

IO			
P1		P2	
PE0	1 2	PB9	PB7
PE2	3 4	PE1	PB5
PE3	5 6	PE3	PB3
PE6	5 6	PE5	PB4
PF0	7 8	PC13	PG13
PF2	11 12	PF1	PG11
PF4	13 14	PF3	PG9
PF5	15 16	PF5	PG8
PF8	15 16	PF7	PD7
PF10	17 18	PF9	PD5
PC1	21 22	PC0	PD4
PC3	23 24	PC2	PD2
PA0	25 26	PA0	PD0
PA3	25 26	PA2	PD1
PA5	27 28	PA4	PD2
PA7	31 32	PA6	PD1
PC5	33 34	PC4	PD1
PF1	35 36	PB0	PC7
PF11	35 36	PB2	PC6
PF13	37 38	PF12	PC7
PF15	41 42	PF14	PG2
PG1	43 44	PG0	PD14
PE8	45 46	PE7	PD12
PE10	47 48	PE9	PD10
PE12	49 50	PE11	PD8
PE14	51 52	PE13	PB14
PB10	53 54	PE15	PB15
			PB11

		2	3
		CPU	
WK UP		PA0 34	U1
		PA1 35	
		PA2 36	
		PA3 37	
		PA4 40	
		PA5 41	
		PA6 42	
		PA7 43	
		PA8 100	
USART1_TX		PA9 101	
USART1_RX		PA10 102	
USB_D-		PA11 103	
USB_D+		PA12 104	
TJMS		PA13 105	
JTCK		PA14 109	
JTDI		PA15 110	
		T_SCK	PB0 46
		T_FEN	PB1 47
T_MISO	BOOT1	PB2 48	
SP1_SCK	JTDO	PB3 133	
SP1_MISO	JTRST	PB4 134	
SP1_MOSI		PB5 135	
		PB6 136	
		PB7 137	
HC_SCL		PB8 139	
HC_SDA		PB10 140	
		PB11 70	
		PB12 73	
		PB13 74	
		PA10-WKUP/D2_CTS/D4_TXETH1_MII_CRS/TIM2_CH1_ETR/TIM8_CH1/TIM8_ETR/ADC123_IN0	PE0/TIM4_ETR/FSMC_NBL/D1CM1_D2
		PA11/2_RTS/D4_RXETH1_RMII_REF_CLK/D12M1_MII_RX_CLK/TIM2_CH2/TIM5_CH2/ADC123_IN1	PE1/FSMC_NBL/D1CM1_D3
		PA2/2_RX/TIM2_CH3/TIM5_CH3/TIM9_CH1/ETH_MDIO/ADC123_IN2	PE2/TRACELCK/FSMC_A23ETH_MII_TXD3
		PA3/2_RX/TIM2_CH4/TIM5_CH4/TIM9_CH2/OTG_HS_ULPI_D0/ETH_MII_COL/ADC123_IN3	PE3/TRACE/D0/FSMC_A19
		PA4/SP1_NSS/D2_KD/CM1_HSYNCTMG_HS_SOF/I2S3_WS/DAC1_OUT/ADC12_IN4	PE4/TRACED1/FSMC_A20/DCM1_D4
		PA5/SP1_SCK/OTG_HS_ULPI_CK/TIM2_CH1_ETR/TIM8_CHIN/DAC2_OUT/ADC12_IN5	PE5/TRACED2/FSMC_A21/TIM9_CH1/DCM1_D6
		PA6/SP1_MISO/D1M1_BKIN/TIM5_CH1/TIM5_BKIN/TIM3_CH1/DCM1_PXCLK1/D1CM1_D7	PE6/TRACED3/FSMC_A22/TIM9_CH2/D1CM1_D7
		PA7/SP1_MOSI/TIM1_CHIN/TIM3_CH2/TIM5_CHIN/TIM4_CH2/ETH_MII_RX_DV/ETH_RMII_CRS_DV/ADC12_IN7	PE7/FSMC_D4/TIM1_ETR
		PA8/TIM1_CH1/U1_CK12/3_SMLA/CMO1/OTG_FS_VBUS	PE8/FSMC_D5/TIM1_CHIN
		PA9/TIM1_CH2/U1_CK12/3_SMB/OTG_FS_SF/D5/DCM1_D0	PE9/FSMC_D6/TIM1_CH1
		PA10/TIM1_CH3/U1_RX/OTG_FS_ID/DDCM1_D1	PE10/FSMC_D7/TIM1_CH2N
		PA11/TIM1_CH4/U1_CTS/CAN1_RX/OTG_FS_DM	PE11/FSMC_D8/TIM1_CH2
		PA12/TIM1_ETR/U1_RTS/CAN1_TX/OTG_FS_DP	PE12/FSMC_D9/TIM1_CH3N
		PA13/TJMS_SWIDIO	PE13/FSMC_D10/TIM1_CH3
		PA14/JTCK_SWCLK	PE14/FSMC_D11/TIM1_CH4
		PA15/JTDI/SP1_NSS/SP3_NSS/TIM2_CH1_ETR/I2S3_WS	PE15/FSMC_D12/TIM1_BKIN
		PB0/TIM1_CH2N/TIM3_CH3/TIM2_CH2N/OTG_HS_ULPI_D1/ETH_MII_RXD2/ADC12_IN8	PF0/FSMC_A0/I2C2_SDA
		PB1/TIM1_CH3N/TIM3_CH4/TIM2_CH3N/OTG_HS_INTN/ETH_MII_RXD3/ADC12_IN9	PF1/FSMC_A1/I2C2_SCL
		PB2/BOOT1	PE2/FSMC_A2/I2C2_SMBLA
		PB3/JTDO/TRACESW/OTG_DM2_CH2/SP1_SCK/SP3_SCK/I2S3_CK	PF3/FSMC_A3/ADC3_IN9
		PB4/JTRST/TIM3_CH1/SP1_MISO/SP3_MISO/I2S3_SCK_SD	PF4/FSMC_A4/ADC3_IN14
		PB5/TIM3_CH2/SP1_MOSI/SP3_MOSI/CAN_RX/D2_SMBLA/OTG_HS_ULPI_D1/ETH_PPS_OUT/DCM1_D10/I2S3_SD/FSMC_A5/ADC3_IN15	PF5/FSMC_A5/ADC3_IN15
		PB6/TIM4_CH1/U1_TX/CAN2_TX/I2C1_SDCM1_DS	PF6/TIM4_CH1/FSMC_NIOR/DAC3_IN4
		PB7/TIM4_CH2/U1_RX/FSMC_NLEG/D12_SDA/CM1_VSYNC	PF7/TIM11_CH1/FSMC_NREG/DAC3_IN5
		PB8/TIM3_CH3/TIM10_CH1/CAN1_RX/SDD0_D4/ETH_MII_TXD3/D2C1_SCL/DCM1_D6	PF8/TIM11_CH1/FSMC_NIOWR/DAC3_IN6
		PB9/TIM4_CH4/TIM10_CH2/CAN1_TX/D5/SP2_NSS/I2C1_SDA/DCM1_D7/I2S2_WS	PF9/TIM11_CH1/FSMC_CDAT2/D2C1_TXD3
		PB10/SP2_SCK/TIM2_CH3/U1_TX/I2C2_SCL/OTG_HS_ULPI_D3/I2S2_CK	PF10/FSMC_INT3/DAC3_N8
		PB11/TIM2_CH4/U1_RX/D2C1_SDA/HS_ULPI_D4/ETH_MII_TX_EN	PF11/DCM1_D12
		PB12/SP2_NSS/TIM1_BKIN/U1_CK/CAN2_RX/I2C2_SMB/OTG_HS_ULPI_D5/OTG_HS_ID/ETH_MII_TXD0/ETH_RMII_TXD01/D2C1_SF/FSMC_A6	PF12/DCM1_D13
			PF13/DCM1_D14
			PF14/DCM1_D15
			PF15/DCM1_D16
			PF16/DCM1_D17
			PF17/DCM1_D18
			PF18/DCM1_D19
			PF19/DCM1_D20
			PF20/DCM1_D21
			PF21/DCM1_D22
			PF22/DCM1_D23
			PF23/DCM1_D24
			PF24/DCM1_D25

# USB Slave

The diagram illustrates a USB Slave circuit. A USB connector (USB1) is shown with the following connections:

- Shell: Connected to GND.
- 5V: Connected to VCC3.
- GND: Connected to GND.
- D+: Connected to R2.
- D-: Connected to R3.
- VBUS: Connected to VCC5.

The resistors R2 and R3 are connected to VCC3. The ground symbol is also connected to GND.

[illegible]

LCD			
FSMC_NE4	1	2	FSMC_A6
FSMC_NWE	3	4	FSMC_NOE
RSEL1	5	6	FSMC_D0
FSMC_D1	7	8	FSMC_D2
FSMC_D3	9	10	FSMC_D4
FSMC_D5	11	12	FSMC_D6
FSMC_D7	13	14	FSMC_D8
FSMC_D9	15	16	FSMC_D10
FSMC_D11	17	18	FSMC_D12
FSMC_D13	19	20	FSMC_D14
FSMC_D15	21	22	GND
LCD_BL	23	24	VCC3.3
VCC3.3	25	26	GND
GND	27	28	VCC5
T_MISO	29	30	T_MOSI
T_PEN	31	32	
T_CS	33	34	T_SCK

Pin configuration diagram for the NRF24L01 module. The module is shown with its 8 pins: GND, VCC, CE, CSN, SCK, MOSI, MISO, and IRQ. The pins are connected to a breadboard. GND is connected to the ground rail. VCC is connected to the +5V rail. CE is connected to the +5V rail. CSN is connected to the +5V rail. SCK is connected to the +5V rail. MOSI is connected to the +5V rail. MISO is connected to the +5V rail. IRQ is connected to the +5V rail. The breadboard is labeled with GND, +5V, and VCC3.3.

[illegible]

## SPI FLASH

The diagram illustrates the connection of a SPI Flash (U2) to a 3.3V logic level converter (C4). The SPI Flash (U2) has pins CS (1), MISO (2), MOSI (4), and GND (5). The 3.3V logic level converter (C4) has pins CS (8), MISO (7), MOSI (104), and GND (5). The MISO and MOSI lines are connected between U2 and C4. The CS lines are connected to VCC3.3. The GND lines are connected to a common ground.

# USB USART

The diagram illustrates a USB USART interface circuit. It features a USB2 connector on the left, which provides power (VBUS, VCC5) and data lines (D+, D-, NC, GND). The CH340C IC is the central component, converting the USB signals to UART signals (TXD, RXD). The TXD and RXD lines are connected to the TP1 2TY BOOT0 pin and the TP2 2TY pin, respectively. The TP1 pin is also connected to a 10K resistor and a 10K resistor to GND. The TP2 pin is connected to a 10K resistor and a 10K resistor to GND. The RESET pin is connected to GND and a 10K resistor. The circuit includes a C30 capacitor and a C3 capacitor.

## BOOT

BOOT pin configuration circuit diagram showing a 2K resistor (R21) connected to VCC3.3 and a 10K resistor (R20) connected to GND.

## RESET

RESET pin configuration circuit diagram showing a 10K resistor (R19) connected to VCC3.3 and a 10K resistor (R19) connected to GND.

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**LED**

VCC3.3

R12 1K

DS0

LED0

R14 1K

DS1

LED1

**KEY**

WK UP VCC3.3

KEY0

KEY1

GND

CC3.3

GND

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