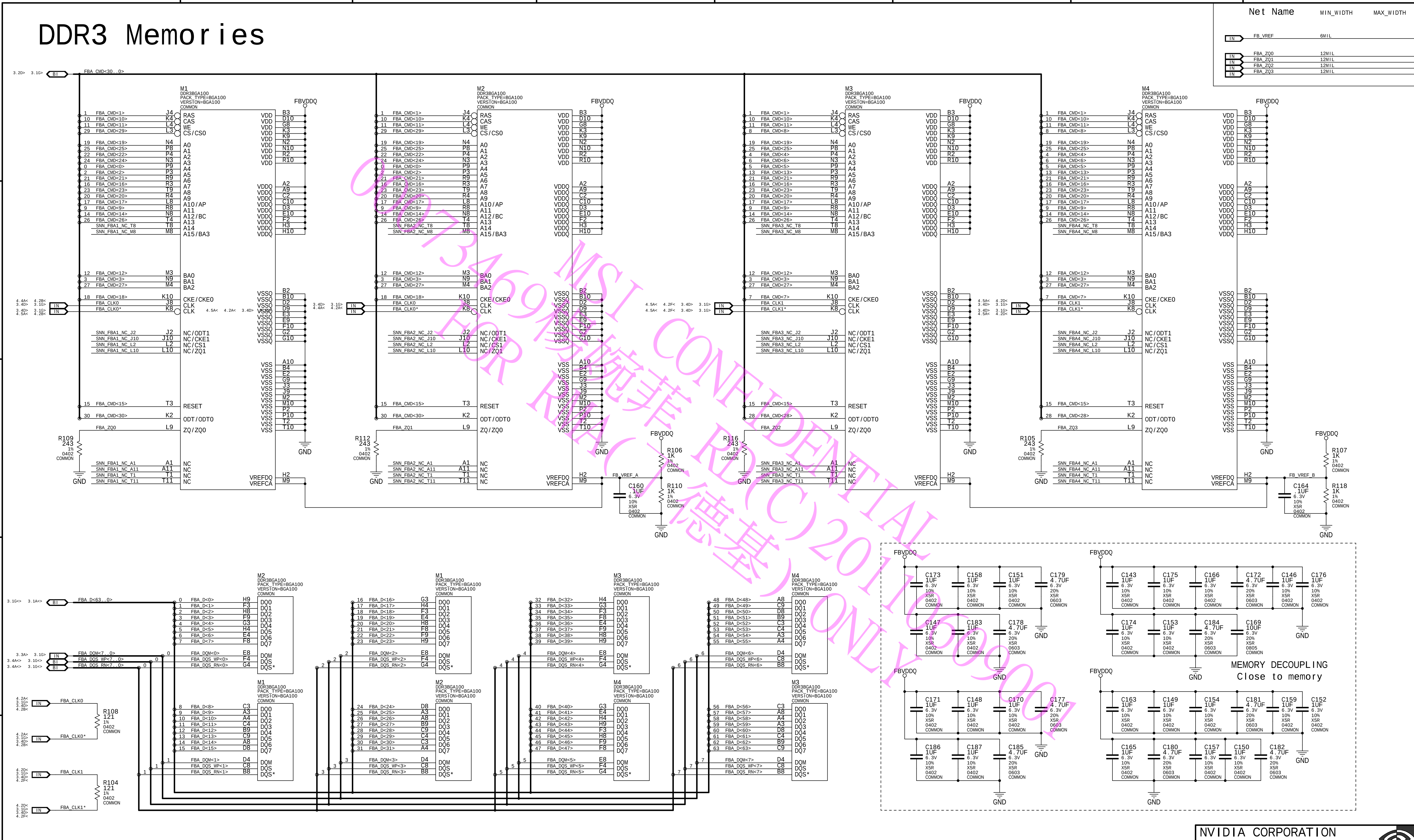
DDR3 Memories



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DDR3 Memories

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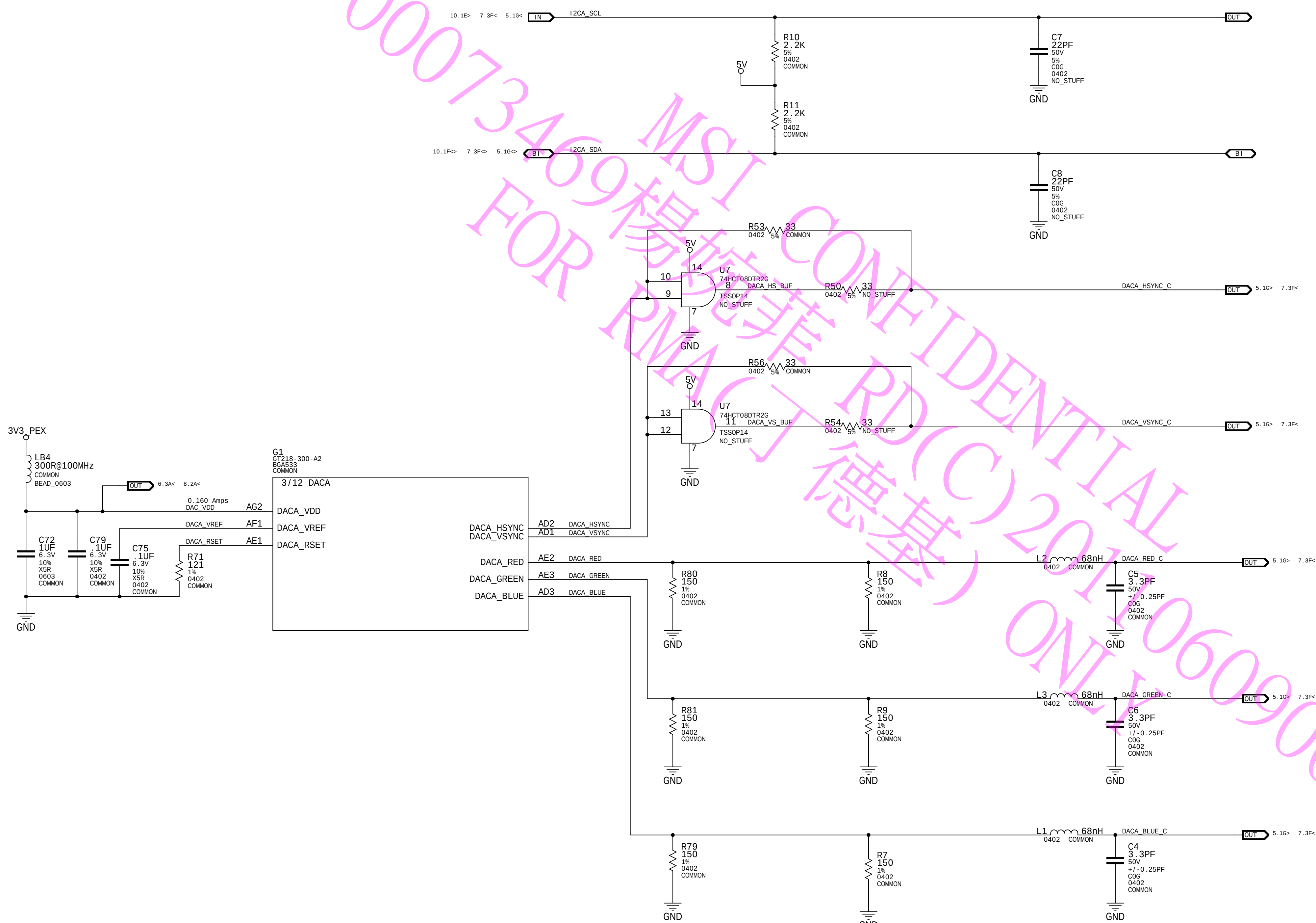
DAC A VGA

Port	Net Name	CRITICAL	IMPEDANCE
IN	DACA_RED	1	50OHM
IN	DACA_GREEN	1	50OHM
IN	DACA_BLUE	1	50OHM
7.3F< 5.4F> OUT	DACA_RED_C	1	50OHM
7.3F< 5.4F> OUT	DACA_GREEN_C	1	50OHM
7.3F< 5.5F> OUT	DACA_BLUE_C	1	50OHM
IN	DACA_HSYNC	2	50OHM
IN	DACA_VSYNC	2	50OHM
IN	DACA_HS_BUF	2	50OHM
IN	DACA_VS_BUF	2	50OHM
7.3F< 5.3F> OUT	DACA_HSYNC_C	2	50OHM
7.3F< 5.3F> OUT	DACA_VSYNC_C	2	50OHM

Port	Net Name	MIN_WIDTH	MAX_WIDTH
10.1E> 7.3F< 5.2C<> IN	I2CA_SCL		
10.1F<> 7.3F<> 5.2C<> BI	I2CA_SDA		
OUT	I2CA_SCL_C		
BI	I2CA_SDA_C		
IN	DACA_VREF	6MIL	
IN	DACA_RSET	6MIL	



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DAC A VGA

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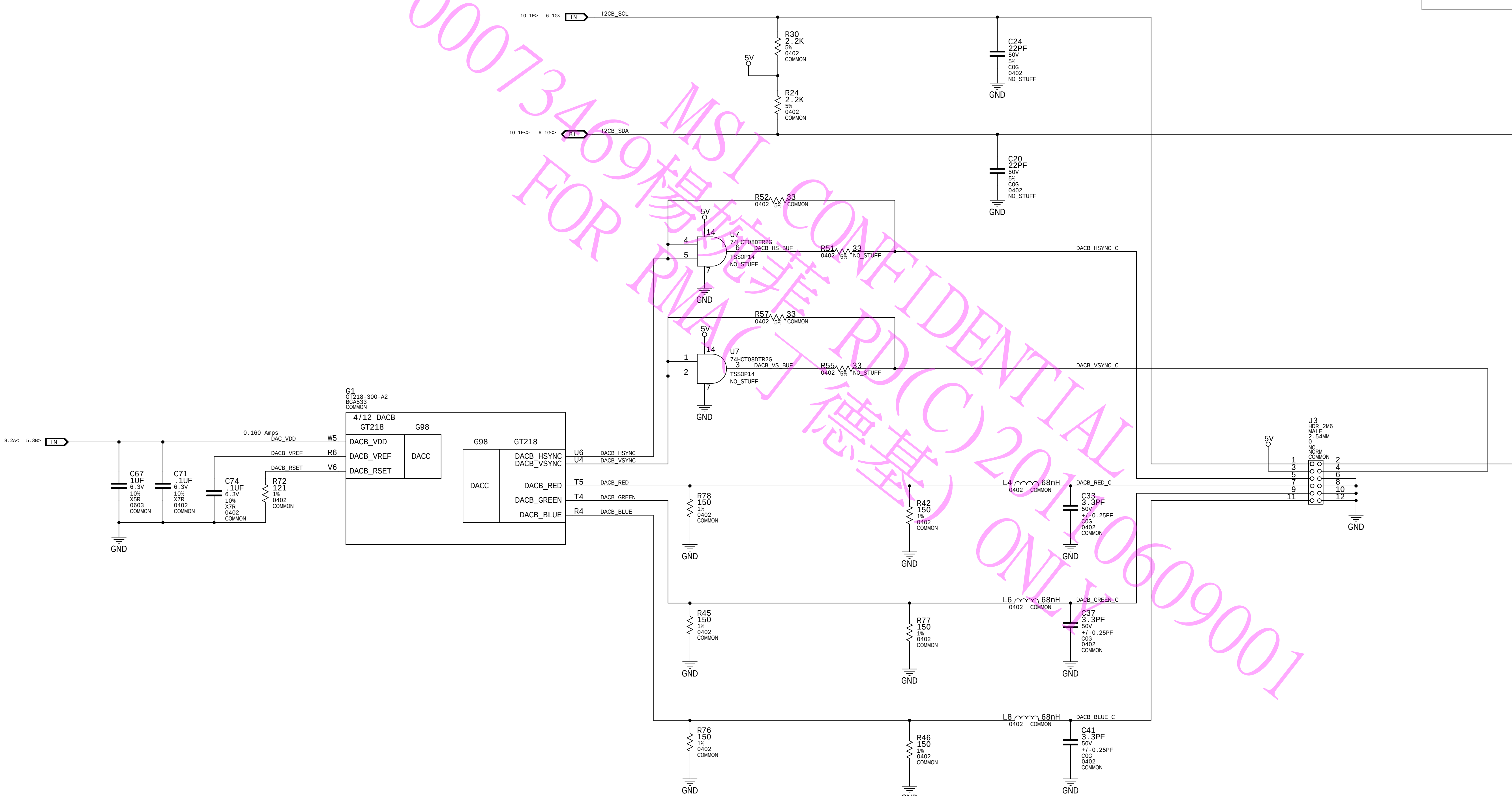
DAC B VGA Header

Net Name	CRITICAL	IMPEDANCE
DACB_RED	1	50OHM
DACB_GREEN	1	50OHM
DACB_BLUE	1	50OHM
DACB_RED_C	1	50OHM
DACB_GREEN_C	1	50OHM
DACB_BLUE_C	1	50OHM
DACB_HSYNC	2	50OHM
DACB_VSYNC	2	50OHM
DACB_HSYNC_C	2	50OHM
DACB_VSYNC_C	2	50OHM
DACB_HS_BUF	2	50OHM
DACB_VS_BUF	2	50OHM

Net Name	MIN_WIDTH	MAX_WIDTH
I2CB_SCL		
I2CB_SDA		
DACB_VREF	6MIL	
DACB_RSET	6MIL	



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DAC B VGA Header

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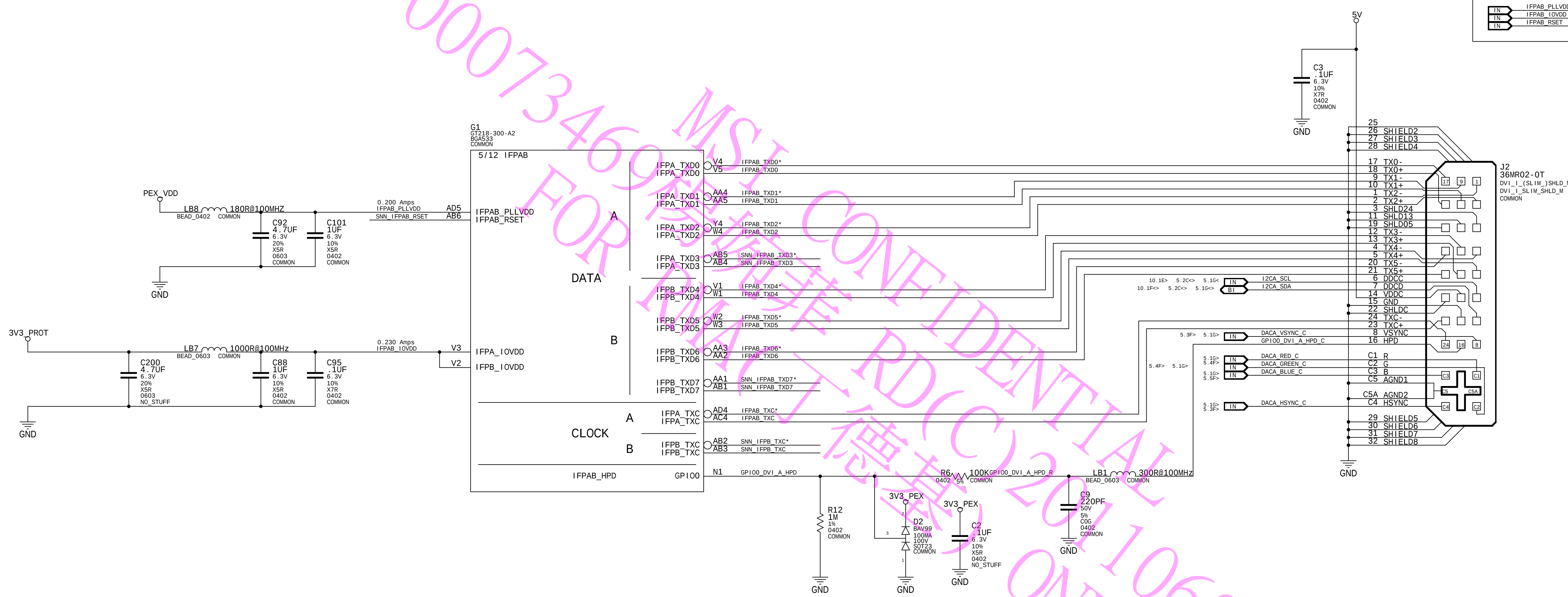
IFPA,B for DVI

Net Name	DIFF_PAIR	CRITICAL	IMPEDANCE
IFPAB_TXD0*	IFPAB_TXD0	1	90DIFF
IFPAB_TXD0	IFPAB_TXD0	1	90DIFF
IFPAB_TXD1*	IFPAB_TXD1	1	90DIFF
IFPAB_TXD1	IFPAB_TXD1	1	90DIFF
IFPAB_TXD2*	IFPAB_TXD2	1	90DIFF
IFPAB_TXD2	IFPAB_TXD2	1	90DIFF
IFPAB_TXD4*	IFPAB_TXD4	1	90DIFF
IFPAB_TXD4	IFPAB_TXD4	1	90DIFF
IFPAB_TXD5*	IFPAB_TXD5	1	90DIFF
IFPAB_TXD5	IFPAB_TXD5	1	90DIFF
IFPAB_TXD6*	IFPAB_TXD6	1	90DIFF
IFPAB_TXD6	IFPAB_TXD6	1	90DIFF
IFPAB_TXC*	IFPAB_TXC	1	90DIFF
IFPAB_TXC	IFPAB_TXC	1	90DIFF

Net Name	MIN_WIDTH	MAX_WIDTH
GPIO0_DVI_A_HPD		
GPIO0_DVI_A_HPD_R		
GPIO0_DVI_A_HPD_C		

Net Name	VOLTAGE	MAX_CURRENT	
IFPAB_PLLVDD	1.025V	0.200A	16MIL
IFPAB_IOVDD	3.3V	0.230A	16MIL
IFPAB_RSET			6MIL



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPA,B for DVI

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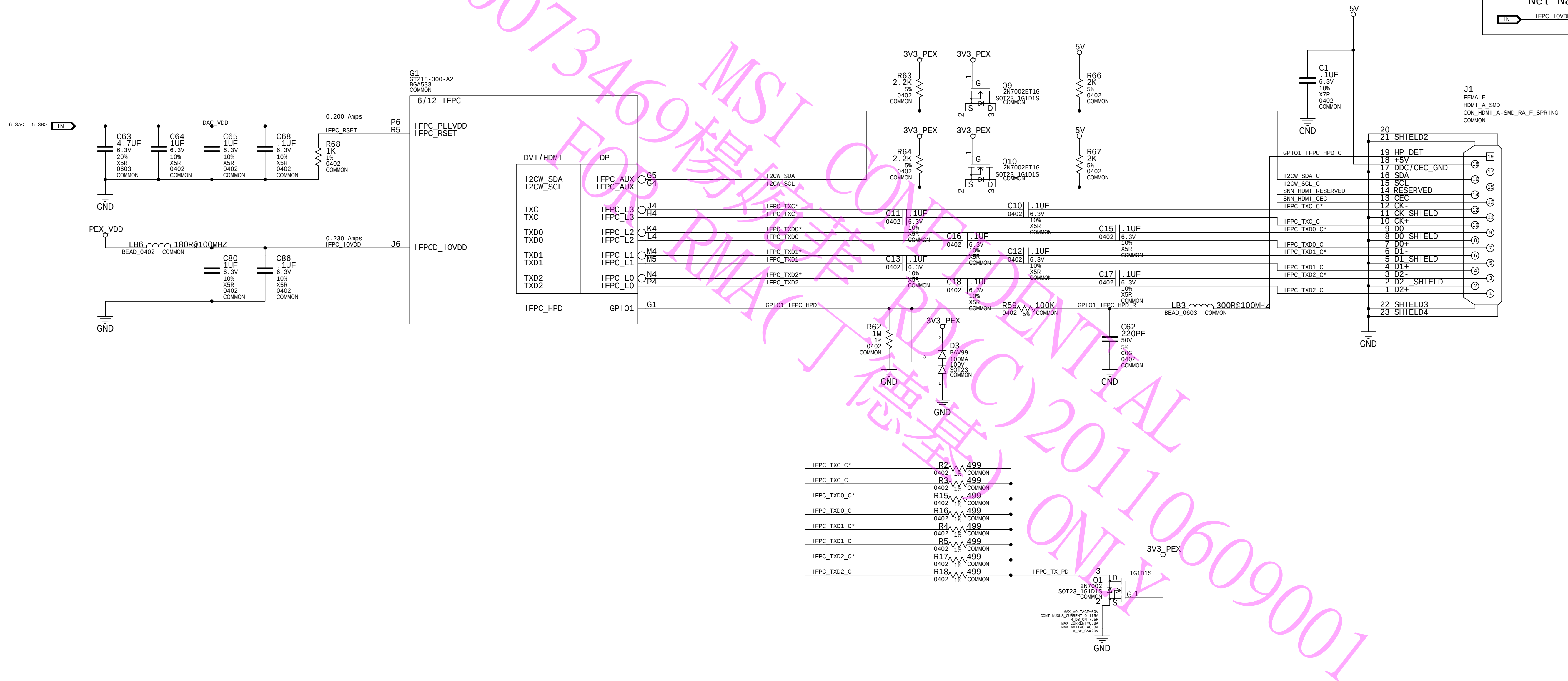
IFPC for HDMI

Net Name	DIFF_PAIR	CRITICAL	IMPEDANCE
IFPC_TXD0*	IFPC_TXD0	1	90DIFF
IFPC_TXD0	IFPC_TXD0	1	90DIFF
IFPC_TXD1*	IFPC_TXD1	1	90DIFF
IFPC_TXD1	IFPC_TXD1	1	90DIFF
IFPC_TXD2*	IFPC_TXD2	1	90DIFF
IFPC_TXD2	IFPC_TXD2	1	90DIFF
IFPC_TXD0_C*	IFPC_TXD0_C	1	90DIFF
IFPC_TXD0_C	IFPC_TXD0_C	1	90DIFF
IFPC_TXD1_C*	IFPC_TXD1_C	1	90DIFF
IFPC_TXD1_C	IFPC_TXD1_C	1	90DIFF
IFPC_TXD2_C*	IFPC_TXD2_C	1	90DIFF
IFPC_TXD2_C	IFPC_TXD2_C	1	90DIFF
IFPC_TXC*	IFPC_TXC	1	90DIFF
IFPC_TXC	IFPC_TXC	1	90DIFF
IFPC_TXC_C*	IFPC_TXC_C	1	90DIFF
IFPC_TXC_C	IFPC_TXC_C	1	90DIFF

Net Name	MIN_WIDTH	MAX_WIDTH
GPIO1_IFPC_HPD		
GPIO1_IFPC_HPD_R		
GPIO1_IFPC_HPD_C		
I2CW_SCL		
I2CW_SDA		
I2CW_SCL_C		
I2CW_SDA_C		
IFPC_TX_PD	12MIL	
IFPC_RSET	6MIL	

Net Name	VOLTAGE	MAX_CURRENT	
IFPC_IOVDD	1.05V	0.230A	16MIL



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPC for HDMI

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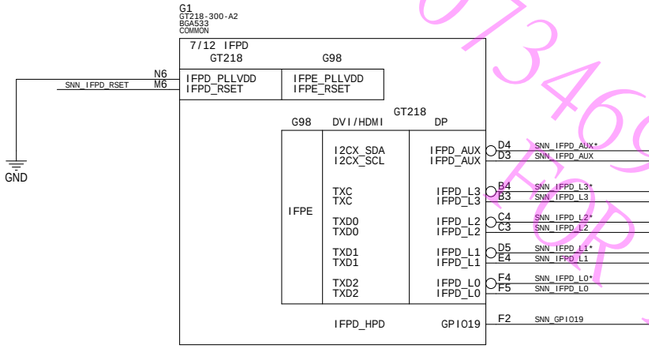
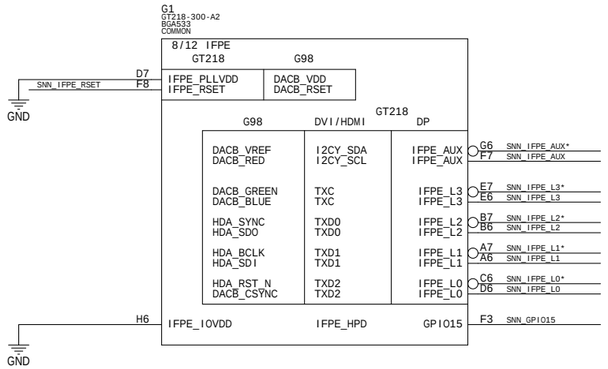
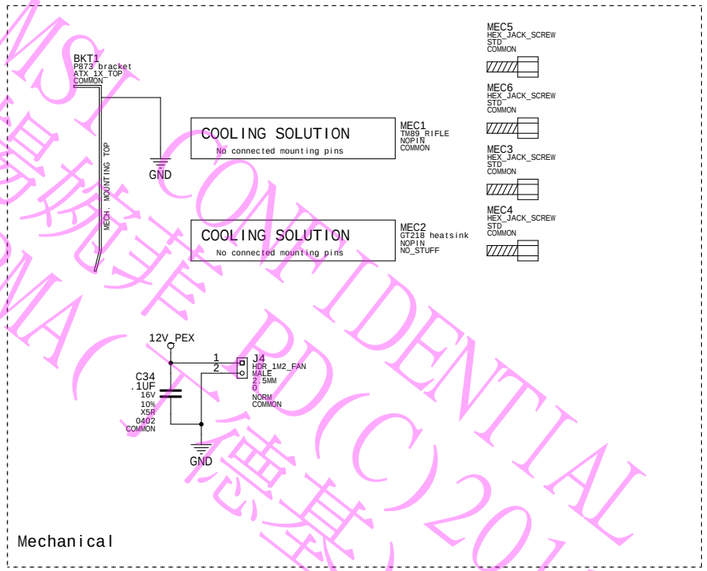
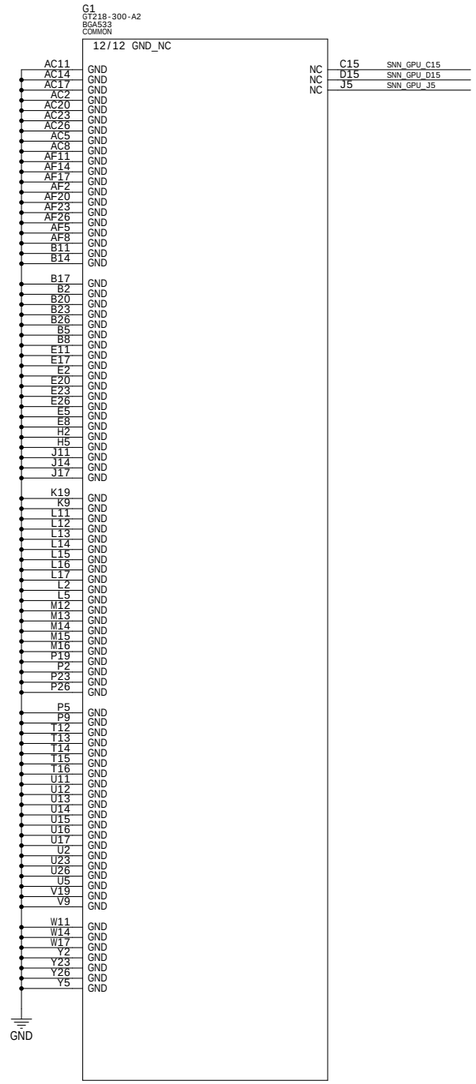
IFPD, IFPE Interface(Not used), Mechanical









ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPD, IFPE Interface(Not used), Mechanical

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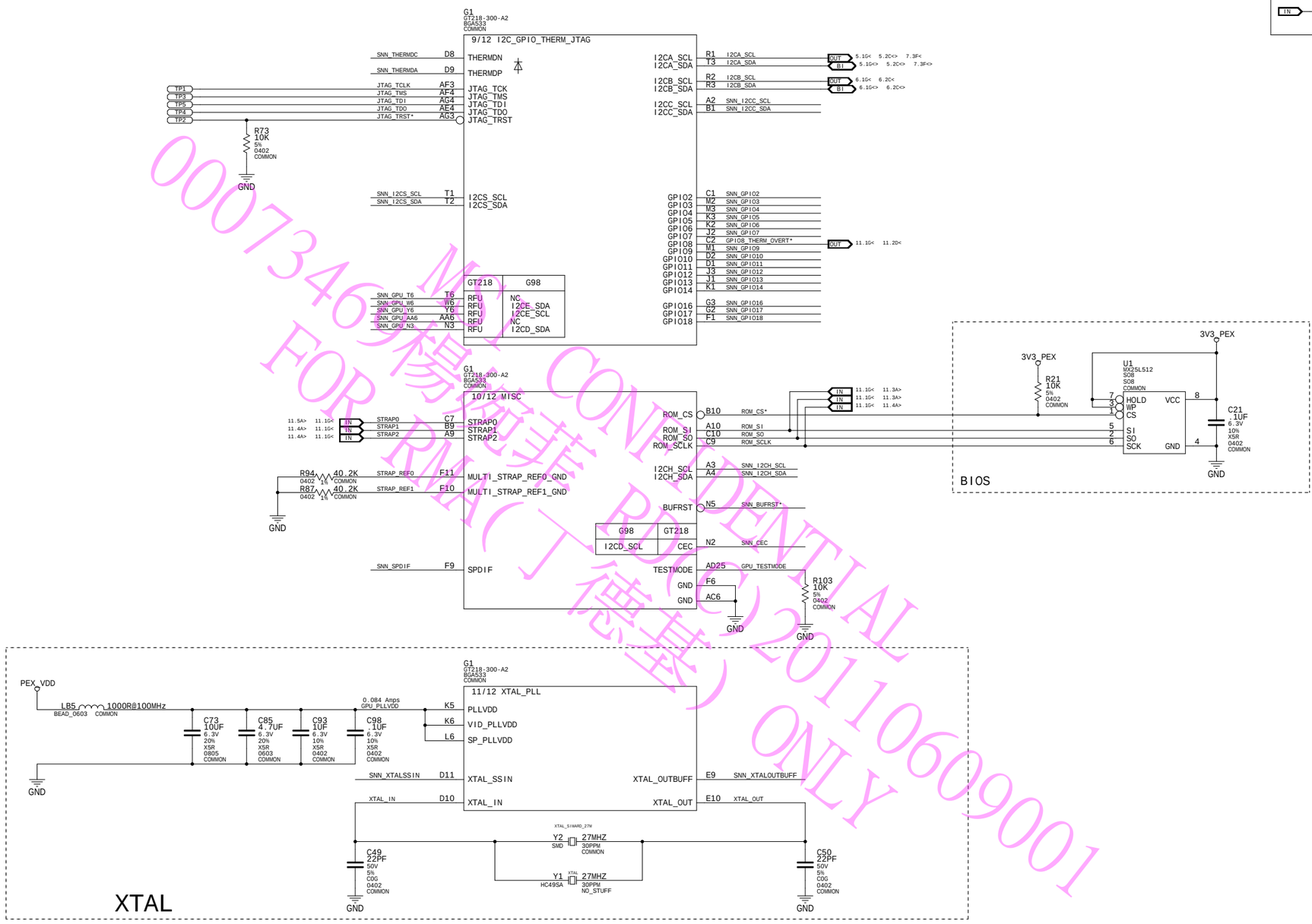
XTAL, ROM, JTAG

Net Name	CRITICAL	IMPEDANCE
XTAL_OUT	XTAL 1	90DIFF
XTAL_IN	XTAL 1	90DIFF

Net Name	VOLTAGE	MAX_CURRENT
GPU_PLLVDD	1.05V	0.083A 16MIL



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	XTAL, ROM, JTAG

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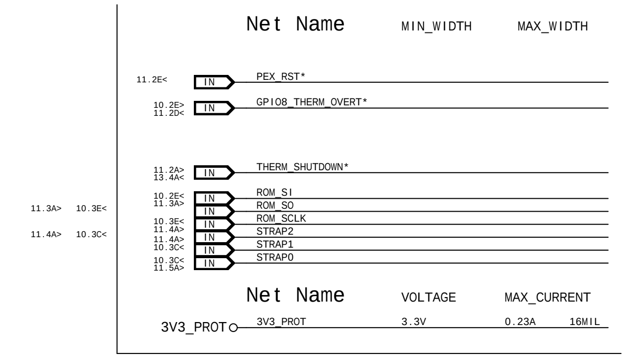
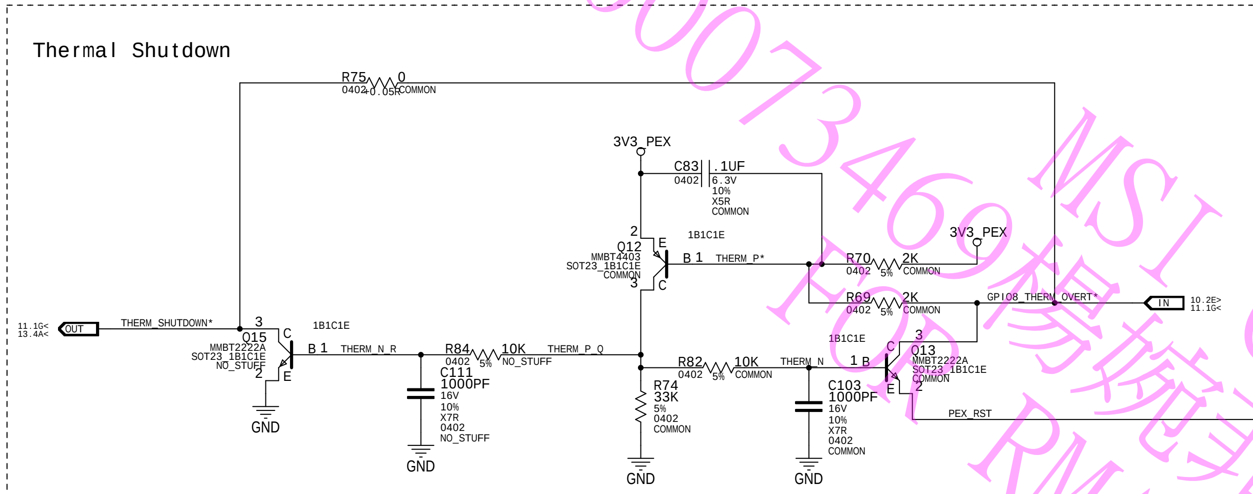
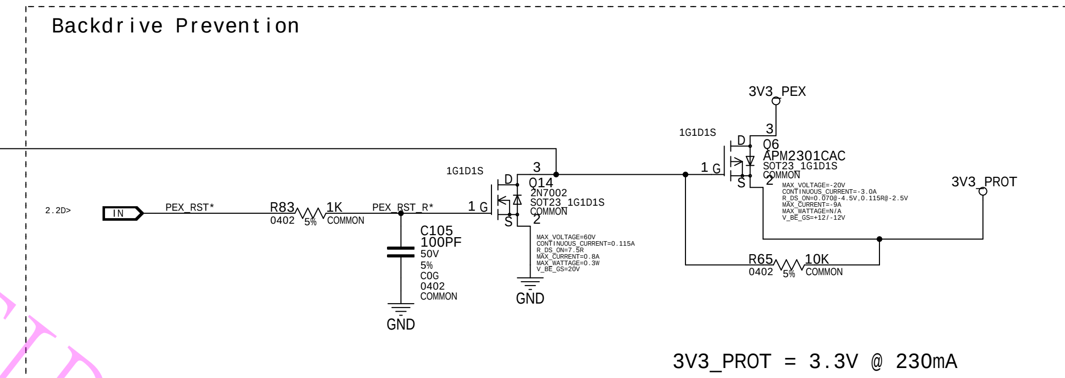
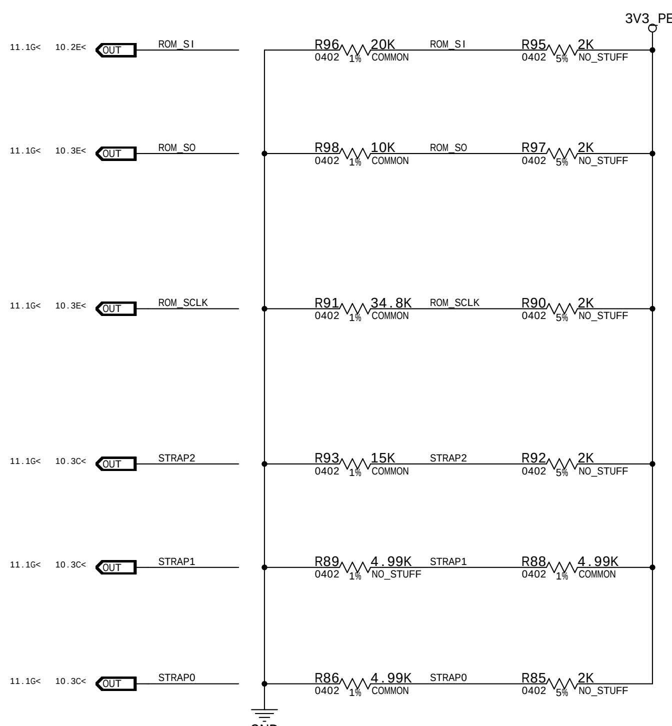
Thermal Protection, Protected 3V3, Straps







GT218 Straps
MLS Mode



Bit Signal		Values			
03: RAMCFG[3]		0000	Elpida		
		0001	Samsung, Micron		
02: RAMCFG[2]		0010	Qimonda		
		0011	Hynix		
01: RAMCFG[1]		0100	Nanya		
00: RAMCFG[0]					
03: XCLK_417		0	277 (Default)		
02: FB[0]		0	256M (Default)		
01: SMB_ALT_ADDR		0	0x9E		
		1	0x9C		
00: VGA_DEVICE		0	Class code 302		
		1	Class code 300		
03: PCI_DEVID_EXT		0	GT218-300-A1		
02: SUB_VENDOR		0	No BIOS		
		1	BIOS		
01: SLOT_CLK_CFG		0	Disable		
		1	Enable		
00: PEX_PLL_EN_TERM100		0	Disable		
		1	Enable		
03: PCI_DEVID[3]		0000	GT218-300-A1		
02: PCI_DEVID[2]					
01: PCI_DEVID[1]					
00: PCI_DEVID[0]					
03: 3GIO_PADCFG_LUT_ADR[3]		0000	DSKTOP_DEFAULT	1000	DSKTOP_HTHRS
		0001	MOBILE_DEFAULT	1001	MOBILE_HTHRS_NAMP
02: 3GIO_PADCFG_LUT_ADR[2]		0010	MOBILE_NTHRS_LLAMP	1010	MOBILE_HTHRS_LLAMP
		0011	MOBILE_NTHRS_LAMP	1011	MOBILE_HTHRS_LAMP
01: 3GIO_PADCFG_LUT_ADR[1]		0100	MOBILE_NTHRS_HAMP	1100	MOBILE_HTHRS_HAMP
		0101	MOBILE_NTHRS_HHAMP	1101	MOBILE_HTHRS_HHAMP
00: 3GIO_PADCFG_LUT_ADR[0]		0110	MOBILE_NTHRS_HHHAMP	1110	MOBILE_HTHRS_HHHAMP
		0111	MOBILE_NTHRS_HHHHAMP	1111	MOBILE_HTHRS_HHHHAMP
03: USER[3]		0000	Default		
02: USER[2]					
01: USER[1]					
00: USER[0]					

Multilevel Straps

5K to GND	0000
10K to GND	0001
15K to GND	0010
20K to GND	0011
25K to GND	0100
30K to GND	0101
35K to GND	0110
45K to GND	0111
5K to VCC	1000
10K to VCC	1001
15K to VCC	1010
20K to VCC	1011
25K to VCC	1100
30K to VCC	1101
35K to VCC	1110
45K to VCC	1111

Mode	REF0/REF1
MLS	Stuff

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL			
PAGE DETAIL	Thermal Protection, Protected 3V3, Straps			
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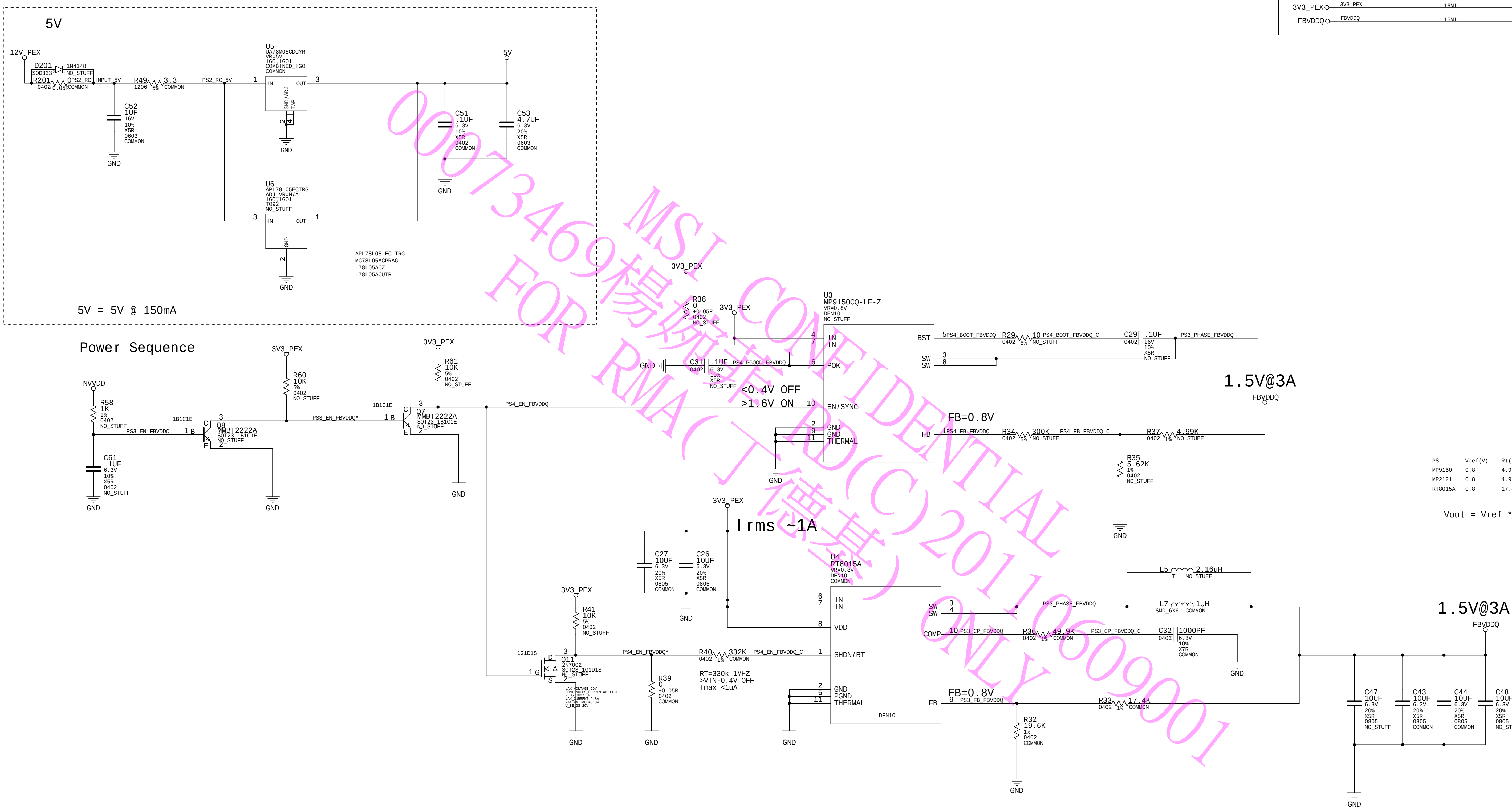
Power Supply: 5V,FBVDDQ

Net Name		MIN_LINE_WIDTH	CURRENT	VOLTAGE
5V	5V	12MIL	0.25A	5V
3V3_PEX	3V3_PEX	16MIL	3A	3.3V
FBVDDQ	FBVDDQ	16MIL	3A	2.0V



5V
12V_PEX
D201 1N4148 SOD323 NO_STUFF
R201 0
R49 3.3 1206 5% COMMON
PS2_RC_5V
U5 UA78M05CDCYR VR=5V COMBINED_IGO COMMON
C52 1UF 16V 10% X5R 0603 COMMON
C51 .1UF 6.3V 10% X5R 0402 COMMON
C53 4.7UF 6.3V 20% X5R 0603 COMMON
U6 APL78L05ECTRG ADJ_VR=N/A T092 NO_STUFF
APL78L05-EC-TRG
MC78L05ACPRAG
L78L05ACZ
L78L05ACUTR
5V = 5V @ 150mA
Power Sequence
NVVDD
R58 1K 1% 0402 NO_STUFF
C61 .1UF 6.3V 10% X5R 0402 NO_STUFF
Q8 MMBT2222A SOT23_1B1C1E NO_STUFF
R60 10K 5% 0402 NO_STUFF
R61 10K 5% 0402 NO_STUFF
Q7 MMBT2222A SOT23_1B1C1E NO_STUFF
PS3_EN_FBVDDQ
PS4_EN_FBVDDQ
3V3_PEX
R38 0 +0.05R 0402 NO_STUFF
U3 MP9150CQ-LF-Z VR=0.8V DFN10 NO_STUFF
IN IN POK EN/SYNC GND GND THERMAL BST SW SW FB
C31 .1UF 0402 6.3V 10% X5R NO_STUFF
PS4_PGOOD_FBVDDQ
<0.4V OFF
>1.6V ON
R29 10 0402 5% NO_STUFF
C29 .1UF 0402 16V 10% X5R NO_STUFF
PS3_PHASE_FBVDDQ
FB=0.8V
R34 300K 0402 5% NO_STUFF
R37 4.99K 0402 1% NO_STUFF
R35 5.62K 1% 0402 NO_STUFF
1.5V@3A
FBVDDQ
Irms ~1A
C27 10UF 6.3V 20% X5R 0805 COMMON
C26 10UF 6.3V 20% X5R 0805 COMMON
U4 RT8015A VR=0.8V DFN10 COMMON
IN IN VDD SHDN/RT GND PGND THERMAL SW SW COMP FB
L5 2.16uH TH NO_STUFF
L7 1UH SMD_6X6 COMMON
R41 10K 5% 0402 NO_STUFF
Q11 2N7002 SOT23_1G1D1S NO_STUFF
R40 332K 0402 1% COMMON
RT=330k 1MHZ
>VIN-0.4V OFF
Imax <1uA
R39 0 +0.05R 0402 COMMON
R36 49.9K 0402 1% COMMON
C32 1000PF 0402 6.3V 10% X7R COMMON
FB=0.8V
R33 17.4K 0402 1% COMMON
R32 19.6K 1% 0402 COMMON
C47 10UF 6.3V 20% X5R 0805 NO_STUFF
C43 10UF 6.3V 20% X5R 0805 COMMON
C44 10UF 6.3V 20% X5R 0805 COMMON
C48 10UF 6.3V 20% X5R 0805 NO_STUFF
GND

PS	Vref(V)	Rt(ohm)	Rb(ohm)	Vo(V)
MP9150	0.8	4.99K	5.62K	1.5V
MP2121	0.8	4.99K	5.62K	1.5V
RT8015A	0.8	17.4K	19.6K	1.5V

Vout = Vref * (1+Rtop/Rbot)

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply I: FBVDD/Q,5V

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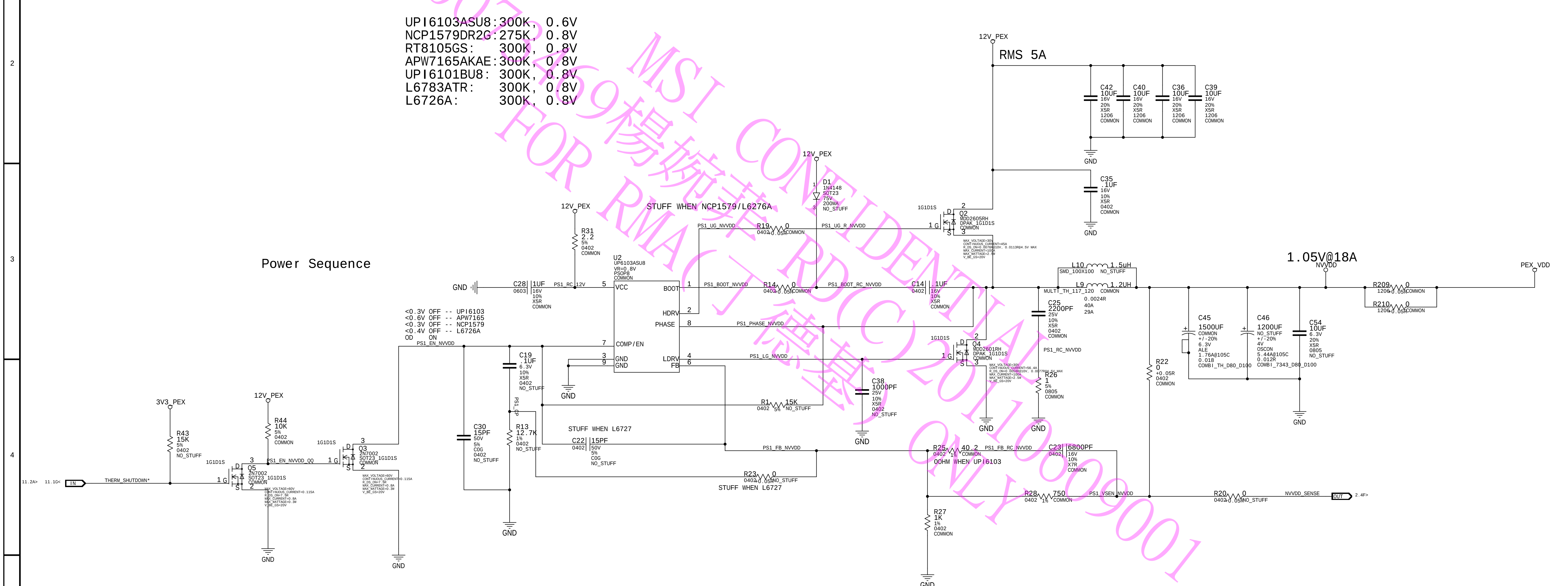
Power Supply: NVVDD, PEX_VDD

Net Name	LINE_WIDTH	Current	Voltage
NVVDD	16MIL	16.74A	1.05V
PEX_VDD	16MIL	2.64A	1.05V
12V_PEX	16MIL	4A	12V
GND	16MIL		0V



PS	Vref(V)	Rt(ohm)	Rb(ohm)	Vo(V)
UPI6103	0.6	750	1000	1.05
APW7165	0.8	316	1000	1.05

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply II: NVVDD,PEXVDD

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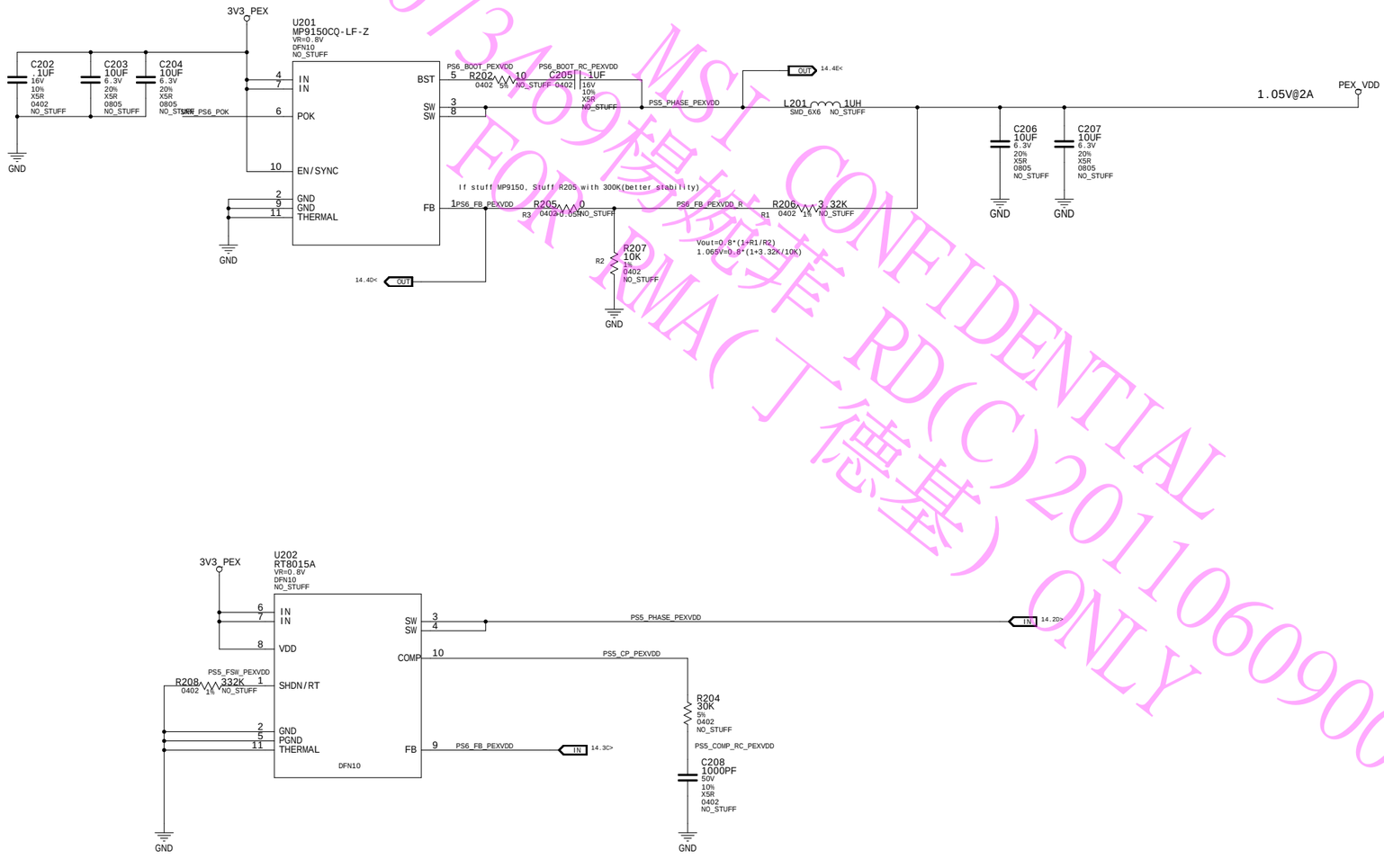
Power Supply : PEXVDD FOR LOWER PWOER SKU



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply: PEXVDD FOR LOWER POWER SKU

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