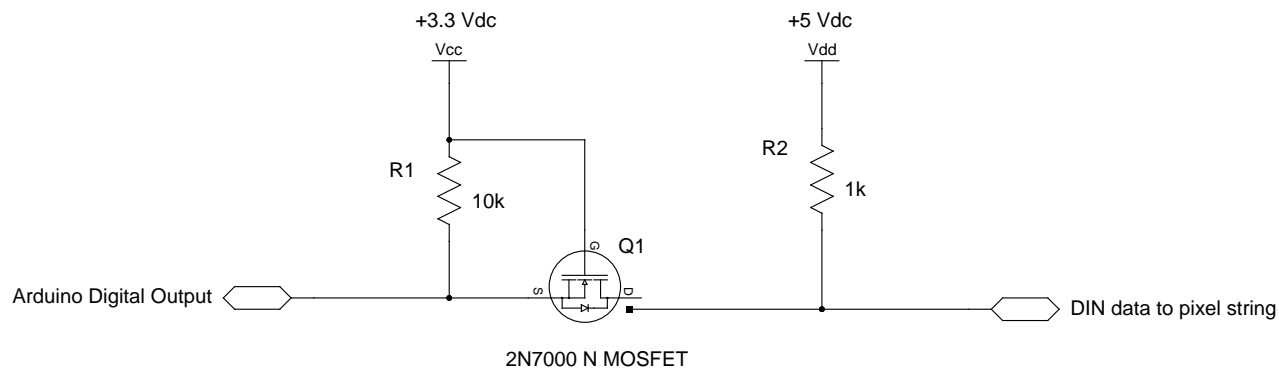This circuit allows the 3.3 Vdc output of a Moteino/Arduino
to the 5 Vdc required by the WS2811 chip used in
addressable tricolour LED (pixel) strings.

+3.3 Vdc

Vcc

+5 Vdc

Vdd

R1

10k

R2

1k

G

Q1

S   D

Arduino Digital Output

DIN data to pixel string

2N7000 N MOSFET

Note that R2 (the high voltage pull–up resistor)
must be less than 10k. The 1k resistor seemed to work
well. The output (5 V) waveform has a significant ramp on
the rising edge of each pulse. With the 10k resistor, an
oscilloscope shows peak–to–peak voltage of about 3 V
(less than the low voltage side of the converter). With the
1K resistor P–P voltage approaches the 5 volt mark.

Test was performed using the strandtest_solid_white
Arduino sketch.

LED Pixel String Logic Level Converter Circuit	
TITLE	
FILE: Pixel_LED_String_Logic_Converter.sch	REVISION: 1.0 (Mar.01,2016)
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