ESP8266 General Purpose Input Output

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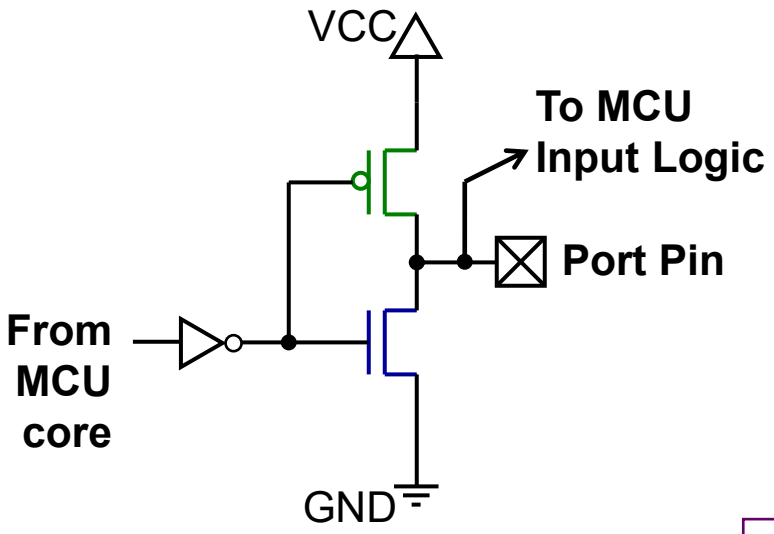
ESP8266-12E Pins

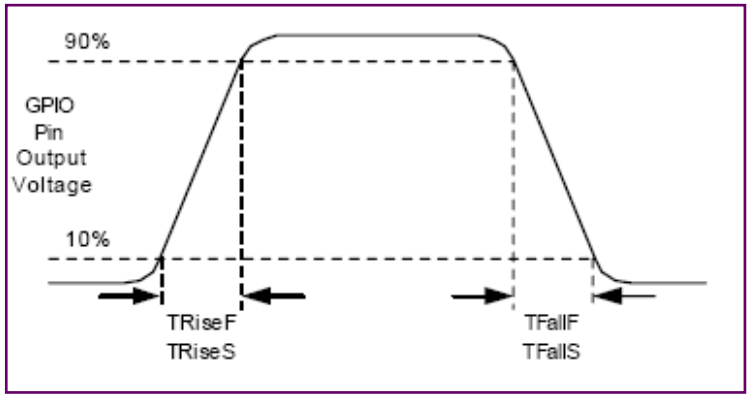
Label	GPIO	Input	Output	Notes
D0	GPIO16	no interrupt	no PWM or I2C support	HIGH at boot used to wake up from deep sleep
D1	GPIO05	OK	OK	often used as SCL (I2C)
D2	GPIO04	OK	OK	often used as SDA (I2C)
D3	GPIO00	pulled up	OK	connected to FLASH button, boot fails if pulled LOW
D4	GPIO02	pulled up	OK	HIGH at boot connected to on-board LED, boot fails if pulled LOW
D5	GPIO14	OK	OK	SPI (SCLK)
D6	GPIO12	OK	OK	SPI (MISO)
D7	GPIO13	OK	OK	SPI (MOSI)
D8	GPIO15	pulled to GND	OK	SPI (CS) Boot fails if pulled HIGH
RX	GPIO03	OK	RX pin	HIGH at boot
TX	GPIO01	TX pin	OK	HIGH at boot debug output at boot, boot fails if pulled LOW
A0	ADC0	Analog input	X	Analog pin 1.8V

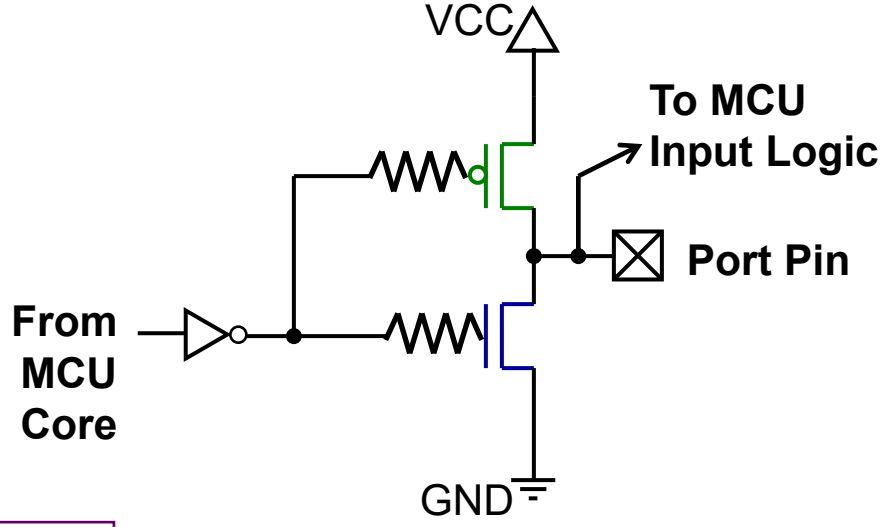
Drive Mode: Strong and Slow Strong



Strong Drive Mode

Normal output mode.
Works like an inverter.
Rise/Fall times 12ns Max

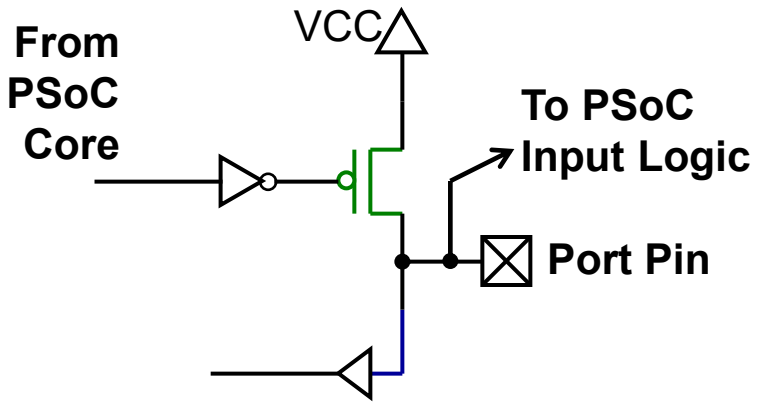


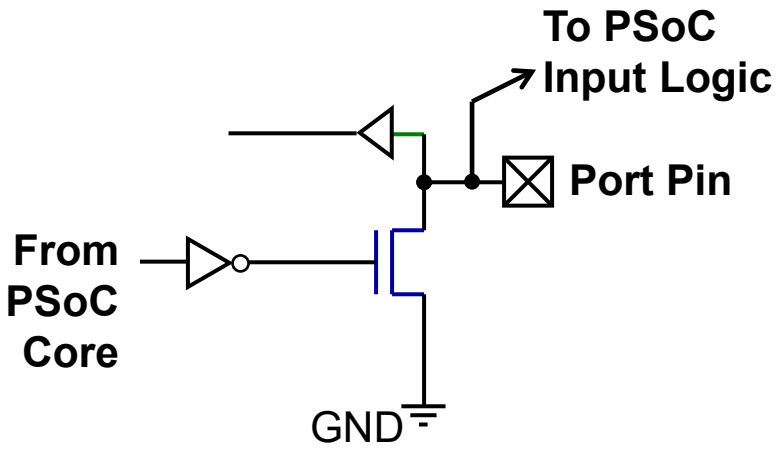


Slow Strong Drive Mode

Controlled rise/fall times.
Rise/Fall times 60 ns Max.
Saves power

Drive Mode: Open Drain - Drives High/Low





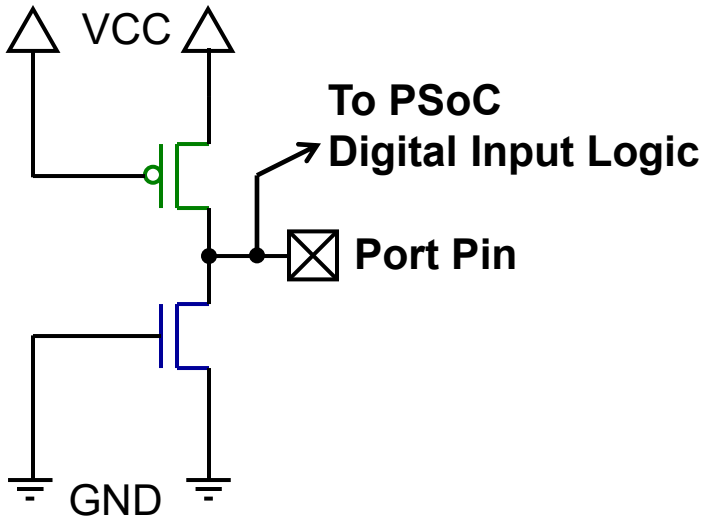
Open Drain-Drives high

Connect a resistor externally from pin to ground

Open Drain-Drives Low

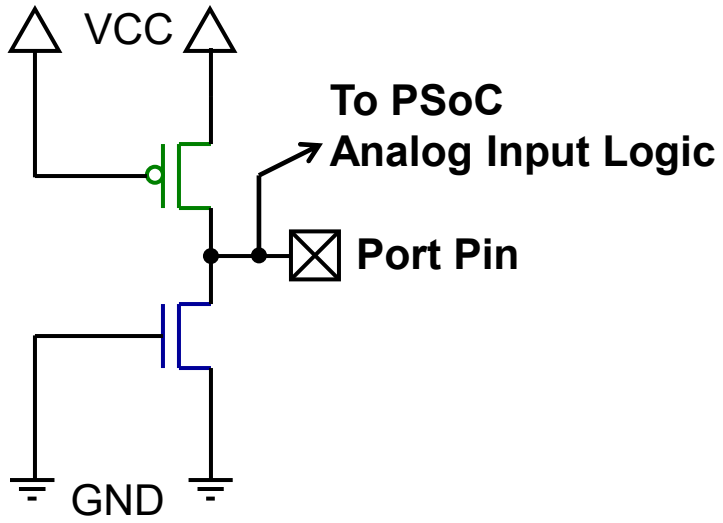
Connect a resistor externally from pin to Vdd

Drive Mode: Hi-Z and Analog Hi-Z



Hi-Z Mode

Digital Input Mode

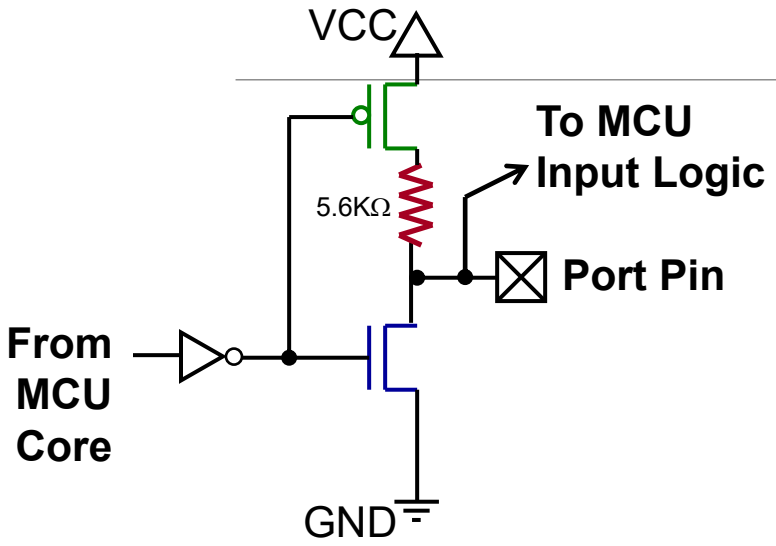


Analog Hi-Z Mode

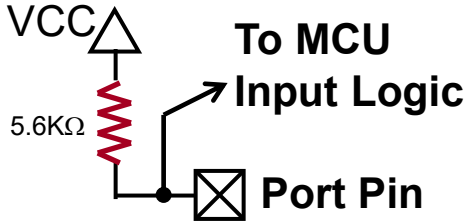
Analog Input Mode.
Select when port is unused since it consumes no power.

Drive Mode: Resistive Pull-Up and Pull-Down

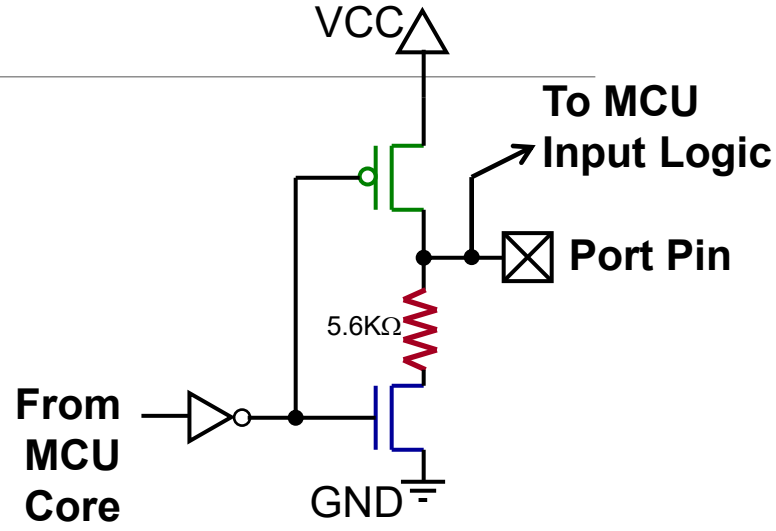
Resistive Pull-Up



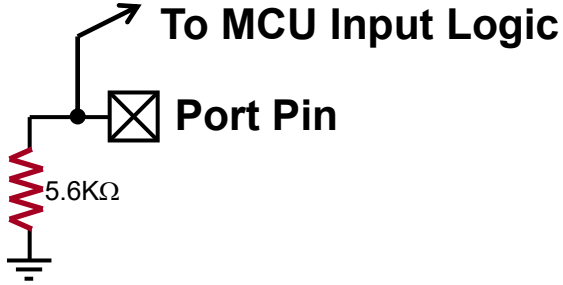
Effective Circuit if written with ‘1’



Resistive Pull-Down

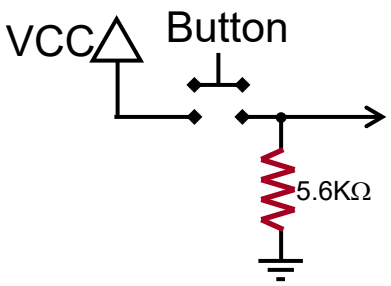


Effective Circuit if written with ‘0’



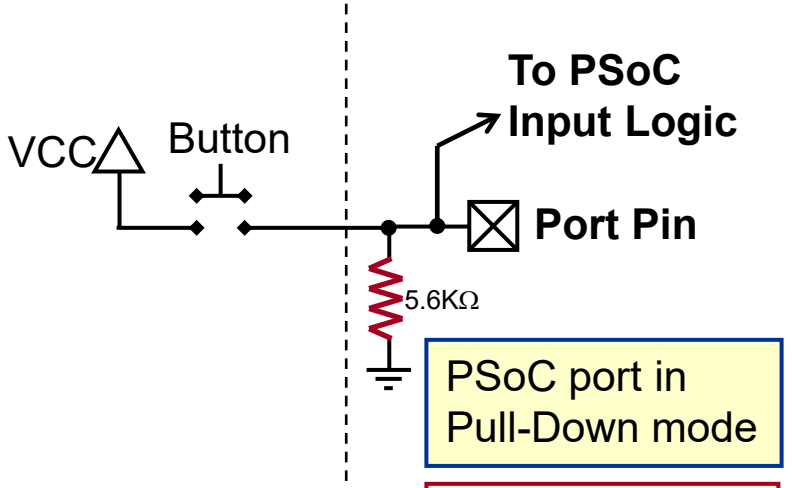
NOTE:
If you are using this mode as input-only, make sure to write correct value to port!

Example: Switches and Pushbutton Inputs



SPST Button:
Produces either Vcc or Floating input.

Adding a pull-down resistor fixes it.



PSoC port in
Pull-Down mode

Don’t Forget:
Write ‘0’ to port