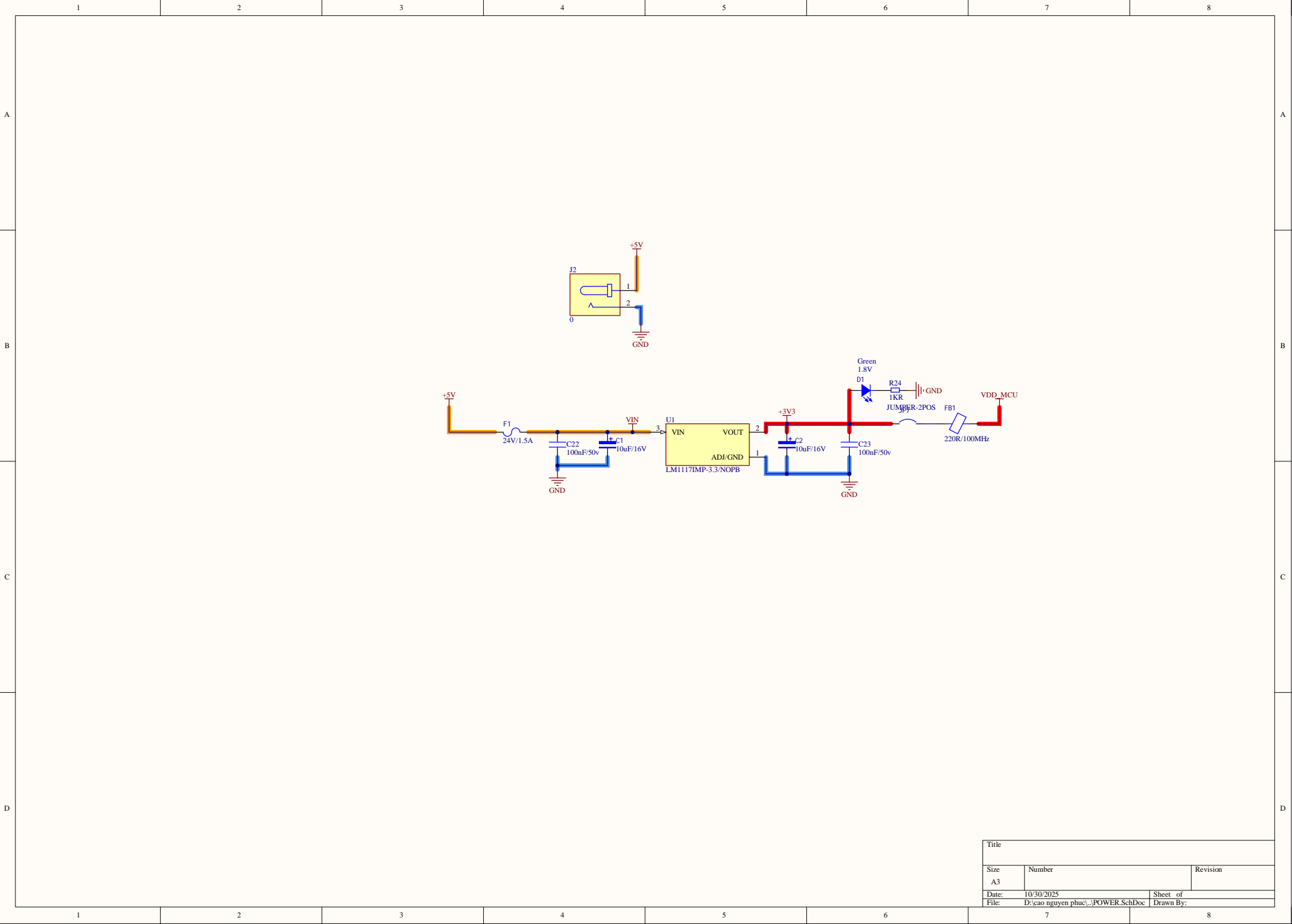
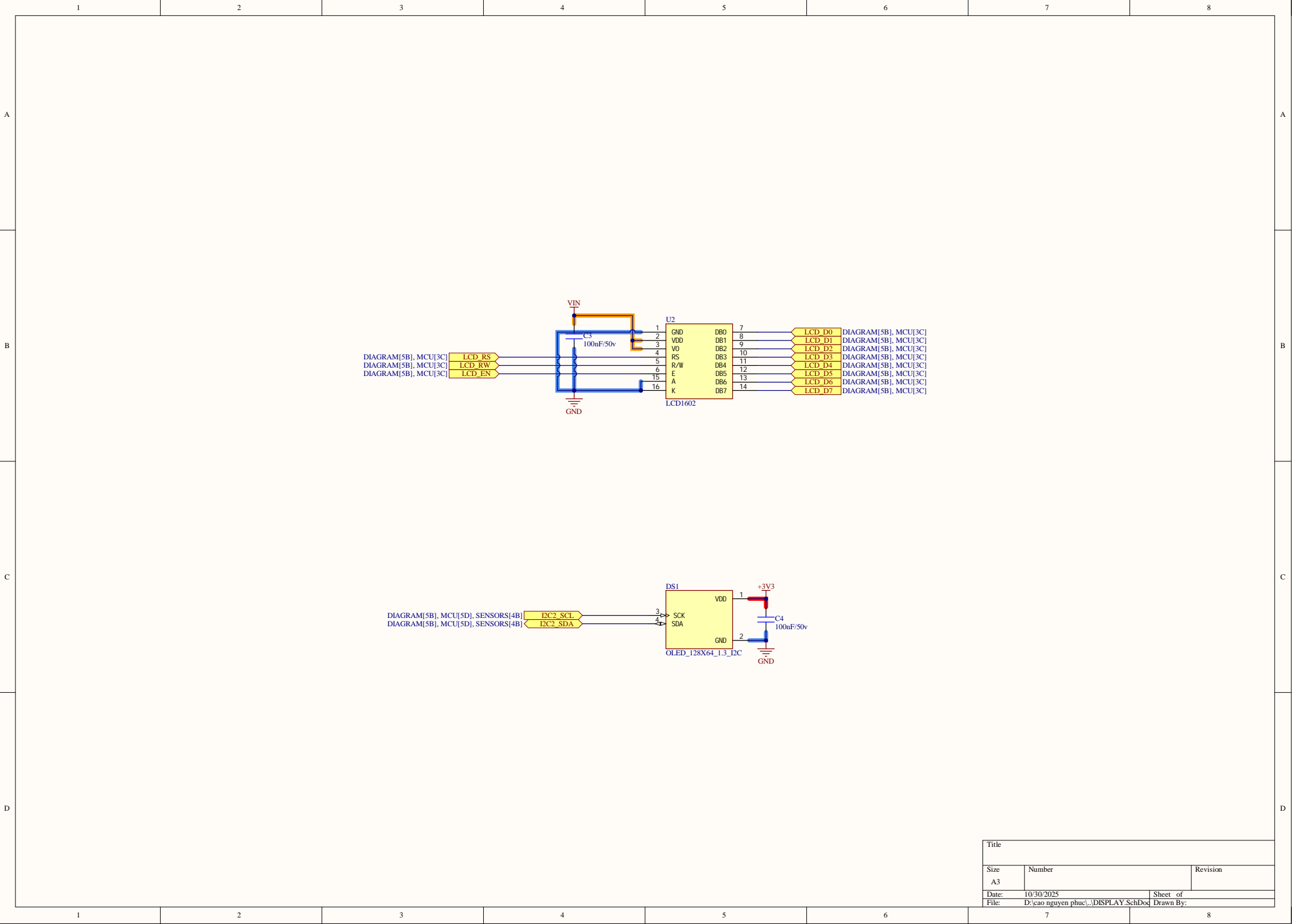


Title		
Size	Number	Revision
A3		
Date:	10/30/2025	Sheet of
File:	D:\cao nguyen phuc\...\DIAGRAM.SchDoc	Drawn By:



Title		
Size	Number	Revision
A3		
Date:	10/30/2025	Sheet of
File:	D:\cao nguyen phuc\...\POWER.SchDoc	Drawn By:



Title		
Size A3	Number	Revision
Date: 10/30/2025	Sheet of	
File: D:\cao nguyen phuc\...\DISPLAY.SchDoc	Drawn By:	

A

A

B

B

C

C

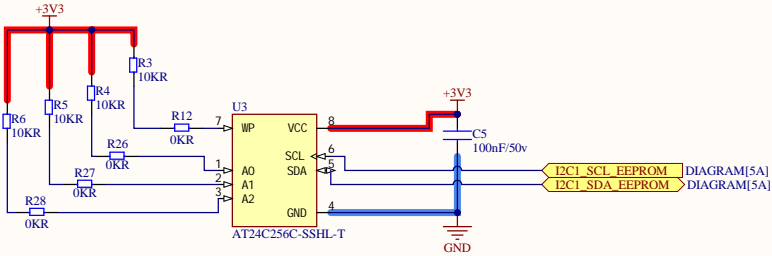
D

D

DC Characteristics

Table 4-2. DC Characteristics

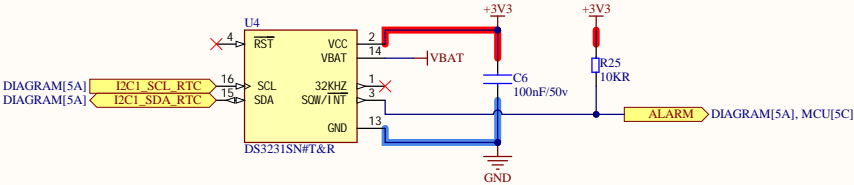
Parameter	Symbol	Minimum	Typical <sup>(1)</sup>	Maximum	Units	Test Conditions
Supply Voltage	V <sub>CC1</sub>	1.7	—	5.5	V	
Supply Current	I <sub>CC1</sub>	—	1.0	2.0	mA	V <sub>CC</sub> = 5.0V, Read at 400 kHz
Supply Current	I <sub>CC2</sub>	—	2.0	3.0	mA	V <sub>CC</sub> = 5.0V, Write at 400 kHz
Standby Current	I <sub>SB1</sub>	—	—	1.0	µA	V <sub>CC</sub> = 1.7V, V <sub>IN</sub> = V <sub>CC</sub> or GND
Input Leakage Current	I <sub>LI</sub>	—	0.10	3.0	µA	V <sub>IN</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 5.0V
Output Leakage Current	I <sub>LO</sub>	—	0.05	3.0	µA	V <sub>OUT</sub> = V <sub>CC</sub> or GND; V <sub>CC</sub> = 5.0V
Input Low Level	V <sub>IL</sub>	-0.6	—	V <sub>CC</sub> × 0.3	V	Note 2
Input High Level	V <sub>IH</sub>	V <sub>CC</sub> × 0.7	—	V <sub>CC</sub> × 0.5	V	Note 2
Output Low Level	V <sub>OL1</sub>	—	—	0.2	V	V <sub>CC</sub> = 1.7V, I <sub>OL</sub> = 0.15 mA
Output Low Level	V <sub>OL2</sub>	—	—	0.4	V	V <sub>CC</sub> = 3.0V, I <sub>OL</sub> = 2.1 mA



Recommended Operating Conditions

(T<sub>A</sub> = T<sub>AMB</sub> to T<sub>MAX</sub>, unless otherwise noted.) (Notes 2, 3)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Supply Voltage	V <sub>CC</sub>		2.3	3.3	5.5	V
	V <sub>BAT</sub>		2.3	3.0	5.5	V



Electrical Characteristics

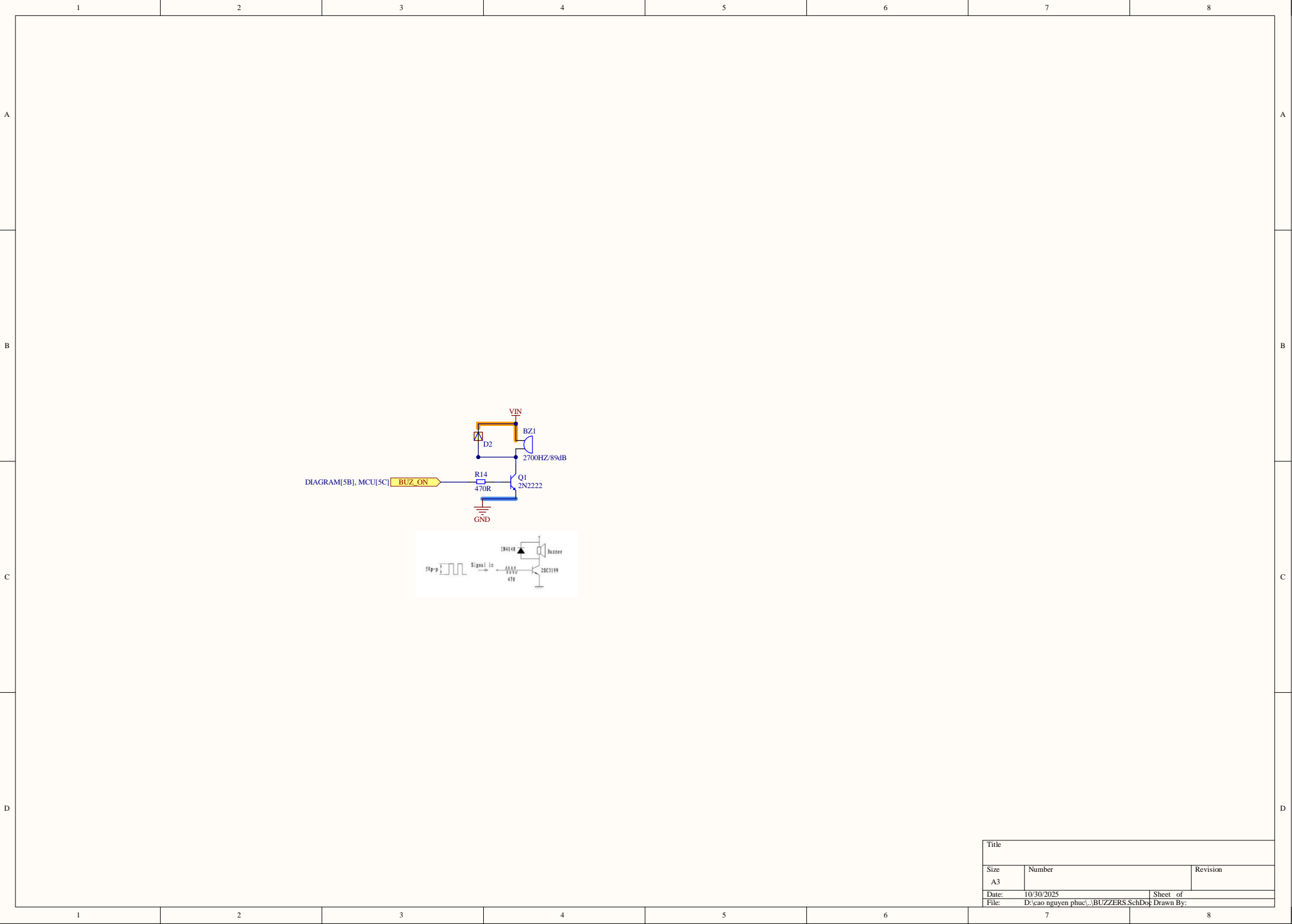
(V<sub>CC</sub> = 2.3V to 5.5V, V<sub>CC</sub> = Active Supply (see Table 1), T<sub>A</sub> = T<sub>MIN</sub> to T<sub>MAX</sub>, unless otherwise noted.) (Typical values are at V<sub>CC</sub> = 3.3V, V<sub>BAT</sub> = 3.0V, and T<sub>A</sub> = +25°C, unless otherwise noted.) (Notes 2, 3)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Active Supply Current	I <sub>CCA</sub>	(Notes 4, 5) V <sub>CC</sub> = 3.63V V <sub>CC</sub> = 5.5V		200 300		µA
Standby Supply Current	I <sub>CCS</sub>	PC bus inactive, 32kHz output on, SQW output off (Note 5) V <sub>CC</sub> = 3.63V V <sub>CC</sub> = 5.5V		110 170		µA
Temperature Conversion Current	I <sub>CCSCONV</sub>	PC bus inactive, 32kHz output on, SQW output off V <sub>CC</sub> = 3.63V V <sub>CC</sub> = 5.5V		575 650		µA
Power-Fail Voltage	V <sub>PF</sub>		2.45	2.575	2.70	V
Logic 0 Output, 32kHz, INT/SQW, SDA	V <sub>OL</sub>	I <sub>OL</sub> = 3mA			0.4	V
Logic 0 Output, RST	V <sub>OL</sub>	I <sub>OL</sub> = 1mA			0.4	V
Output Leakage Current 32kHz, INT/SQW, SDA	I <sub>LO</sub>	Output high impedance	-1	0	+1	µA
Input Leakage SCL	I <sub>LI</sub>		-1		+1	µA
RST Pin I/O Leakage	I <sub>OLI</sub>	RST high impedance (Note 6)	-200		+10	µA
V <sub>BAT</sub> Leakage Current (V <sub>CC</sub> Active)	I <sub>BATLKG</sub>			25	100	nA

Pin Description

PIN	NAME	FUNCTION
1	32KHZ	32kHz Output. This open-drain pin requires an external pullup resistor. When enabled, the output operates on other power supply. It may be left open if not used.
2	V <sub>CC</sub>	DC Power Pin for Primary Power Supply. This pin should be decoupled using a 0.1µF to 1.0µF capacitor. If not used, connect to ground.
3	INT/SQW	Active-Low Interrupt or Square-Wave Output. This open-drain pin requires an external pullup resistor connected to a supply at 5.5V or less. This multifunction pin is determined by the state of the INTCN bit in the Control Register (00h). When INTCN is set to logic 0, this pin outputs a square wave and its frequency is determined by RS2 and RS1 bits. When INTCN is set to logic 1, then a match between the timekeeping registers and either of the alarm registers activates the INT/SQW pin (if the alarm is enabled). Because the INTCN bit is set to logic 1 when power is first applied, the pin defaults to an interrupt output with alarms disabled. The pullup voltage can be up to 5.5V, regardless of the voltage on V <sub>CC</sub> ; if not used, this pin can be left unconnected.
4	RST	Active-Low Reset. This pin is an open-drain input/output. It indicates the status of V <sub>CC</sub> relative to the V <sub>PF</sub> specification. As V <sub>CC</sub> falls below V <sub>PF</sub> , the RST pin is driven low. When V <sub>CC</sub> exceeds V <sub>PF</sub> for t <sub>RP1</sub> , the RST pin is pulled high by the internal pullup resistor. The active-low, open-drain output is combined with a debounced pushbutton input function. This pin can be activated by a pushbutton reset request. It has an internal 50kΩ normal value pullup resistor to V <sub>CC</sub> . No external pullup resistors should be connected. If the oscillator is disabled, t <sub>RP1</sub> is bypassed and RST immediately goes high.
5-12	N.C.	No Connection. Must be connected to ground.
13	GND	Ground
14	V <sub>BAT</sub>	Backup Power-Supply Input. When using the device with the V <sub>BAT</sub> input as the primary power source, this pin should be decoupled using a 0.1µF to 1.0µF low-leakage capacitor. When using the device with the V <sub>BAT</sub> input as the backup power source, the capacitor is not required. If V <sub>BAT</sub> is not used, connect to ground. The device is UL recognized to ensure against reverse charging when used with a primary lithium battery. Go to <a href="http://www.maximintegrated.com/qa/info/out">www.maximintegrated.com/qa/info/out</a> .
15	SDA	Serial Data Input/Output. This pin is the data input/output for the I <sup>2</sup> C serial interface. This open-drain pin requires an external pullup resistor. The pullup voltage can be up to 5.5V, regardless of the voltage on V <sub>CC</sub> .
16	SCL	Serial Clock Input. This pin is the clock input for the I <sup>2</sup> C serial interface and is used to synchronize data movement on the serial interface. Up to 5.5V can be used for this pin, regardless of the voltage on V <sub>CC</sub> .

Title		
Size A3	Number	Revision
Date: 10/30/2025	Sheet of	
File: D:\cao nguyen phuc\...\RTC.SchDoc	Drawn By:	



Title		
Size A3	Number	Revision
Date:	10/30/2025	Sheet of
File:	D:\cao nguyen phuc\...\BUZZERS.SchDoc Drawn By:	

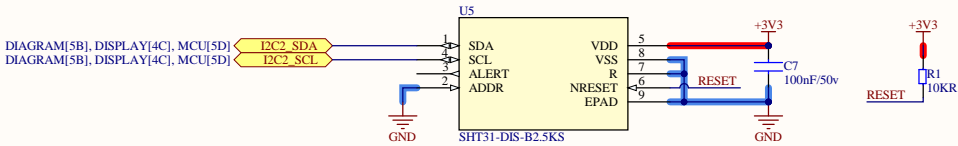
### 3 Pin Assignment

The SHT3x-DIS comes in a 8-pin DFN package – see Table 7.

Pin	Name	Comments
1	SDA	Serial data; input / output
2	ADDR	Address pin; input; connect to either logic high or low, do not leave floating
3	ALERT	Indicates alarm condition; output; must be left floating if unused
4	SCL	Serial clock; input / output
5	VDD	Supply voltage; input
6	nRESET	Reset pin active low; input; if not used it is recommended to be left floating, can be connected to VDD with a series resistor of $R \geq 2 \text{ k}\Omega$
7	R	No electrical function; to be connected to VSS
8	VSS	Ground

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units	Comments
Supply voltage	$V_{DD}$		2.15	3.3	5.5	V	

Measuring	-	600	1500	$\mu\text{A}$	Current consumption while sensor is measuring
Average	-	1.7	-	$\mu\text{A}$	Current consumption (operation with one measurement per second at lowest repeatability, single shot mode)

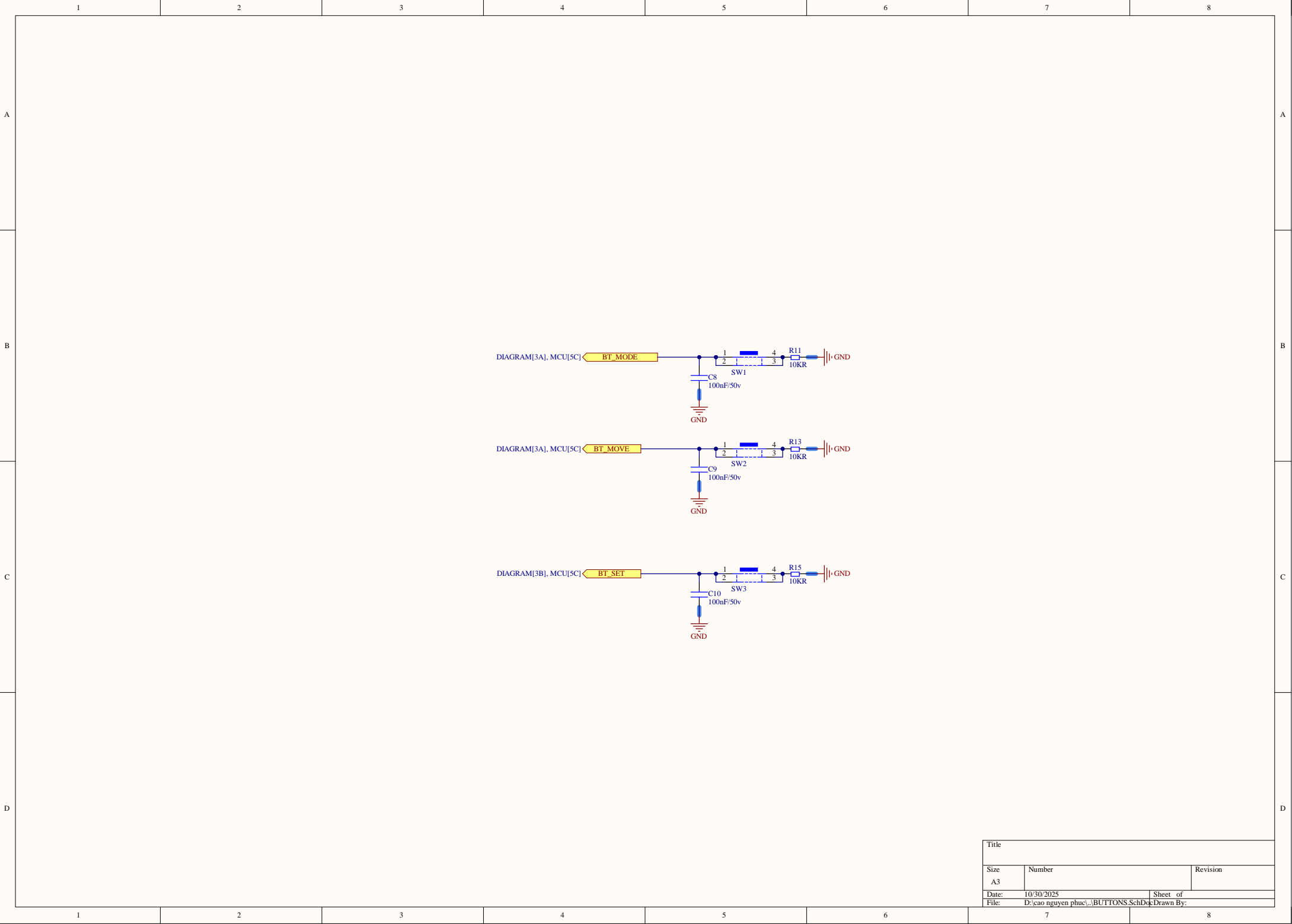


#### 3.5 ALERT Pin

The alert pin may be used to connect to the interrupt pin of a microcontroller. The output of the pin depends on the value of the RH/T reading relative to programmable limits. Its function is explained in a separate application note. If not used, this pin must be left floating. The pin switches high, when alert conditions are met. The maximum driving loads are listed in Table 3. Be aware that self-heating might occur, depending on the amount of current that flows. Self-heating can be prevented if the Alert Pin is only used to switch a transistor.

Parameter	Rating	Units
Supply voltage $V_{DD}$	-0.3 to 6	V
Max Voltage on pins (pin 1 (SDA); pin 2 (ADDR); pin 3 (ALERT); pin 4 (SCL); pin 6 (nRESET))	-0.3 to $V_{DD}+0.3$	V
Input current on any pin	$\pm 100$	mA
Operating temperature range	-40 to 125	$^{\circ}\text{C}$
Storage temperature range	-40 to 150	$^{\circ}\text{C}$
ESD HBM (human body model) <sup>9</sup>	4	kV
ESD CDM (charge device model) <sup>10</sup>	750	V

Title		
Size A3	Number	Revision
Date:	10/30/2025	Sheet of
File:	D:\cao nguyen phuc\...\SENSORS_SchDoc	Drawn By:



Title		
Size A3	Number	Revision
Date:	10/30/2025	Sheet of
File:	D:\cao nguyen phuc\...\BUTTONS.SchDoc	Drawn By:

A

B

C

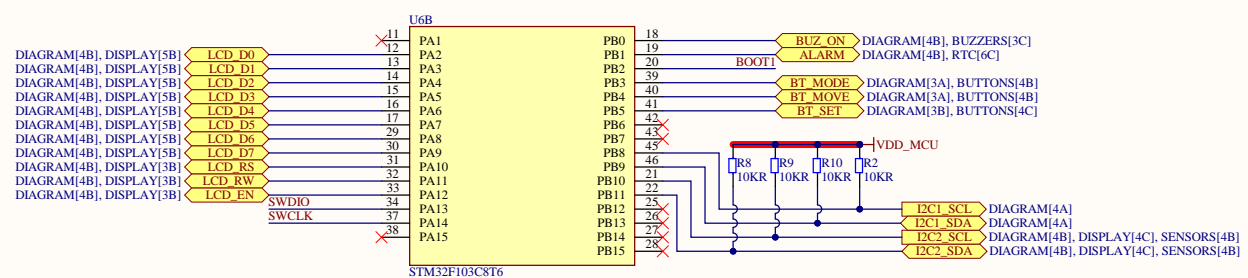
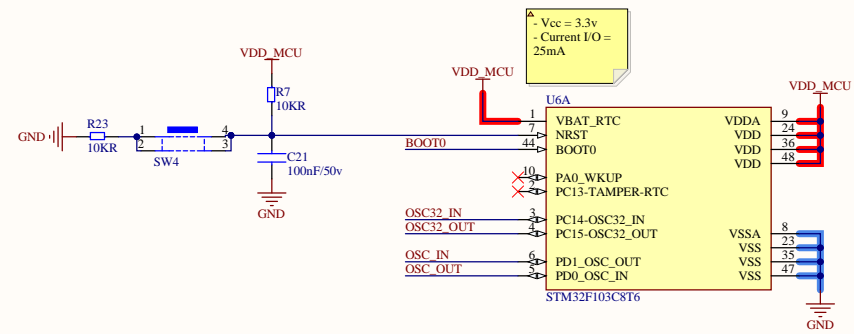
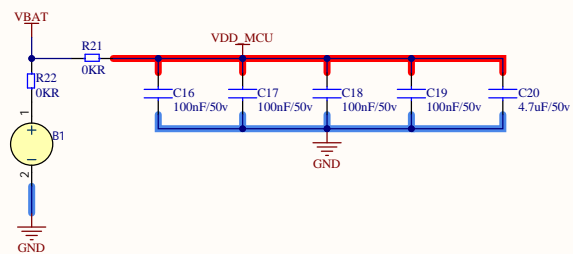
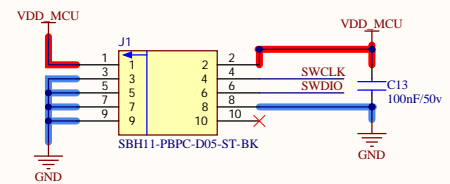
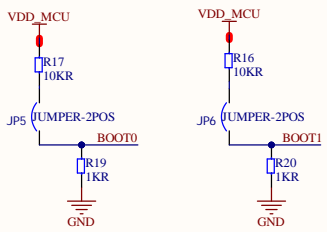
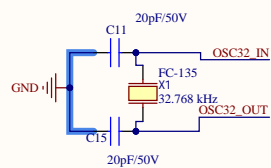
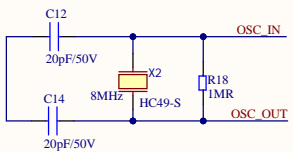
D

A

B

C

D



Title		
Size A3	Number	Revision
Date:	10/30/2025	Sheet of
File:	D:\cao nguyen phuc\...\MCU.SchDoc	Drawn By:



