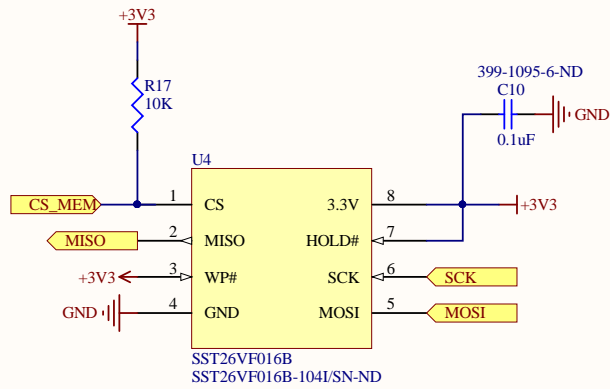
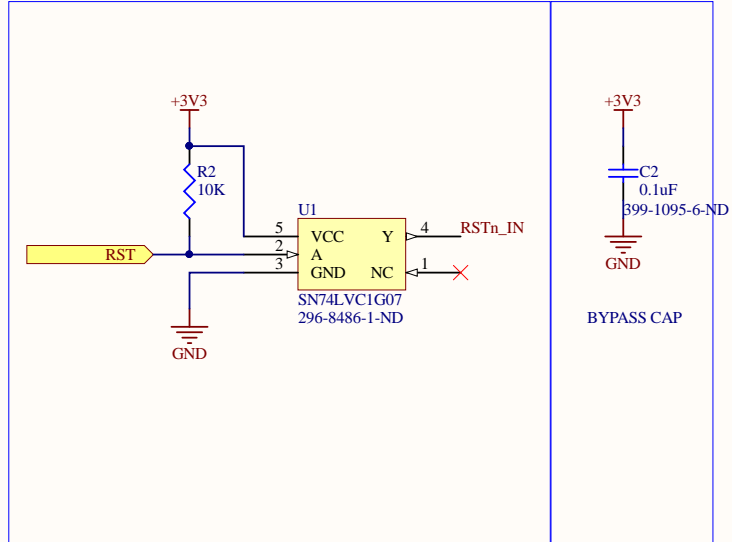


Title			UTAT SS		
Top Level					
Size	Number		Revision		
A	1		1.0		
Date:	2019-01-26		Sheet	1	of 8
File:	C:\Users\...\obc_main_3.0.SchDoc		Drawn By:	Mohamed Hirole	

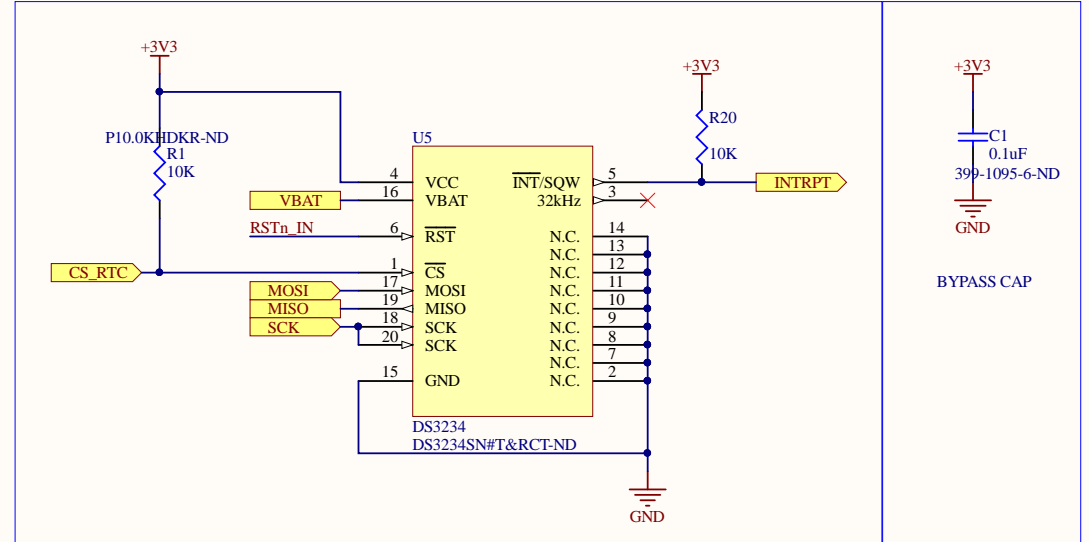


Title		UTAT SS	
Flash Memory			
Size	Number	Revision	
A4	2	2.0	
Date:	2019-01-26		Sheet 2 of 8
File:	C:\Users\...\obc_flash.SchDoc		Drawn By: Mohamed Hirole

OPEN DRAIN RST BUFFER

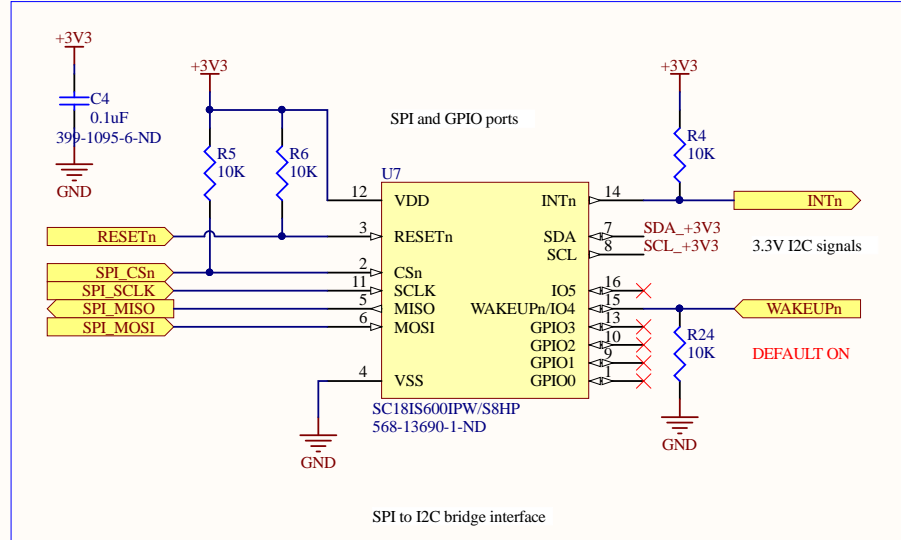


RTC

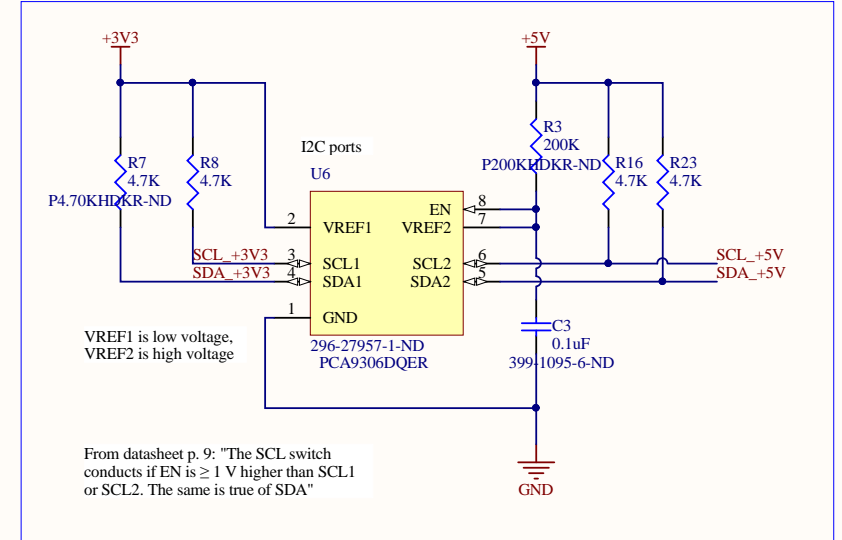


Title			UTAT SS	
Real Time Clock		Number		Revision
Size	A4	3	2.0	
Date:	2019-01-26	Sheet 3 of 8		
File:	C:\Users\...\obc_rtc.SchDoc	Drawn By: Mohamed Hirole		

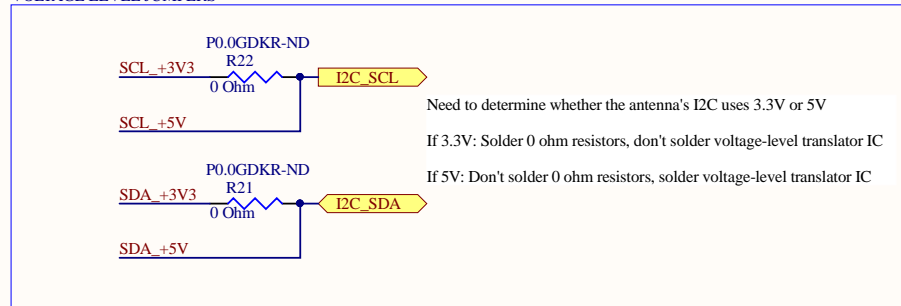
# SPI TO I2C BRIDGE



# VOLTAGE TRANSLATOR



# VOLTAGE LEVEL JUMPERS



Title		UTAT SS
Size	Number	Revision
A4	4	1.0
Date:	2019-01-26	Sheet 4 of 8
File:	C:\Users\...\obc_spi_to_i2c.SchDoc	Drawn By: Mohamed Hirole

# POWER INPUT

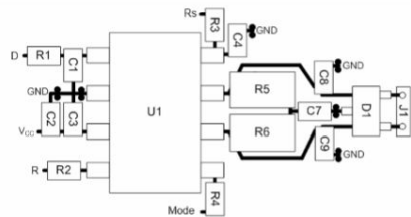
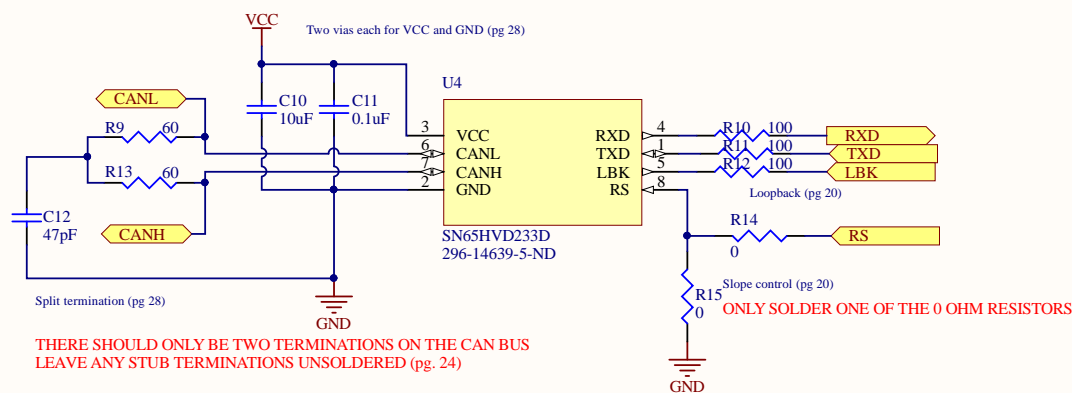
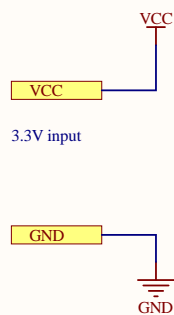


Figure 41. Layout Example Schematic

See pg. 28 of the datasheet for layout guidelines

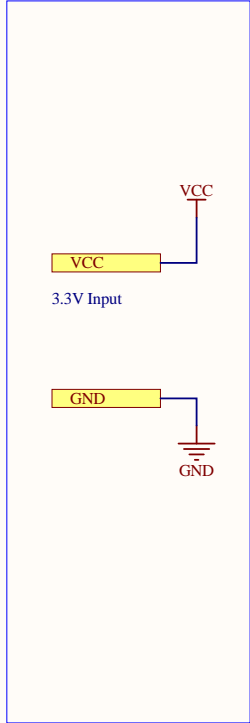
This schematic implements the SN65HVD233 CAN transceiver with loopback control and two options for slope control.

A 0 Ohm resistor can be soldered to GND to permanently put the device in High Speed mode (20 V / us slew), or a 0 Ohm resistor can be soldered to the RS port to control the device via an external uController. Connecting the RS pin to a uController allows the device to be put into low-power mode by setting a voltage high.

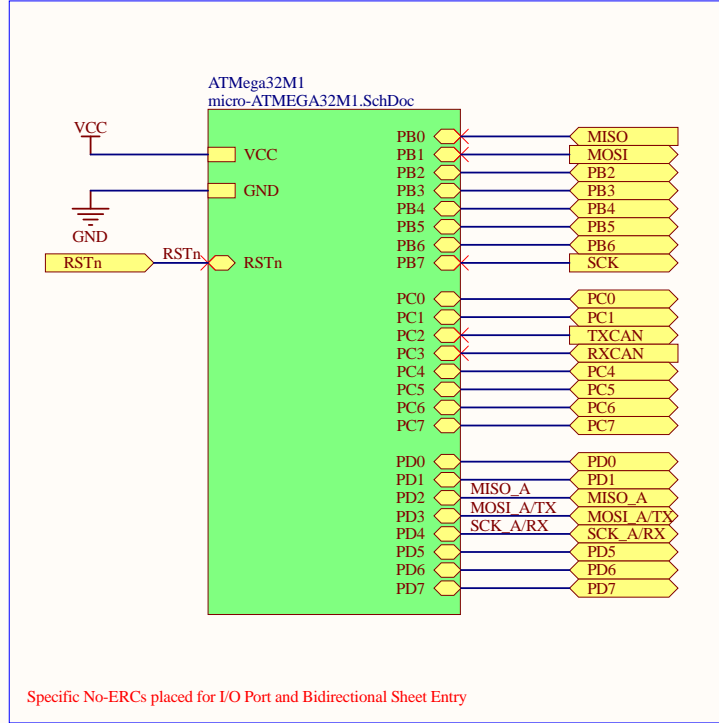
- Device is meant to be used in a 3.3 V system
- 100 Ohm current limiting resistors placed on the digital lines to minimize digital noise to the device
- Only two CAN transceivers on the bus should have 120 ohm terminations. Other devices should be placed on 'stub' networks where the terminations are left unsoldered

Title		UTAT SS
Size	Number	Revision
A4	5	1.0
Date:	2019-01-26	Sheet 5 of 8
File:	C:\Users\...\can-SN65HVD233.SchDoc	Drawn By: Dylan Vogel

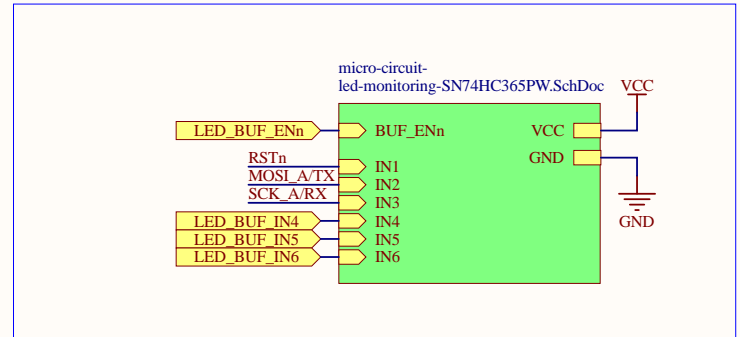
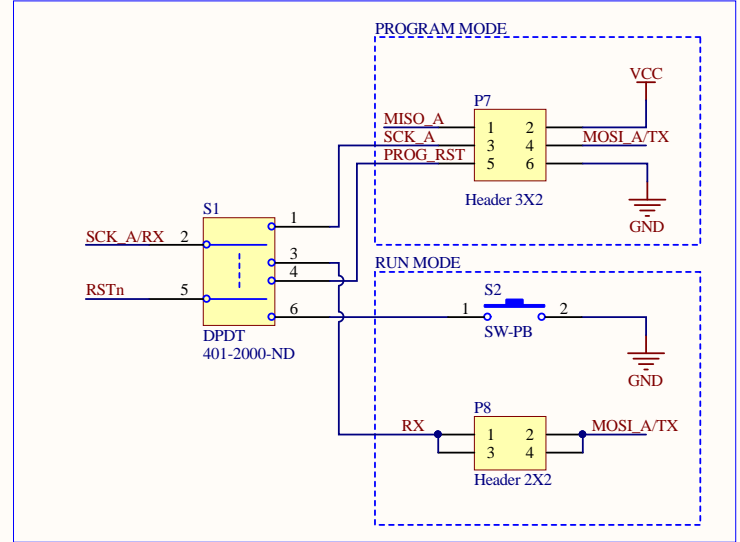
# POWER INPUTS



# ATMEGA32M1



# MODE SELECT CIRCUITRY

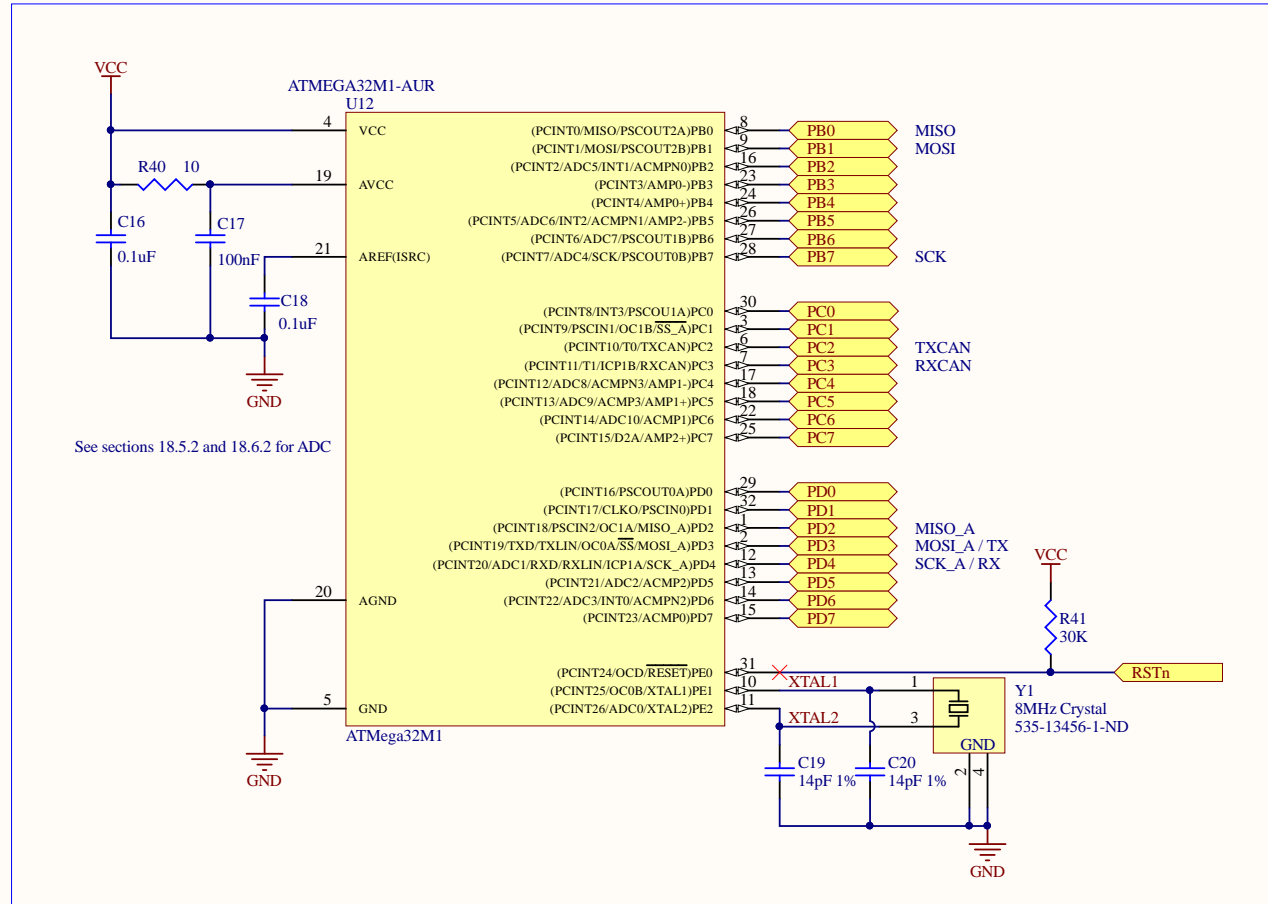
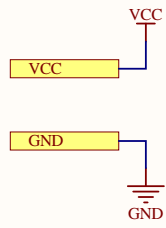


This schematic extends the functionality already included in the micro-ATMEGA32M1 schematic, adding a mode select switch, programming header, reset button and LED indication for TX, RX and RSTn.

- IN[4:6] of the LED buffer have been left unconnected, but are broken out on ports LED\_BUF\_IN[4:6]. They can be connected in the schematic which includes this sheet to monitor up to an additional 3 lines. Highly recommend more blinking lights.

Title		UTAT SS	
Size	Number	Revision	
A4	6	1.0	
Date:	2019-01-26	Sheet	6 of 8
File:	C:\Users\...\micro-circuit-ATMEGA32M1	Drawn By:	Dylan Vogel

# POWER INPUT

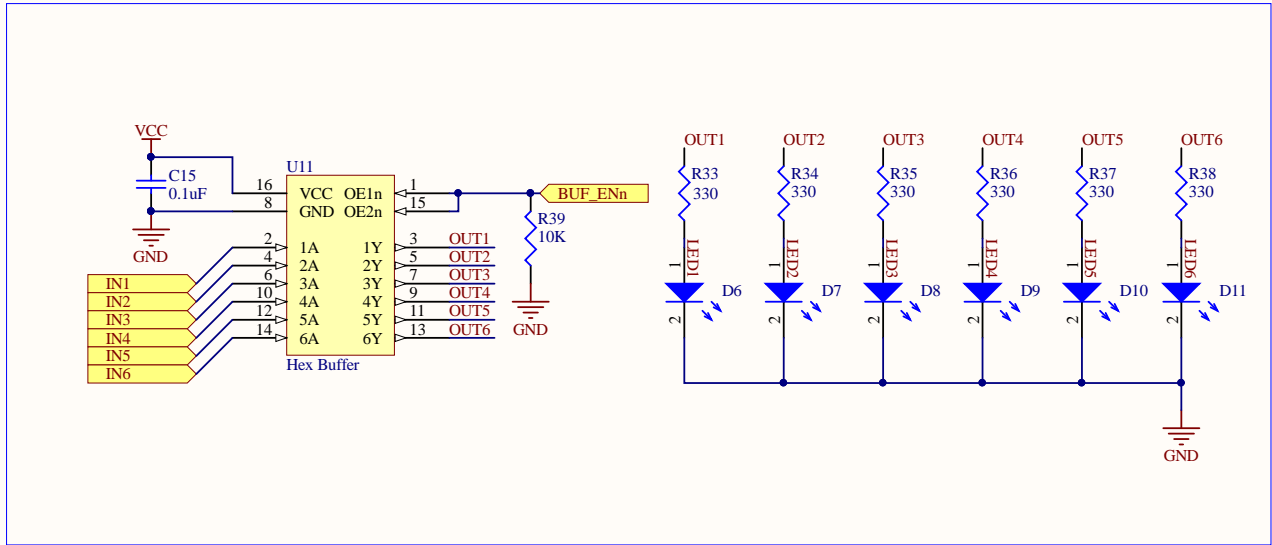
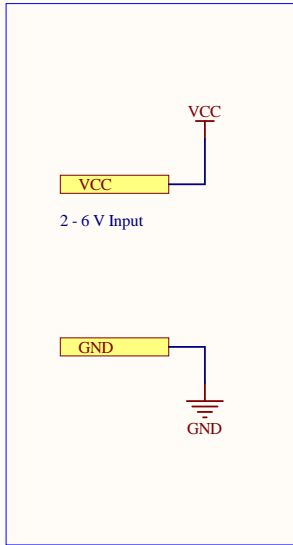


See sections 18.5.2 and 18.6.2 for ADC

This schematic implements the ATmega32M1 microcontroller with a 8 MHz external crystal and necessary power connections.

- Crystal is connected in a Pierce configuration, values of the capacitors were calculated based on the capacitance of the crystal and ESR.
- I would read through 18.5.2 and 18.6.2 of the complete 32M1 datasheet if you're interested in the motivation behind the ADC input connections. They recommend connecting AVCC through a RC lowpass network to minimize noise.
- If the ADC functionality of the device is used, either AVCC or the internal 2.56 V source can be selected in software as the reference voltage.

Title		UTAT SS
ATMega32M1		
Size	Number	Revision
A4	7	1.0
Date:	2019-01-26	Sheet 7 of 8
File:	C:\Users\...\micro-ATMEGA32M1.SchDoc	Drawn By: Dylan Vogel



This schematic implements the SN74HC365PW non-inverting, tri-state hex buffer as an LED monitoring circuit. Connecting a signal to IN[1:6] will light up the corresponding LED on OUT[1:6].

- The BUF\_ENn input can be connected to a microcontroller to control the buffer. An input HIGH will set the outputs to high-impedance and disable the LEDs.
- In the schematic symbol which references this schematic sheet, parameters LED[1:6] can be added to specify the colour of each LED. See the micro-circuit common sheet for an example of this.
- Unconnected inputs should be grounded if you don't want random flickering of the LEDs.

Title		UTAT SS
SN74HC365PW LED Monitoring		
Size	Number	Revision
A4	8	1.0
Date:	2019-01-26	Sheet 8 of 8
File:	C:\Users\...\led-monitoring-SN74HC365PW.sch	Drawn By: Dylan Vogel