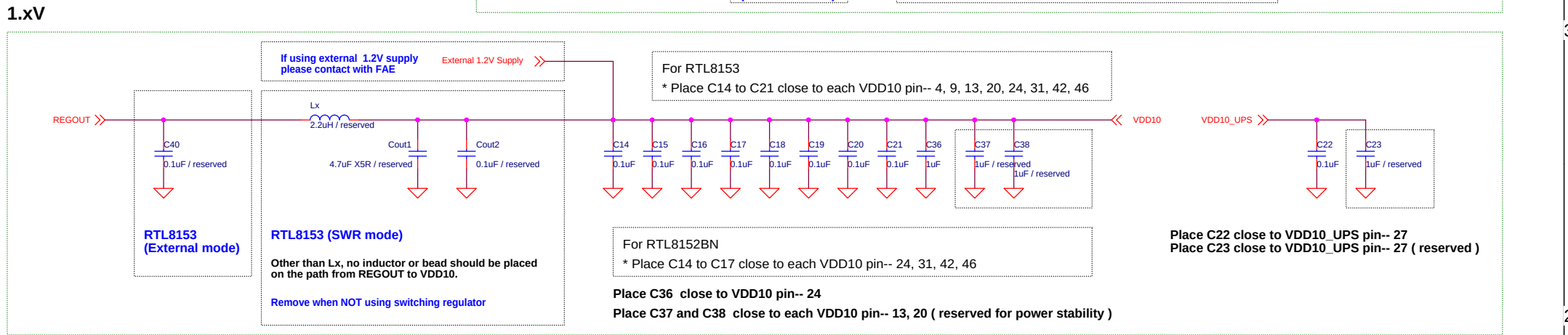
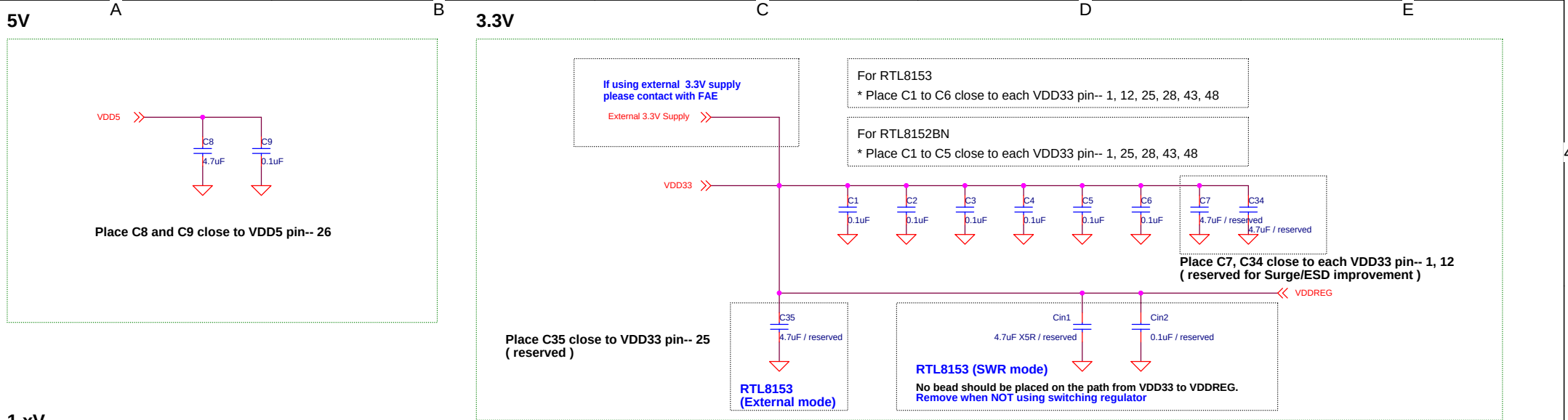
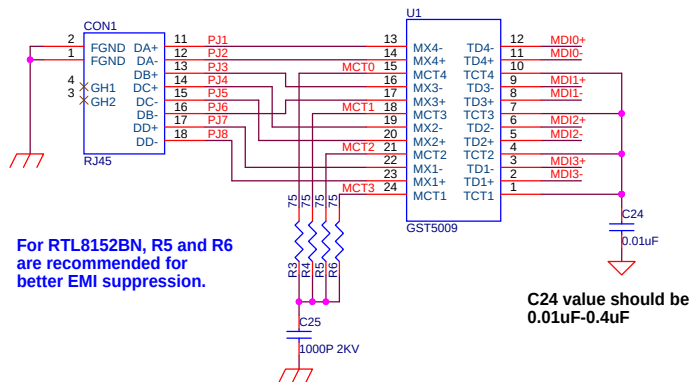


RTL8153/RTL8152BN 48 Pin Reference Schematic V107

PAGE	INDEX
1.	Title Page
2.	POWER
3.	CONTROLLER
4.	Reserved Components
5.	Optional Function
6.	Bill Of Materials for LOM
7.	Bill Of Materials for Dongle
8.	Change Notes

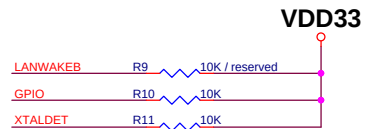


RJ45 Connector + Transformer



Pull-up Resistor

R9 could be saved by sharing the pull-up resistor available on the chipset side

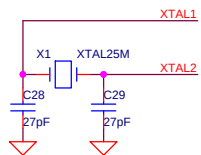


Test Point

Three test points reserved for debug requirement

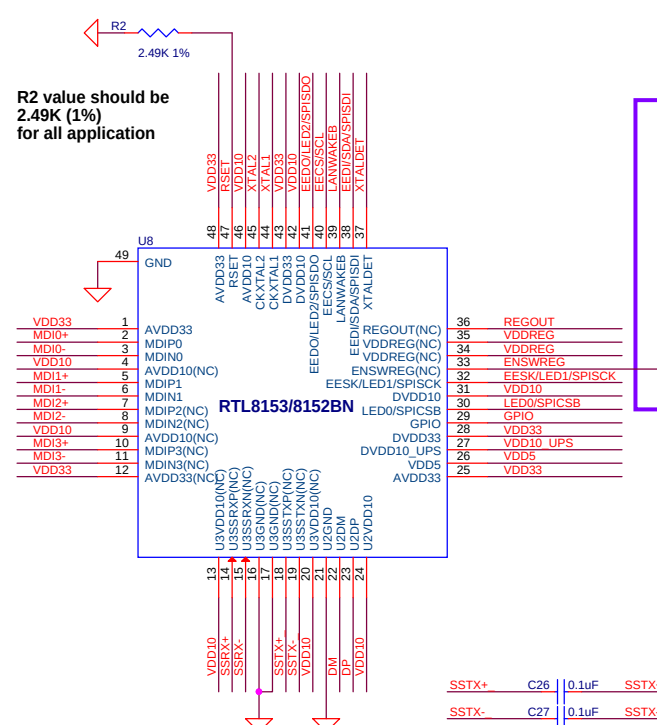


XTAL



Refer to the page of "Reserved Components" for Using External Clock Source

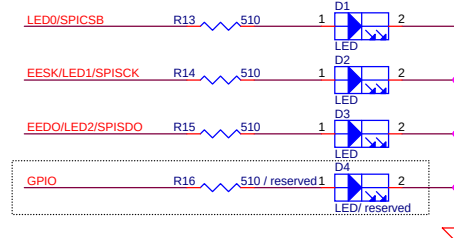
Controller



For RTL8152BN

NC (Not Connected) pins-- 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 33, 34, 35, 36

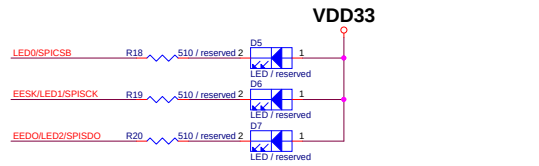
LED (High Active)



Support R >= 249 ohm Resistor For Single Color LED.

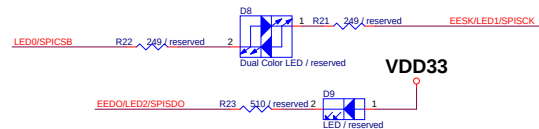
Refer to the page of "Reserved Components" for more optional LED configurations

Optional LED Configurations (Low Active)



Support R>= 249 ohm Resistor For Single Color LED

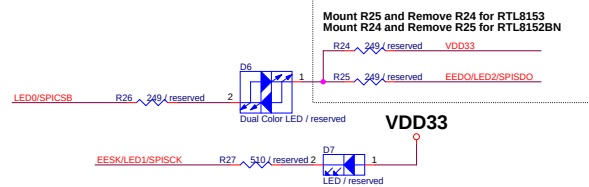
R18, R19, R20 and D5, D6, D7 Reserved for Single Color Configuration (optional)



Support R>= 249 ohm Resistor For Single Color LED

Support R>= 125 ohm Resistor For Dual Color LED

R21, R22, R23 and D8, D9 Reserved for Single Color + Dual Color LED Configuration (optional)



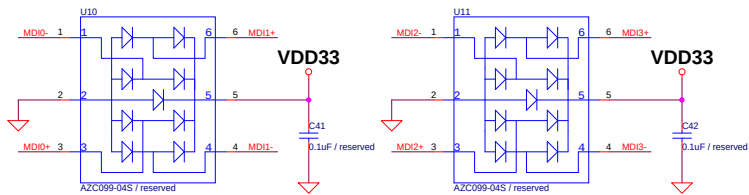
Support R>= 249 ohm Resistor For Single Color LED

Support R>= 125 ohm Resistor For Dual Color LED

R24, R25, R26, R27 and D10, D11 Reserved for Single Color + Dual Color LED Configuration (optional)

Only support LED0+LED1 / LED0+LED2 Dual Color LED Combinations when using EEPROM or SPI Flash

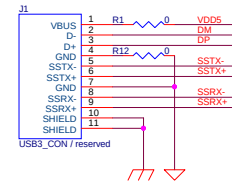
Reserved for TVS Components



Note:

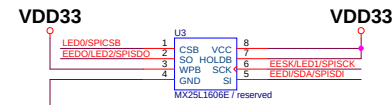
1. U10, U11 and C41, C42 are reserved for line-to-line Surge and Cable ESD on the secondary side (optional)
2. Gas Tube is for line-to-ground Surge on the primary side (optional)

USB Connector

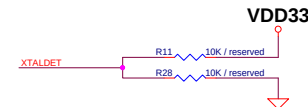


R1, R12 are reserved for filtering power noise.
You can just make a path of short to replace the use of R1/R12 if not needed.

SPI Flash



Reserved for Using External Clock Source



R11 Reserved for Using 25MHz Clock Source
R28 Reserved for Using 48MHz Clock Source

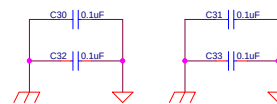
Pin37- XTALDET is Clock Detect Pin.
Mount R11 and Remove R28 when 25MHz clock is used.
Mount R28 and Remove R11 when 48MHz clock is used.

External Clock >>> R29 0 / reserved XTAL2

R29 Reserved for Using External Clock Source (optional)

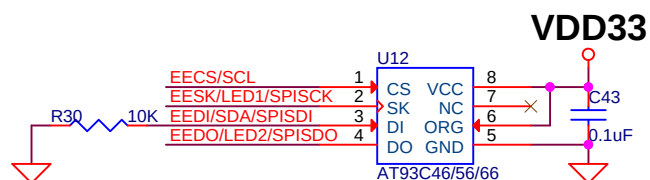
Pin45- XTAL2 is External Clock Input Pin
Pin44- XTAL1 must be floating when using external clock source

Reserved for Noise Isolation

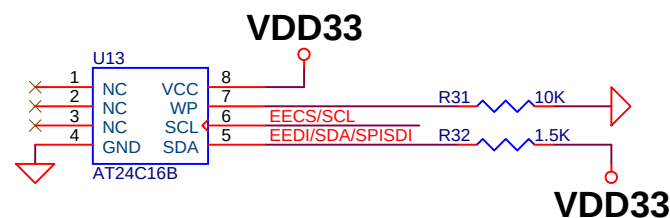


C30 to C33 Reserved for Noise Isolation between Chassis GND and System GND (optional)

For RTL8153 EEPROM / TWSI Function (2 Option)

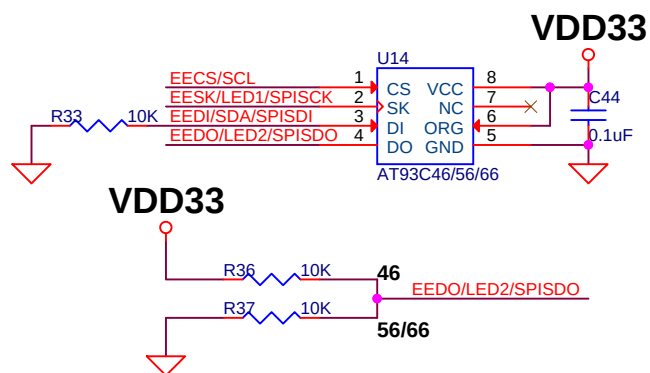


1. All components in this block are needed if EEPROM is used.
Choose 93C46 or 93C56/66 by eFUSE autoload

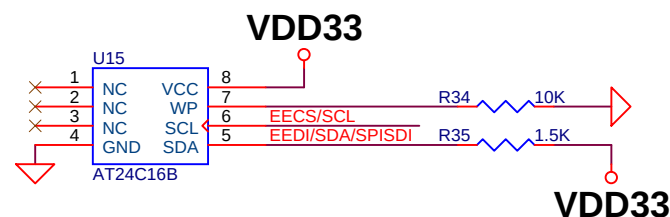


2. All components in this block are needed if TWSI is used.

For RTL8152BN EEPROM / TWSI Function (2 Option)



1. All components in this block are needed if EEPROM is used.
Mount R36 and Remove R37 for using 93C46
Mount R37 and Remove R36 for using 93C56/66



2. All components in this block are needed if TWSI is used.

RTL8153 R-BOM for LAN on Motherbaord

1. SWR mode

Bill Of Materials		March 14, 2013	
Item	Quantity	Reference	Part
1.	1	CON1	RJ45
2.	20	Cout2,Cin2,C1,C2,C3,C4,C5,C6,C9,C14,C15,C16,C17,C18,C19,C20,C21,C22,C26,C27	0.1uF
3.	1	C36	1uF
4.	1	C8	4.7uF
5.	2	Cout1,Cin1	4.7uF X5R
6.	1	C24	0.01uF
7.	1	C25	1000pF/2KV
8.	2	C28,C29	27pF
9.	3	D1,D2,D3	LED
10.	1	J1	USB3.0 Connector
11.	1	L1	2.2uH
12.	1	R2	2.49K 1%
13.	4	R3,R4,R5,R6	75
14.	2	R10,R11	10K
15.	3	R13,R14,R15	510
16.	1	U1	Transformer
17.	1	U8	RTL8153
18.	1	X1	XTAL25M

2. External mode

Bill Of Materials		March 14, 2013	
Item	Quantity	Reference	Part
1.	1	CON1	RJ45
2.	19	C1,C2,C3,C4,C5,C6,C9,C14,C15,C16,C17,C18,C19,C20,C21,C22,C26,C27,C40	0.1uF
3.	1	C36	1uF
4.	1	C8	4.7uF
5.	1	C24	0.01uF
6.	1	C25	1000pF/2KV
7.	2	C28,C29	27pF
8.	3	D1,D2,D3	LED
9.	1	J1	USB3.0 Connector
10.	1	R2	2.49K 1%
11.	4	R3,R4,R5,R6	75
12.	2	R10,R11	10K
13.	3	R13,R14,R15	510
14.	1	U1	Transformer
15.	1	U8	RTL8153
16.	1	X1	XTAL25M

RTL8152BN R-BOM for LAN on Motherbaord

1. LDO mode

Bill Of Materials		March 14, 2013	
Item	Quantity	Reference	Part
1.	1	CON1	RJ45
2.	11	C1,C2,C3,C4,C5,C9,C15,C16,C17,C21,C22	0.1uF
3.	1	C36	1uF
4.	1	C8	4.7uF
5.	1	C24	0.01uF
6.	1	C25	1000pF/2KV
7.	2	C28,C29	27pF
8.	2	D1,D2	LED
9.	1	J1	USB3.0 Connector
10.	1	R2	2.49K 1%
11.	4	R3,R4,R5,R6	75
12.	2	R10,R11	10K
13.	2	R13,R14	510
14.	1	U1	Transformer
15.	1	U8	RTL8152BN
16.	1	X1	XTAL25M

RTL8153 R-BOM for USB Dongle

SWR mode

Bill Of Materials		March 14, 2013	
Item	Quantity	Reference	Part
1.	1	CON1	RJ45
2.	20	Cout2,Cin2,C1,C2,C3,C4,C5,C6,C9,C14,C15,C16,C17,C18,C19,C20,C21,C22,C26,C27	0.1uF
3.	1	C36	1uF
4.	1	C8	4.7uF
5.	2	Cout1,Cin1	4.7uF X5R
6.	1	C24	0.01uF
7.	1	C25	1000pF/2KV
8.	2	C28,C29	27pF
9.	3	D1,D2,D3	LED
10.	1	J1	USB3.0 Connector
11.	1	Lx	2.2uH
12.	1	R2	2.49K 1%
13.	4	R3,R4,R5,R6	75
14.	2	R10,R11	10K
15.	3	R13,R14,R15	510
16.	1	U1	Transformer
17.	1	U3	SPI Flash
18.	1	U8	RTL8153
19.	1	X1	XTAL25M

RTL8152BN R-BOM for USB Dongle

LDO mode

Bill Of Materials		March 14, 2013	
Item	Quantity	Reference	Part
1.	1	CON1	RJ45
2.	11	C1,C2,C3,C4,C5,C9,C14,C15,C16,C17,C22	0.1uF
3.	1	C36	1uF
4.	1	C8	4.7uF
5.	1	C24	0.01uF
6.	1	C25	1000pF/2KV
7.	2	C28,C29	27pF
8.	2	D1,D2	LED
9.	1	J1	USB3.0 Connector
10.	1	R2	2.49K 1%
11.	4	R3,R4,R5,R6	75
12.	2	R10,R11	10K
13.	2	R13,R14	510
14.	1	U1	Transformer
15.	1	U3	SPI Flash
16.	1	U8	RTL8152BN
17.	1	X1	XTAL25M

Realtek Semiconductor Corp.		
No.2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan		
Title RTL8153/8152BN 48 Pin Reference Schematic : Bill Of Materials for Dongle		
Size A3	Document Number RTL8153/8152BN 48 Pin Reference Schematic	Rev
Date: Friday, March 21, 2014	Sheet 7	of 8

Change Notice from 1.00 to 1.01

- 1. Revise RTL8152BN R-BOM list : add R5,R6 for better EMI suppression. (Page 3)

Change Notice from 1.01 to 1.02

- 1. Add power pin note. (Page 2)

Change Notice from 1.02 to 1.03

- 1. Remove RTL8153 LDO mode. (Page 2)
- 2. Add LED configurations to high active for better system ESD protection. (Page 3)

Change Notice from 1.03 to 1.04

- 1. Add C7 note for surge improvement. (Page 2)
- 2. Add C18 for power stability with RTL8152BN application. (Page 2, Page 6, Page 7)

Change Notice from 1.04 to 1.05

- 1. Add C34 and C35 for surge improvement. (Page 2)
- 2. Add C36, C37 and C38 for power stability. (Page 2)

Change Notice from 1.05 to 1.06

- 1. Add Notes for switching regulator circuits. (Page 2)

Change Notice from 1.06 to 1.07

- 1. Reserve C35 at RTL8153 external mode for power stability . (Page 2)