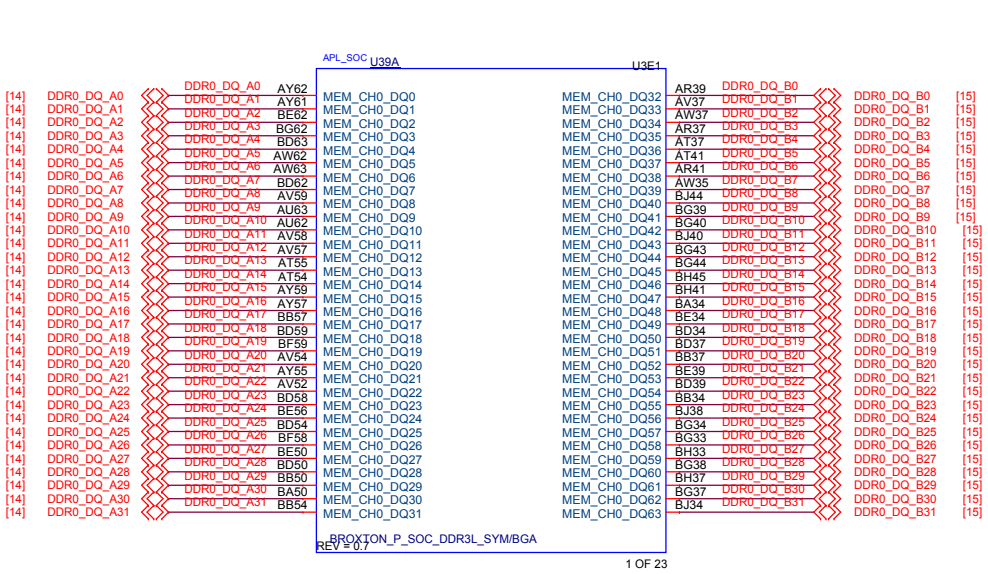
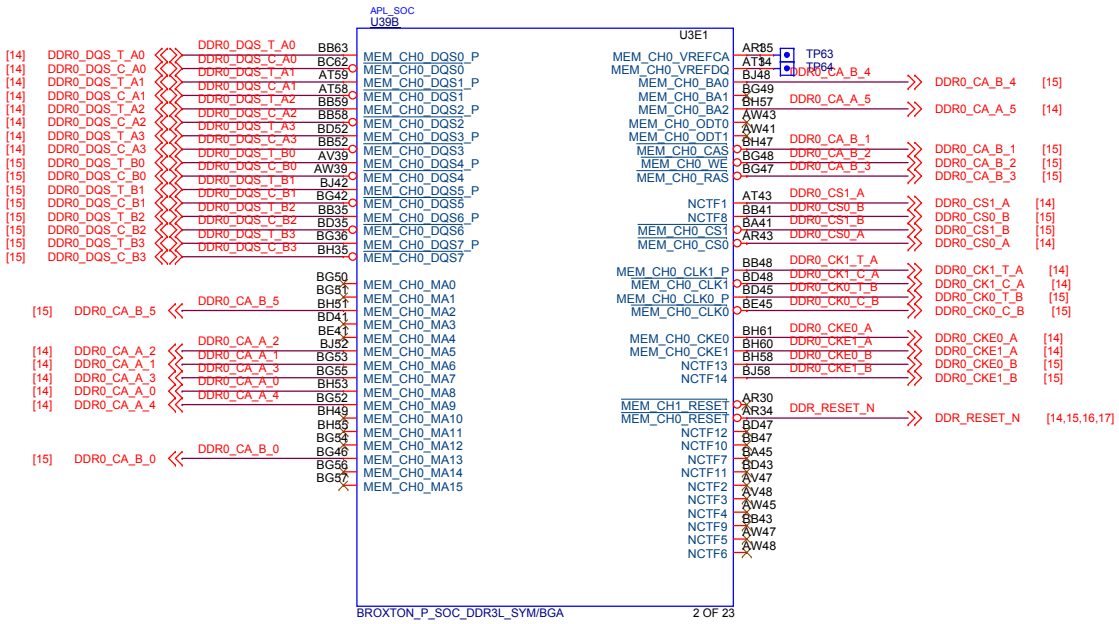
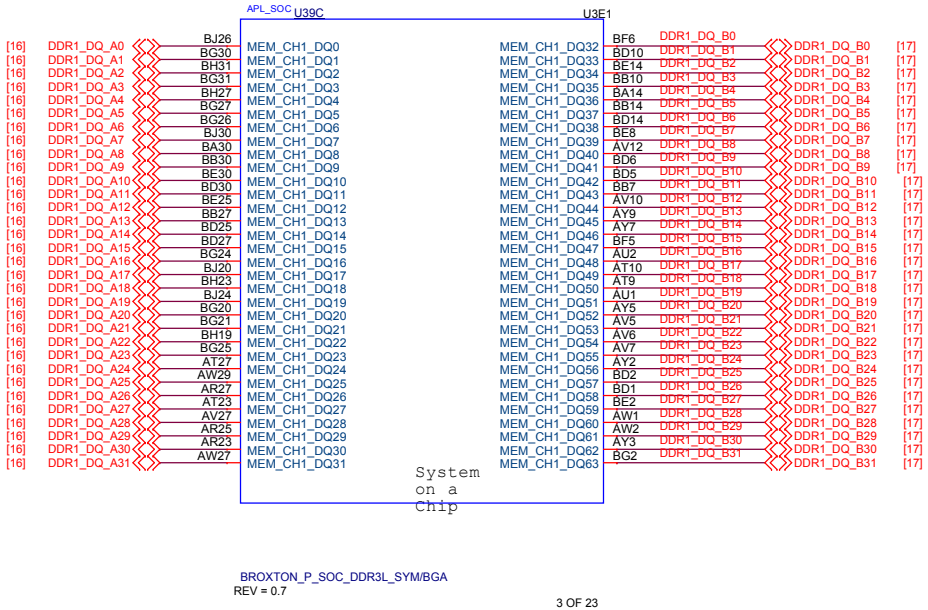
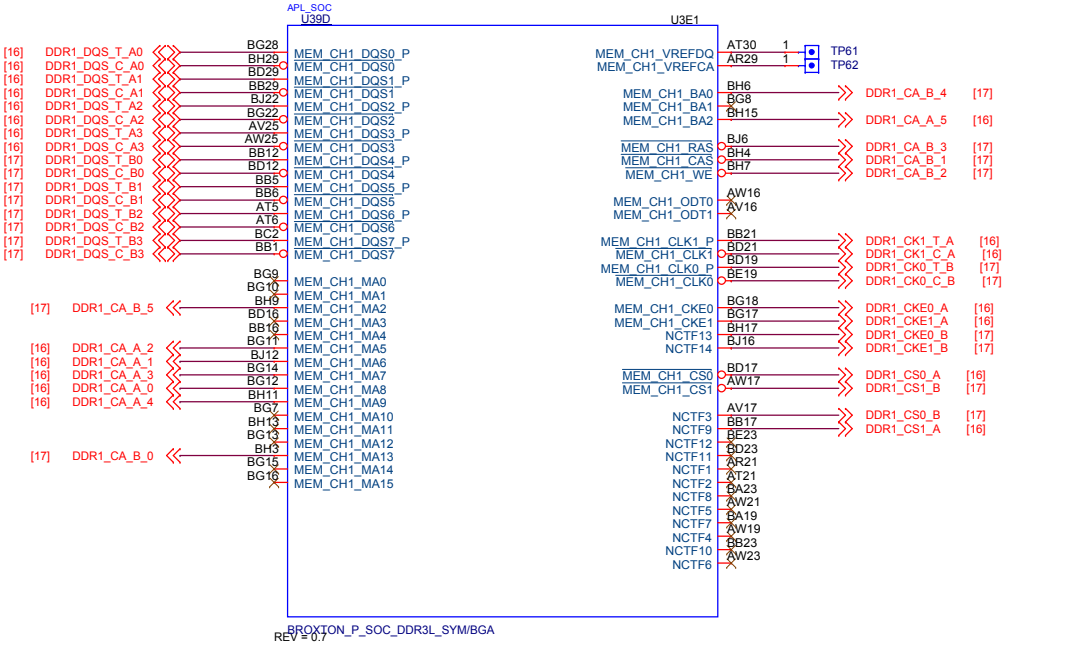




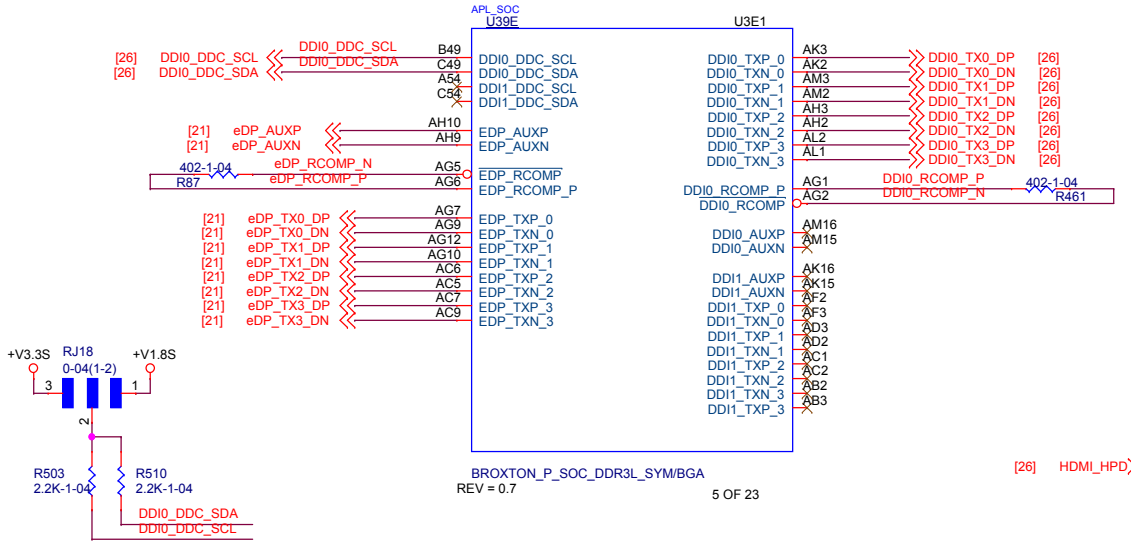
REV = 0.7

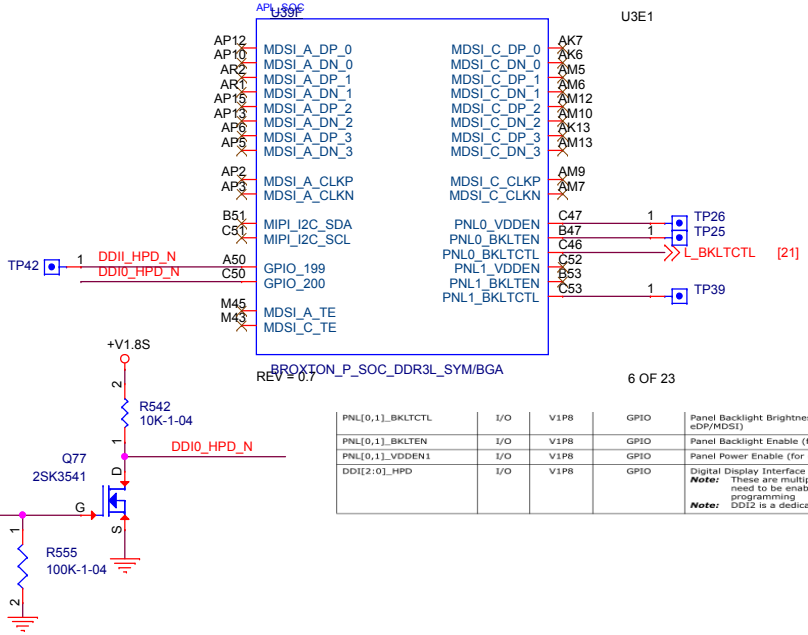




Product: Rugged Tablet PC Brand Name: Winmate Model Number: M116P

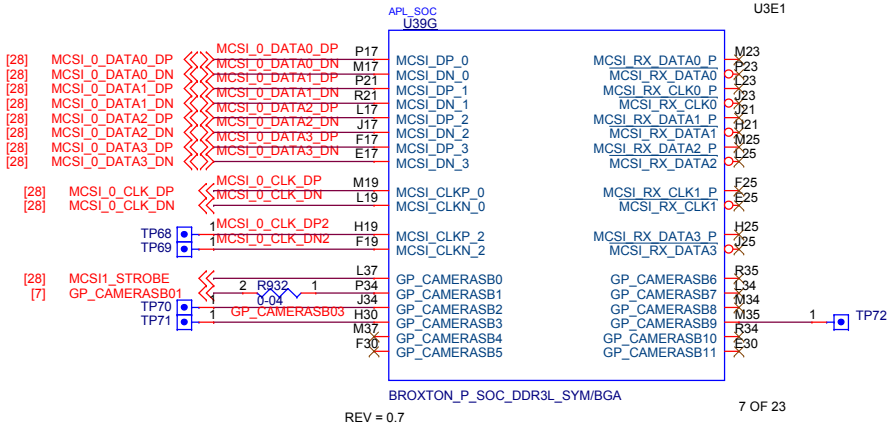
Winmate Communication INC.		
Title: SOC - DIMM0 & 1		
Size: A3	Document Number: M116P	Rev: 200
Date: Monday, September 09, 2019	Sheet 4 of 52	

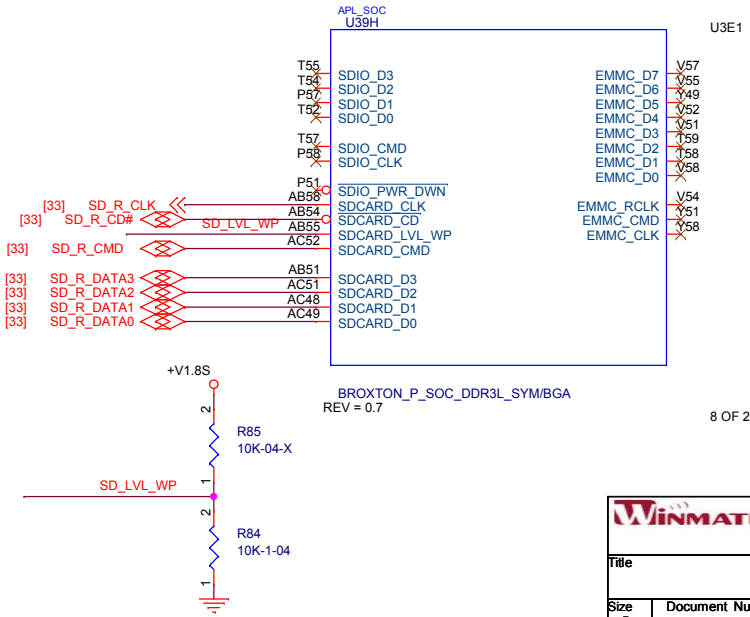




PNL[0,1]_BKLTCTL	I/O	V1P8	GPIO	Panel Backlight Brightness Control (for eDP/MDSI)
PNL[0,1]_BKLTEN	I/O	V1P8	GPIO	Panel Backlight Enable (for eDP/MDSI)
PNL[0,1]_VDDEN1	I/O	V1P8	GPIO	Panel Power Enable (for eDP/MDSI)
DDI[2:0]_HPD	I/O	V1P8	GPIO	Digital Display Interface Hot Plug Detect **Note:** These are multiplexed signals and need to be enabled through GPIO programming **Note:** DDI2 is a dedicated eDP port.

Apollplake max resolution:	
VGA	2560x1600
HDMI	3840x2160@30Hz
eDP	2560x1600
DP1.2	4096x2160@60Hz



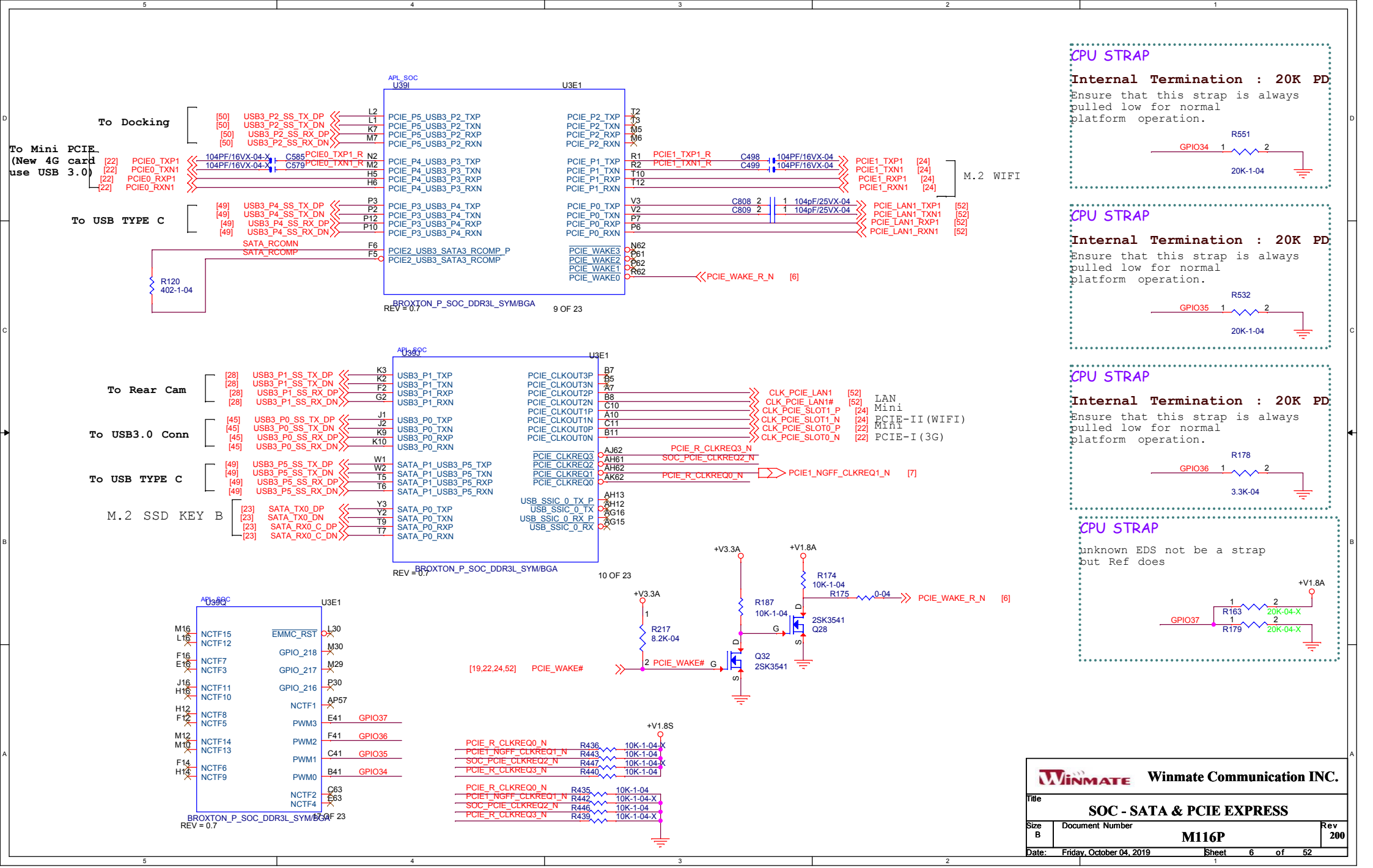


Winmate Communication INC.

Title: SOC - Display

Size: B | Document Number: M116P | Rev: 200

Date: Monday, September 09, 2019 | Sheet 5 of 52



Winmate Communication INC.

Title	SOC - SATA & PCIE EXPRESS	
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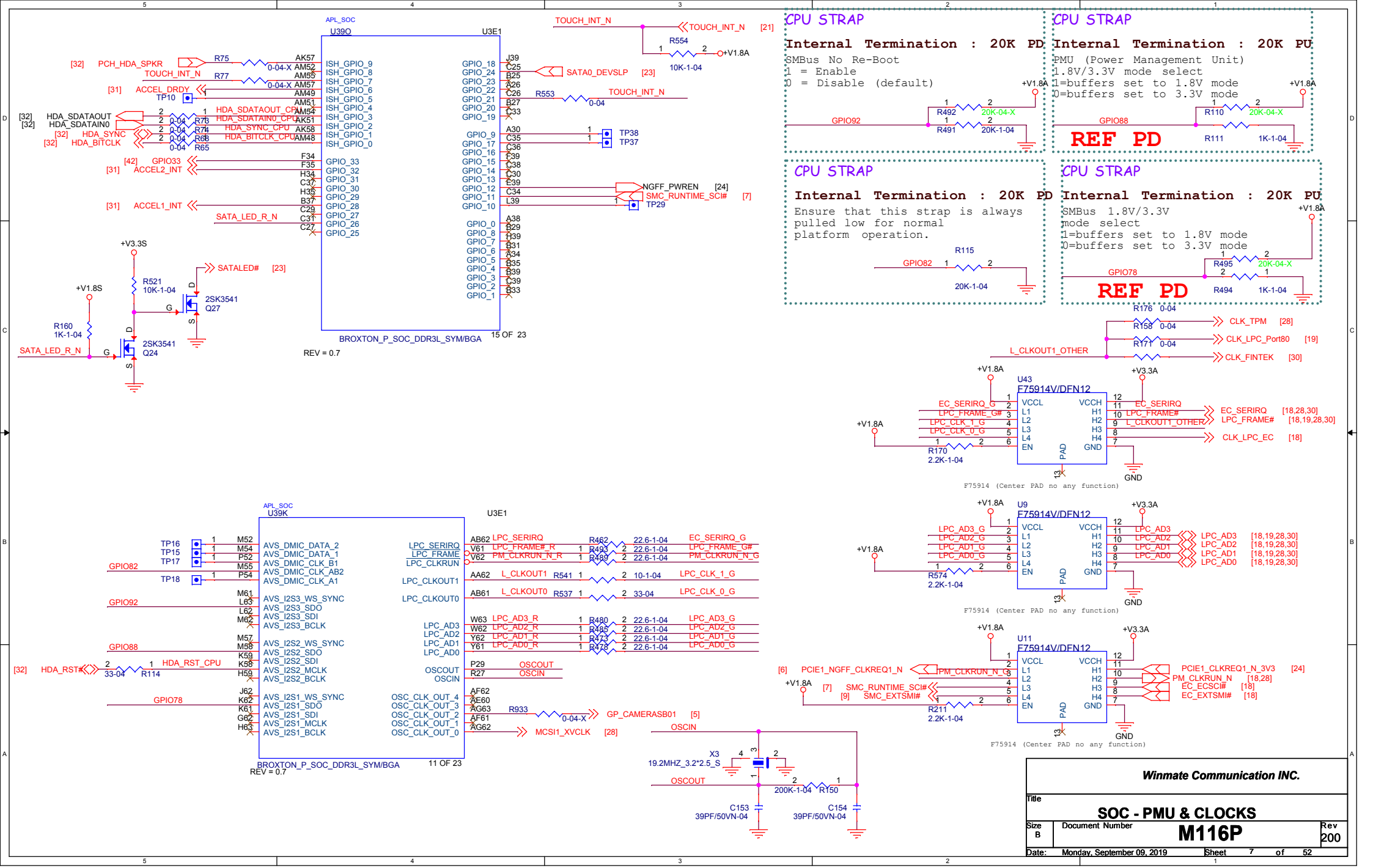
Date: Friday, October 04, 2019	Sheet 6 of 52	


APL_SOC
U39O
U3E1
BROXTON_P_SOC_DDR3L_SYM/BGA
15 OF 23
REV = 0.7
CPU STRAP
Internal Termination : 20K PD
SMBus No Re-Boot
1 = Enable
0 = Disable (default)
CPU STRAP
Internal Termination : 20K PU
PMU (Power Management Unit)
1.8V/3.3V mode select
1=buffers set to 1.8V mode
0=buffers set to 3.3V mode
REF PD
CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is always pulled low for normal platform operation.
CPU STRAP
Internal Termination : 20K PU
SMBus 1.8V/3.3V
mode select
1=buffers set to 1.8V mode
0=buffers set to 3.3V mode
REF PD
U43
F75914V/DFN12
U9
F75914V/DFN12
U11
F75914V/DFN12
F75914 (Center PAD no any function)
APL_SOC
U39K
U3E1
BROXTON_P_SOC_DDR3L_SYM/BGA
11 OF 23
REV = 0.7
Winmate Communication INC.
Title
SOC - PMU & CLOCKS
Size B
Document Number
M116P
Rev 200
Date: Monday, September 09, 2019
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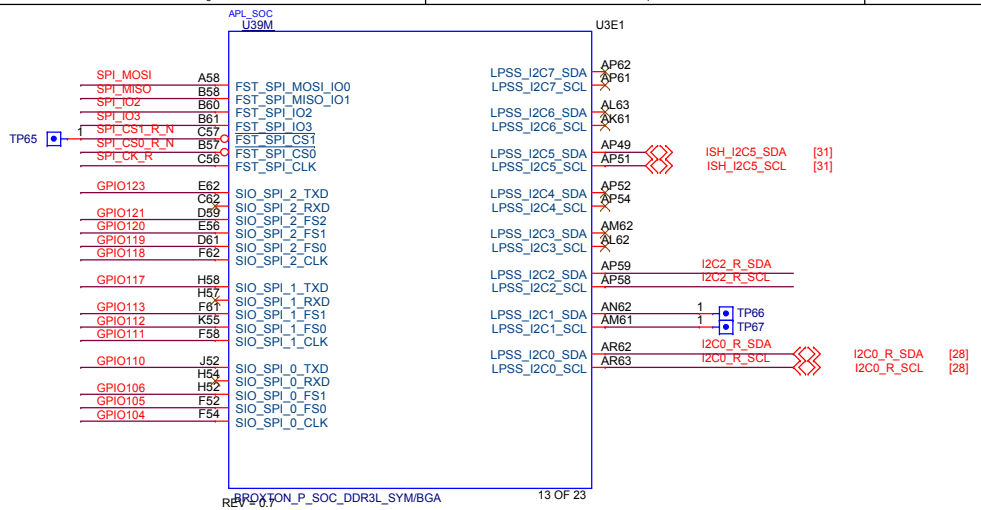

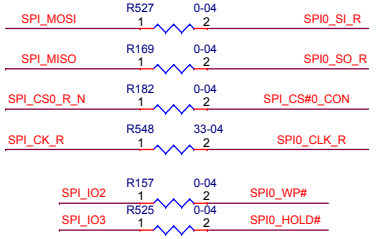

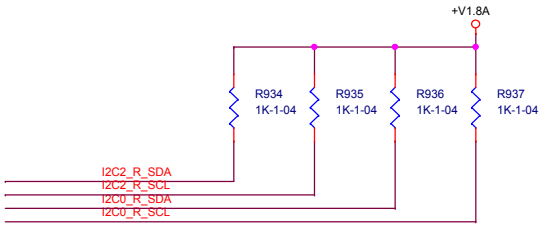

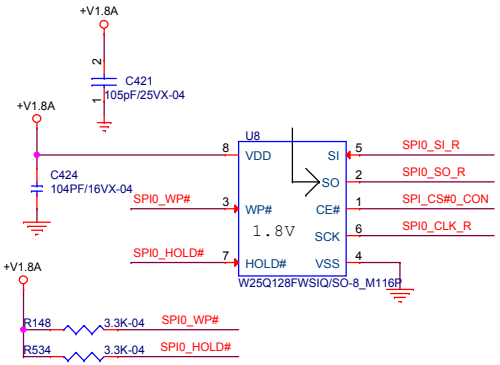

Pull LOW when RSM_RST_N de-asserts to map these regions to the boot SPI
Pull HIGH when RSM_RST_N de-asserts to leave these regions unmapped by the System Agent

CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R142 20K-04-X
GPIO104
R143 20K-04-X

CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R145 20K-04-X
GPIO121
R146 20K-04-X

CPU STRAP
Internal Termination : 20K PD
Top swap override
1 = Enable
0 = Disable (default)
+V1.8A
R141 20K-04-X
GPIO120
R140 20K-1-04

CPU STRAP
Internal Termination : 20K PU
Ensure that this strap is pulled HIGH when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R502 20K-1-04
GPIO123
R501 20K-04-X

CPU STRAP
Internal Termination : 20K PD
Flash Descriptor Override
0 = No Override (Normal Operation)
1 = Override
+V1.8A
R497 20K-04-X
GPIO118
R496 20K-1-04

CPU STRAP
unknown EDS not be a strap but Ref does
+V1.8A
R512 20K-04-X
GPIO119
R511 20K-1-04

CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R125 20K-04-X
GPIO117
R126 20K-1-04

CPU STRAP
Internal Termination : 20K PU
Ensure that this strap is pulled HIGH when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R531 20K-1-04
GPIO106
R530 20K-04-X

CPU STRAP
Internal Termination : 20K PU
LPC 1.8V/3.3V mode select
1=buffers set to 1.8V mode
0=buffers set to 3.3V mode
+V1.8A
R138 4.7K-1-04
GPIO110
R139 4.7K-1-04-X
REF PD

CPU STRAP
Internal Termination : 20K PU
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R152 20K-04-X
GPIO111
R153 1K-1-04
REF PD

CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation
+V1.8A
R121 20K-04-X
GPIO112
R122 20K-1-04

CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R517 20K-04-X
GPIO105
R516 20K-1-04

CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
+V1.8A
R509 20K-04-X
GPIO113
R508 20K-1-04

Winmate Communication INC.			
Title: SOC - USB & LPC & I2C			
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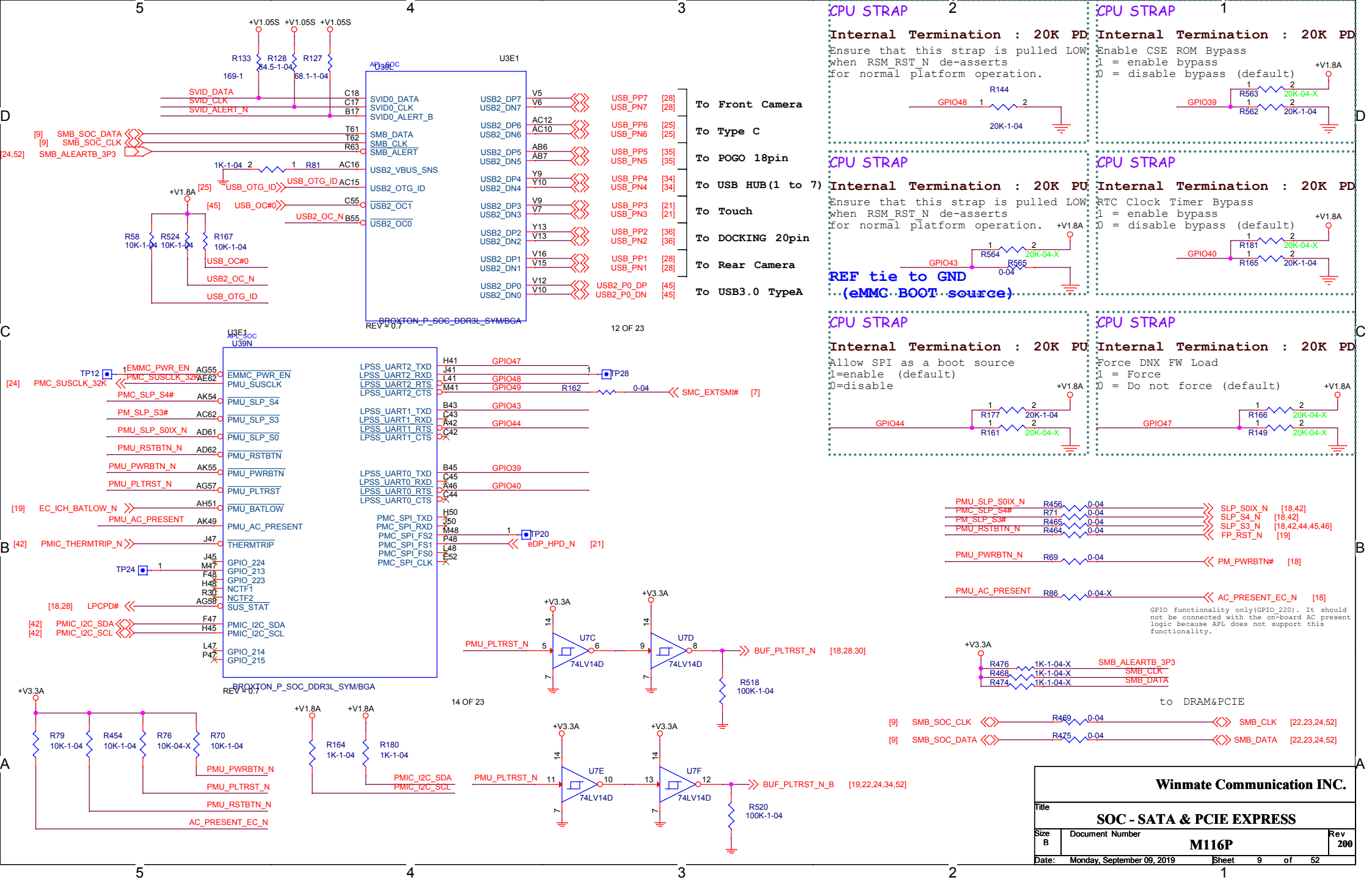
CPU STRAP
Internal Termination : 20K PD
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
CPU STRAP
Internal Termination : 20K PD
Enable CSE ROM Bypass
1 = enable bypass
0 = disable bypass (default)
CPU STRAP
Internal Termination : 20K PU
Ensure that this strap is pulled LOW when RSM_RST_N de-asserts for normal platform operation.
REF tie to GND
(eMMC BOOT source)
CPU STRAP
Internal Termination : 20K PD
RTC Clock Timer Bypass
1 = enable bypass
0 = disable bypass (default)
CPU STRAP
Internal Termination : 20K PU
Allow SPI as a boot source
1=enable (default)
0=disable
CPU STRAP
Internal Termination : 20K PD
Force DNX FW Load
1 = Force
0 = Do not force (default)
To Front Camera
To Type C
To POGO 18pin
To USB HUB(1 to 7)
To Touch
To DOCKING 20pin
To Rear Camera
To USB3.0 TypeA
BROXTON_P_SOC_DDR3L_SYM/BGA
REV = 0.7
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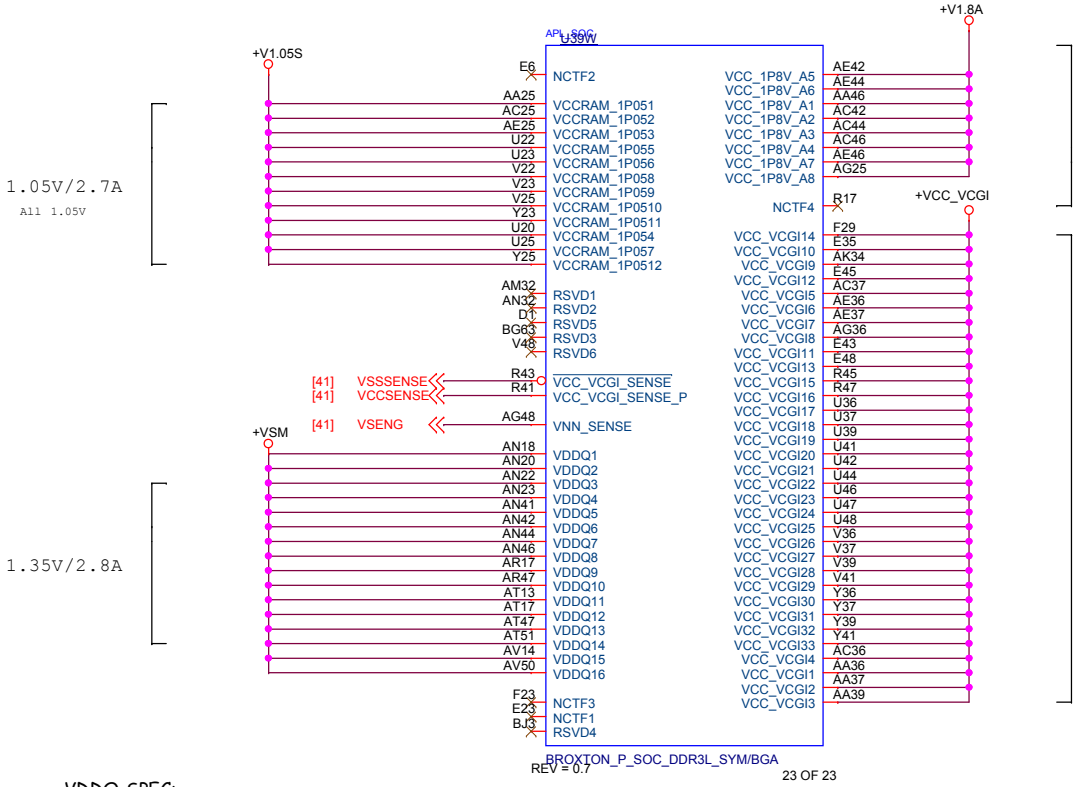
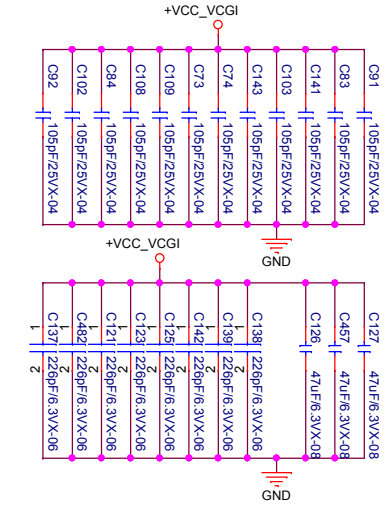
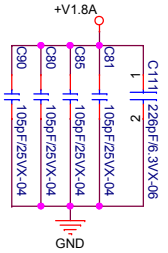
GPIO functionality only(GPIO_220). It should not be connected with the on-board AC present logic because APL does not support this functionality.
to DRAM&PCIE
Winmate Communication INC.
SOC - SATA & PCIE EXPRESS
M116P
Monday, September 09, 2019



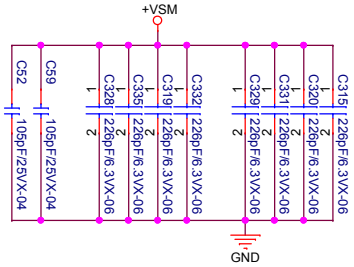
VCCGT SPEC:
1. 330uF x 1 For VR OUTPUT
2. 1uF x 12 (0402) For Backside
3. 22uF x 8 (0603) For Topside edge Cap
4. 47uF x 3 (0805)_6.3V For Outside socket



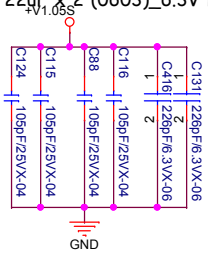
VCC_1P8V_A:
2. 1uF x 2 (0402) For Backside
3. 1uF x 2 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket



VDDQ SPEC:
2. 1uF x 2 (0402) For Backside
3. 22uF x 4 (0805) For Topside edge Cap
4. 22uF x 4 (0805)_6.3V For Outside socket



VCCRAM_1P05 SPEC:
2. 1uF x 2 (0402) For Backside
3. 1uF x 2 (0402) For Topside edge Cap
4. 22uF x 2 (0603)_6.3V For Outside socket



Winmate Communication INC.

Title	SOC - POWER 1	
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U3E1

U39V

APL_SOC

3.3V/0.15A
All 3.3V
+V3.3A
AK25 VCC_3P3V_A4
AJ25 VCC_3P3V_A3

1.24V/1.3A
All 1.24V
+V1.24A
AG20 VDD2_1P24_USB2

+VNN_SVID
AJ37 VNN_SVID1
AJ39 VNN_SVID2
AJ41 VNN_SVID3
AJ42 VNN_SVID4
AJ46 VNN_SVID5
AK37 VNN_SVID6
AK39 VNN_SVID7
AK41 VNN_SVID8
AK42 VNN_SVID9
AK44 VNN_SVID10
AK46 VNN_SVID11
AM44 VNN_SVID12

0,0.45-1.3V/3.3A

AJ44 RSVD3

3.3V/0.15A
All 3.3V
+V3.3A
AA42 VCC_3P3V_A1
Y44 VCC_3P3V_A7
V46 VCC_3P3V_A6
Y44 VCC_3P3V_A5
AC41 VCC_3P3V_A2

1.24V/1.3A
All 1.24V
+V1.24A
AJ20 VDD2_1P24_AUD_ISH_PLL1
AJ22 VDD2_1P24_AUD_ISH_PLL2

+V1.2A_MPHY
AE18 VDD2_1P24_MPHY1
AE20 VDD2_1P24_MPHY2
AE22 VDD2_1P24_MPHY3
AG22 VDD2_1P24_MPHY4

BJ61 RSVD4

+V1.24A
AK20 VDD2_1P24_GLM1

AC20 RSVD1
AC22 RSVD2

+V1.2A_DSI_CSI
AA18 VDD2_1P24_DSI_CSI1
AA20 VDD2_1P24_DSI_CSI2
+V1.24A
AK22 VDD2_1P24_AUD_ISH_PLL3

1.05V/2.7A
All 1.05V
+V1.05S
AA22 VCCRAM_1P05_IO1
AC23 VCCRAM_1P05_IO3
V18 VCCRAM_1P05_IO4
Y18 VCCRAM_1P05_IO5
Y20 VCCRAM_1P05_IO6
AA23 VCCRAM_1P05_IO2

P16 VCC_1P05_INT1
T15 VCC_1P05_INT3
T13 VCC_1P05_INT2

D4 NCTF1
T51 NCTF5
L14 NCTF3
E3 NCTF2

AM37 VDD2_1P24_GLM4
AM20 VDD2_1P24_GLM2
AM28 VDD2_1P24_GLM3

+V1.24A
1.24V/1.3A
All 1.24V

AA28 VCC_VCGI1
AA30 VCC_VCGI2
AA32 VCC_VCGI3
AC28 VCC_VCGI4
AC30 VCC_VCGI5
AC32 VCC_VCGI6
AE28 VCC_VCGI7
AE30 VCC_VCGI8
AE32 VCC_VCGI9
AG28 VCC_VCGI10
AG30 VCC_VCGI11
AG32 VCC_VCGI12
AJ28 VCC_VCGI13
AJ30 VCC_VCGI14
AJ32 VCC_VCGI15
AK28 VCC_VCGI16
AK30 VCC_VCGI17
AK32 VCC_VCGI18
AM30 VCC_VCGI19

+VCC_VCGI

0,0.45-1.3V/21A

E29 VCC_VCGI20
E37 VCC_VCGI21
U28 VCC_VCGI23
U30 VCC_VCGI24
U32 VCC_VCGI25
V28 VCC_VCGI26
V30 VCC_VCGI27
V32 VCC_VCGI28
Y28 VCC_VCGI29
Y30 VCC_VCGI30
Y32 VCC_VCGI31
E50 VCC_VCGI22

R19 NCTF4

AA44 VCCRTC_3P3V
+V3.3A_RTC

AM23 VCCIOA1
AM25 VCCIOA2
AM41 VCCIOA3
AM42 VCCIOA4
+VCC_IOA
R441 0-08
+VSM

BJ62 RSVD5
V49 RSVD6

BROXTON_P_SOC_DDR3L_SYM/BGA

REV = 0.7

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VCCIO Valtage Setting	DDR3L/LPDDR3	LPDDR4
	VNN_SVID	VDDQ

+V1.24A
R422 2 1 0
+V1.2A_MPHY
R421 2 1 0
+V1.2A_DSI_CSI

558228 Power Arch Guide
P19 write floating V1P24_DSI_CSI
if DSI/CSI not used

VDD2_1P24_GLM:
2. 1uF x 2 (0402) For Backside
3. 1uF x 1 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket
5. 1uF x 1 (0402) For Ball AM28

+V1.24A
C349 105pF/25VX-04
C68 105pF/25VX-04
C65 105pF/25VX-04
C61 105pF/25VX-04
C355 226pF/6.3VX-06
GND

+VNN_SVID
1. 1uF x 3 (0402) For Backside
2. 22uF x 4 (0603) For Topside edge Cap

+VNN_SVID
C64 105pF/25VX-04
C76 105pF/25VX-04
C75 105pF/25VX-04
C423 226pF/6.3VX-06
C418 226pF/6.3VX-06
C426 226pF/6.3VX-06
C439 226pF/6.3VX-06
GND

VDD2_1P24_AUD_ISH_PLL:
2. 1uF x 1 (0402) For Backside
3. 1uF x 1 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket

+V1.24A
C49 105pF/25VX-04
C50 105pF/25VX-04
C354 226pF/6.3VX-06
GND

VCCRAM_1P05_IO SPEC:
2. 1uF x 2 (0402) For Backside
3. 1uF x 2 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket

+V1.05S
C96 105pF/25VX-04
C105 105pF/25VX-04
C136 105pF/25VX-04
C117 105pF/25VX-04
C129 226pF/6.3VX-06
GND

VCCIOA
1. 1uF x 2 (0402) For Topside edge Cap
2. 22uF x 2 (0603) For Topside

+VCC_IOA
C66 105pF/25VX-04
C71 105pF/25VX-04
C360 226pF/6.3VX-06
C359 226pF/6.3VX-06
GND

VCC_3P3V_A:
2. 1uF x 1 (0402) For Backside
3. 1uF x 2 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket
5. 1uF x 1 (0402) For Backside(AK25 AJ25)

+V3.3A
C98 105pF/25VX-04
C106 105pF/25VX-04
C78 105pF/25VX-04
C107 105pF/25VX-04
C432 226pF/6.3VX-06
GND

VCCRTC_3P3V
2. 1uF x 1 (0402) For Outside socket

+V3.3A_RTC
C79 105pF/25VX-04
GND

VDD2_1P24_DSI_CSI:
2. 1uF x 1 (0402) For Backside
3. 1uF x 1 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket

+V1.2A_DSI_CSI
C86 105pF/25VX-04
C93 105pF/25VX-04
C353 226pF/6.3VX-06
GND

VDD2_1P24_USB2:
2. 1uF x 1 (0402) For Backside

+V1.24A
C72 105pF/25VX-04
GND

VDD2_1P24_MPHY:
2. 1uF x 2 (0402) For Backside
3. 1uF x 1 (0402) For Topside edge Cap
4. 22uF x 1 (0603)_6.3V For Outside socket

+V1.2A_MPHY
C87 105pF/25VX-04
C356 105pF/25VX-04
C82 105pF/25VX-04
C351 226pF/6.3VX-06
GND

Winmate Communication INC.

Title: SOC - POWER 2

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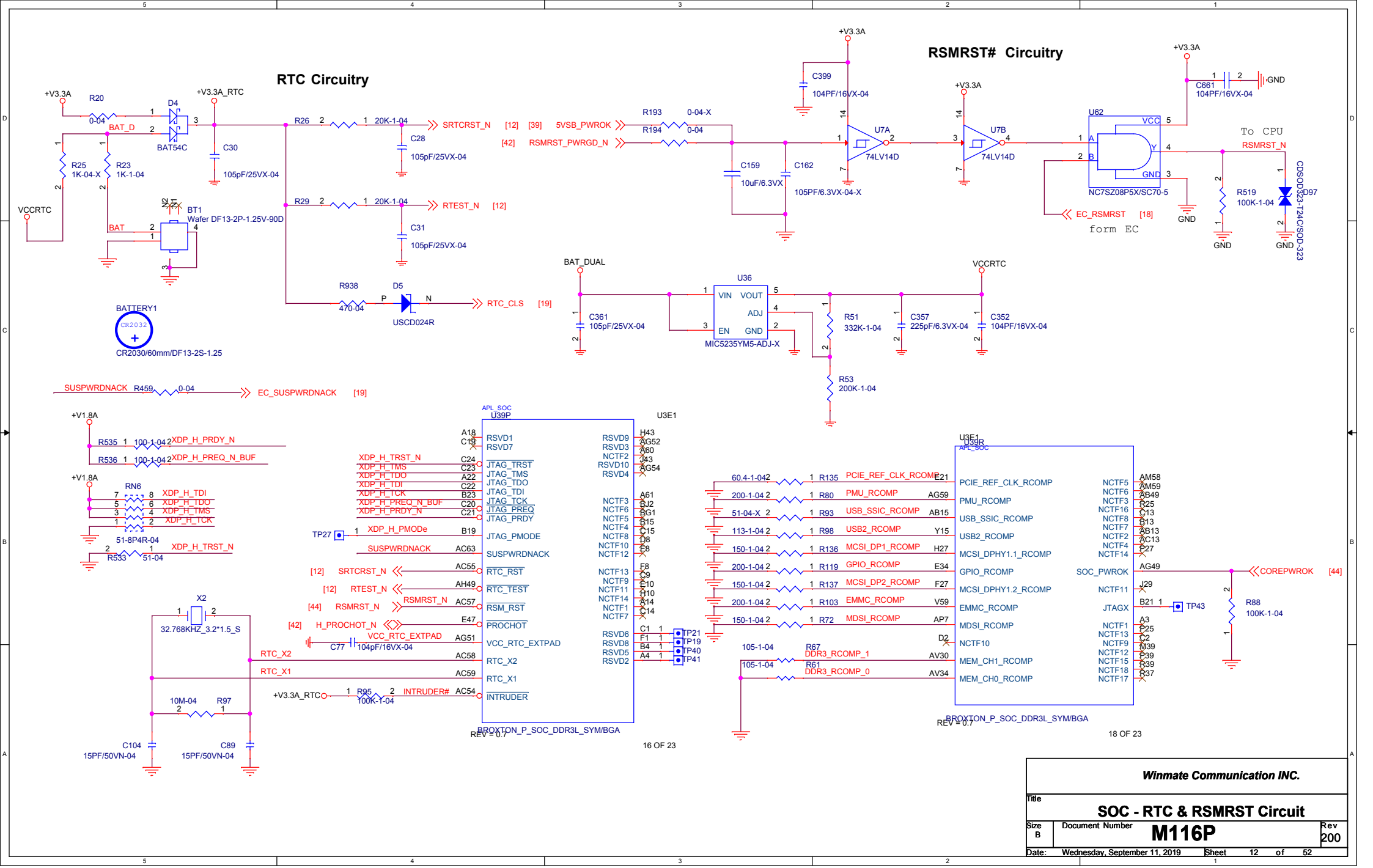

Winmate Communication INC.		
Title	SOC - RTC & RSMRST Circuit	
Size B	Document Number M116P	Rev 200
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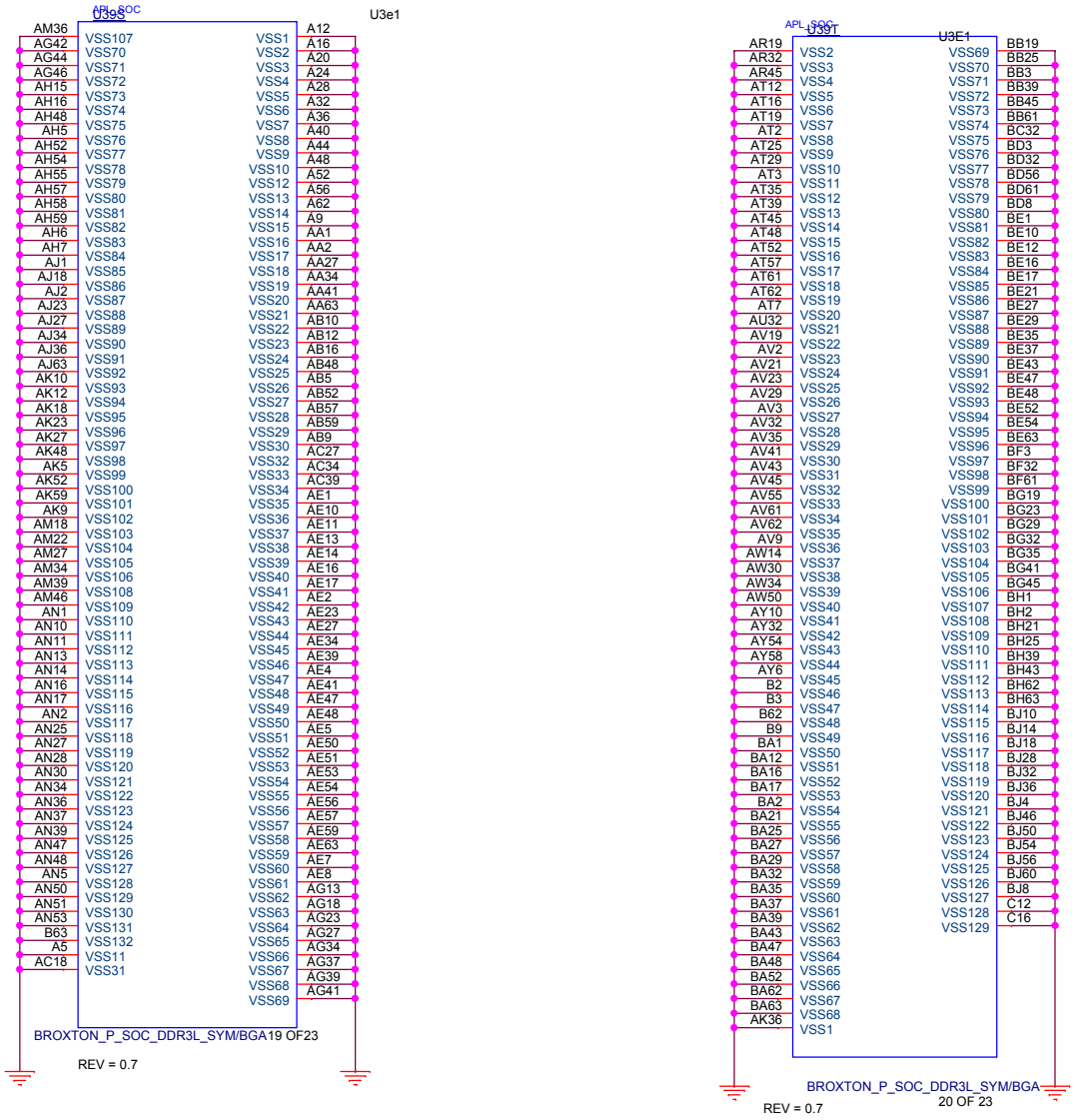
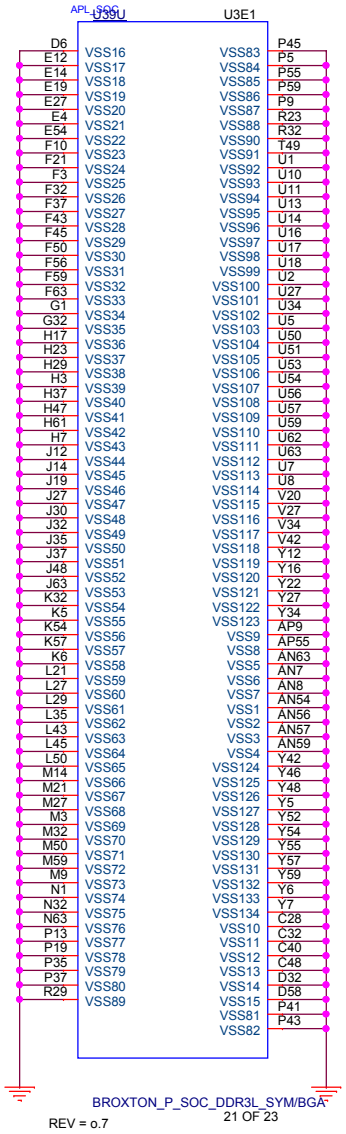
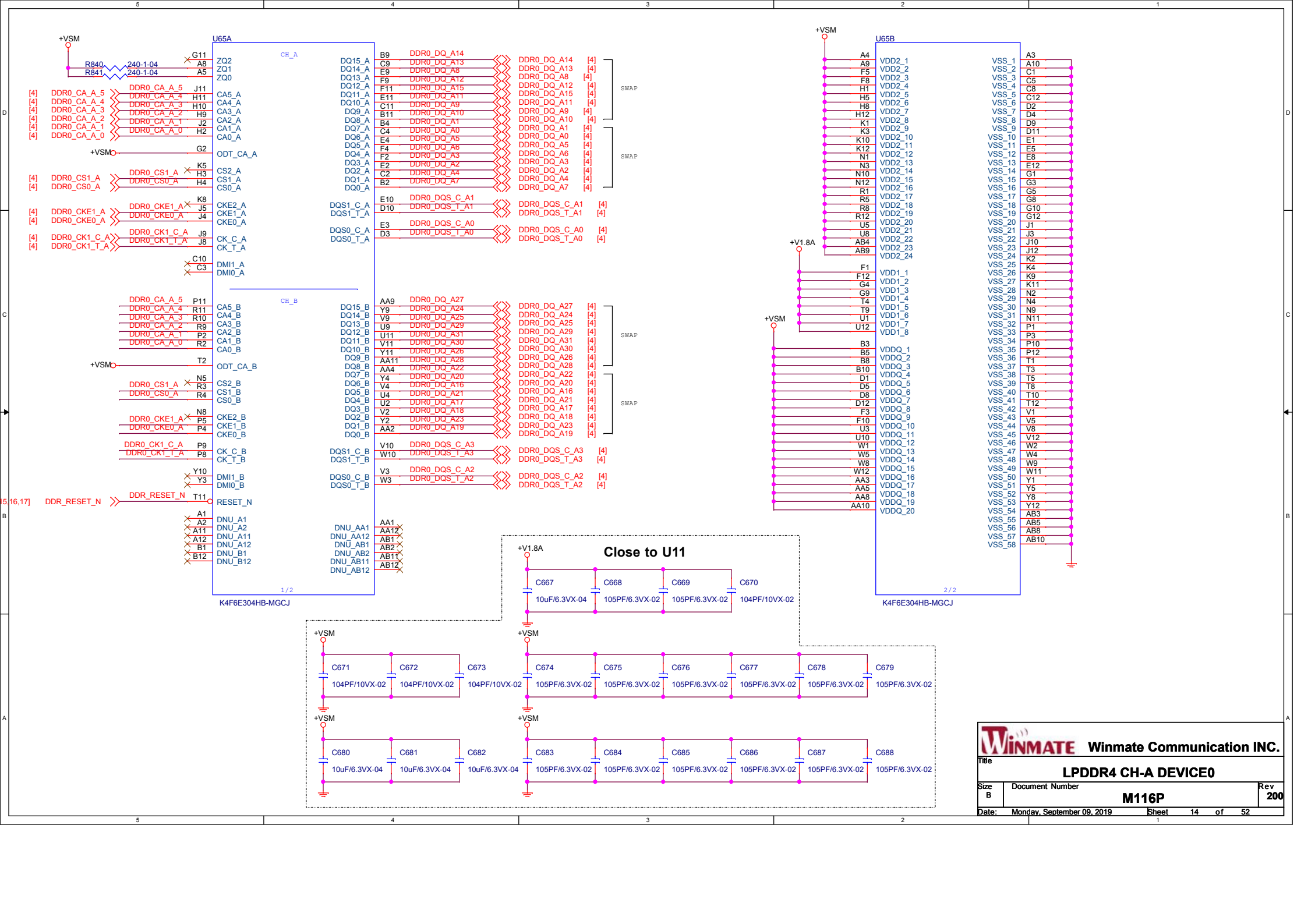




Winmate Communication INC.		
Title	**SOC - GND**	
Size B	Document Number **M116P**	Rev 200
Date: Monday, September 09, 2019	Sheet 13 of 52	


U65A
CH_A
CH_B
K4F6E304HB-MGCJ
1/2
U65B
2/2
+VSM
+V1.8A
R840 240-1-04
R841 240-1-04
ZQ2
ZQ1
ZQ0
ODT_CA_A
ODT_CA_B
RESET_N
DDR_RESET_N
DDR_CA_A_5
DDR_CA_A_4
DDR_CA_A_3
DDR_CA_A_2
DDR_CA_A_1
DDR_CA_A_0
DDR_CS1_A
DDR_CS0_A
DDR_CKE1_A
DDR_CKE0_A
DDR_CK1_C_A
DDR_CK1_T_A
DDR0_DQ_A14
DDR0_DQ_A13
DDR0_DQ_A8
DDR0_DQ_A12
DDR0_DQ_A15
DDR0_DQ_A11
DDR0_DQ_A9
DDR0_DQ_A10
DDR0_DQ_A1
DDR0_DQ_A0
DDR0_DQ_A5
DDR0_DQ_A6
DDR0_DQ_A3
DDR0_DQ_A2
DDR0_DQ_A4
DDR0_DQ_A7
DDR0_DQS_C_A1
DDR0_DQS_T_A1
DDR0_DQS_C_A0
DDR0_DQS_T_A0
DDR0_DQ_A27
DDR0_DQ_A24
DDR0_DQ_A25
DDR0_DQ_A29
DDR0_DQ_A31
DDR0_DQ_A30
DDR0_DQ_A26
DDR0_DQ_A28
DDR0_DQ_A22
DDR0_DQ_A20
DDR0_DQ_A16
DDR0_DQ_A21
DDR0_DQ_A17
DDR0_DQ_A18
DDR0_DQ_A23
DDR0_DQ_A19
DDR0_DQS_C_A3
DDR0_DQS_T_A3
DDR0_DQS_C_A2
DDR0_DQS_T_A2
SWAP
Close to U11
C667 10uF/6.3VX-04
C668 105PF/6.3VX-02
C669 105PF/6.3VX-02
C670 104PF/10VX-02
C671 104PF/10VX-02
C672 104PF/10VX-02
C673 104PF/10VX-02
C674 105PF/6.3VX-02
C675 105PF/6.3VX-02
C676 105PF/6.3VX-02
C677 105PF/6.3VX-02
C678 105PF/6.3VX-02
C679 105PF/6.3VX-02
C680 10uF/6.3VX-04
C681 10uF/6.3VX-04
C682 10uF/6.3VX-04
C683 105PF/6.3VX-02
C684 105PF/6.3VX-02
C685 105PF/6.3VX-02
C686 105PF/6.3VX-02
C687 105PF/6.3VX-02
C688 105PF/6.3VX-02
Winmate Communication INC.
Title
LPDDR4 CH-A DEVICE0
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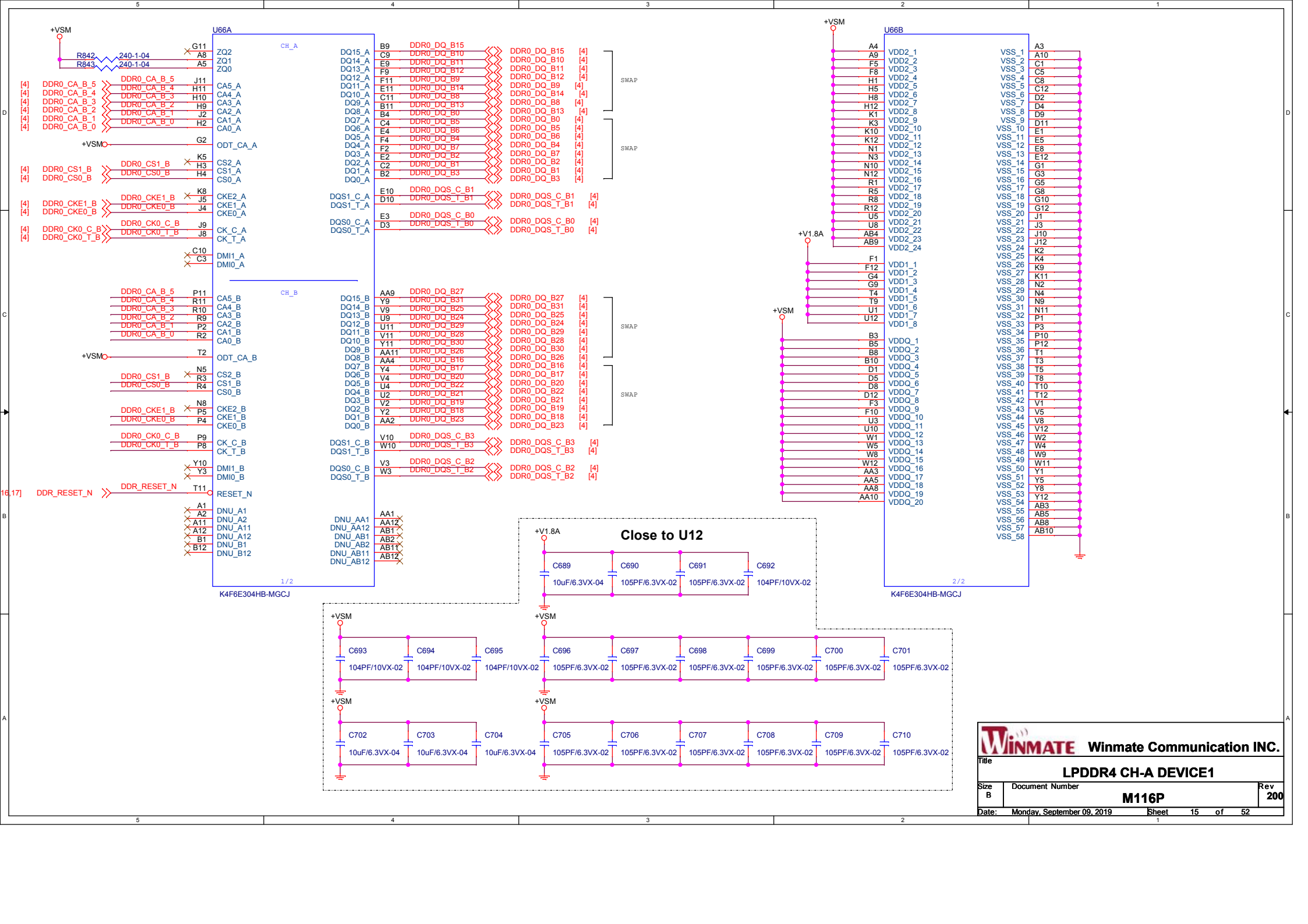
U66A
CH_A
CH_B
1/2
K4F6E304HB-MGCJ
U66B
2/2
K4F6E304HB-MGCJ
+VSM
+V1.8A
R842 240-1-04
R843 240-1-04
ZQ2
ZQ1
ZQ0
ODT_CA_A
ODT_CA_B
CS2_A
CS1_A
CS0_A
CKE2_A
CKE1_A
CKE0_A
CK_C_A
CK_T_A
DMI1_A
DMI0_A
CS2_B
CS1_B
CS0_B
CKE2_B
CKE1_B
CKE0_B
CK_C_B
CK_T_B
DMI1_B
DMI0_B
RESET_N
DNU_A1
DNU_A2
DNU_A11
DNU_A12
DNU_A12
DNU_B1
DNU_B12
DNU_AA1
DNU_AA12
DNU_AB1
DNU_AB2
DNU_AB11
DNU_AB12
SWAP
SWAP
SWAP
SWAP
Close to U12
C689 10uF/6.3VX-04
C690 105PF/6.3VX-02
C691 105PF/6.3VX-02
C692 104PF/10VX-02
C693 104PF/10VX-02
C694 104PF/10VX-02
C695 104PF/10VX-02
C696 105PF/6.3VX-02
C697 105PF/6.3VX-02
C698 105PF/6.3VX-02
C699 105PF/6.3VX-02
C700 105PF/6.3VX-02
C701 105PF/6.3VX-02
C702 10uF/6.3VX-04
C703 10uF/6.3VX-04
C704 10uF/6.3VX-04
C705 105PF/6.3VX-02
C706 105PF/6.3VX-02
C707 105PF/6.3VX-02
C708 105PF/6.3VX-02
C709 105PF/6.3VX-02
C710 105PF/6.3VX-02
Winmate Communication INC.
Title
LPDDR4 CH-A DEVICE1
Size B
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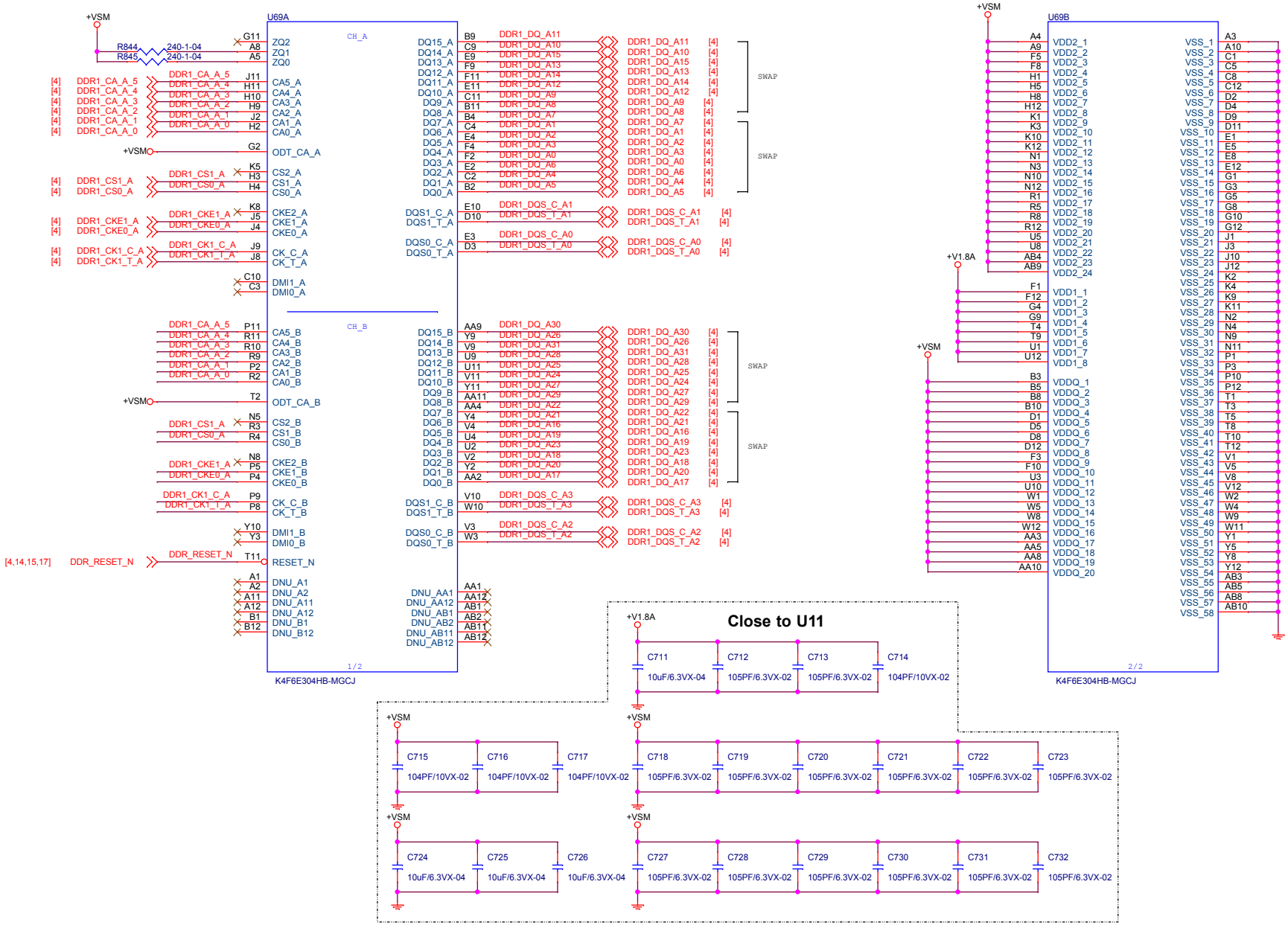
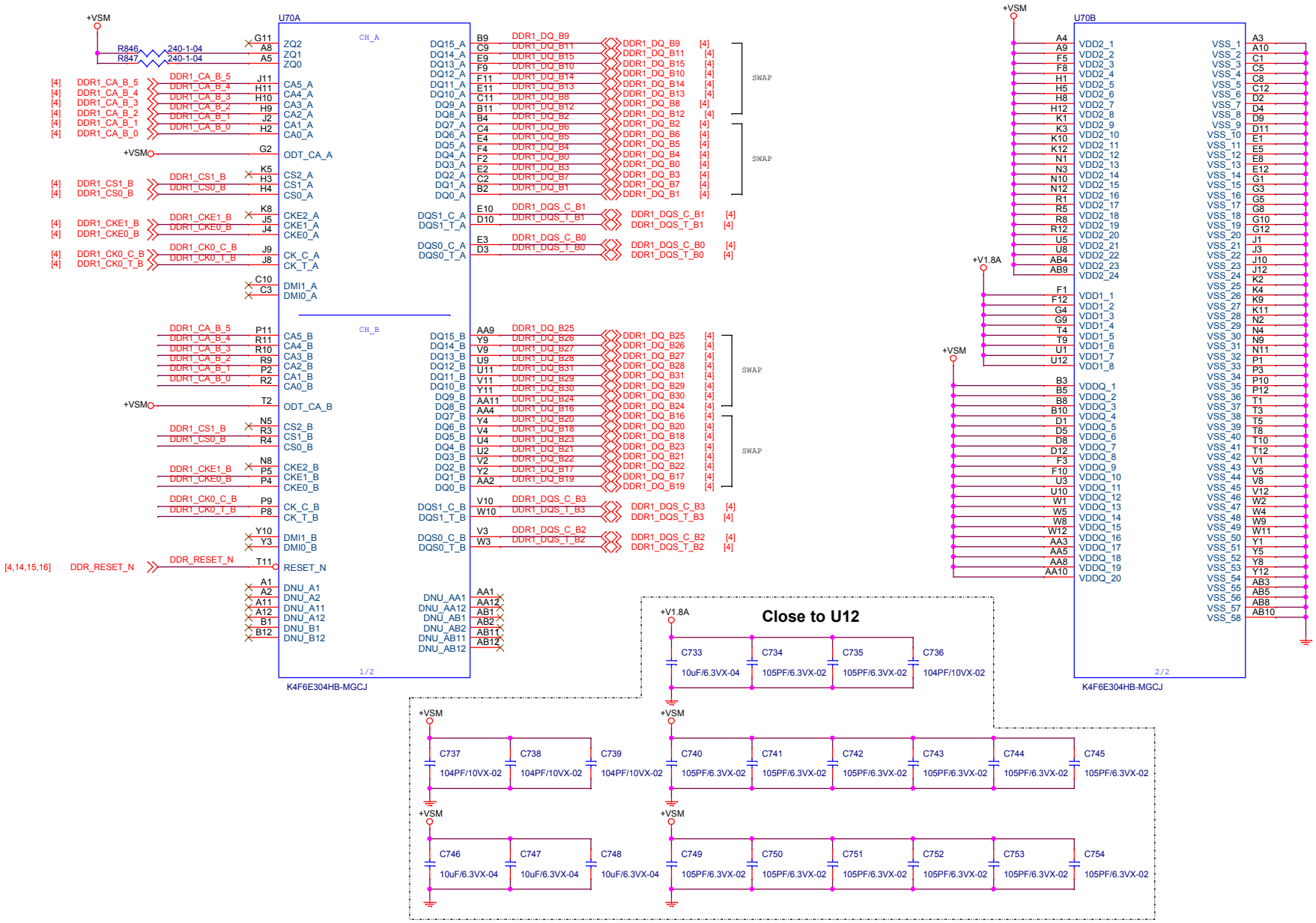
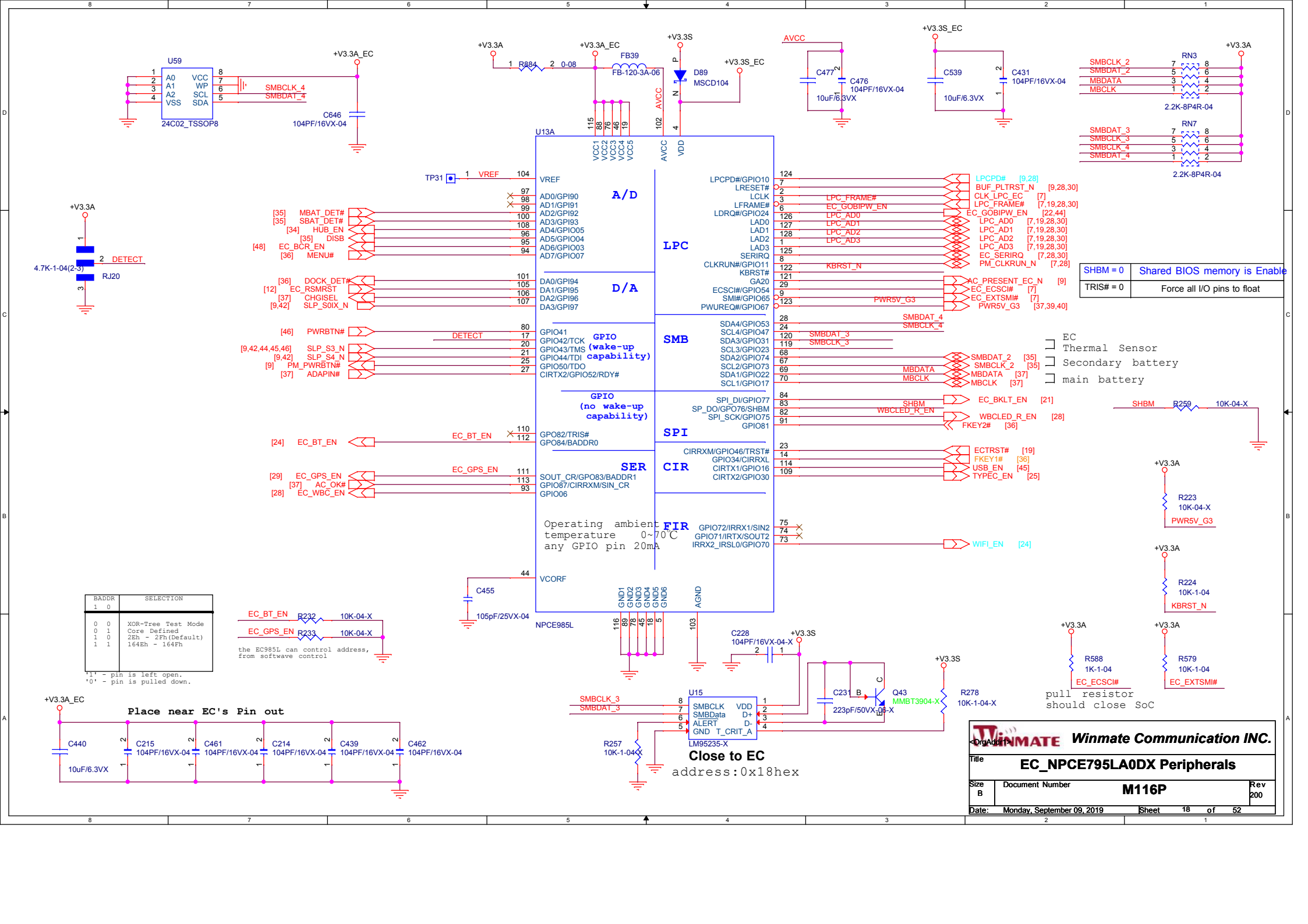


Winmate Communication INC.			
Title: LPDDR3 CH-B DEVICE-0			
Size: A3	Document Number: M116P		Rev: 200
Date: Monday, September 09, 2019	Sheet 16 of 52		



Winmate Communication INC.			
Title: LPDDR3 CH-B DEVICE-1			
Size: A3	Document Number: M116P		Rev: 200
Date: Monday, September 09, 2019	Sheet 17 of 52		


U59
24C02_TSSOP8
SMBCLK_4
SMBDAT_4
C646
104PF/16VX-04
+V3.3A_EC
+V3.3A
R884 0-08
FB39
FB-120-3A-06
+V3.3S
D89
MSCD104
C477
10uF/6.3VX
C476
104PF/16VX-04
C539
10uF/6.3VX
C431
104PF/16VX-04
RN3
2.2K-8P4R-04
RN7
2.2K-8P4R-04
U13A
NPCE985L
A/D
LPC
D/A
GPIO
(wake-up capability)
SMB
GPIO
(no wake-up capability)
SPI
SER
CIR
FIR
Operating ambient temperature 0~70°C
any GPIO pin 20mA
TP31
VREF
DETECT
4.7K-1-04(2-3)
RJ20
C455
105pF/25VX-04
EC_BT_EN
EC_GPS_EN
R232 10K-04-X
R233 10K-04-X
the EC985L can control address, from softwave control
BADDR 1 0
SELECTION
0 0 XOR-Tree Test Mode
0 1 Core Defined
1 0 2Eh - 2Fh(Default)
1 1 164Eh - 164Fh
'1' - pin is left open.
'0' - pin is pulled down.
Place near EC's Pin out
C440 10uF/6.3VX
C215 104PF/16VX-04
C461 104PF/16VX-04
C214 104PF/16VX-04
C439 104PF/16VX-04
C462 104PF/16VX-04
U15
LM95235-X
SMBCLK_3
SMBDAT_3
R257 10K-1-04
C228 104PF/16VX-04-X
C231 223pF/50VX-06-X
Q43 MMBT3904-X
R278 10K-1-04-X
Close to EC
address:0x18hex
SHBM = 0 Shared BIOS memory is Enable
TRIS# = 0 Force all I/O pins to float
SHBM R259 10K-04-X
EC
Thermal Sensor
Secondary battery
main battery
R223 10K-04-X PWR5V_G3
R224 10K-1-04 KBRST_N
R588 1K-1-04 EC_ECSCI#
R579 10K-1-04 EC_EXTSMI#
pull resistor should close SoC
Winmate Communication INC.
EC_NPCE795LA0DX Peripherals
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Monday, September 09, 2019
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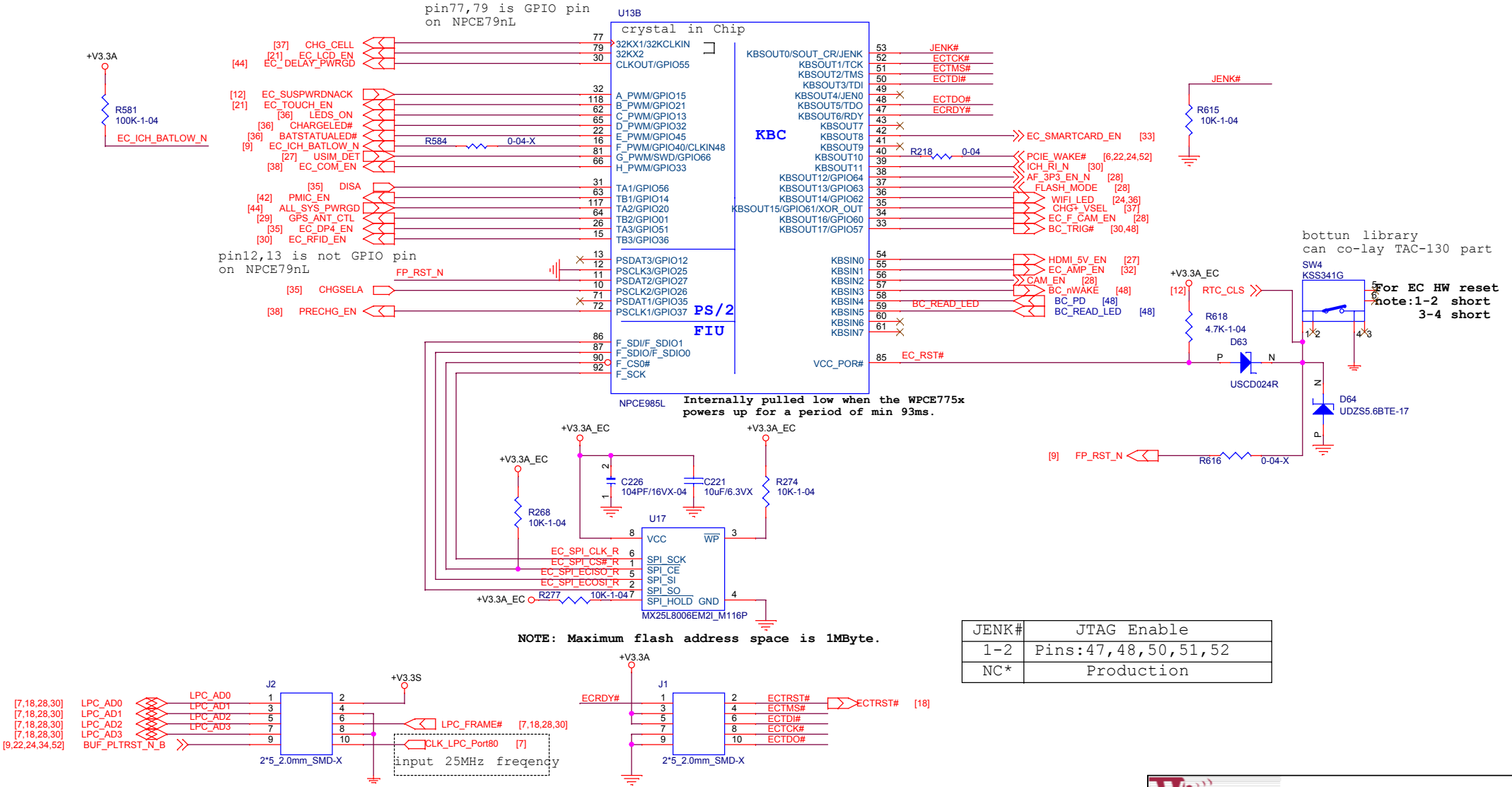

JENK#	JTAG Enable
1-2	Pins:47,48,50,51,52
NC*	Production

Winmate Communication INC.	
Title	EC_NPCE795LA0DX KBC & PS/2
Size B	Document Number M116P Rev 200
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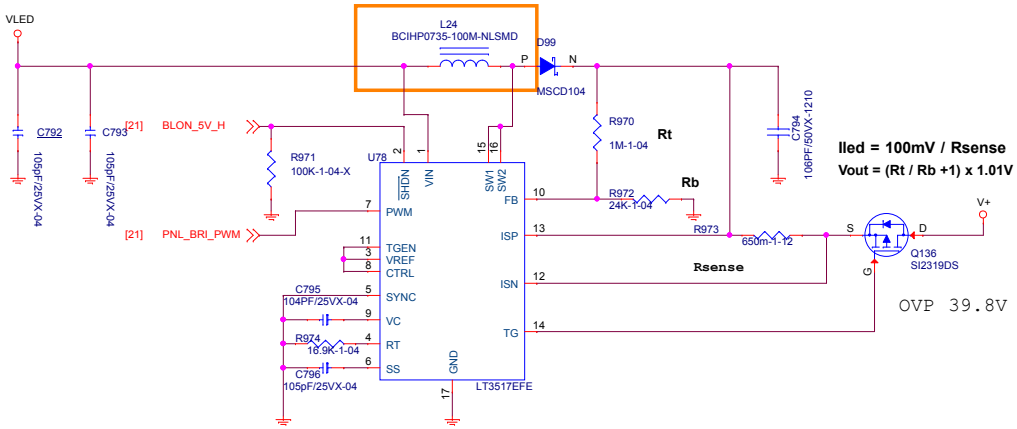

	Winmate Communication INC.	
Title	LED driver_LT3517	
Size: A	Document Number: M116P	Rev: 200
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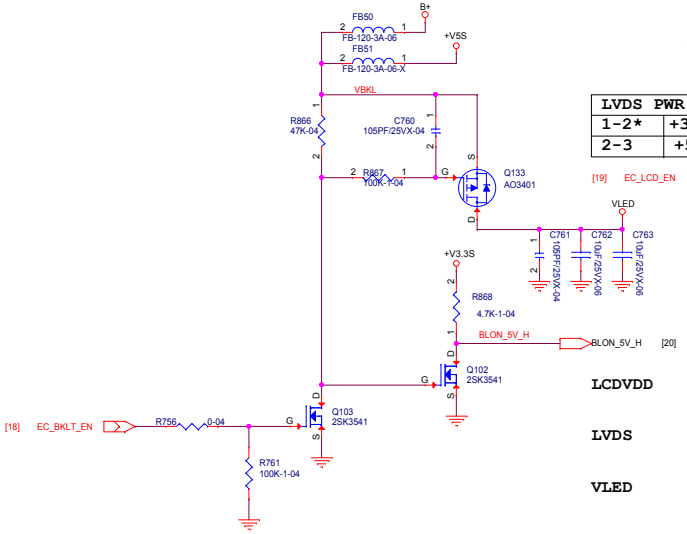
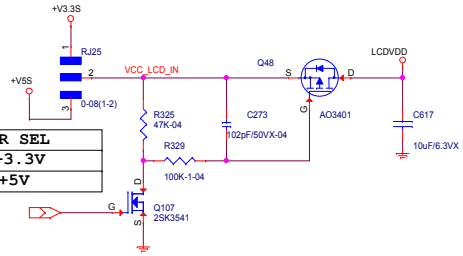
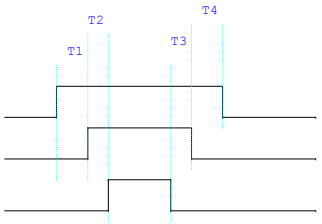
Control Backlight Power On / Off





LVDS PWR SEL	
1-2*	+3.3V
2-3	+5V



Panel timing Control

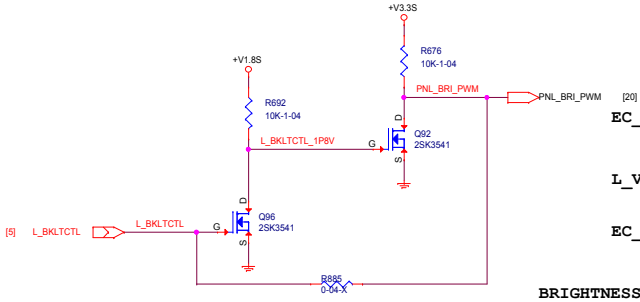
100ms < T1 <150ms

T2 > 70ms

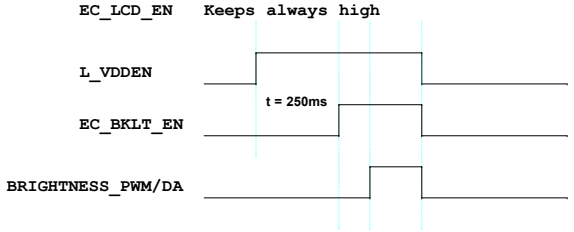
T3 > 200ms

0ms < T4 <50ms

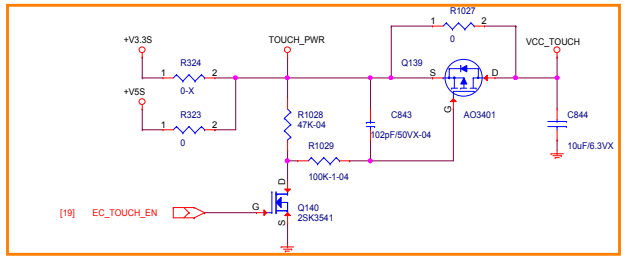
Backlight Brightness Control

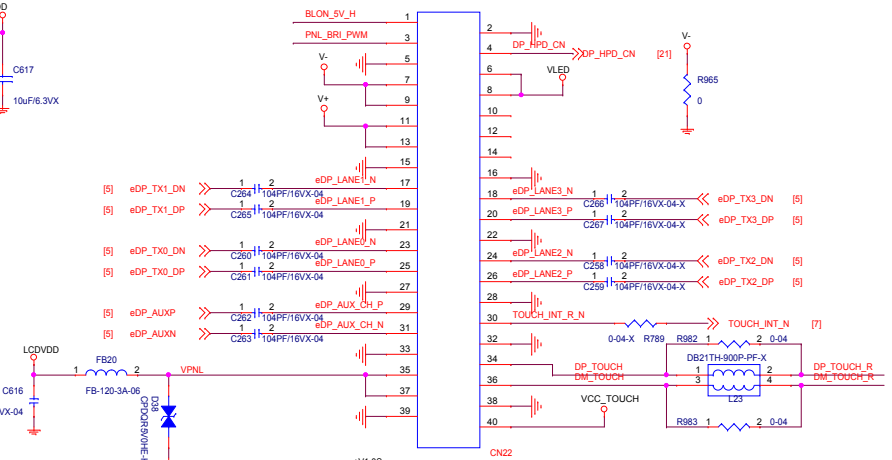


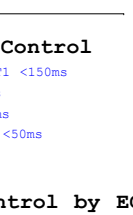
Panel timing Control by EC

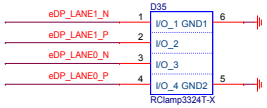


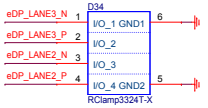
LVDS Connector

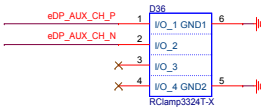


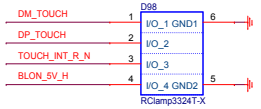


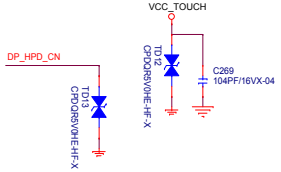












Winmate Communication INC.

title: LVDS connector

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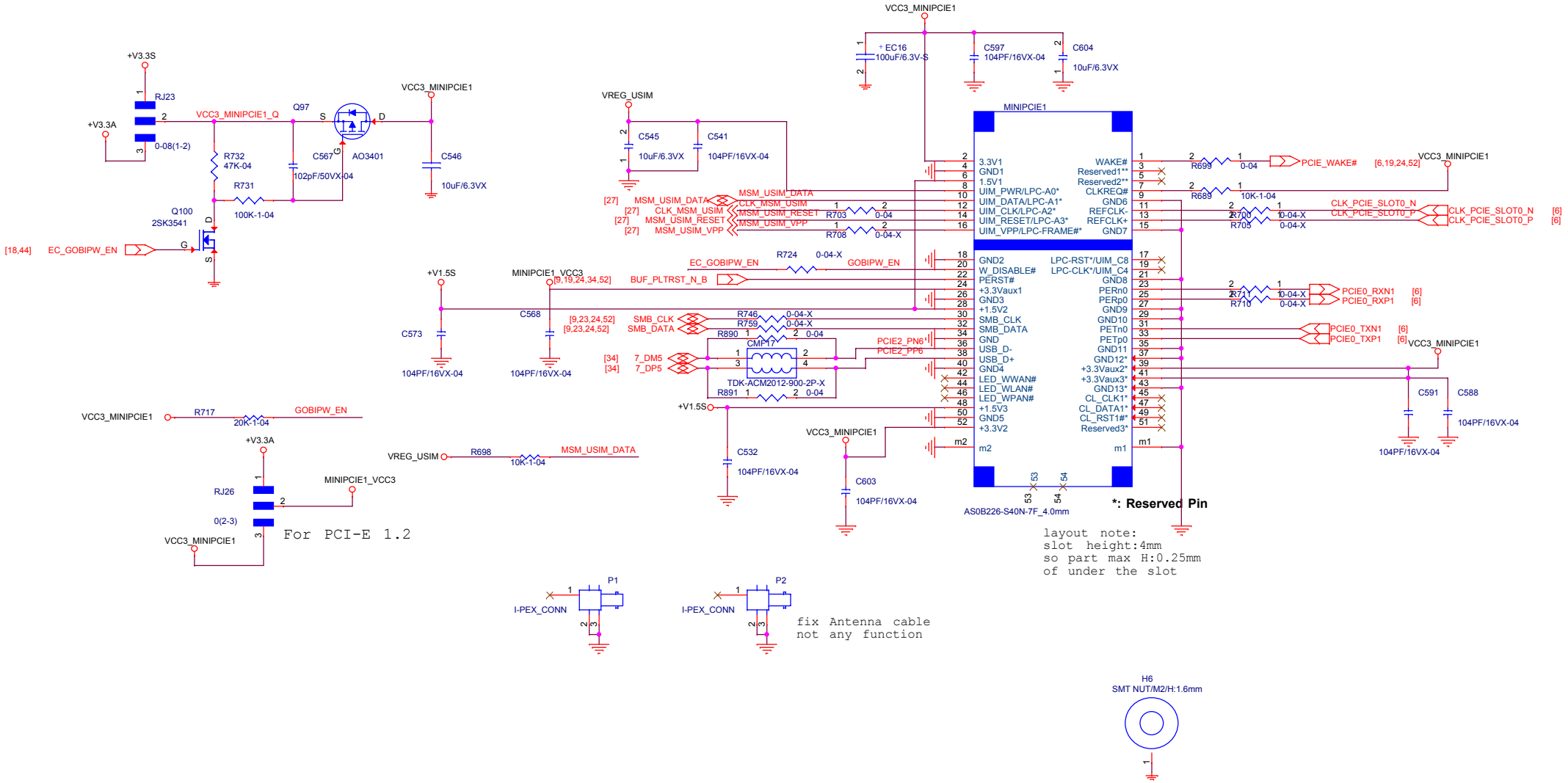
Mini PCI-E Slot , USB Interface

2.75A MAX (GOBI-2000 AND MC87XX)



Winmate Communication INC.			
Title: MINI-PCIE-3G, USB TOUCH			
Size: A3	Document Number: M116P		Rev: 200
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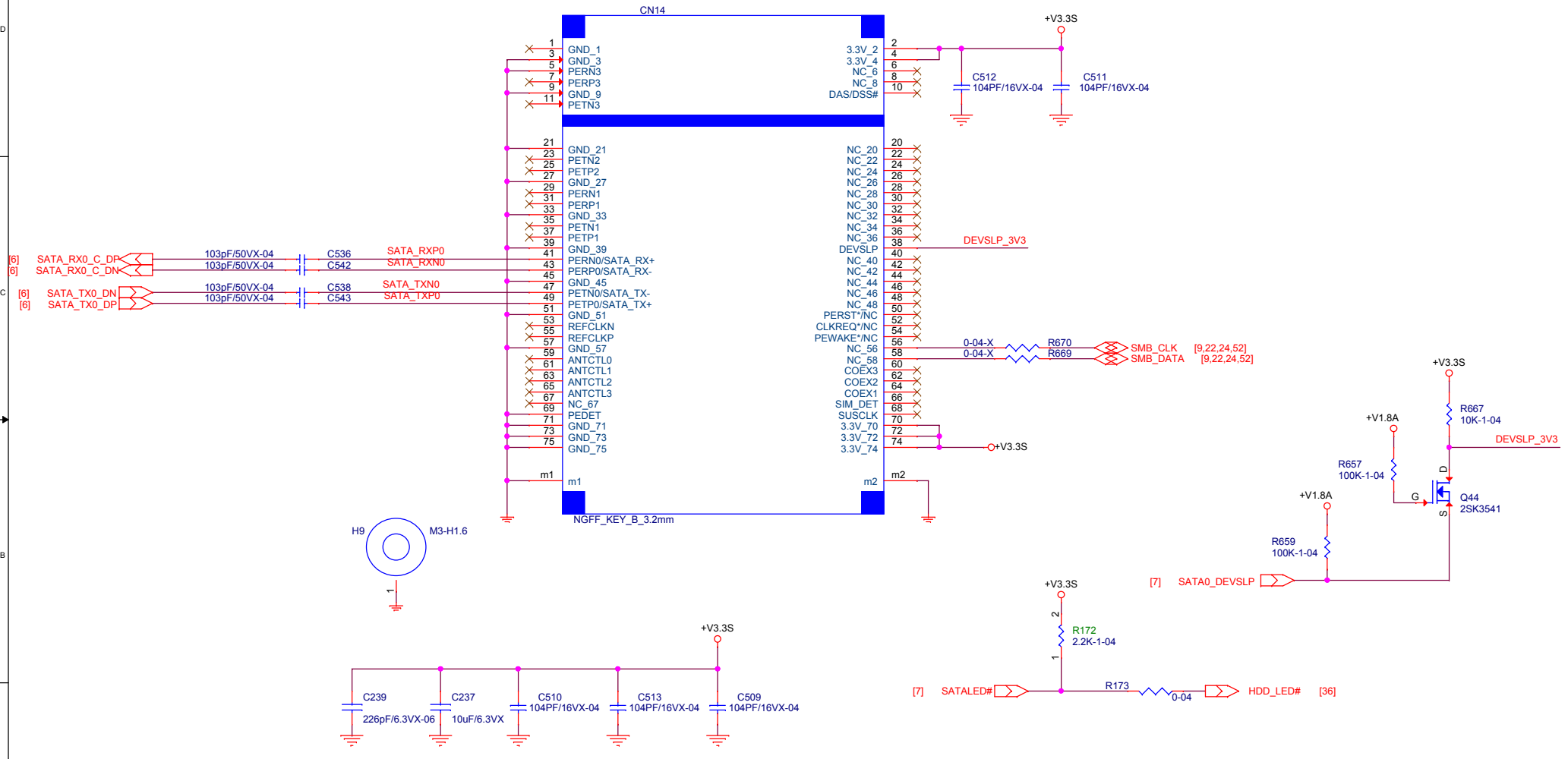
3.3V,1.1A



Winmate Communication INC.

Title	mSATA SSD	
Size B	Document Number M116P	Rev 200
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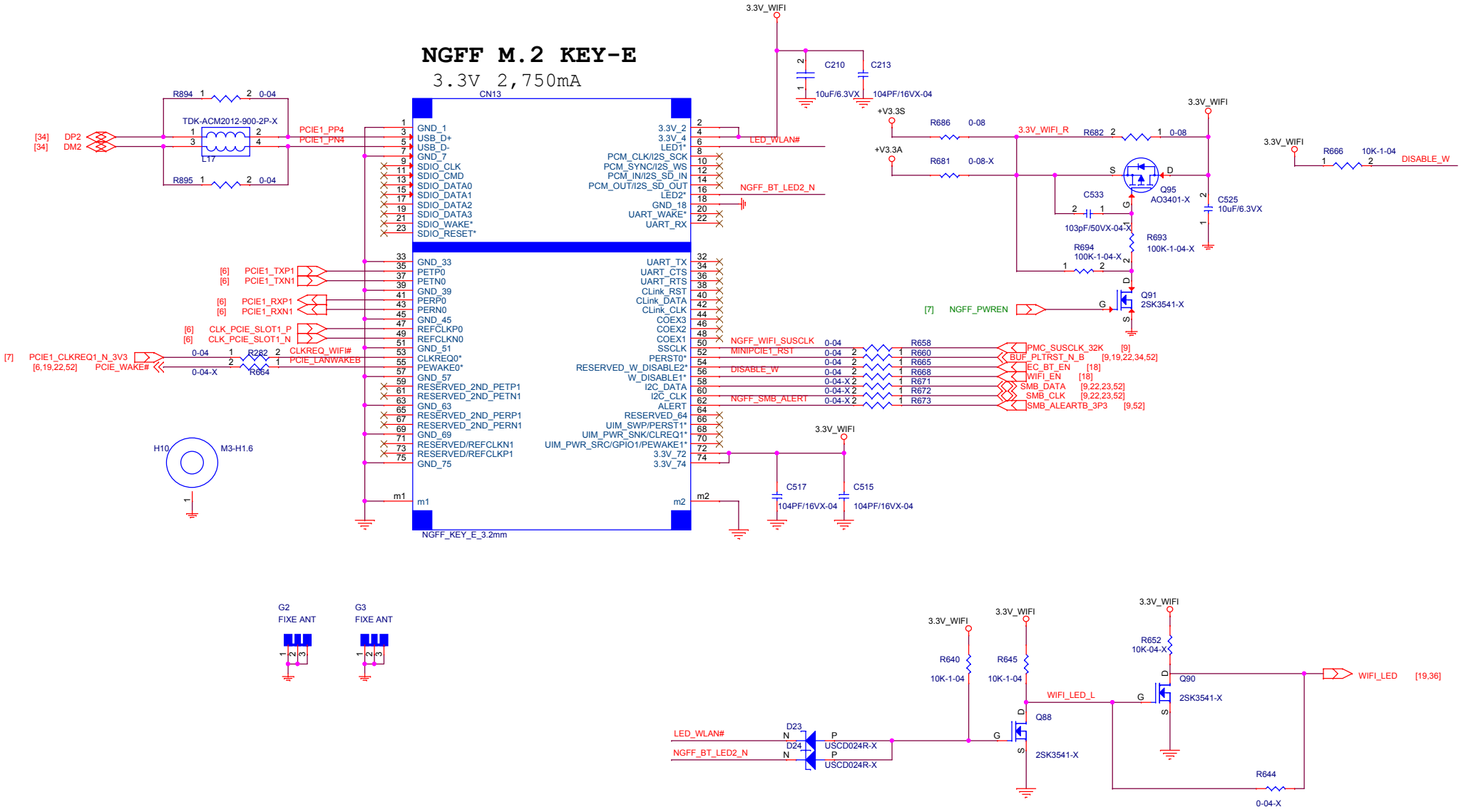
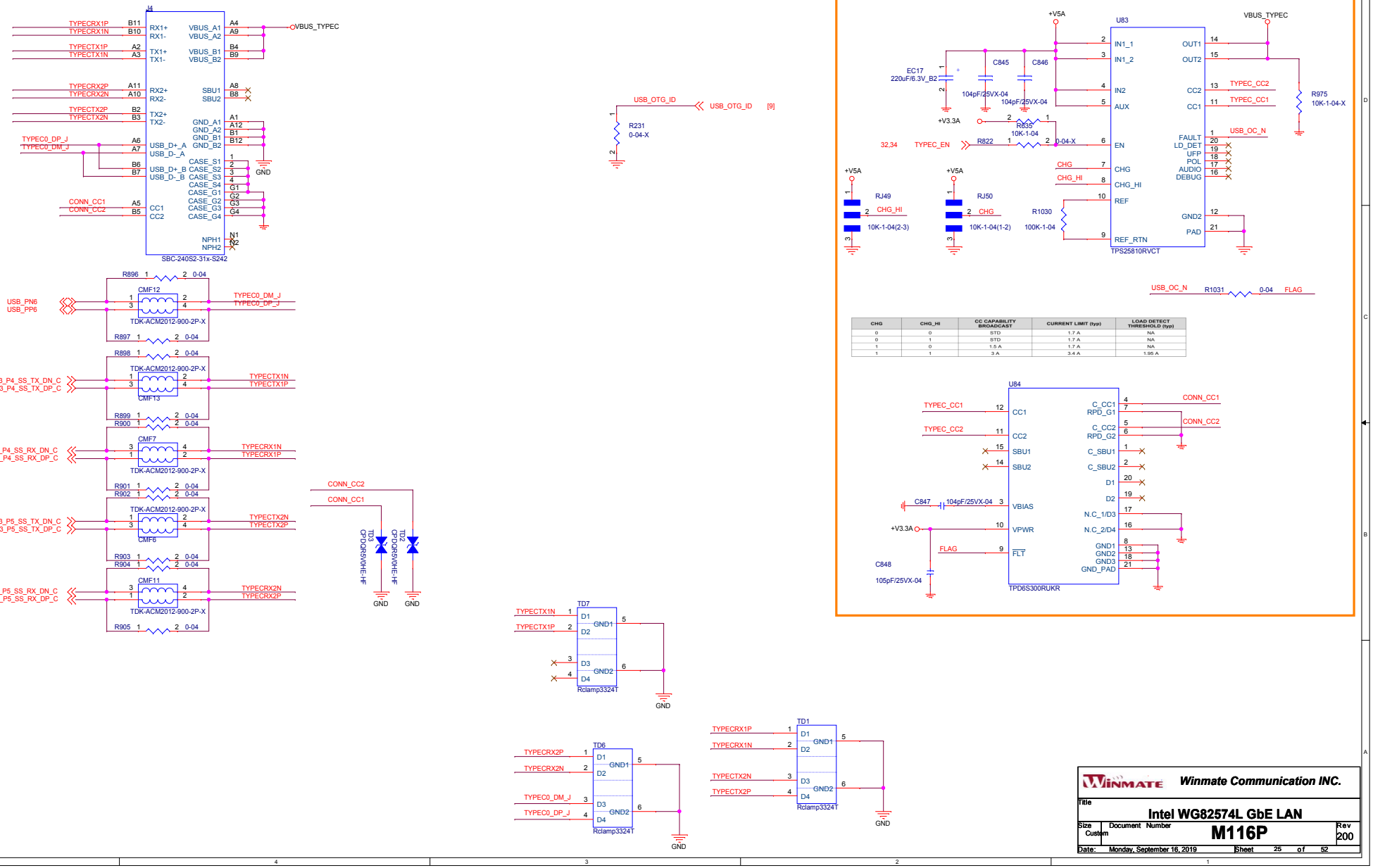


Winmate Communication INC.		
Title	MINI-PCIE-WIFI	
Size A3	Document Number M116P	Rev 200
Date: Monday, September 09, 2019	Sheet 24 of 52	



CHG	CHG_HI	CC CAPABILITY BROADCAST	CURRENT LIMIT (typ)	LOAD DETECT THRESHOLD (typ)
0	0	STD	1.7 A	NA
0	1	STD	1.7 A	NA
1	0	1.5 A	1.7 A	NA
1	1	3 A	3.4 A	1.95 A

Winmate Communication INC.	
Title	Intel WG82574L GbE LAN
Size: Custom	Document Number: M116P
Rev: 200	
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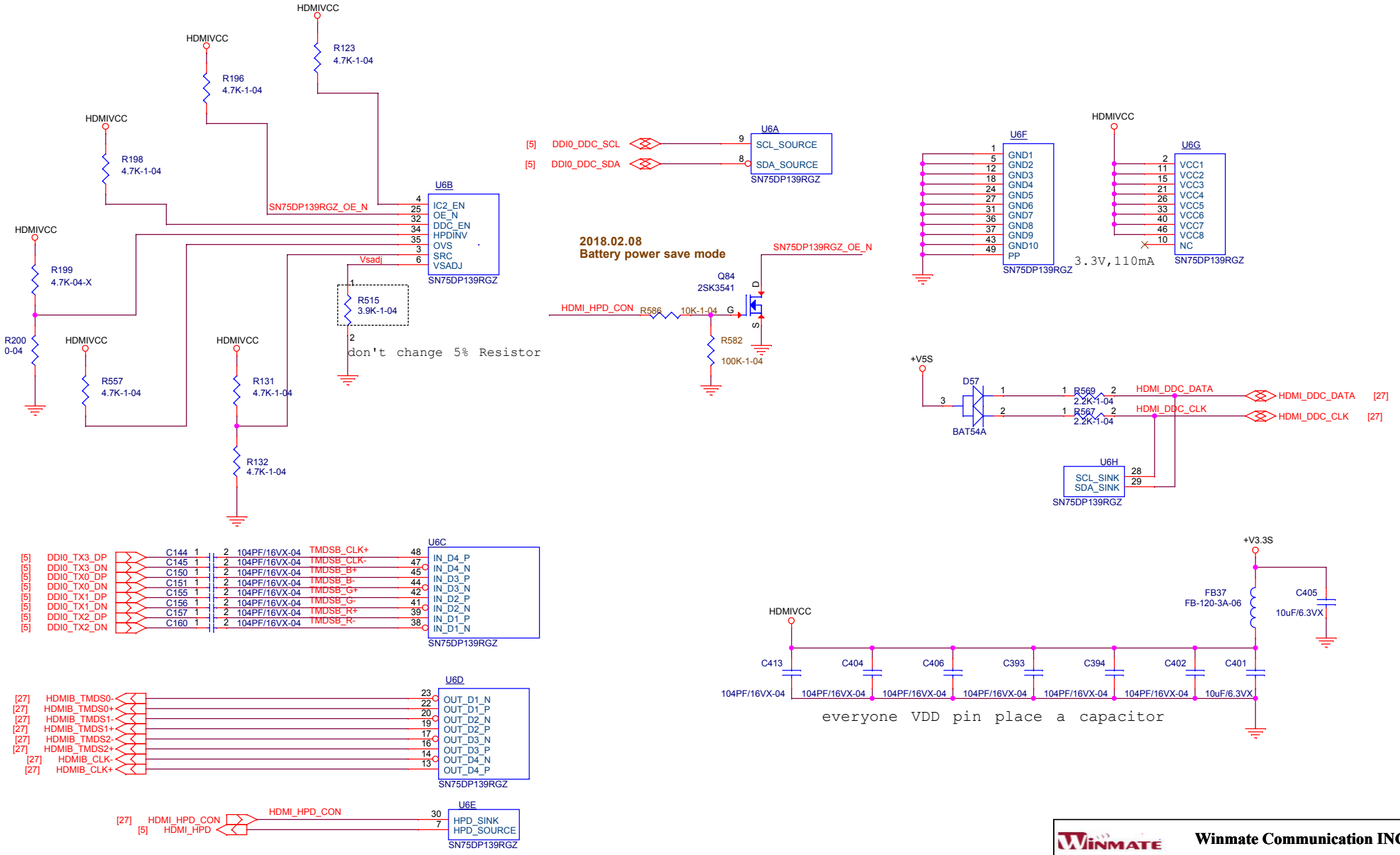

Winmate Communication INC.		
Title: HDMI Level Shifter SN75DP139RGZ		
Size: B	Document Number: M116P	Rev: 200
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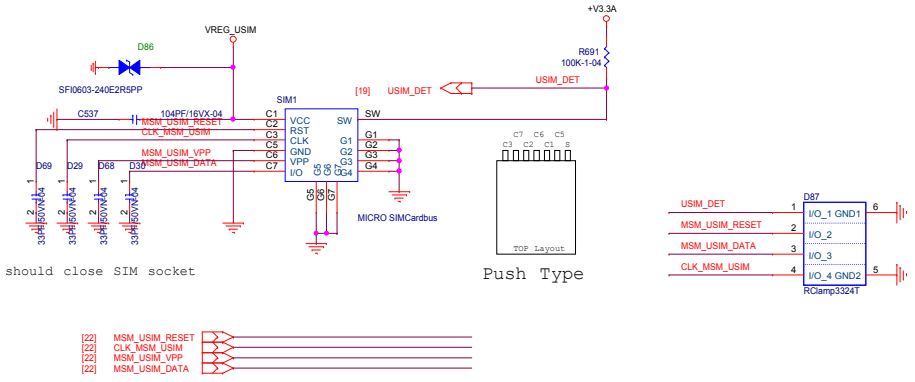
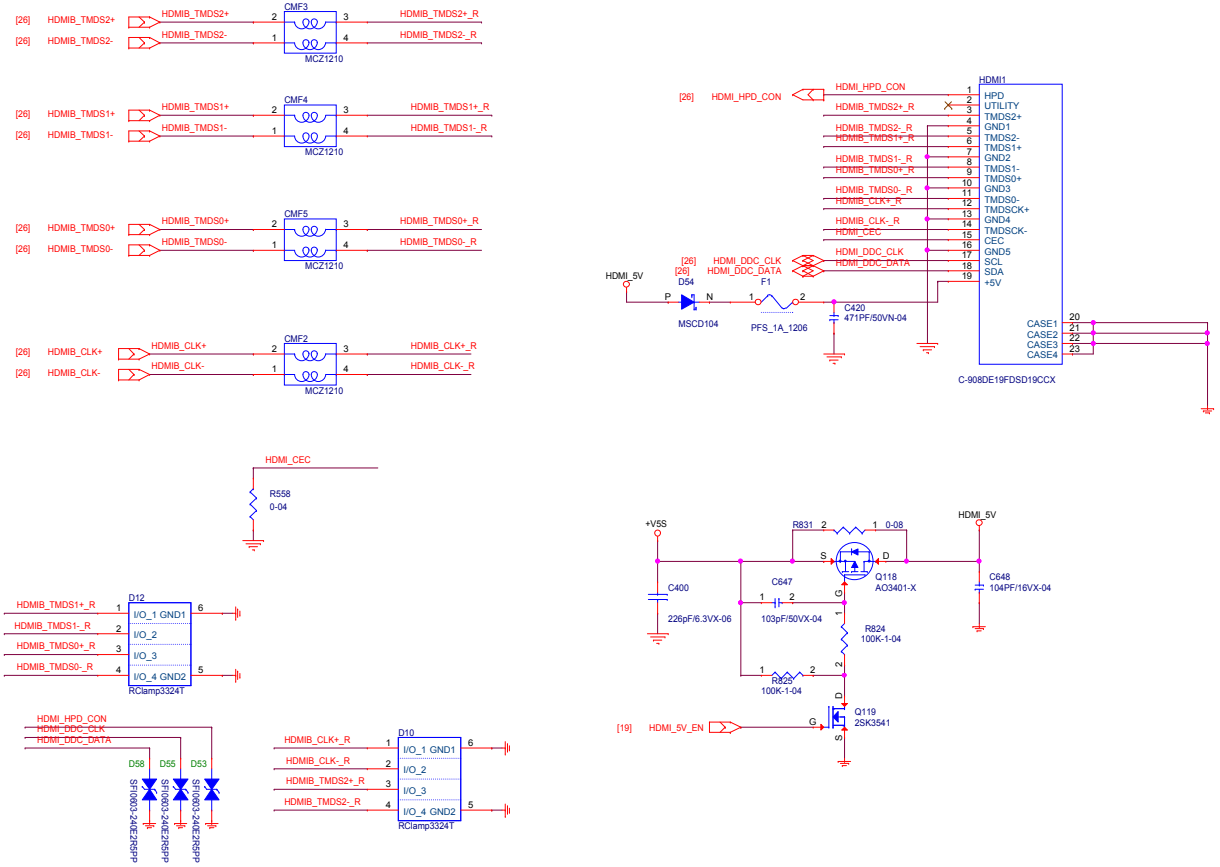
Micro SIM CARD



Micro HDMI CONN.



Winmate Communication INC.			
Title: HDMI & SIM & 30pin			
Size: C	Document Number: M116P		Rev: 200
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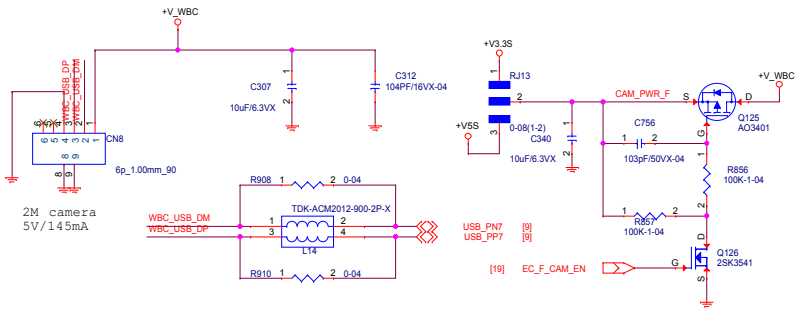
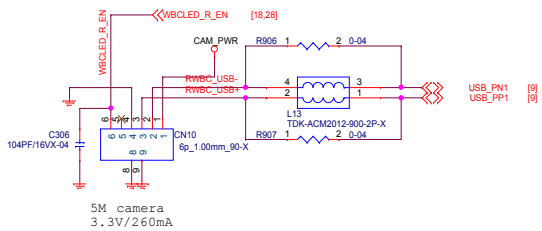
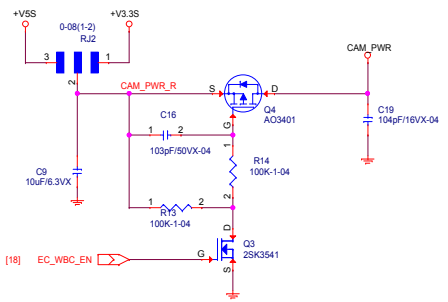
USB for Front Cam.

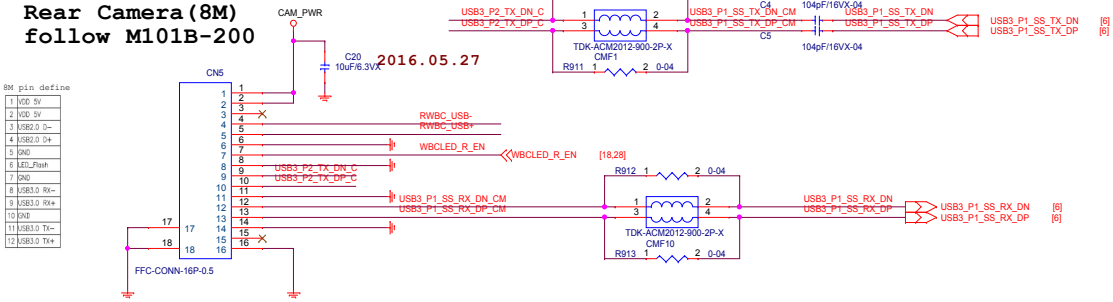


Rear Camera

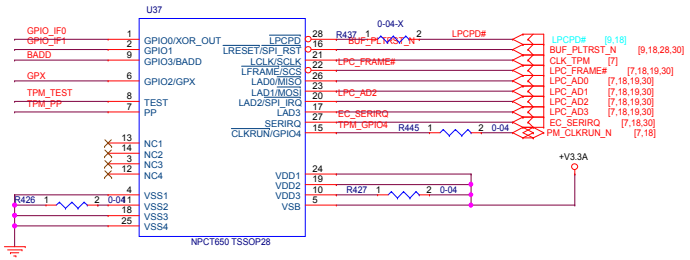




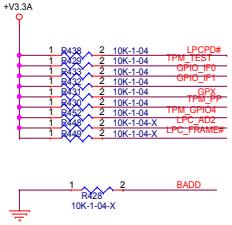
Rear Camera(8M) follow M101B-200

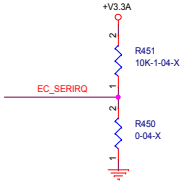


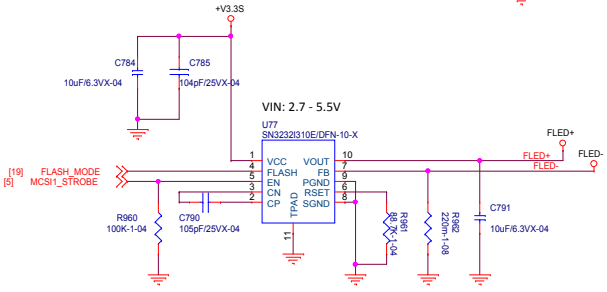
pin10(NC). pin11(NC) NPCT420
pin10(3.3V).pin11(GND) NPCT650

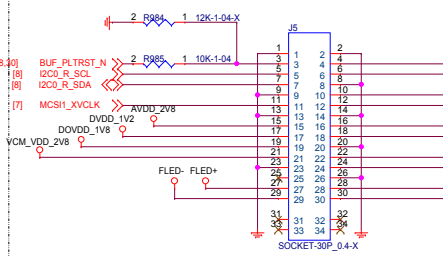


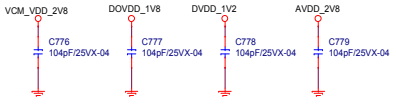
LPC Mode

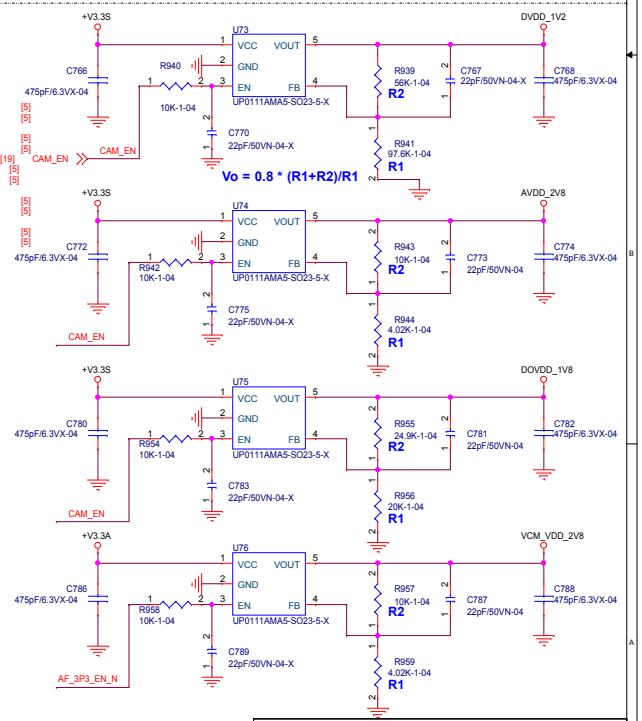












Winmate Communication INC.

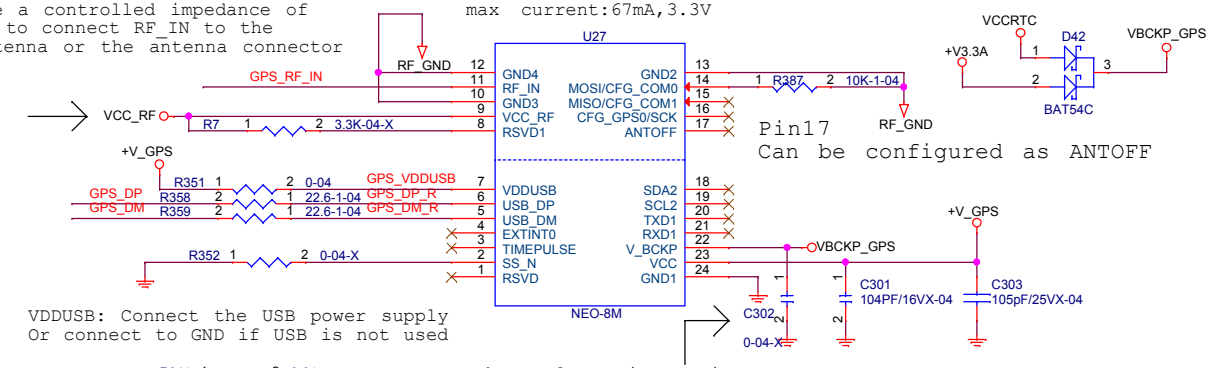
Title: WebCAM & USB & TPM

Size	Document Number	Rev
C	M116P	200

Date: Monday, September 16, 2019 Sheet 28 of 52

Use a controlled impedance of
50 to connect RF_IN to the
antenna or the antenna connector

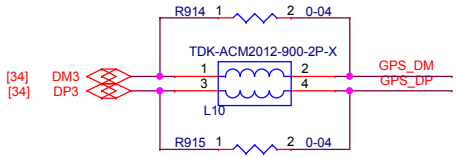
max current:67mA,3.3V

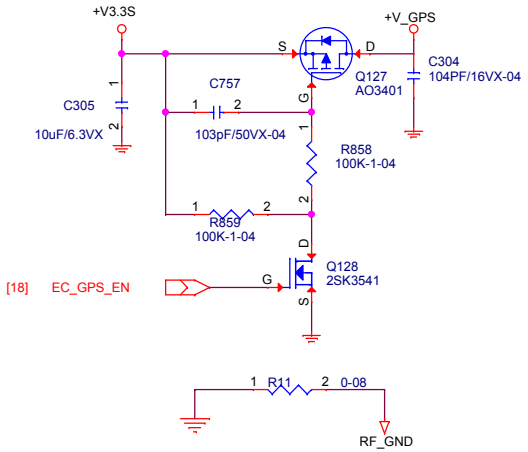


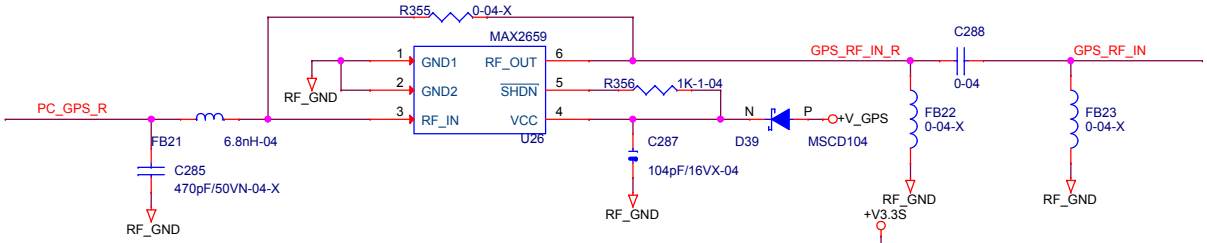
Pin17
Can be configured as ANTOFF

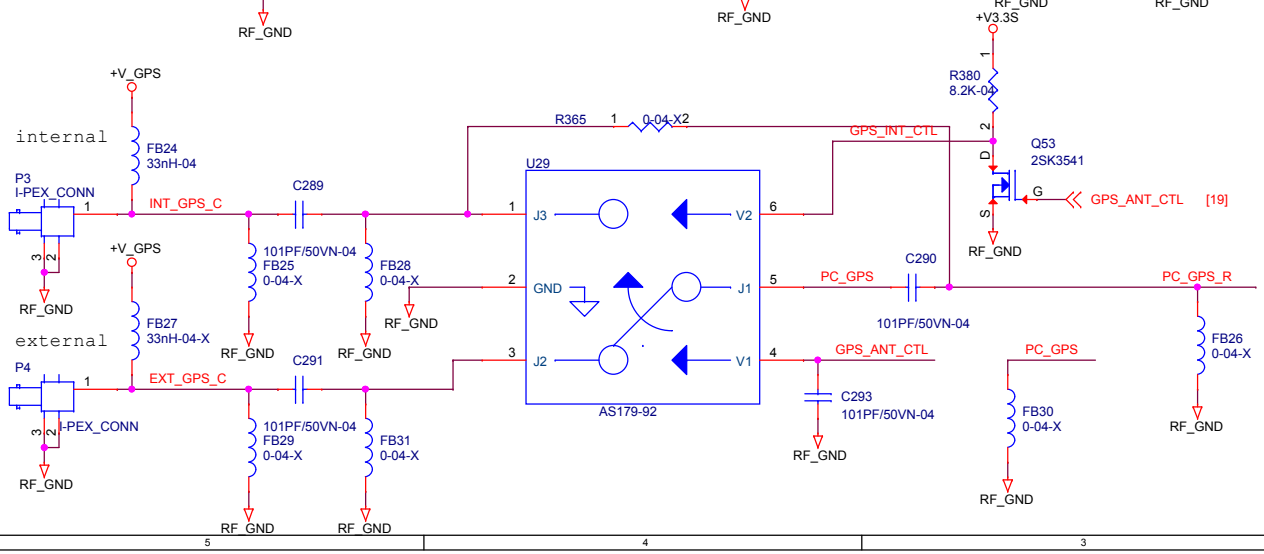
VDDUSB: Connect the USB power supply
Or connect to GND if USB is not used

Backup voltage input pin,
Connect to GND if not used.







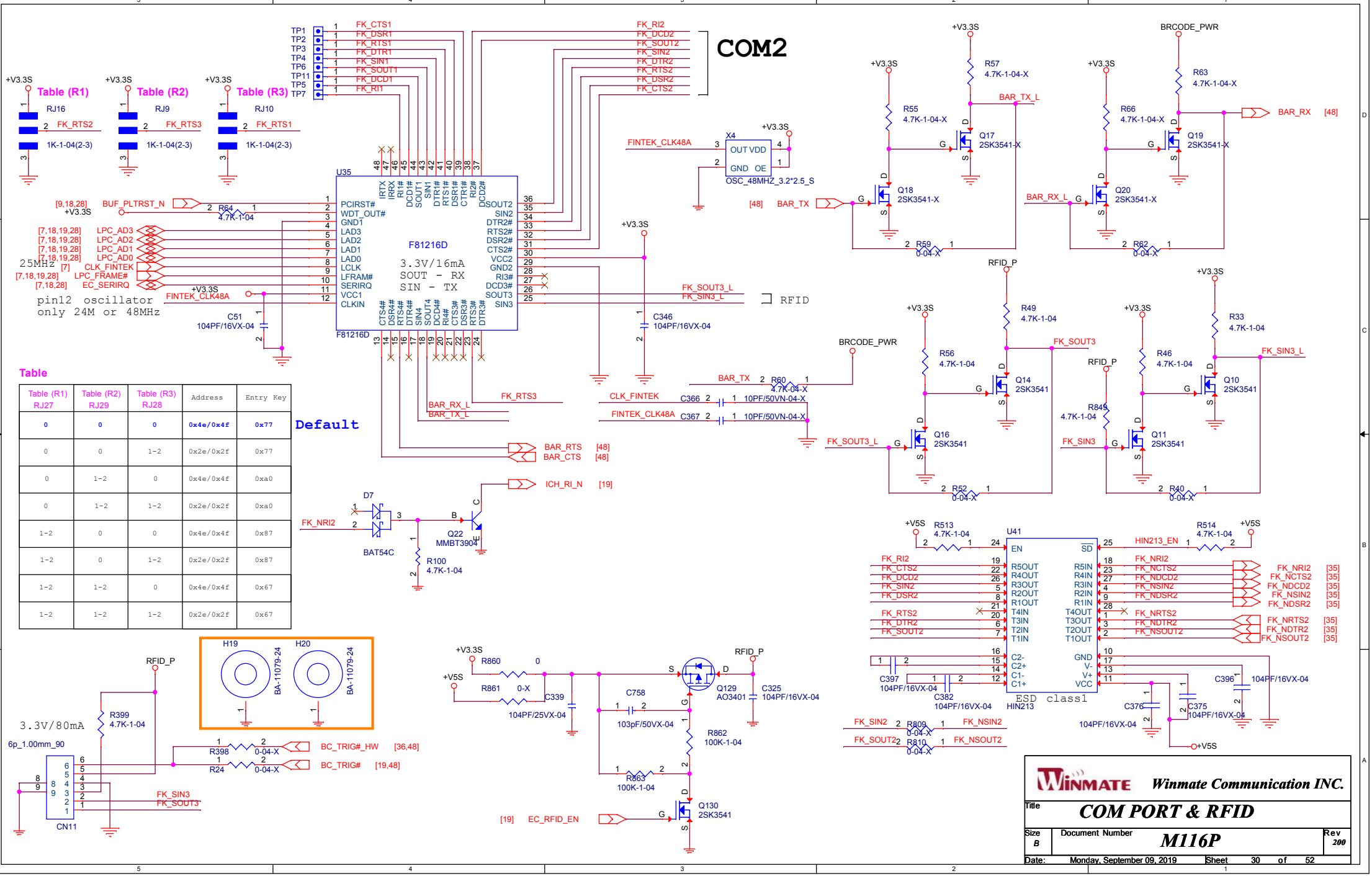


Hot-tab can control it
Default setting Built-in GPS ANT. (internal)
but User can setting Auto Switch,
when Tablet insert Vehicle Docking
GPS ANT auto select external GPS ANT.

V1	V2	PATH
L	H	J1-J2(Ext. Antenna)
H	L	J1-J3(Int. Antenna)

Winmate Communication INC.

Title	GPS on board NEO-6Q		
Size B	Document Number M116P		Rev 200
Date: Monday, September 09, 2019	Sheet 29 of 52		


COM2
Table (R1)
Table (R2)
Table (R3)
RJ16
RJ9
RJ10
FK_RTS2
FK_RTS3
FK_RTS1
1K-1-04(2-3)
TP1
TP2
TP3
TP4
TP6
TP11
TP5
TP7
FK_CTS1
FK_DSR1
FK_RTS1
FK_DTR1
FK_SIN1
FK_SOUT1
FK_DCD1
FK_RI1
FK_RI2
FK_DCD2
FK_SOUT2
FK_SIN2
FK_DTR2
FK_RTS2
FK_DSR2
FK_CTS2
U35
F81216D
3.3V/16mA
SOUT - RX
SIN - TX
PCIRST#
WDT_OUT#
GND1
LAD3
LAD2
LAD1
LAD0
LCLK
LFRAM#
SERIRQ
VCC1
CLKIN
DSOUT2
SIN2
DTR2#
RTS2#
DSR2#
CTS2#
VCC2
GND2
RI3#
DCD3#
SOUT3
SIN3
[9,18,28] BUF_PLTRST_N
R64 4.7K-1-04
[7,18,19,28] LPC_AD3
[7,18,19,28] LPC_AD2
[7,18,19,28] LPC_AD1
[7,18,19,28] LPC_AD0
25MHz [7] CLK_FINTEK
[7,18,19,28] LPC_FRAME#
[7,18,28] EC_SERIRQ
pin12 oscillator
only 24M or 48MHz
FINTEK_CLK48A
C51 104PF/16VX-04
X4
OUT VDD
GND OE
OSC_48MHZ_3.2*2.5_S
[48] BAR_TX
C346 104PF/16VX-04
FK_SOUT3_L
FK_SIN3_L
RFID
BAR_RX_L
BAR_TX_L
FK_RTS3
BAR_RTS [48]
BAR_CTS [48]
ICH_RI_N [19]
D7
BAT54C
FK_NRI2
Q22 MMBT3904
R100 4.7K-1-04
Table
Default
Table (R1) RJ27
Table (R2) RJ29
Table (R3) RJ28
Address
Entry Key
0 0 0 0x4e/0x4f 0x77
0 0 1-2 0x2e/0x2f 0x77
0 1-2 0 0x4e/0x4f 0xa0
0 1-2 1-2 0x2e/0x2f 0xa0
1-2 0 0 0x4e/0x4f 0x87
1-2 0 1-2 0x2e/0x2f 0x87
1-2 1-2 0 0x4e/0x4f 0x67
1-2 1-2 1-2 0x2e/0x2f 0x67
+V3.3S
R57 4.7K-1-04-X
BAR_TX_L
R55 4.7K-1-04-X
Q17 2SK3541-X
Q18 2SK3541-X
R59 0-04-X
BRCODE_PWR
R63 4.7K-1-04-X
BAR_RX [48]
R66 4.7K-1-04-X
Q19 2SK3541-X
Q20 2SK3541-X
BAR_RX_L
R62 0-04-X
RFID_P
R49 4.7K-1-04
R56 4.7K-1-04
FK_SOUT3
Q14 2SK3541
Q16 2SK3541
FK_SOUT3_L
R52 0-04-X
R33 4.7K-1-04
R46 4.7K-1-04
FK_SIN3_L
Q10 2SK3541
R849 4.7K-1-04
Q11 2SK3541
FK_SIN3
R40 0-04-X
BRCODE_PWR
BAR_TX
R60 4.7K-04-X
C366 10PF/50VN-04-X
C367 10PF/50VN-04-X
CLK_FINTEK
FINTEK_CLK48A
+V5S
R513 4.7K-1-04
R514 4.7K-1-04
U41
HIN213
HIN213_EN
EN
SD
R5OUT
R4OUT
R3OUT
R2OUT
R1OUT
T4IN
T3IN
T2IN
T1IN
R5IN
R4IN
R3IN
R2IN
R1IN
T4OUT
T3OUT
T2OUT
T1OUT
C2-
C2+
C1-
C1+
VCC
GND
V-
V+
ESD class1
FK_NRI2 [35]
FK_NCTS2 [35]
FK_NDCD2 [35]
FK_NSIN2 [35]
FK_NDSR2 [35]
FK_NRTS2 [35]
FK_NDTR2 [35]
FK_NSOUT2 [35]
C397 104PF/16VX-04
C382 104PF/16VX-04
C376 104PF/16VX-04
C375 104PF/16VX-04
C396 104PF/16VX-04
FK_SIN2
R809 0-04-X
FK_NSIN2
FK_SOUT2
R810 0-04-X
FK_NSOUT2
RFID_P
R399 4.7K-1-04
3.3V/80mA
6p_1.00mm_90
CN11
FK_SIN3
FK_SOUT3
H19
H20
BA-11079-24
R398 0-04-X
R24 0-04-X
BC_TRIG#_HW [36,48]
BC_TRIG# [19,48]
R860 0
R861 0-X
C339 104PF/25VX-04
Q129 AO3401
C325 104PF/16VX-04
C758 103pF/50VX-04
R862 100K-1-04
R863 100K-1-04
Q130 2SK3541
[19] EC_RFID_EN
Winmate Communication INC.
Title
COM PORT & RFID
Size B
Document Number
M116P
Rev 200
Date: Monday, September 09, 2019
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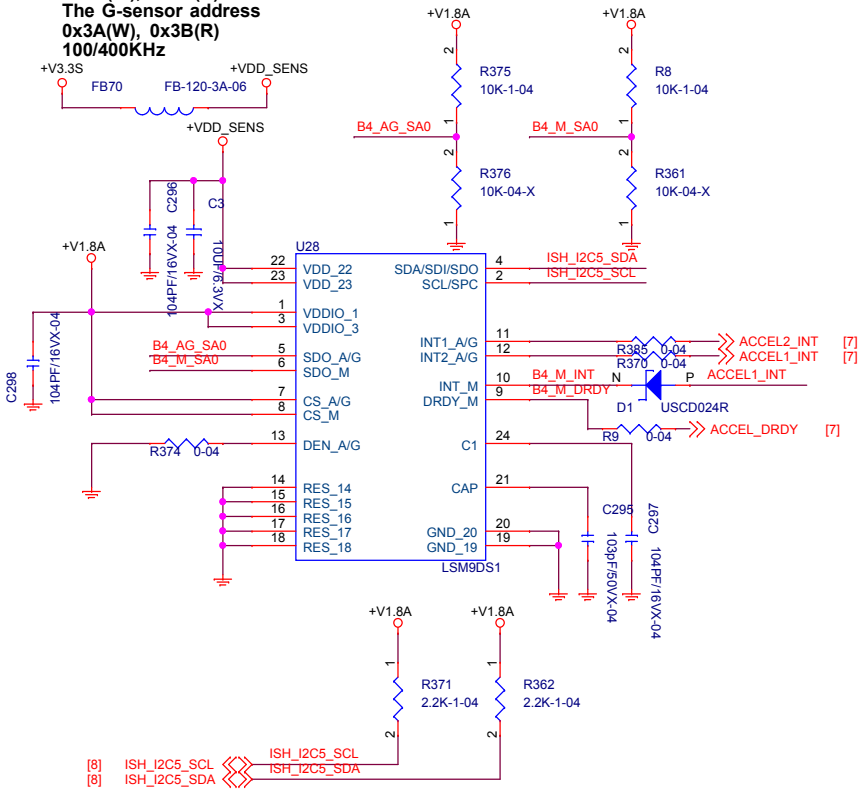
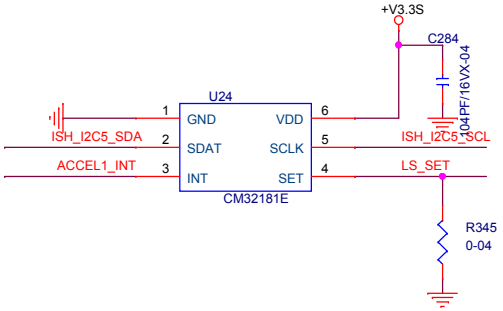
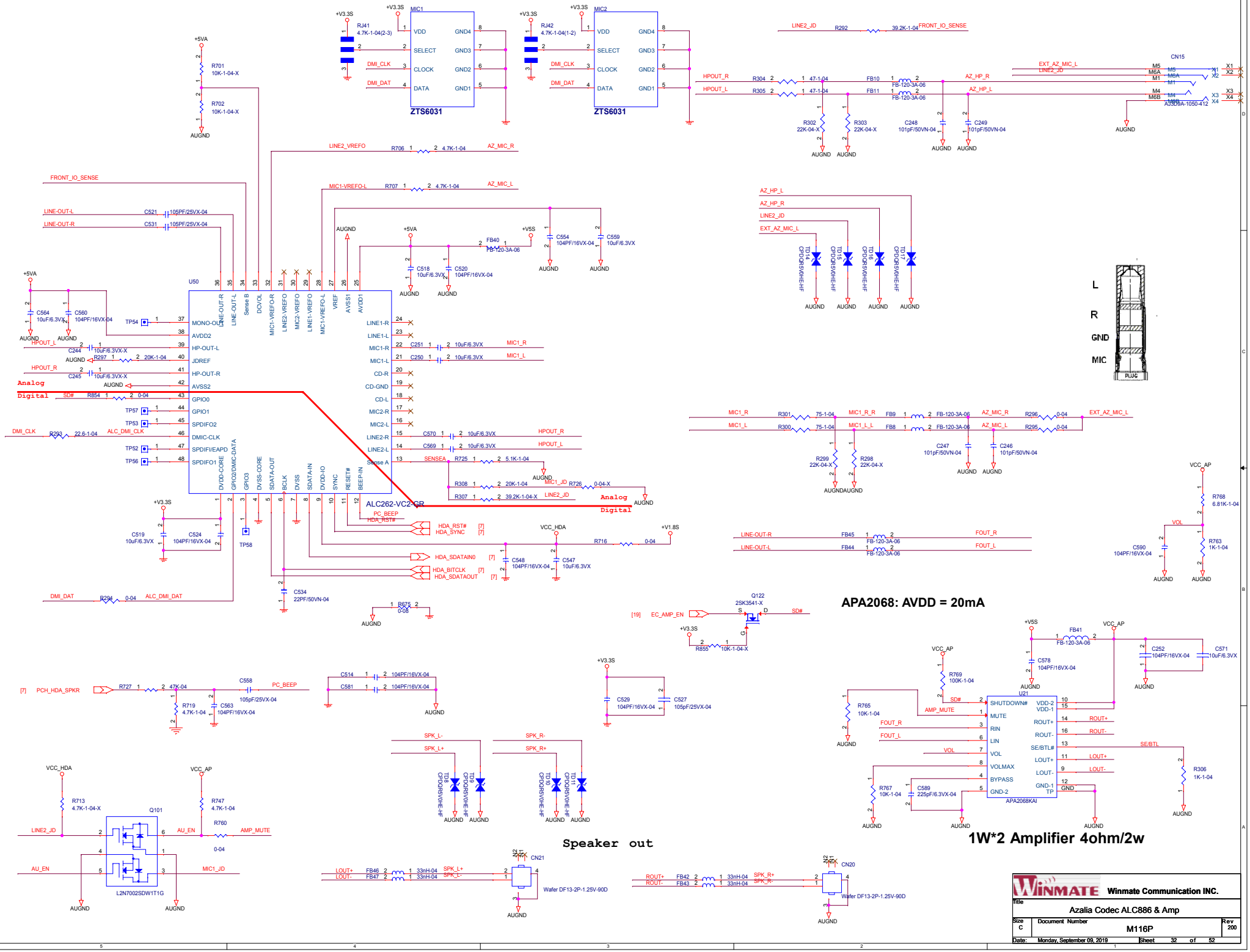
E-Compass
3D Accelerometer
3D Magnetometer (with G-sensor)

The Magnetic address
0x3C(W), 0x3D(R)
The G-sensor address
0x3A(W), 0x3B(R)
100/400KHz





Winmate Communication INC.			
Title: Sensor HUB			
Size: B	Document Number: M116P		Rev: 200
Date: Monday, September 09, 2019	Sheet 31 of 52		


ZTS6031
ZTS6031
ALC262-VC2-GR
Analog
Digital
APA2068: AVDD = 20mA
1W*2 Amplifier 4ohm/2w
Speaker out
L
R
GND
MIC
Winmate Communication INC.
Azalia Codec ALC886 & Amp
M116P
Monday, September 09, 2019
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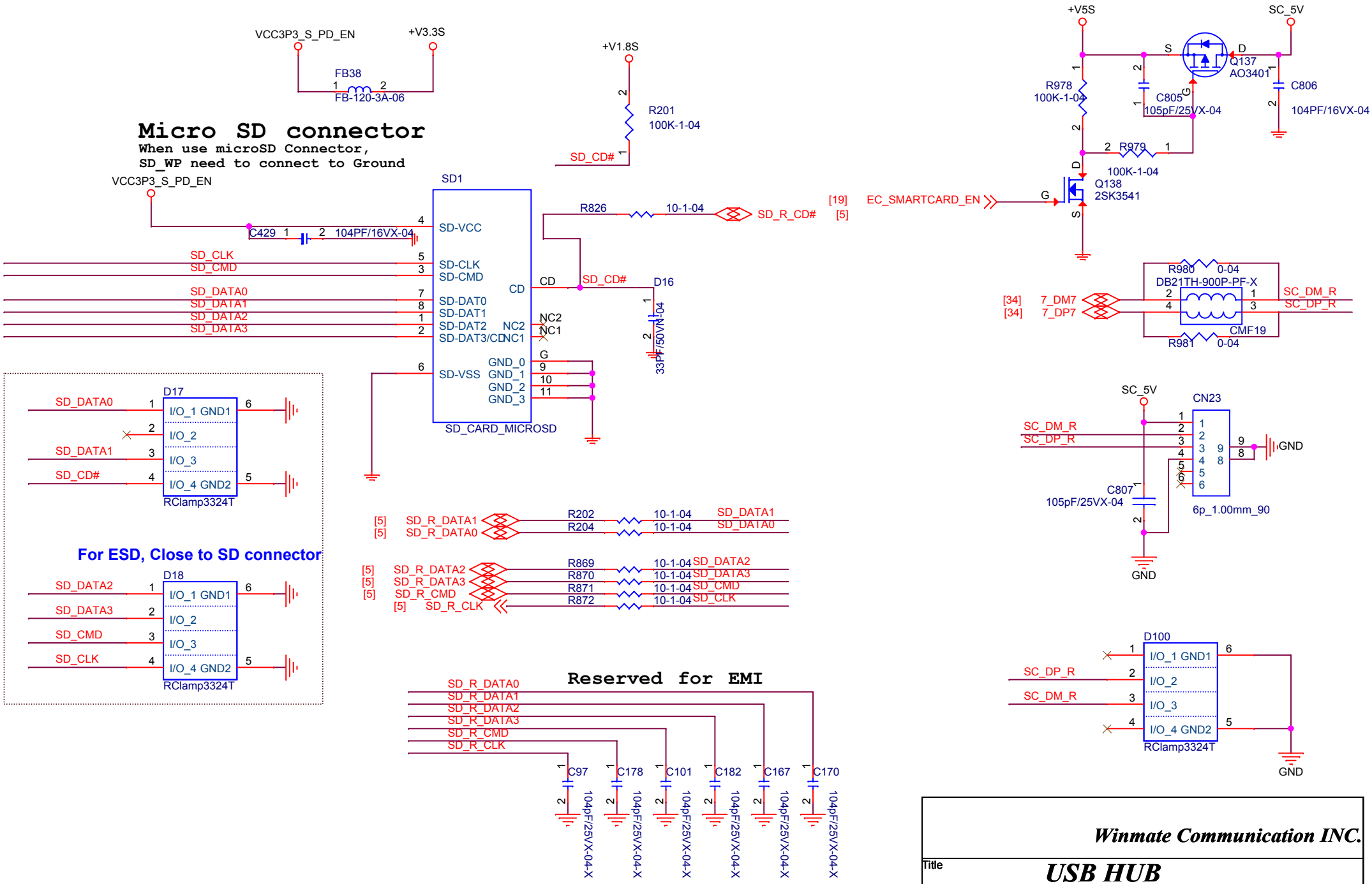
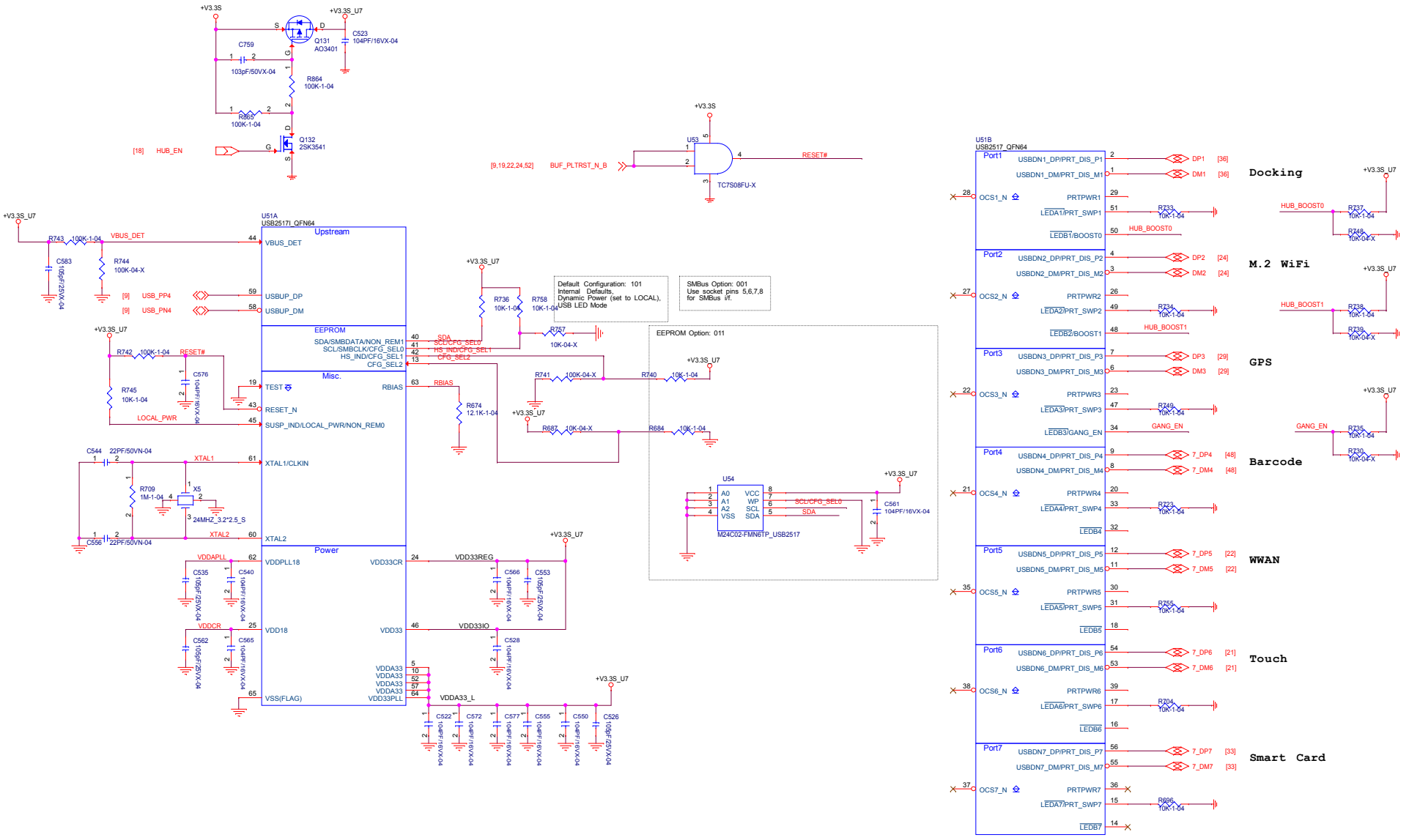
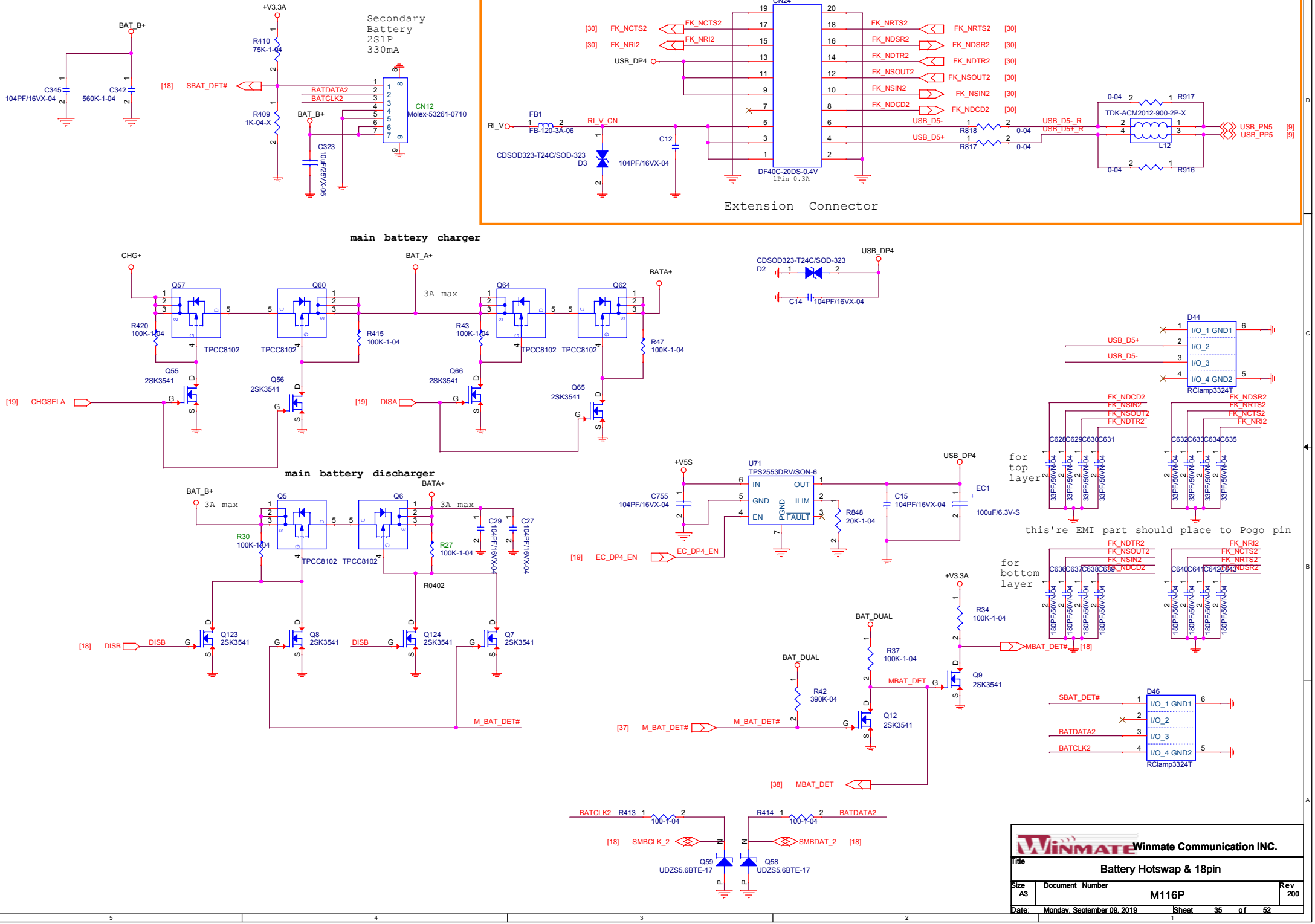


Winmate Communication INC.		
Title: USB HUB		
Size: A4	Document Number: M116P	Rev: 200
Date: Monday, September 09, 2019	Sheet 33 of 52	



Winmate Communication INC.			
Title: USB HUB			
Size: C	Document Number: M116P		Rev: 200
Date: Monday, September 16, 2019	Sheet 34 of 52		


Secondary
Battery
2S1P
330mA
Extension Connector
main battery charger
main battery discharger
for top layer
for bottom layer
this're EMI part should place to Pogo pin
Winmate Communication INC.
Battery Hotswap & 18pin
M116P
Monday, September 09, 2019
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LED indicator for Standard product
1.Power LED - power ON mode
2.Battery:
 - Under AC mode / Charging: Orange
 - Under AC mode / Full Charged: Off
 - Under Battery Mode : Green
 - Under Battery Mode / Low Power (<10%): Red
 - Under Battery Mode / Hot Swap: Red flicker
3.HDD LED - HDD work
4.RF - WiFi/BT/3G/GPS anyone turn On

Power Button Bottom

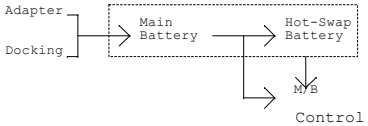
20 Pin USB3.0 pin Def
Follow F101DK-100

bottom view:
LED indicator for M101B project
light WiFi HDD BAT PWR
Sensor Y/R Blue

EC control all LED
is En or disEn

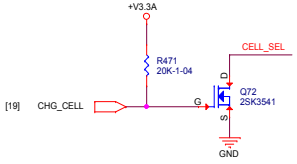
Winmate Communication INC.	
Title	FnKey,LED,light sensor,20pin
Size B	Document Number M116P Rev 200
Date: Monday, September 09, 2019	Sheet 36 of 52

Battery Charging: value under 3% will shutdown
Hot-Swap Battery charge only from Main Battery



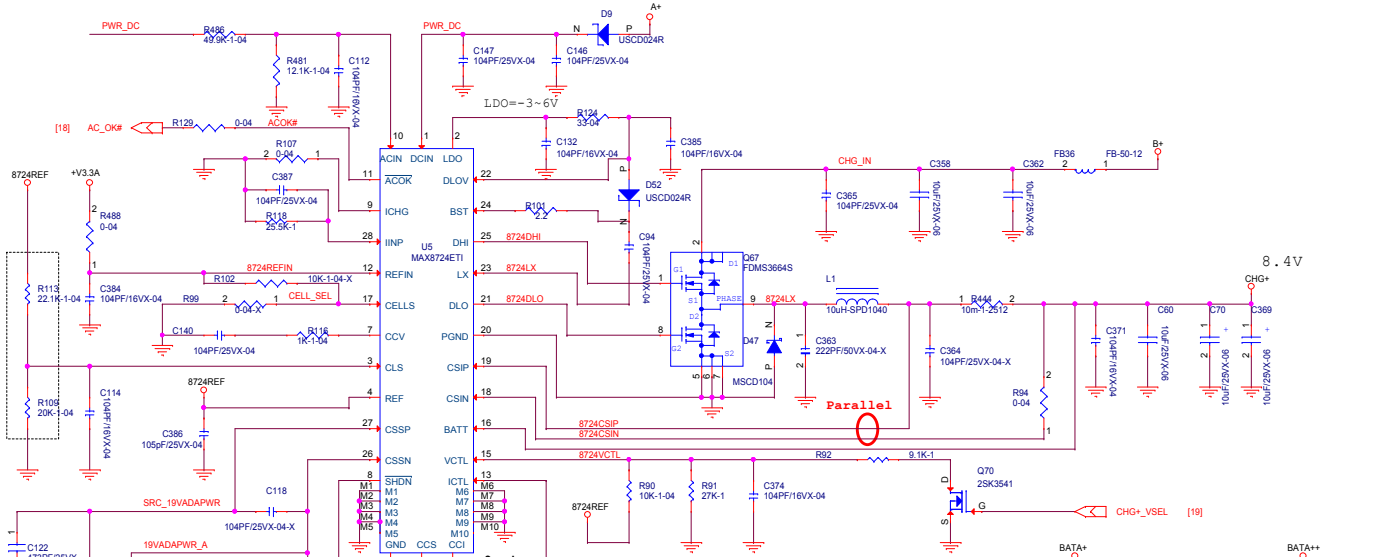
Control Input current
battery under 5% status
main:
11.62V,3.62A
backup:
11.62V,2.56A

VBATT = cells x(4V+0.4(VVCTL/VREFIN))
Tri-level input for setting number of cells.
GND = 2 cells, float = 3 cells, REFIN = 4 cells.



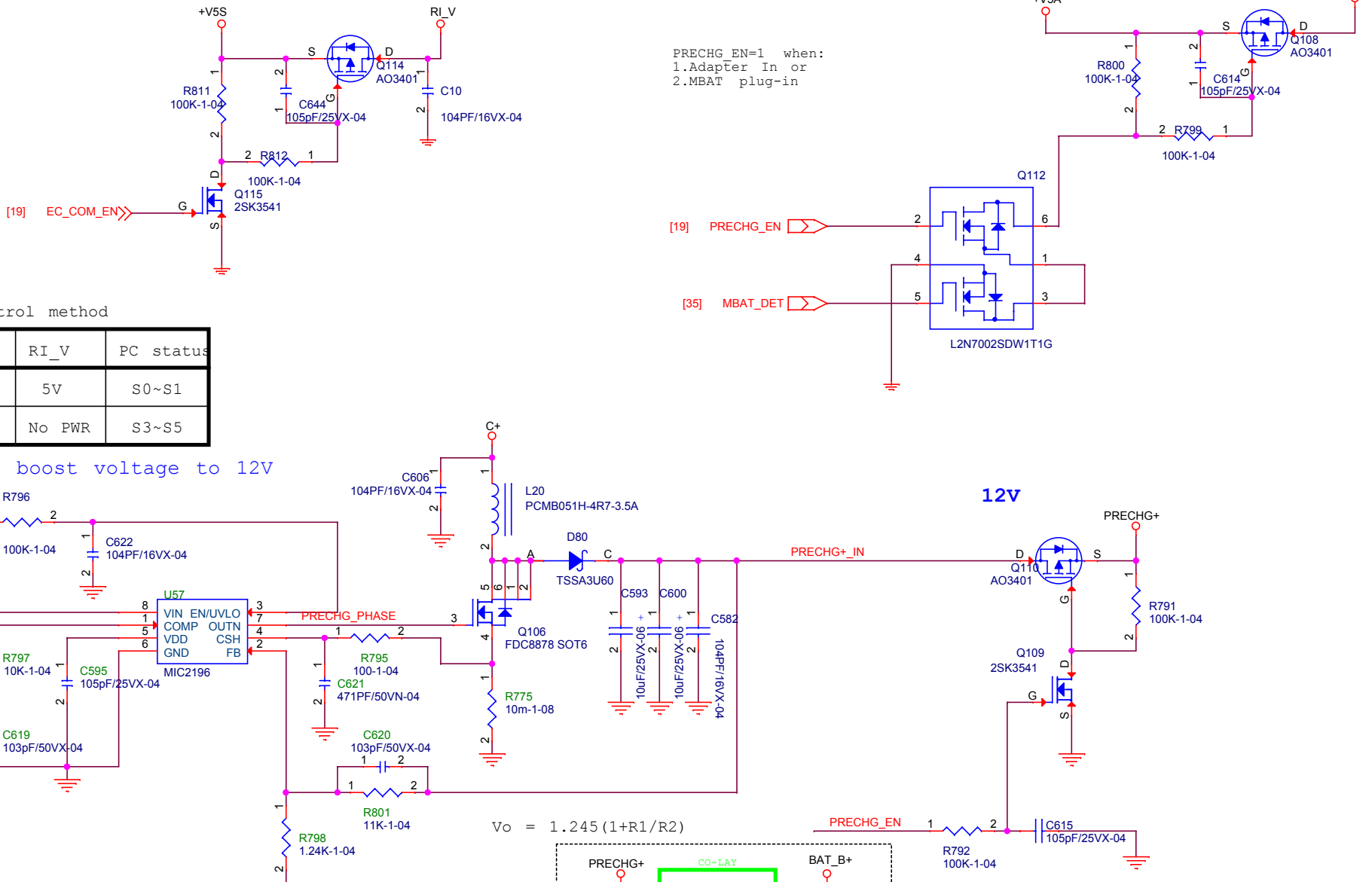
Cell select:
1. Main Bat detection , then default set CHG_CELL High(Or Open) for 2 Cell
2. Reading BAT inform by I2C , if Bat is 3 cell , then set CHR_CELL LOW

Routing length should less than 10mm.



Winmate Communication INC.

Title	MAX8724 CHARGER(19VIN)	
Size: Custom	Document Number: M116P	Rev: 200
Date: Tuesday, October 08, 2019	Sheet 37 of 52	



Title	COM power & Charger 2
Size	Custom
Document Number	M116P
Rev	200
Date:	Monday, September 09, 2019
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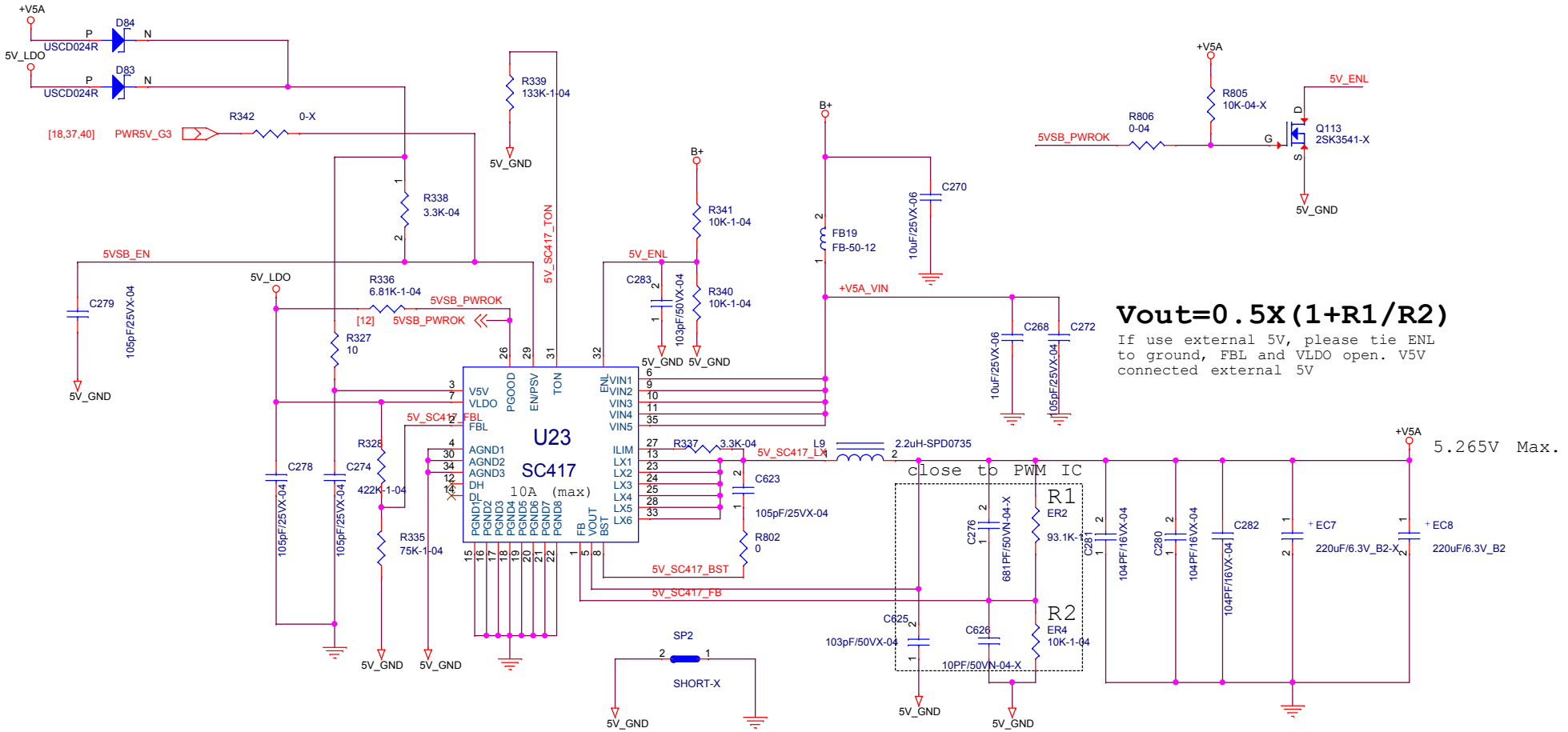
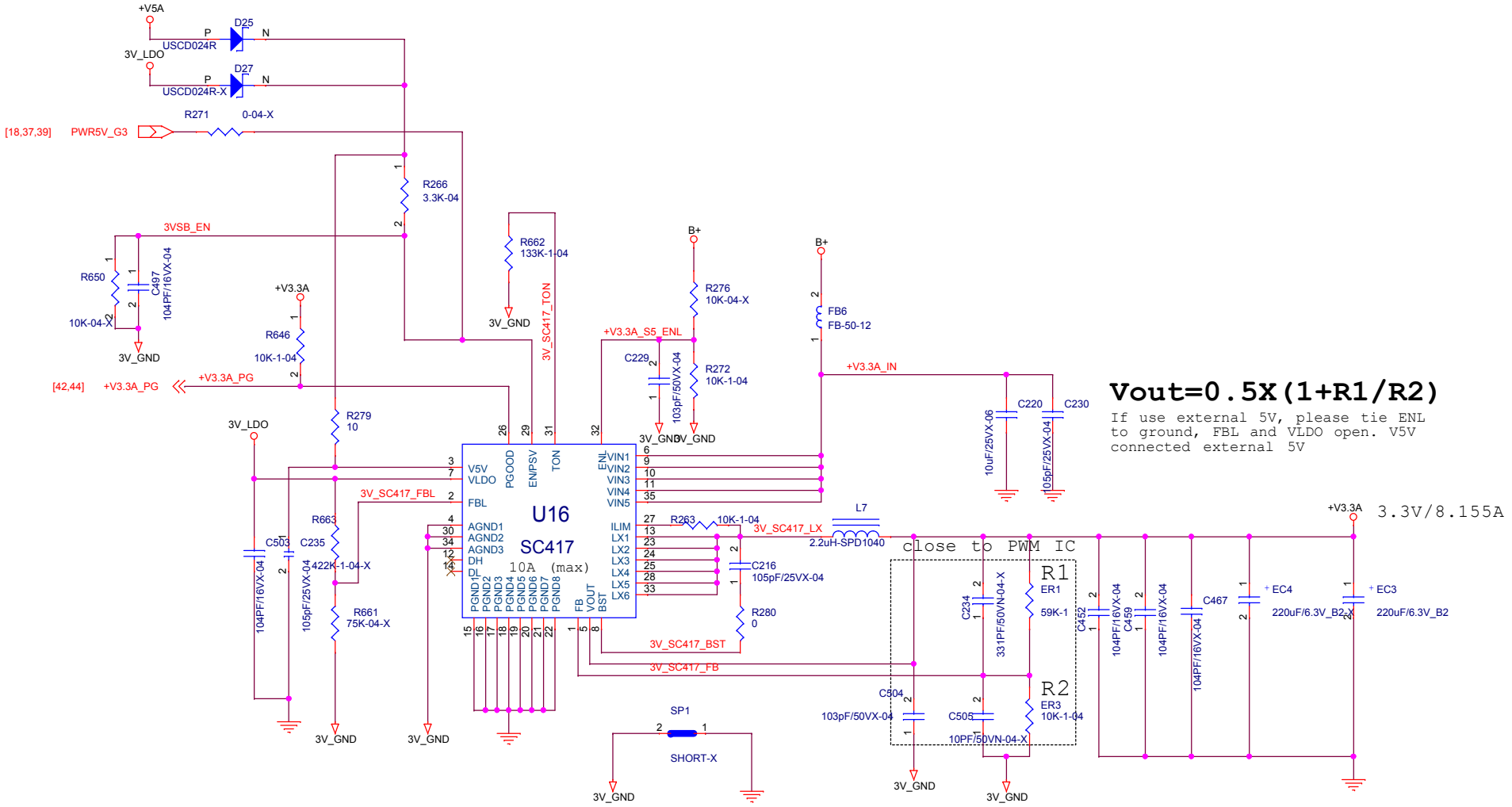
Winmate Inc



Winmate Communication INC.		
Title	DC +V5A	
Size B	Document Number M116P	Rev 200
Date: Monday, September 09, 2019	Sheet 39 of 52	



$$Vout = 0.5X(1+R1/R2)$$

If use external 5V, please tie ENL to ground, FBL and VLDO open. V5V connected external 5V

Winmate Communication INC.		
Title	+V3.3A	
Size B	Document Number M116P	Rev 200
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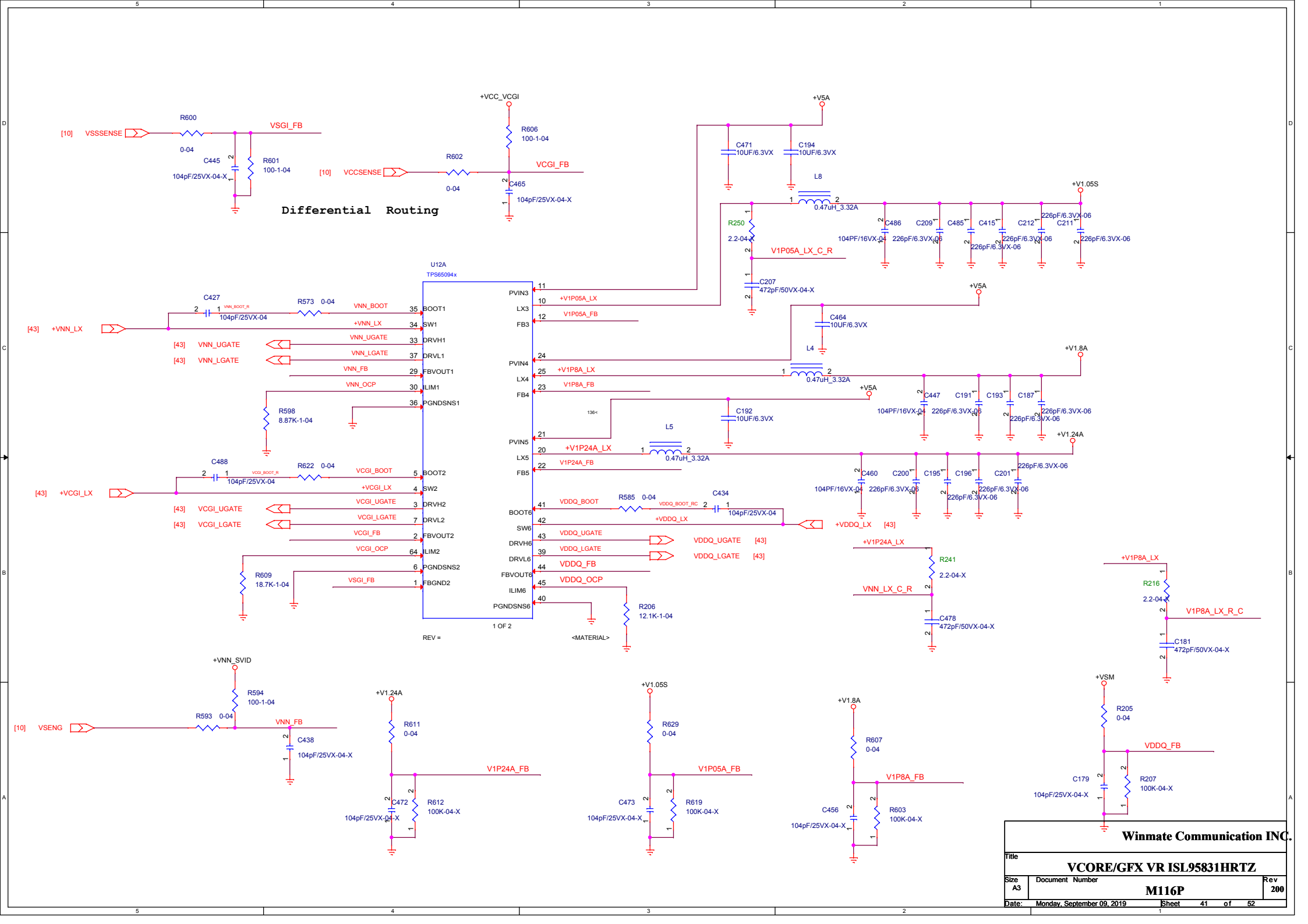
Differential Routing
U12A
TPS65094x
VSSENSE
VSGI_FB
VCCSENSE
VCGI_FB
+VCC_VCGI
+V5A
+V1.05S
+V1.8A
+V1.24A
+VNN_LX
+VCGI_LX
VNN_UGATE
VNN_LGATE
VCGI_UGATE
VCGI_LGATE
VDDQ_UGATE
VDDQ_LGATE
VDDQ_LX
VDDQ_FB
VDDQ_OCP
VNN_FB
VCGI_FB
+VNN_SVID
VSENG
V1P24A_FB
V1P05A_FB
V1P8A_FB
VDDQ_FB
V1P05A_LX_C_R
VNN_LX_C_R
V1P8A_LX_R_C
REV =
1 OF 2
<MATERIAL>
Winmate Communication INC.
VCORE/GFX VR ISL95831HRTZ
M116P
Monday, September 09, 2019
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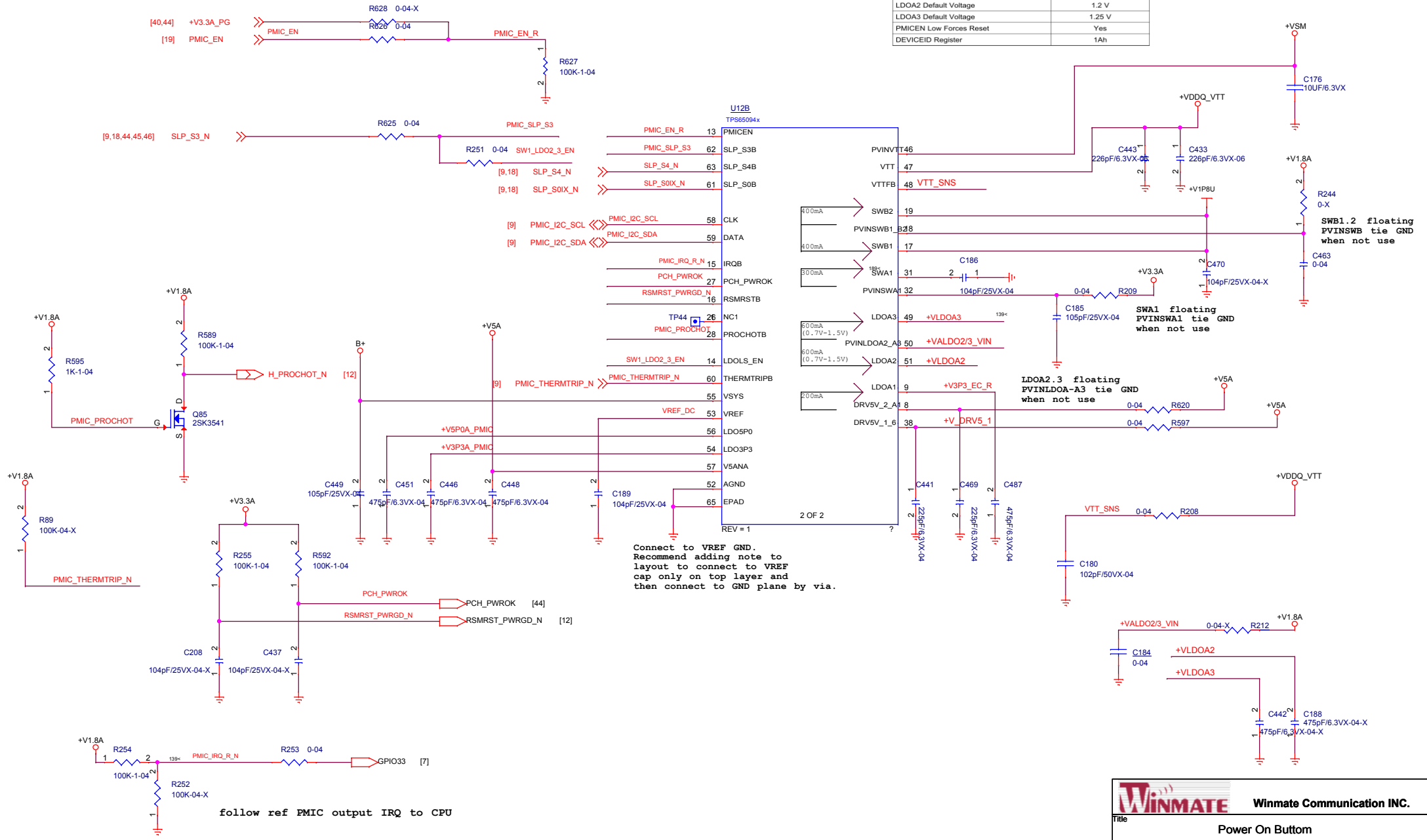
	TPS650942
DDR	DDR3L
BUCK6 Voltage	1.35 V
VTT Disabled	No
VTT I_{OCP} (minimum)	1.8 A
SWB1_2 controlled by SLP_S4B (V1P8U)	No
SWB1_2 controlled by SLP_S3B	Yes
Pin 14 Usage	LDOLS_EN
LDOA1 Always On	No
LDOA1 Default Voltage	3.3 V
LDOA2 Default Voltage	1.2 V
LDOA3 Default Voltage	1.25 V
PMICEN Low Forces Reset	Yes
DEVICEID Register	1Ah



Winmate Communication INC.

Title: Power On Buttom

Size	Document Number	Rev
A3	M116P	200

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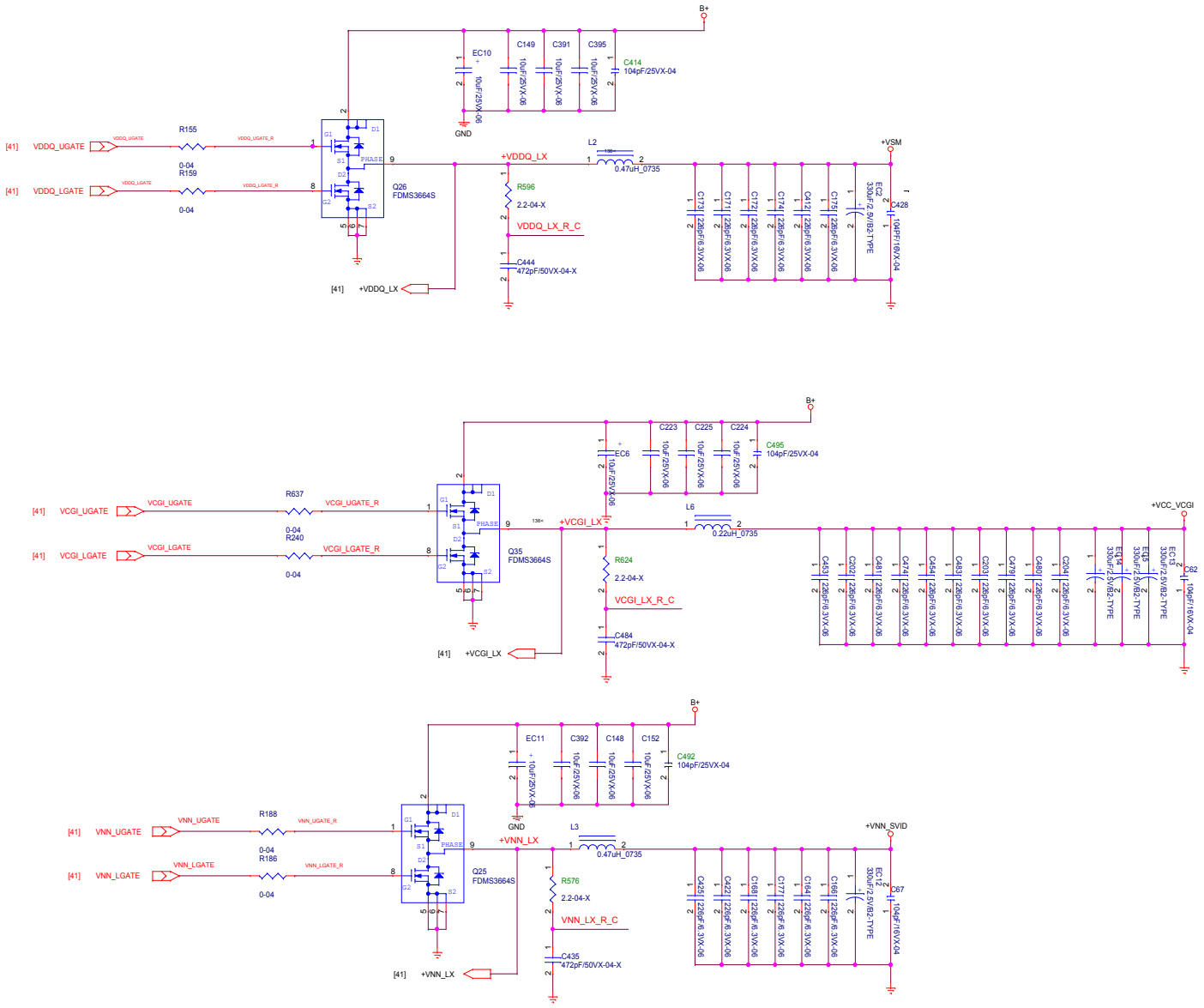
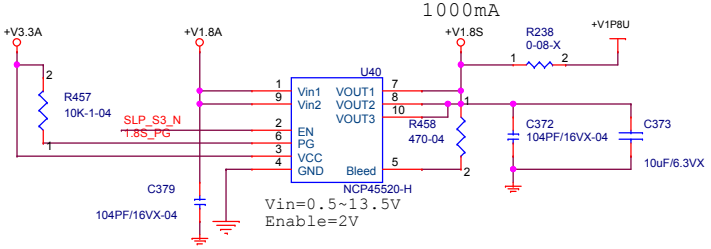
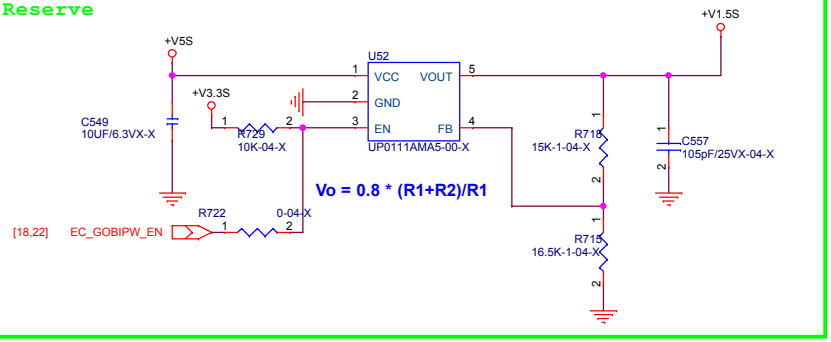


Winmate Communication INC.		
Title	STBy +V1.0A,+V1.2A,+V1.8A	
Size C	Document Number M116P	Rev 200
Date: Monday, September 09, 2019	Sheet 43 of 52	

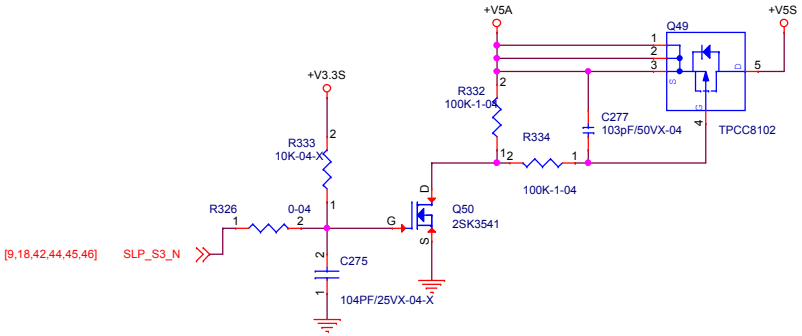
1000mA

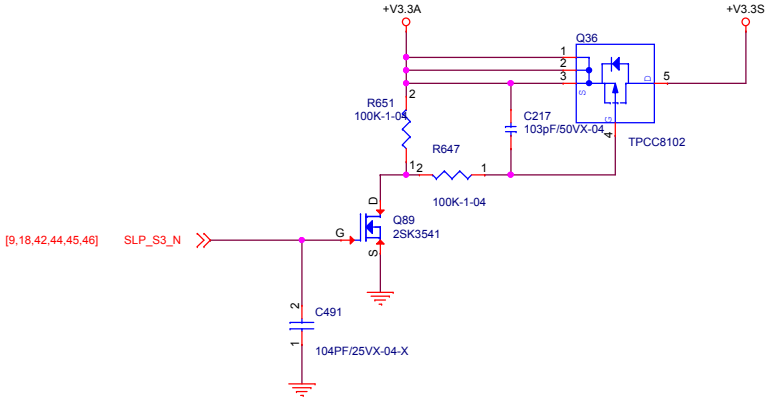


Reserve



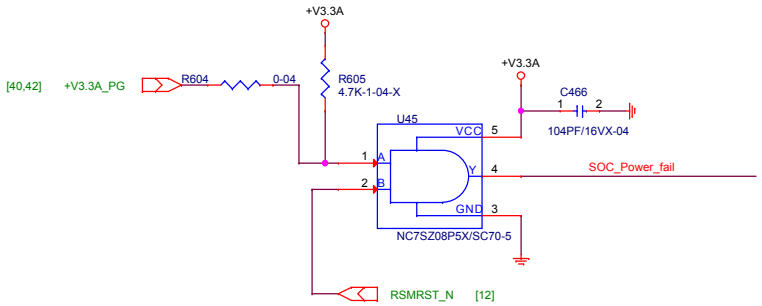
7.5A



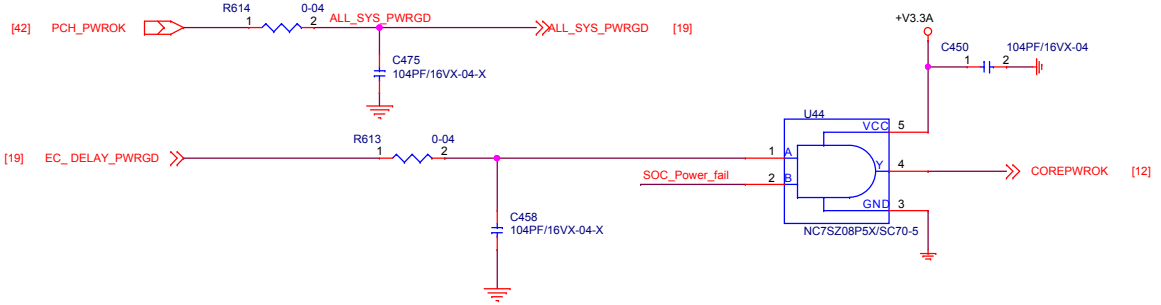


PMIC have Emergency shutdown
(B+<5.4V, drive RSMRST & PCH_PWROK to low)

Power Fail Detect



PCH_PWROK to EC ALL_SYS_PWRGD
All rails stable to SOC_PWROK assertion : 5 ms
EC_DELAY_PWRGD to SOC_PWROK



Winmate Communication INC.

Title	System_Power	
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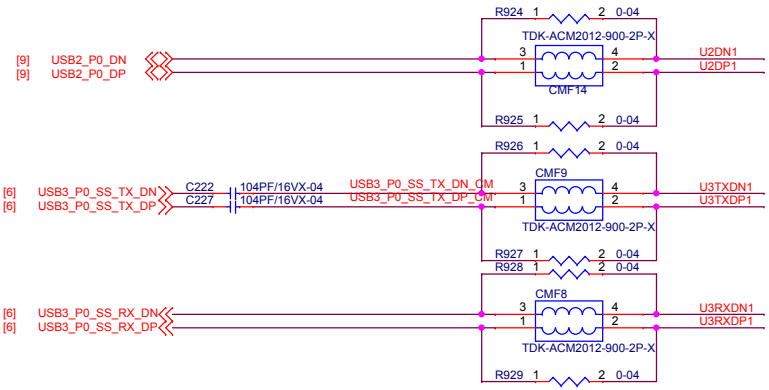


Current-Limit Threshold Equations (I_{OS}):

$$I_{OSmax}(mA) = \frac{22980V}{R_{ILIM}^{0.94}k\Omega}$$

$$I_{OSnom}(mA) = \frac{23950V}{R_{ILIM}^{0.977}k\Omega}$$

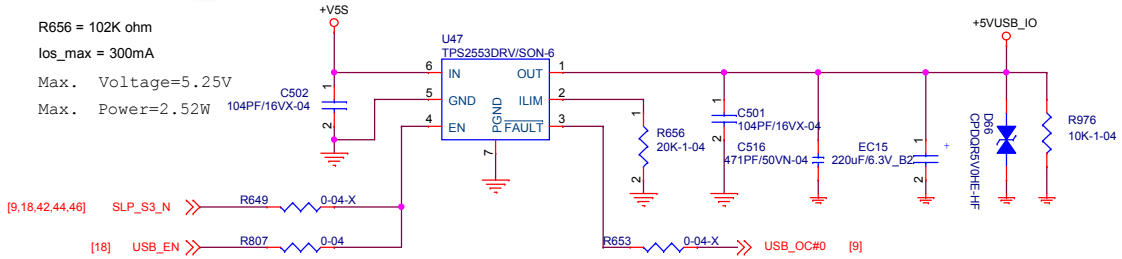
$$I_{OSmin}(mA) = \frac{25230V}{R_{ILIM}^{1.016}k\Omega}$$

R656 = 102K ohm

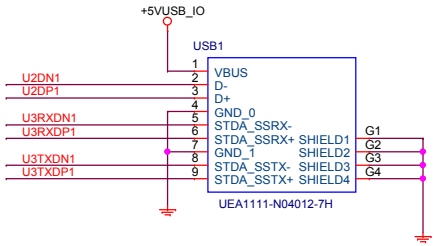
Ios_max = 300mA

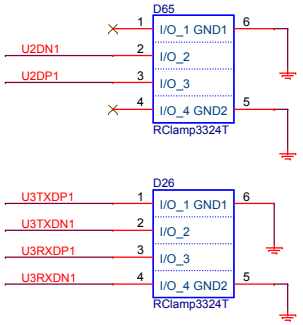
Max. Voltage=5.25V

Max. Power=2.52W



USB Connector





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Title: Level Voltage & SPI		
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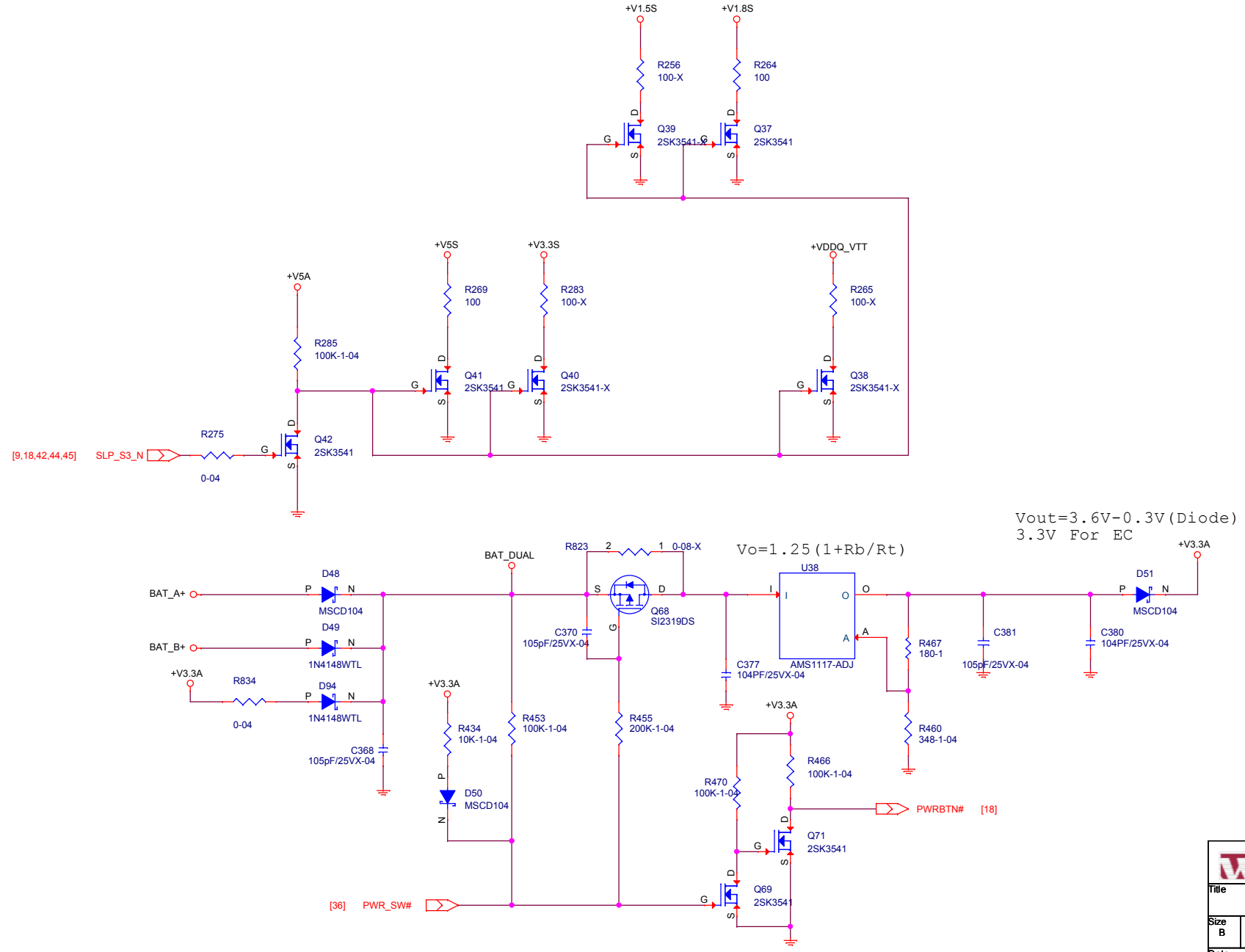

Winmate Communication INC.		
Title: Discharge Circuit		
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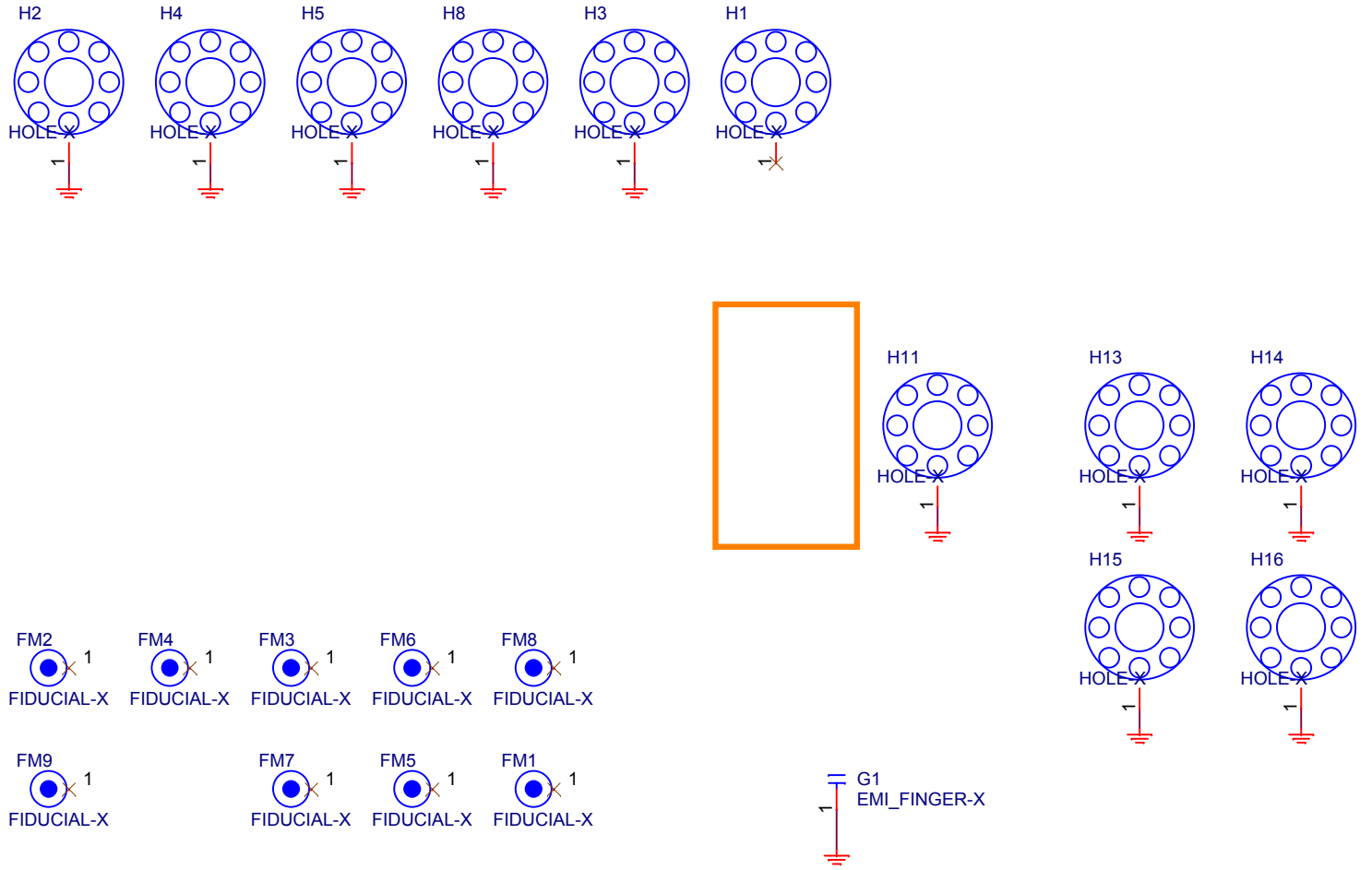

Winmate Communication INC.		
Title: Screw Hole & Fiducial		
Size: A	Document Number: M116P	Rev: 200
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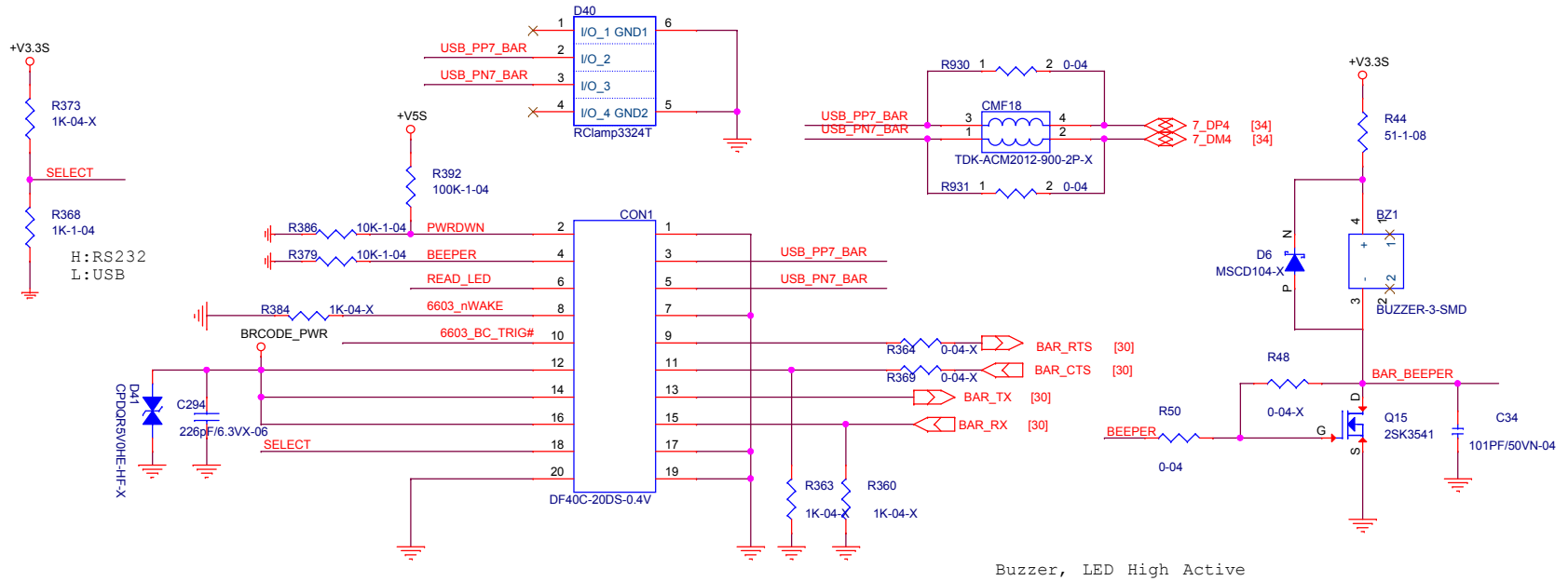
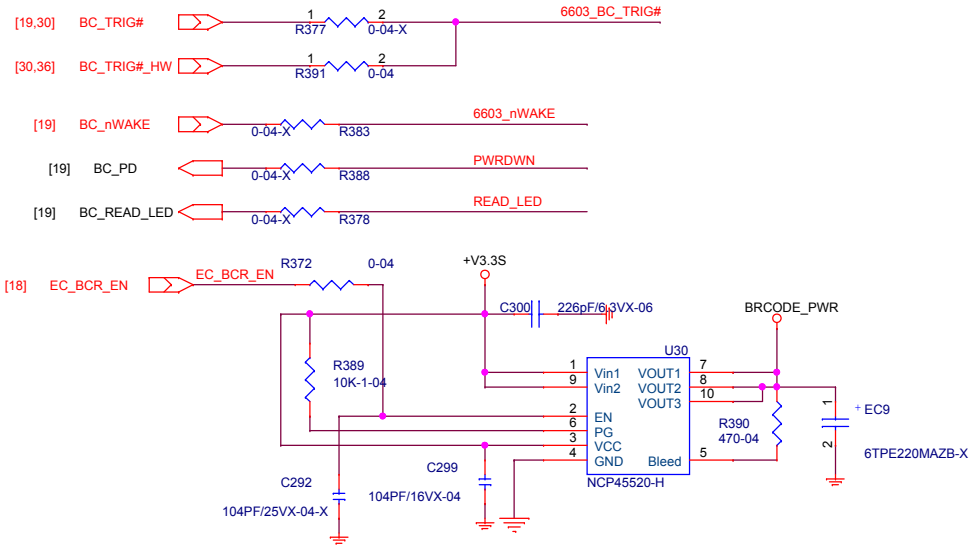


Buzzer, LED High Active



Winmate Communication INC.		
Title: EC Sequence		
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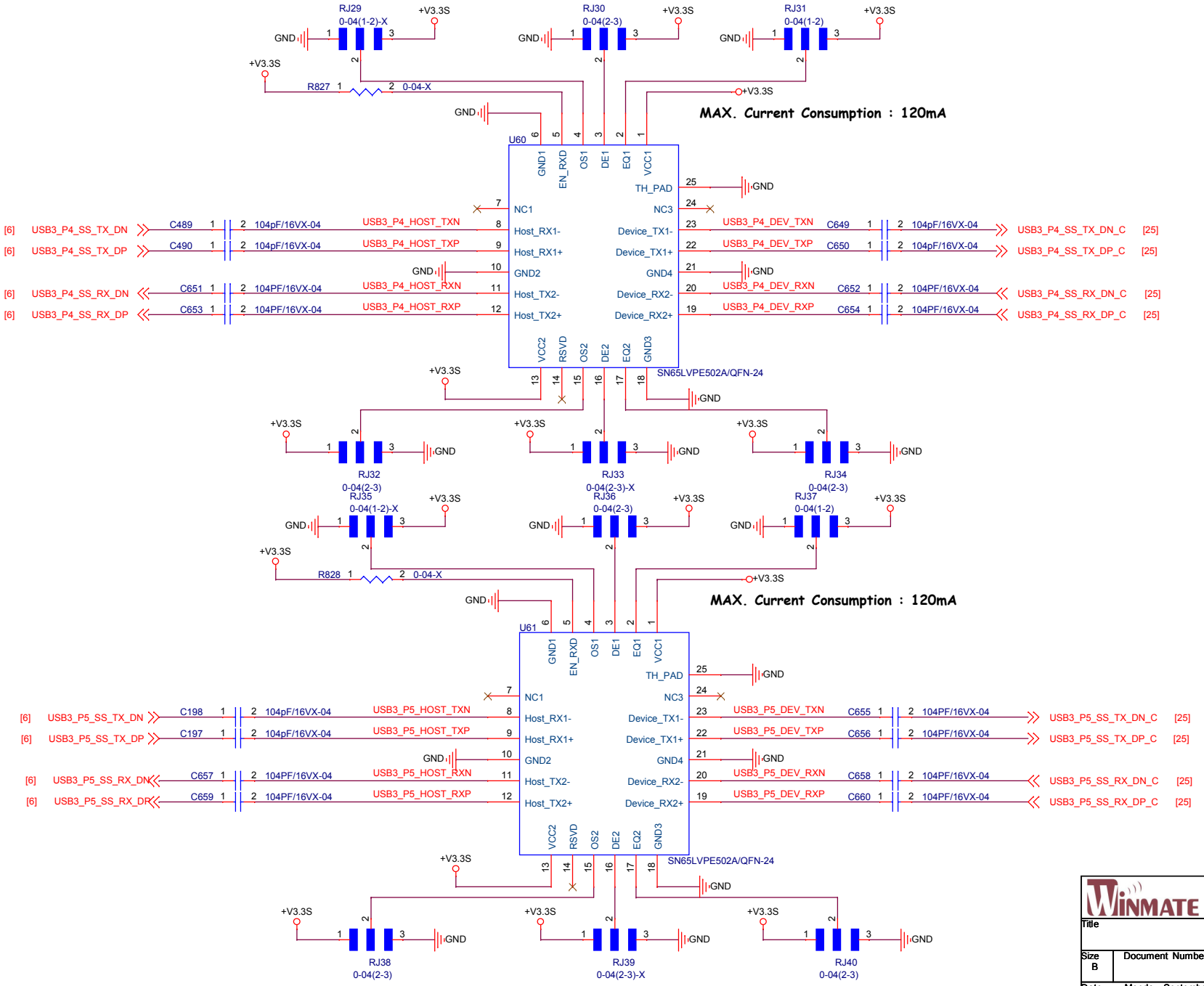

WINMATE	<OrgName>	
Title	<Title>	
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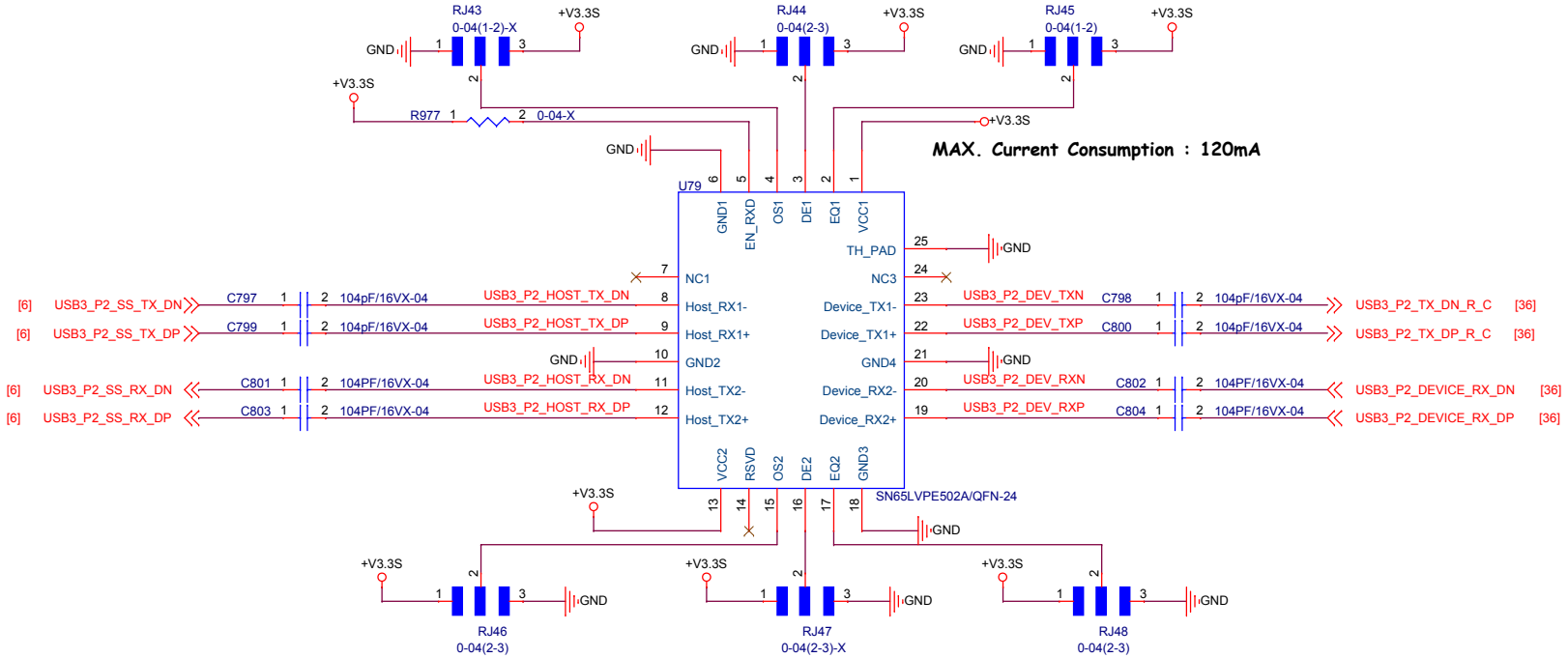

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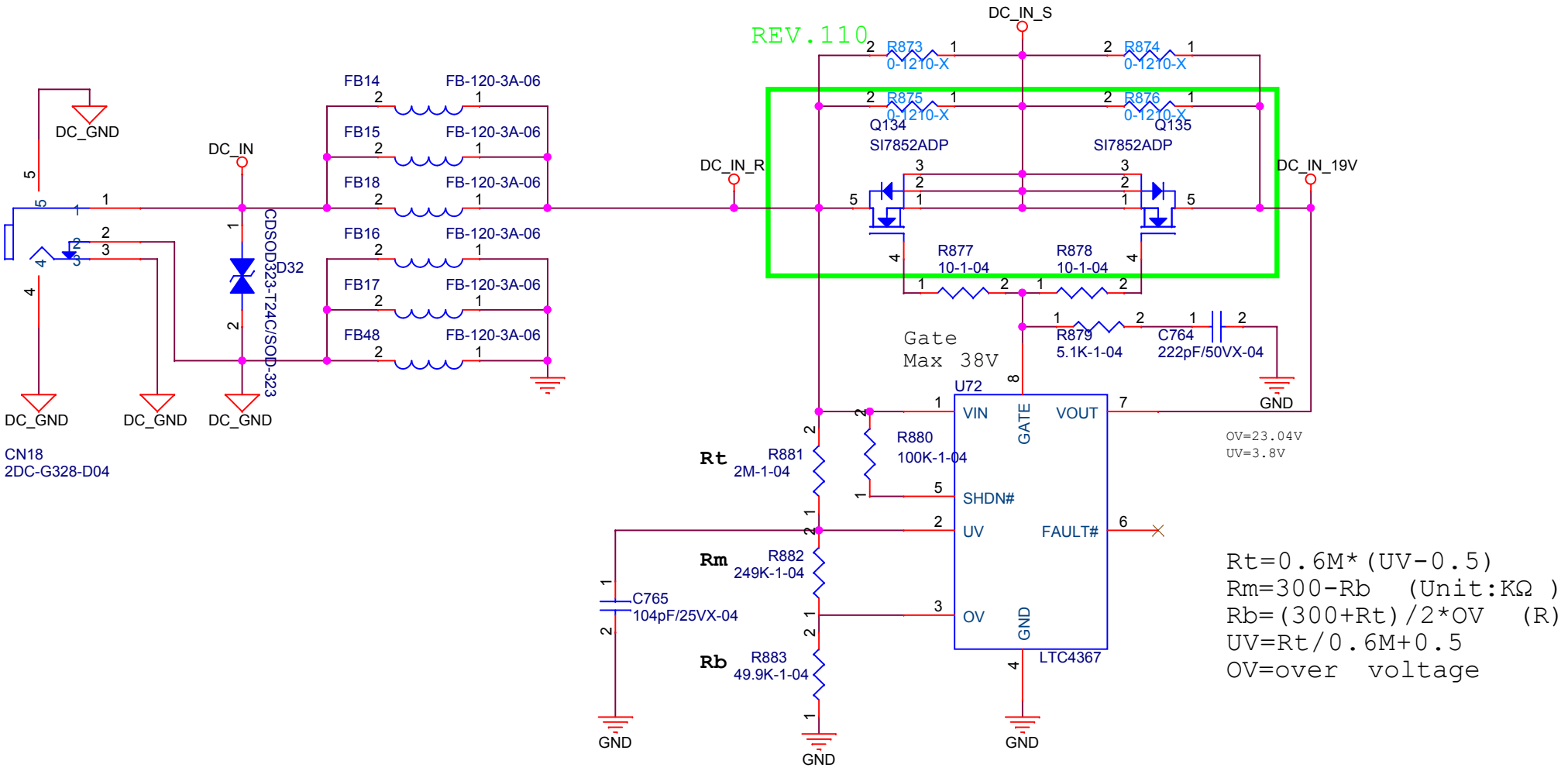

Winmate Communication INC.		
Title	HISTORY	
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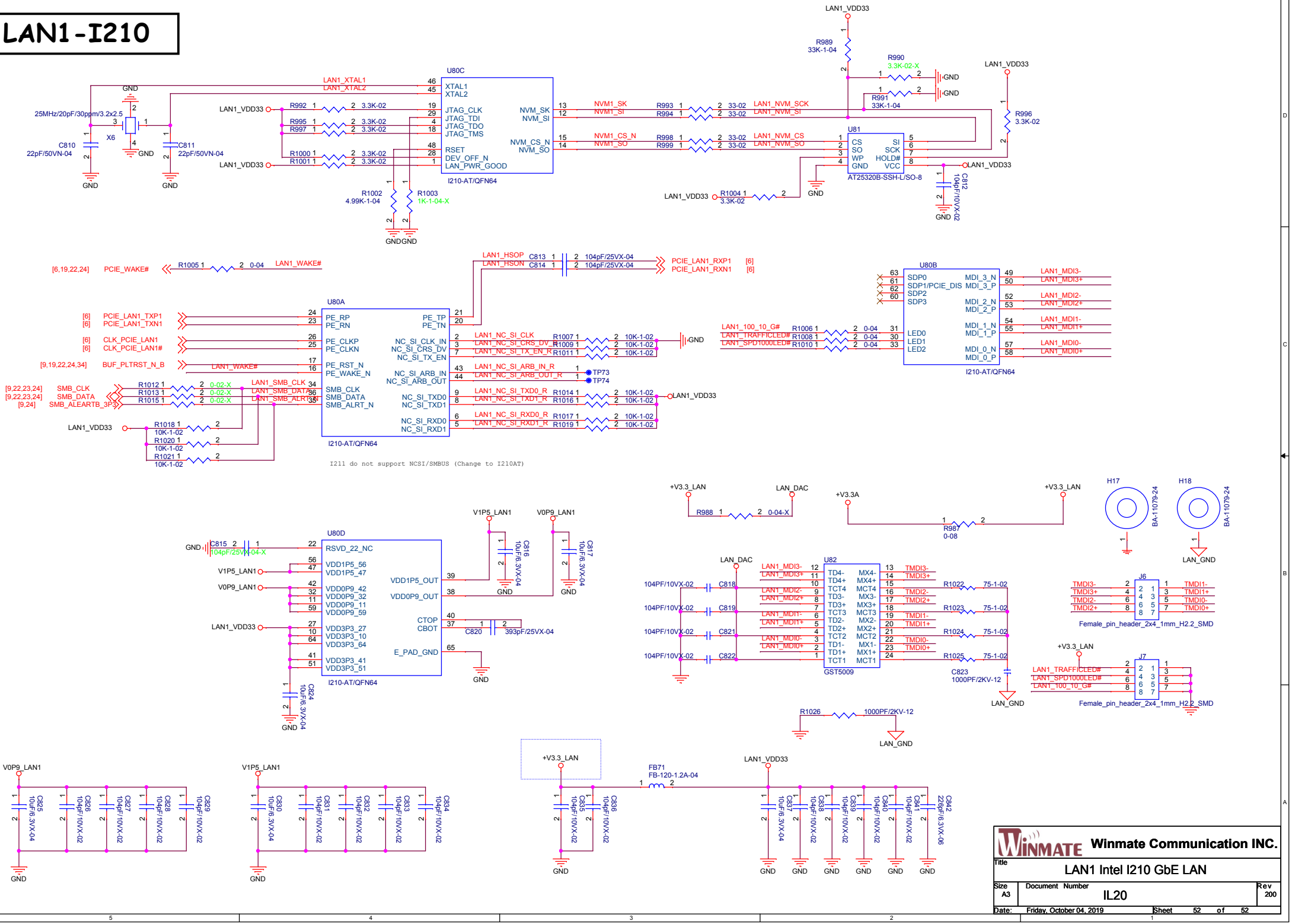
LAN1-I210



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Title: LAN1 Intel I210 GbE LAN

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