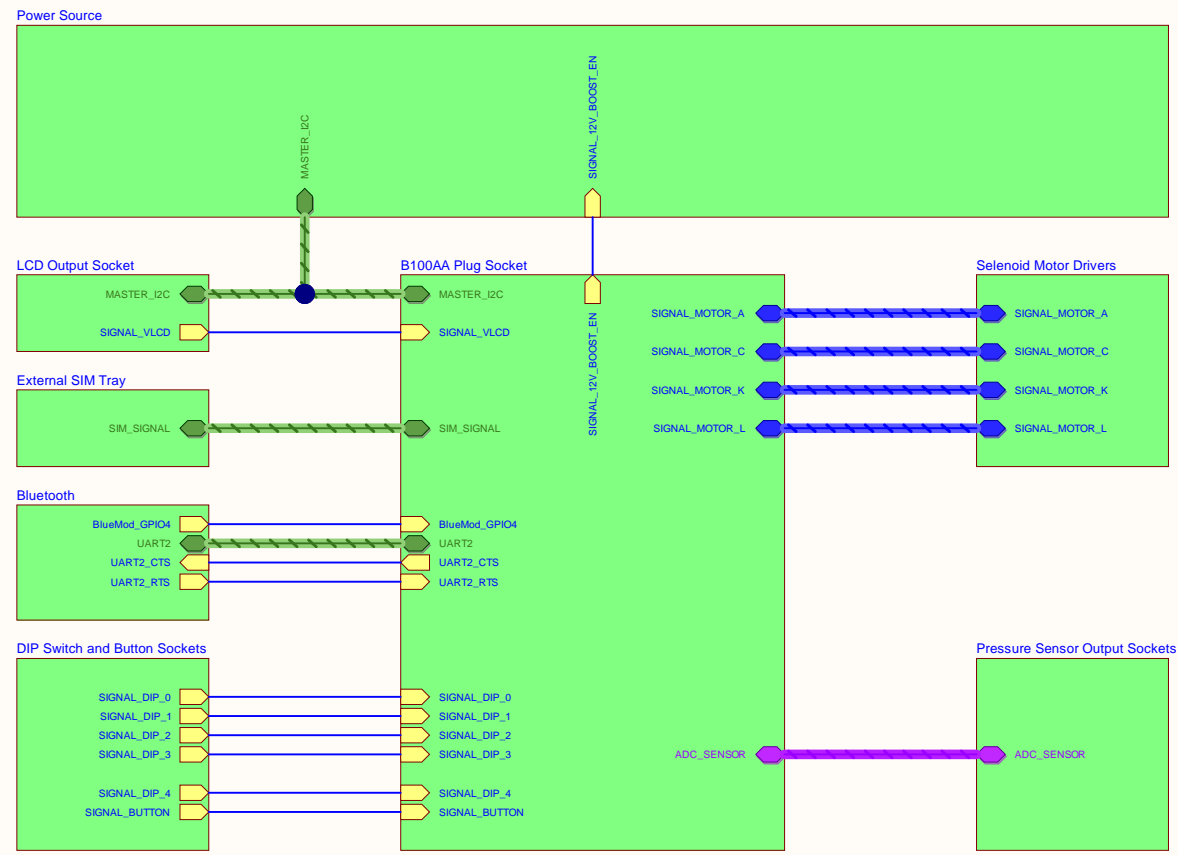



B151BA - Filter Automation System



Revision History

- AA001 (11.01.2021)
* Schematic creation.
- AA002 (11.01.2021)
* Add Bluetooth RTS and CTS pins to MCU.
* Add Bluetooth Boot0 and TestMode pins selectable with 0R resistor.
* Add Bluetooth HangUp pin to MCU.
* Add Bluetooth Test points.

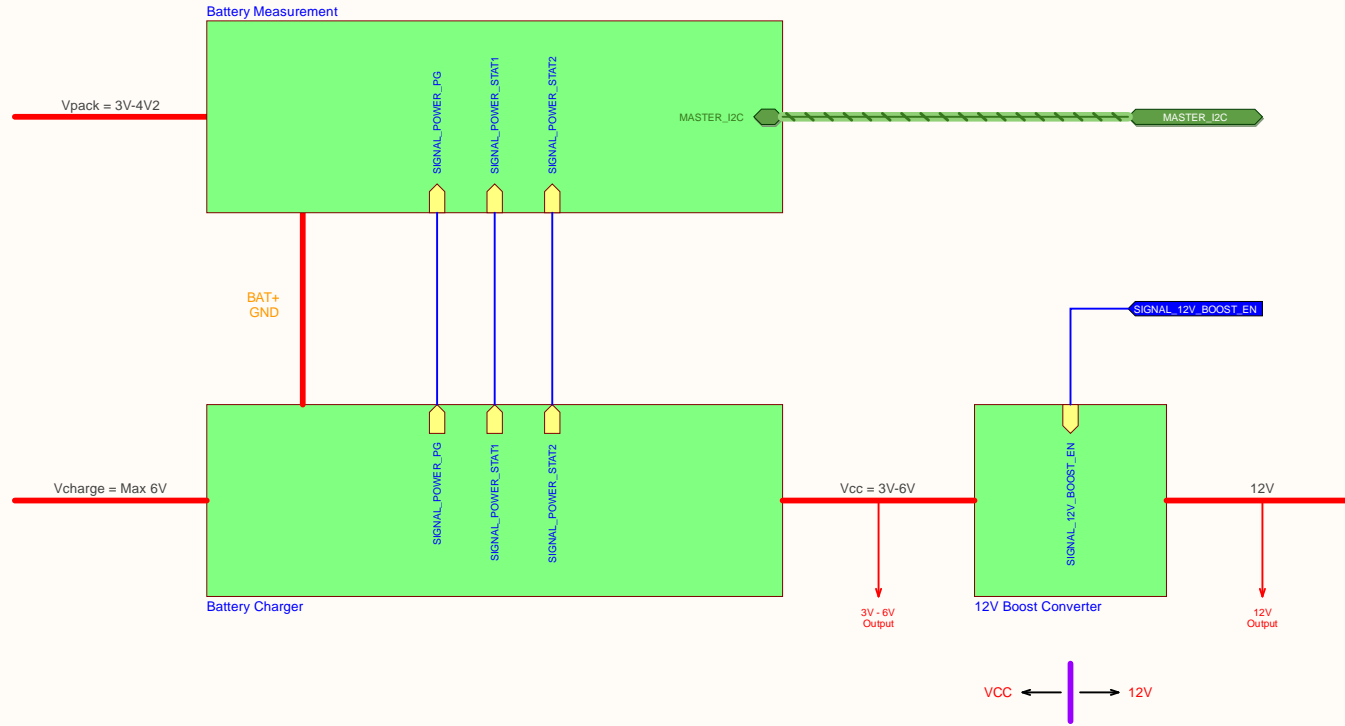
Title: B151BA Block Diagram			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: BA001	Revision: B151BA			
Date: 19.01.2021	Time: 16:43:47	Sheet 1 of 1			
File: C:\Altium Projects\B151\BA\Electronic\B151BA\Design Files\Schematic\B151BA Block Diagram.SchDoc					




Li-Ion Battery
2 x 2500 mAh

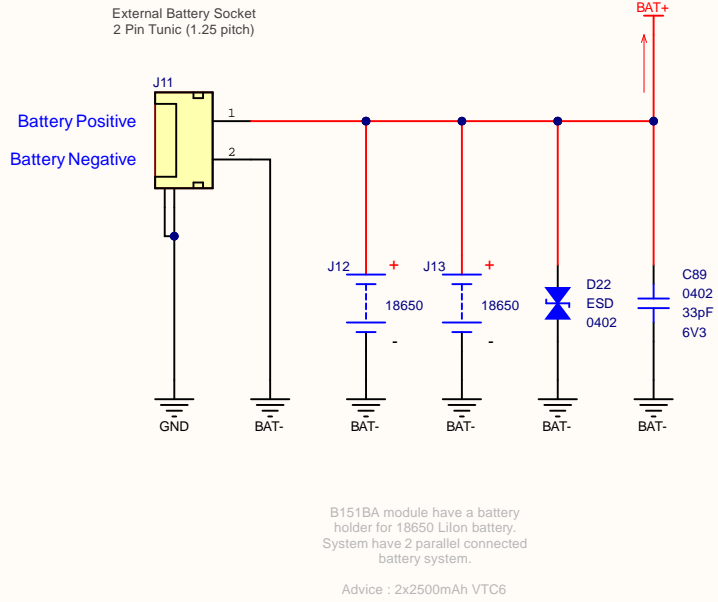


Charge Power Socket

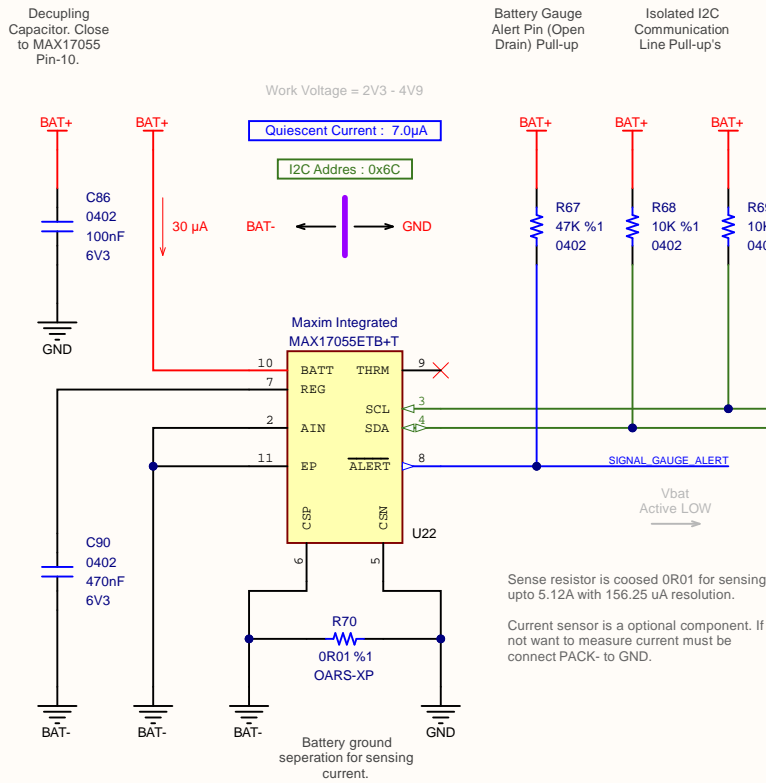


Title Power Source			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Size: A4	Number: BA001	Revision: B151BA			
Date: 19.01.2021	Time: 16:43:47	Sheet 2 of			
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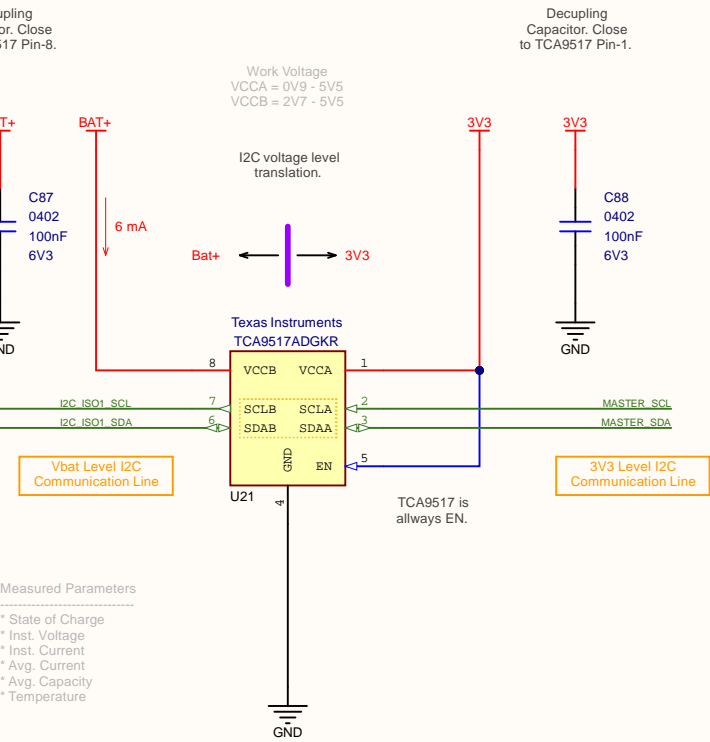
Battery Socket



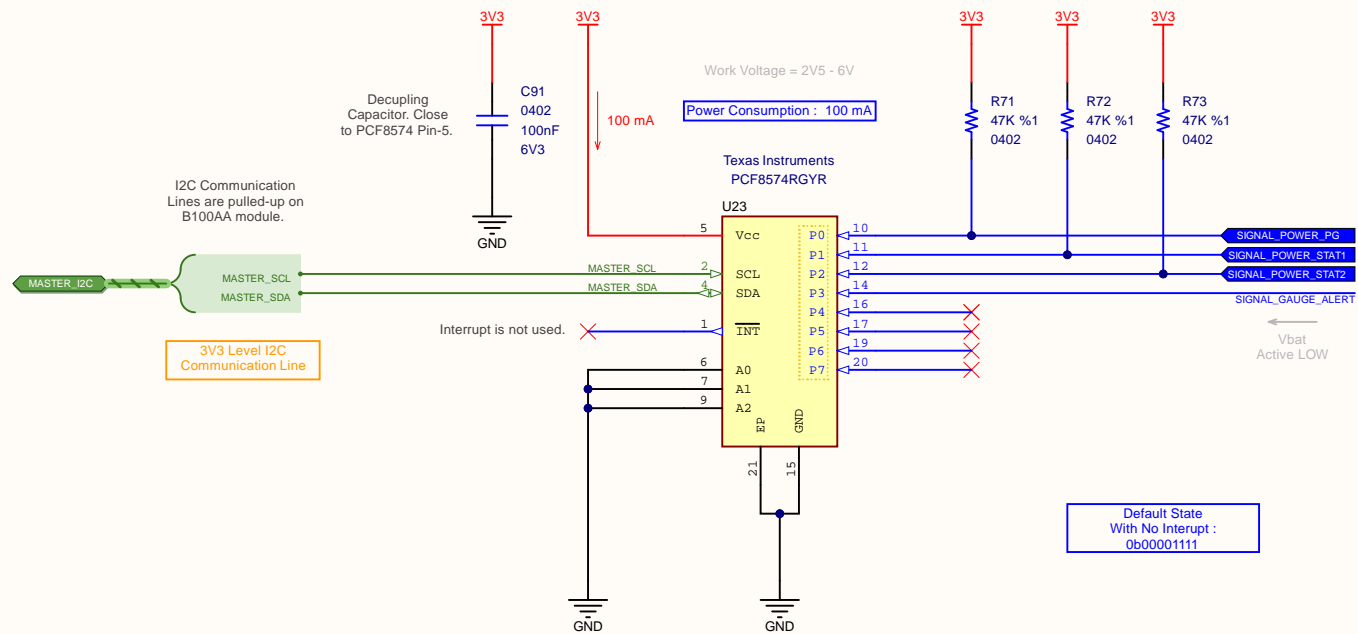
Battery Measurement



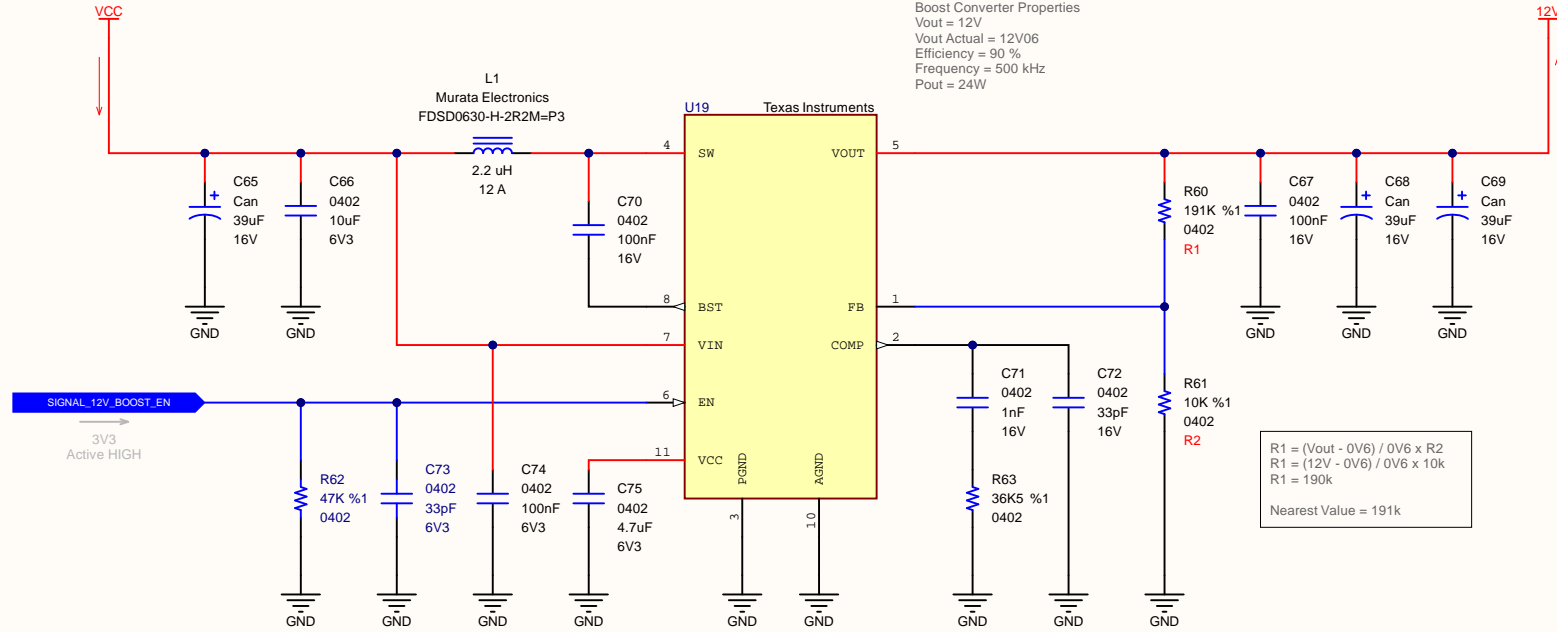
I2C Buffer (Voltage Translator)



I2C I/O Expander



12V Synchronous Boost Converter



Title: 12V Synchronous Boost Converter

Size: A4

Number: BA001

Revision: B151BA

Date: 19.01.2021

Time: 16:43:47

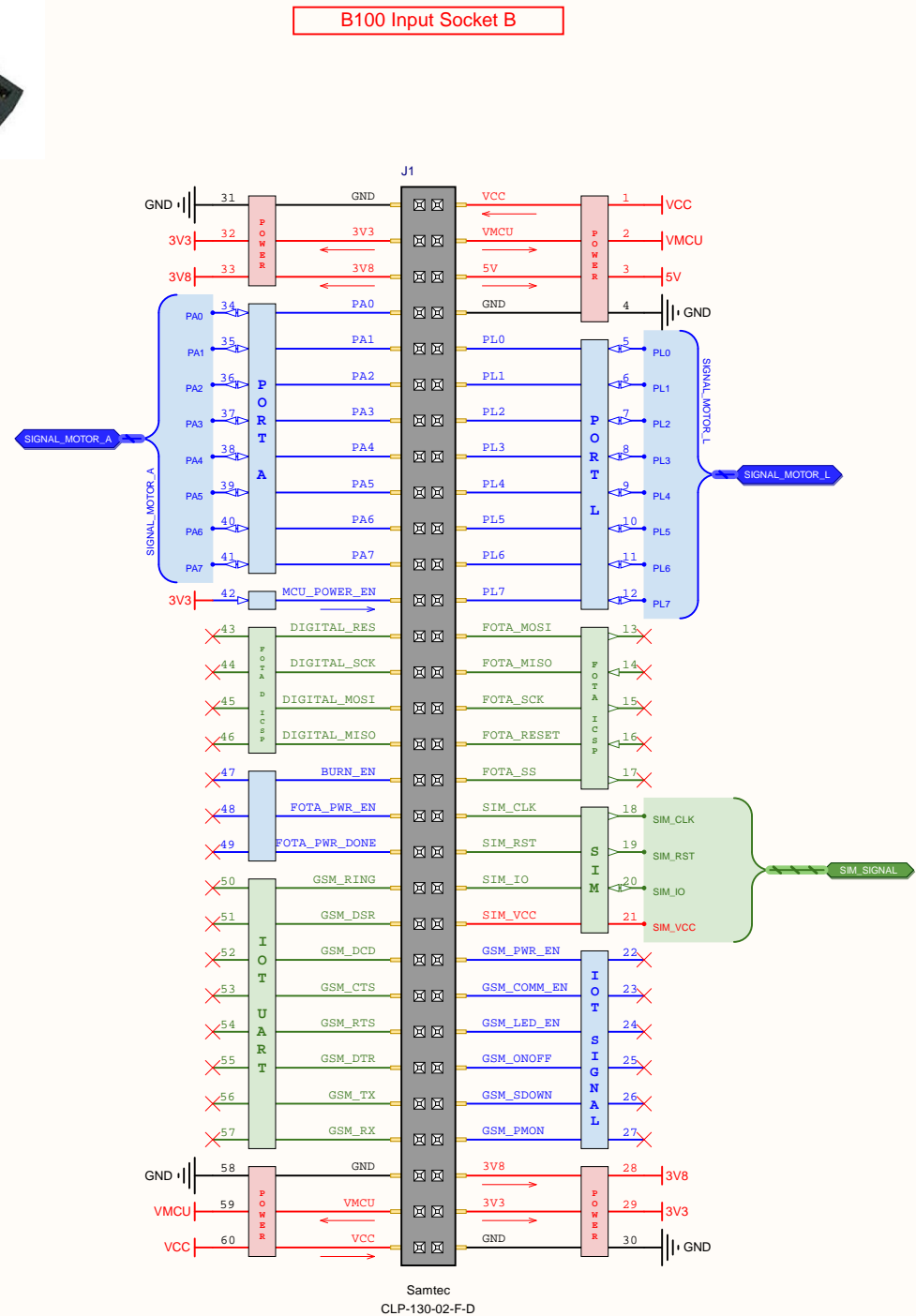
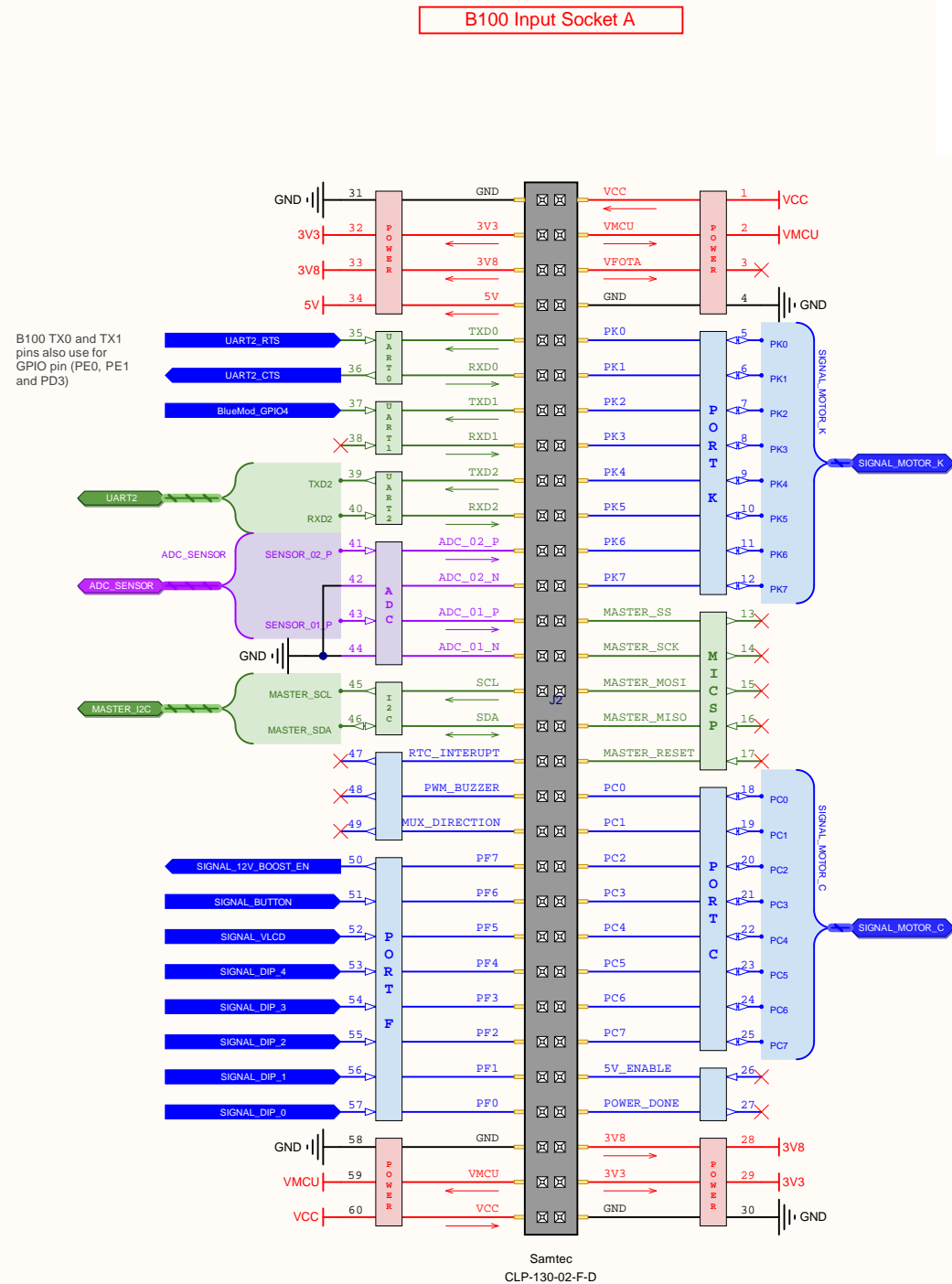
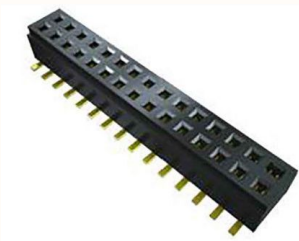
Sheet 5 of 28

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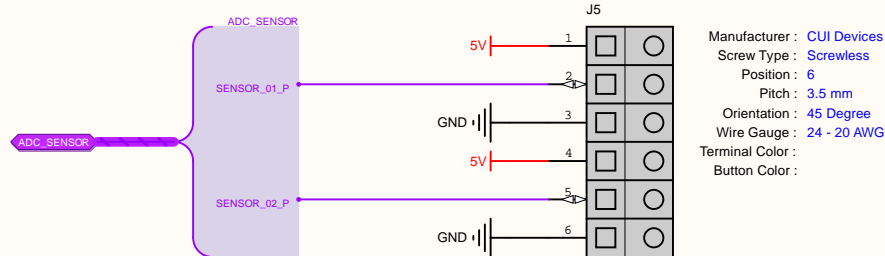
Ovoo Electronics

Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye





Analog Pressure Sensor Output Sockets



Power Supply

UART

UART2

UART2

UART2_RTS

UART2_RTS

UART2_CTS

UART2_CTS

BlueMod+S50

RF Antenna

GPIO

BlueMod_GPIO4

BlueMod_GPIO4

Title Bluetooth Module

Ovoo Electronics

Size: A4

Number: BA001

Revision: B151BA

Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye

Date: 19.01.2021

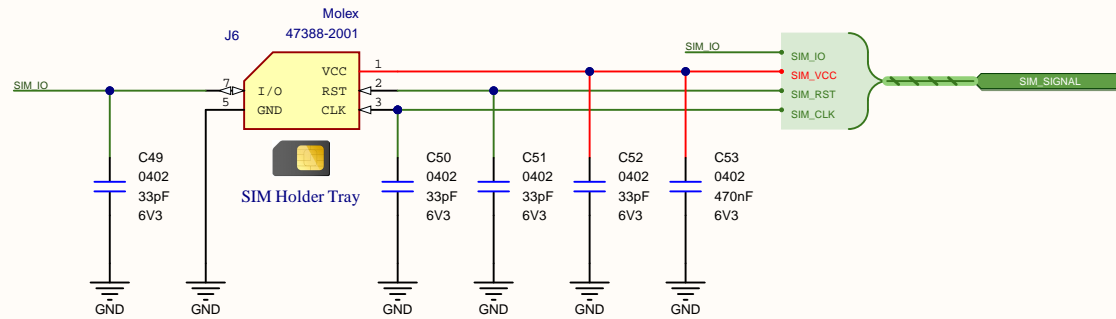
Time: 16:43:47

Sheet 8 of *


File: C:\Altium Projects\PS11\BA\Electronic[B151BA]Design Files\Schematic\BlueTooth Module.SchDoc



OnBoard Sim Tray



SIM_VCC capacitor is
chosed according Telit
SIM integration guide.

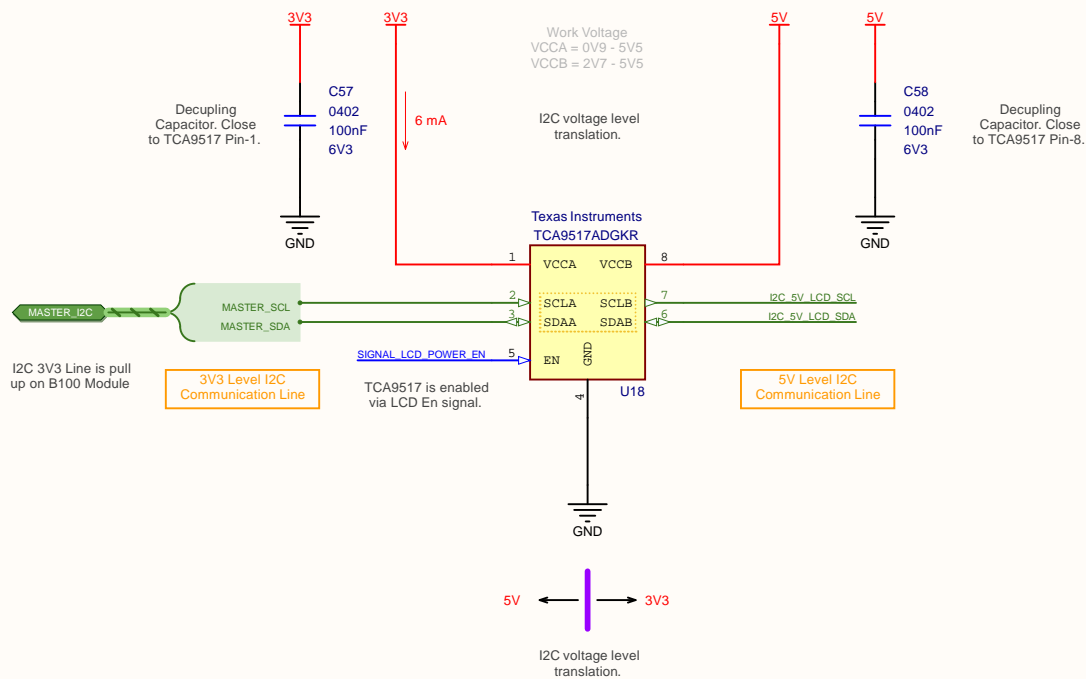
Title External SIM Tray			Ovoo Electronics		
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
Date: 19.01.2021	Time: 16:43:47	Sheet 9 of *			
File: C:\Altium Projects\P511\BA\Electronic\B151BA\Design Files\Schematic\External SIM Tray.SchDoc					

External Wakeup Switch

CUI Devices
Screwless
2
3.5 mm
45 Degree
24 - 20 AWG
Wire Gauge :
Terminal Color :
Button Color :

B151 module has a output
socket for user interface button.
This button can be used for
wakeup LCD.

I2C Buffer (Voltage Translator)



LCD Power Switch

TPS22917 PFET IC
preferred Vin range :
1V - 5V5

Max Current : 2A

Texas Instruments
TPS22917DBVR

U17

VIN

VOUT

ON / OFF

QOD

CT

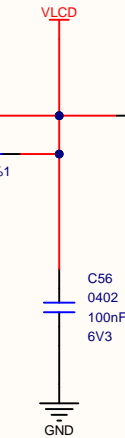
Internal ESD
Protection

Quiescent Current : 0.1 μ A

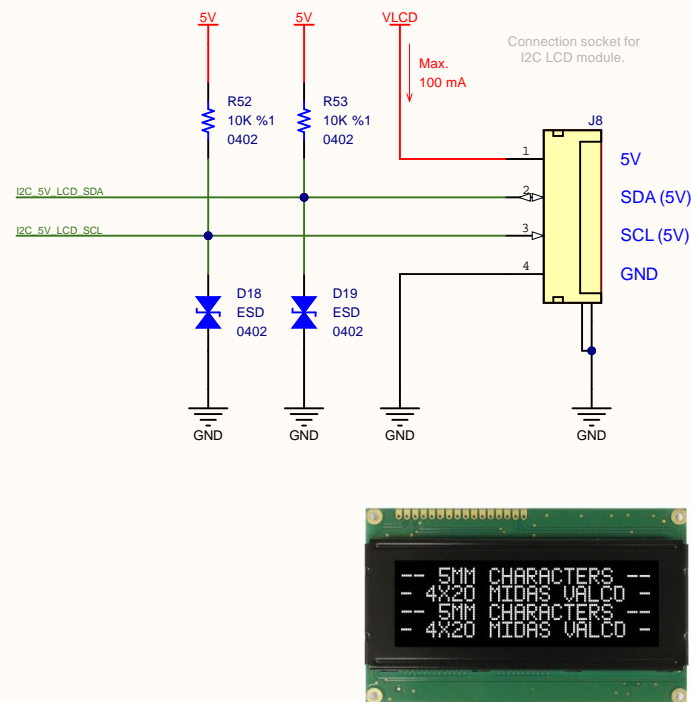
3V3

VLCD

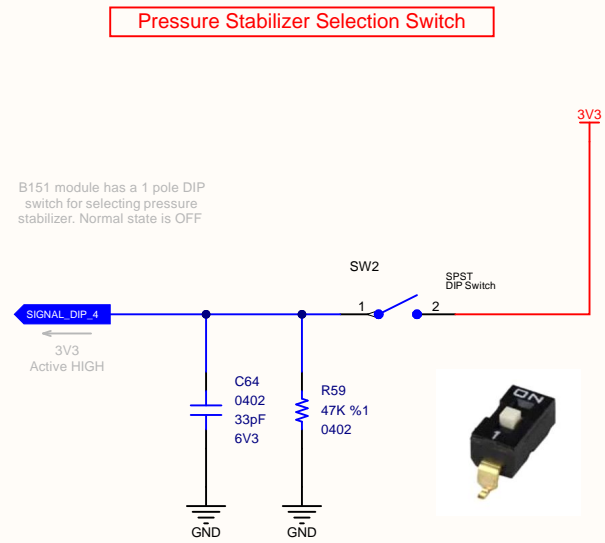
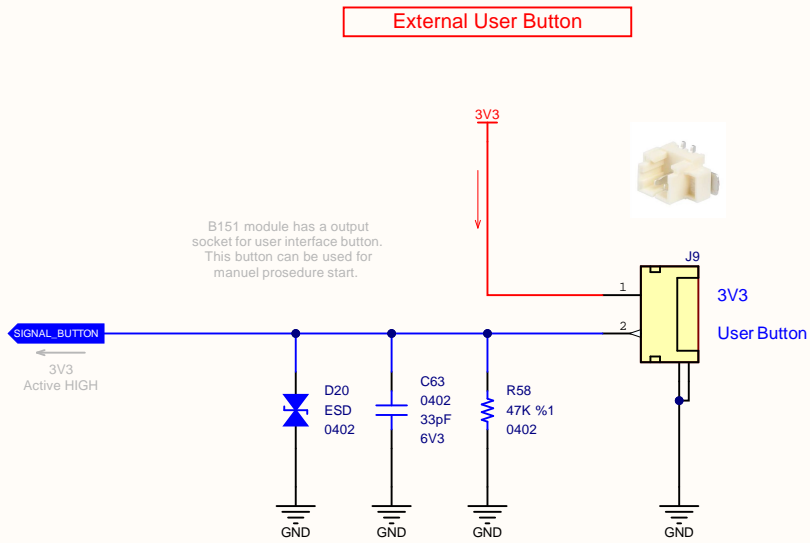
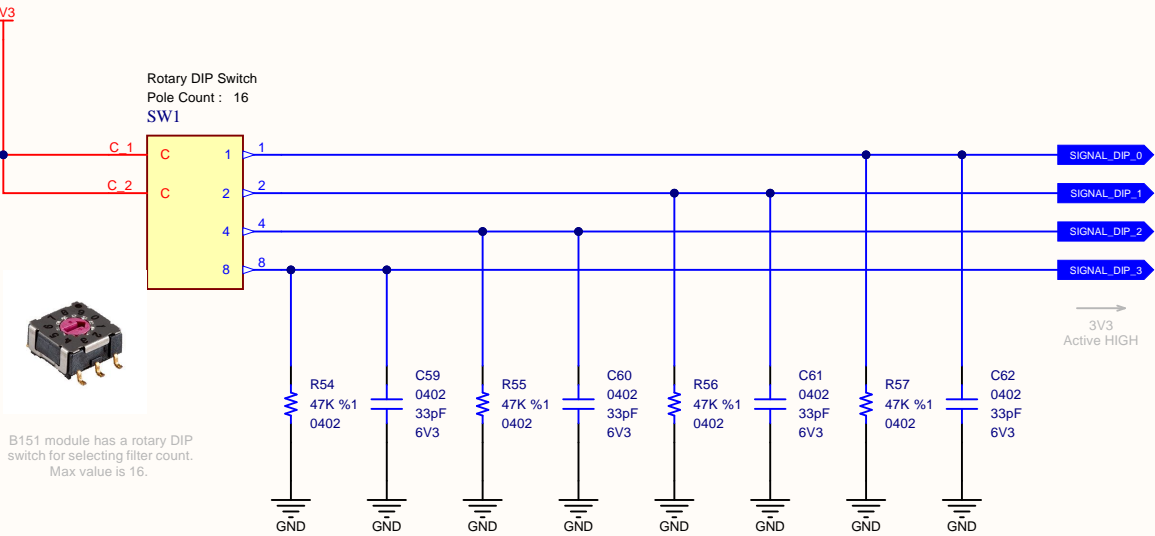
The input of the PFET
(power switch) is 5V. The
output of PFET is VLCD.

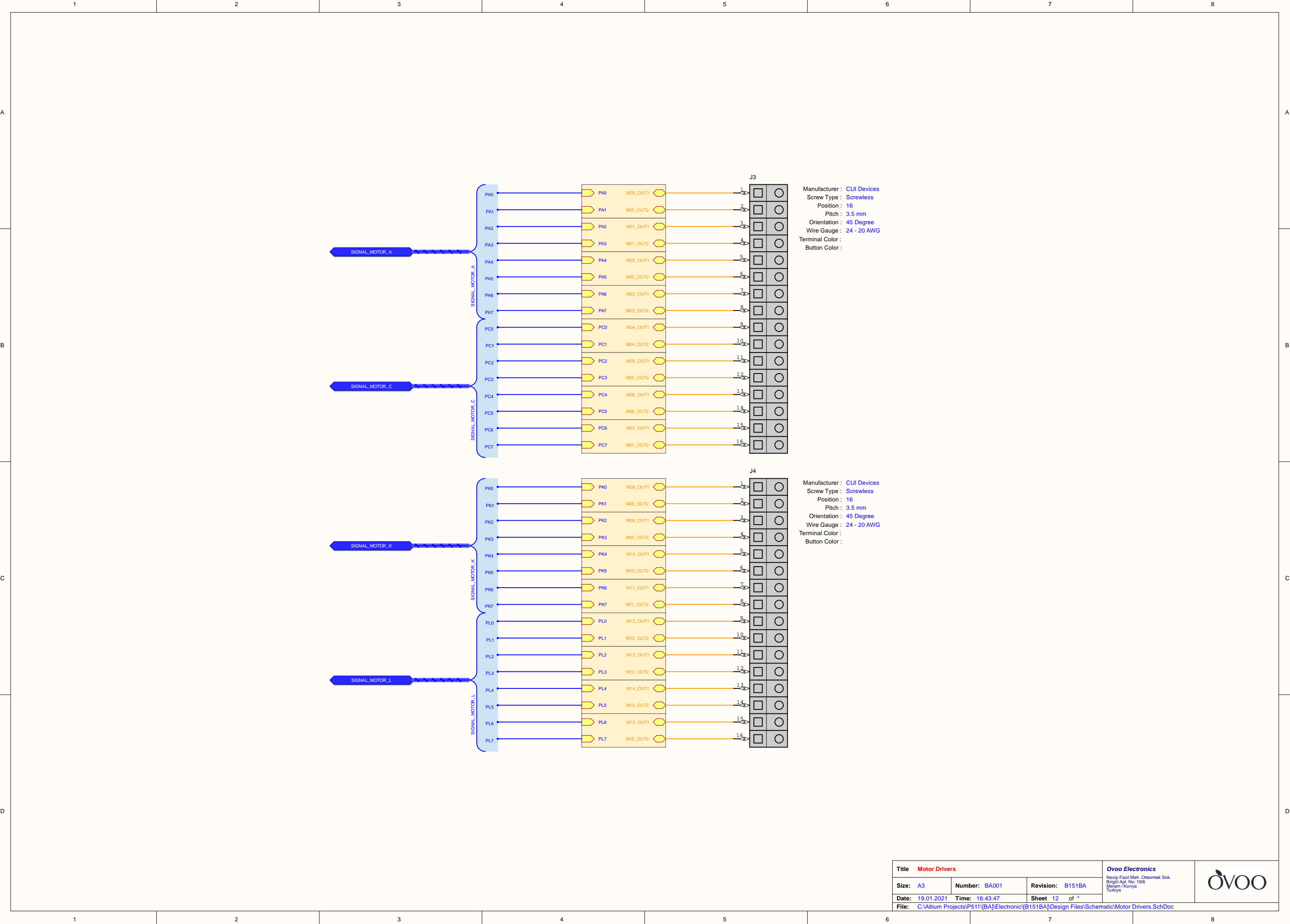


I2C LCD Output Socket

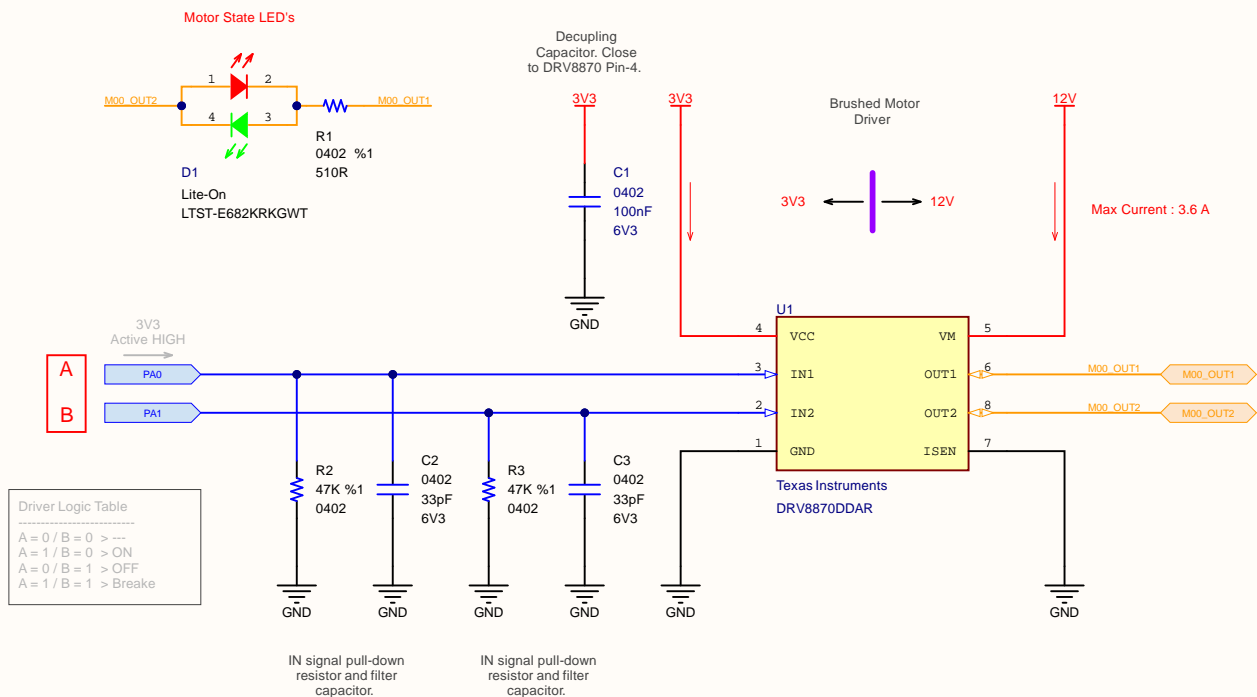


ON	O					
OFF	●					
TYPE	POS	1	2	4	8	
10 STEP	0	●	●	●	●	
	1	○	●	●	●	
	2	●	○	●	●	
	3	○	○	○	●	
	4	●	●	○	●	
	5	○	●	○	●	
	6	●	○	○	●	
	7	○	○	○	●	
	8	●	●	●	○	
	9	○	●	●	○	
16 STEP	A	●	○	○	○	
	B	○	○	●	○	
	C	●	○	○	○	
	D	○	●	○	○	
	E	●	○	○	○	
	F	○	○	○	○	





Solenoid Driver 01



Title **Solenoid 00 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **19.01.2021**

Time: **16:43:48**

Sheet **13** of *

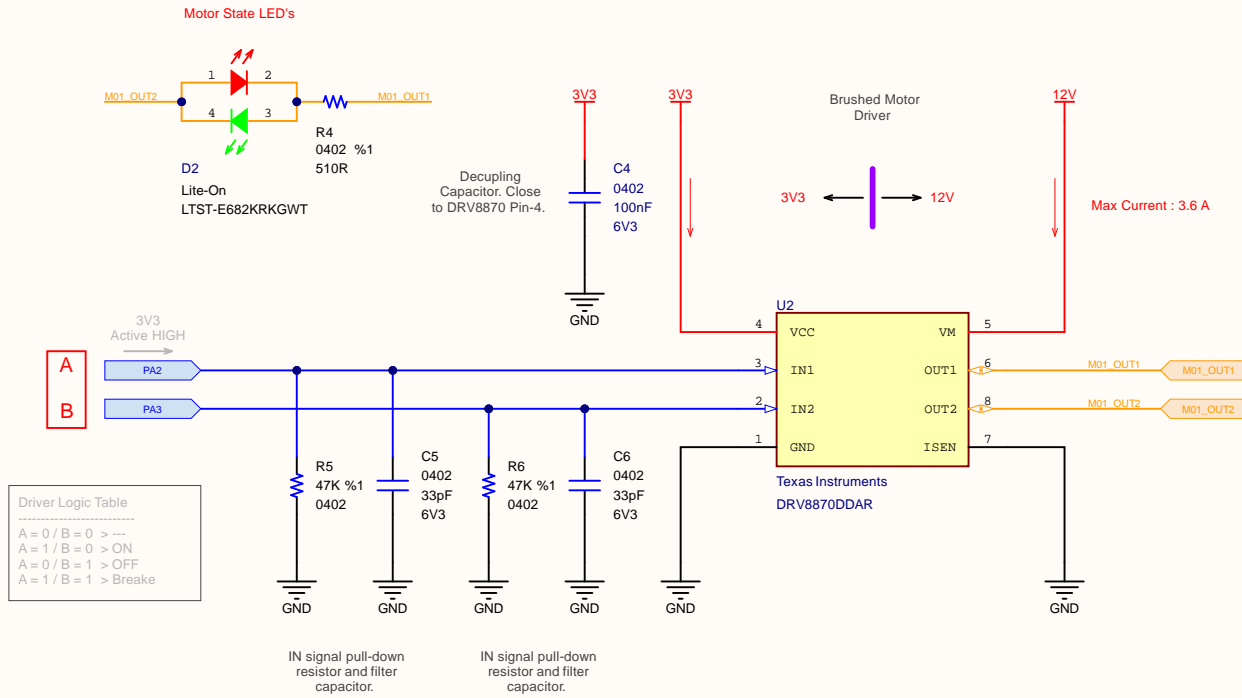
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Ovoo Electronics

Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye

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Solenoid Driver 02



Title **Solenoid 01 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **19.01.2021**

Time: **16:43:48**

Sheet **14** of *****

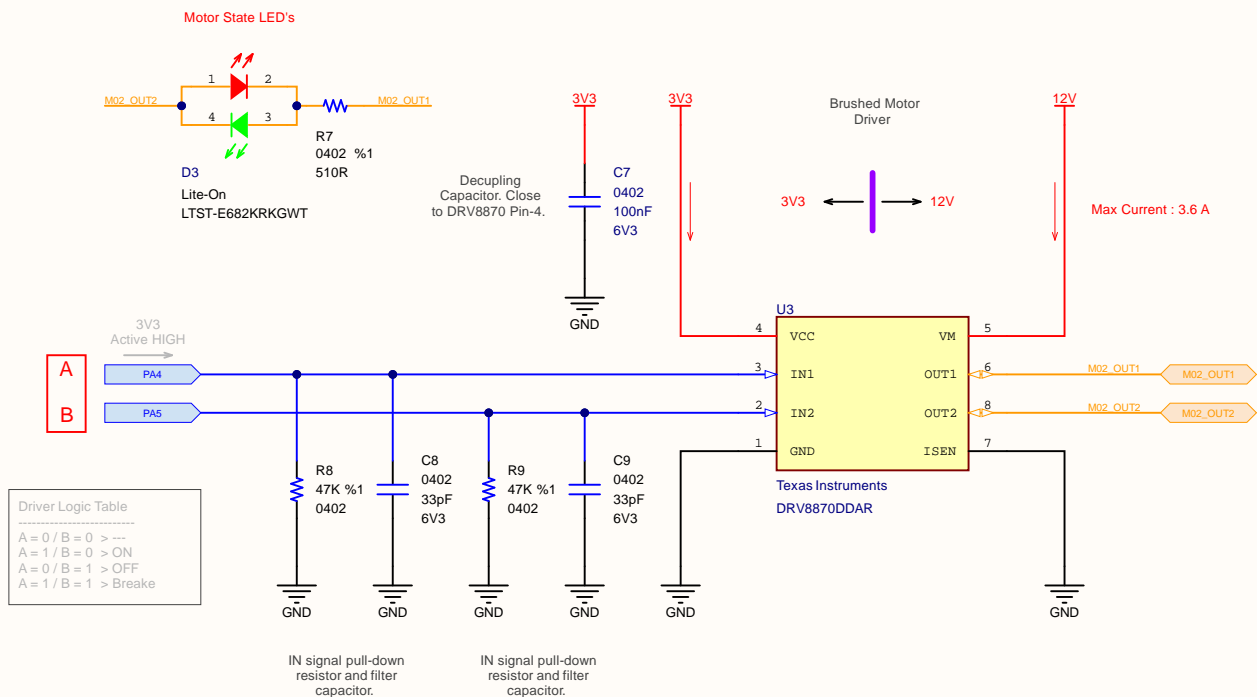
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Ovoo Electronics

Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye

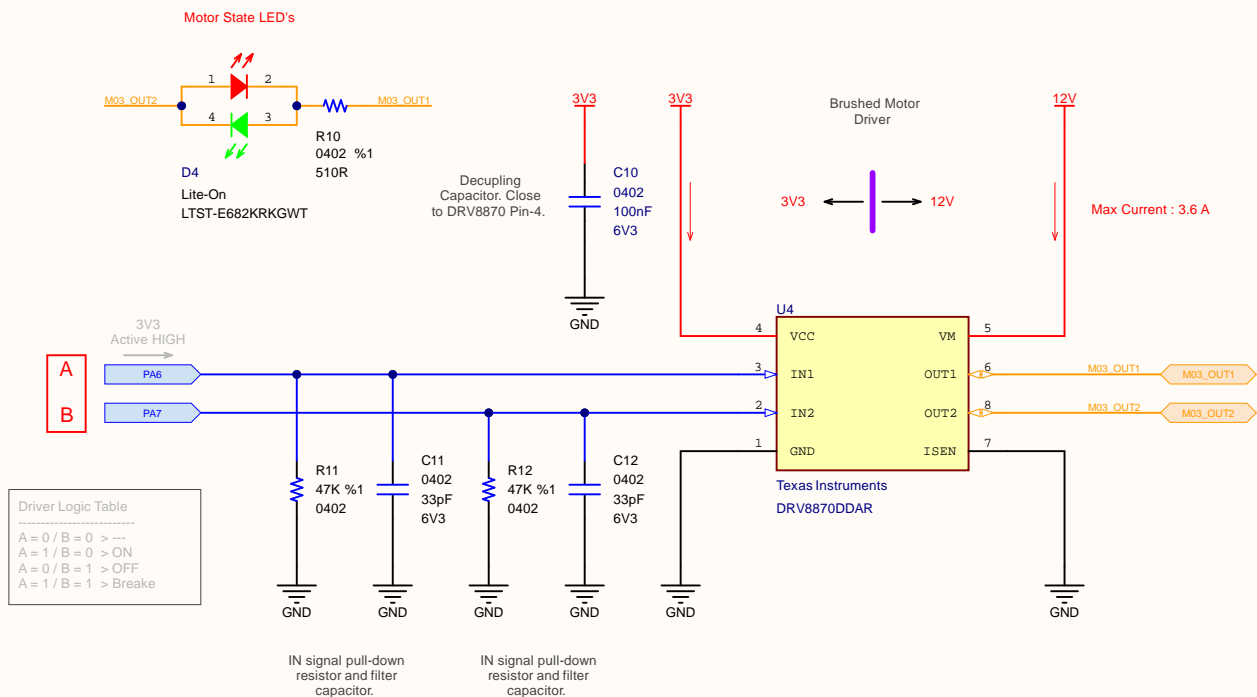


Solenoid Driver 03



Title Solenoid 02 Driver			Ovoo Electronics		 <p>Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye</p>
Size: A4	Number: BA001	Revision: B151BA			
Date: 19.01.2021	Time: 16:43:48	Sheet 15 of *			
File: C:\Altium Projects\PS11\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 02 Driver.SchDoc					

Solenoid Driver 04



Title **Solenoid 03 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **19.01.2021**

Time: **16:43:48**

Sheet **16** of *****

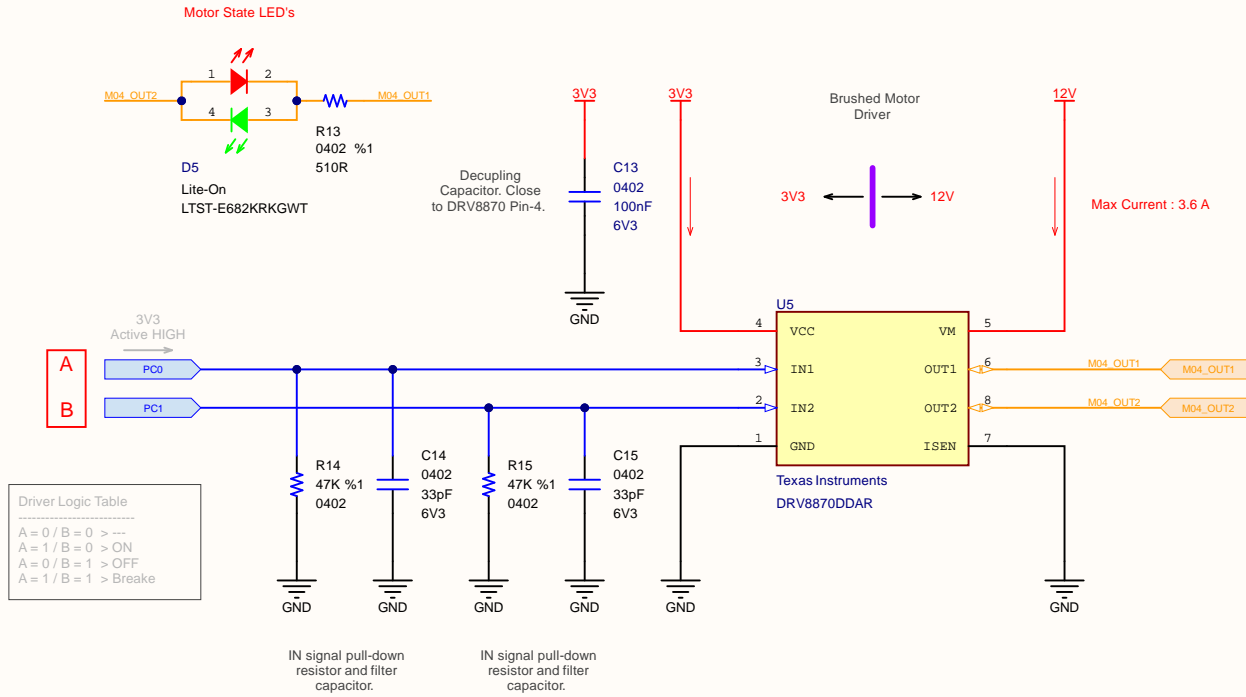
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Ovoo Electronics

Necip Fazıl Mah. Ortarmak Sok.
Bırgölü Apt. No: 19/6
Meram / Konya
Türkiye

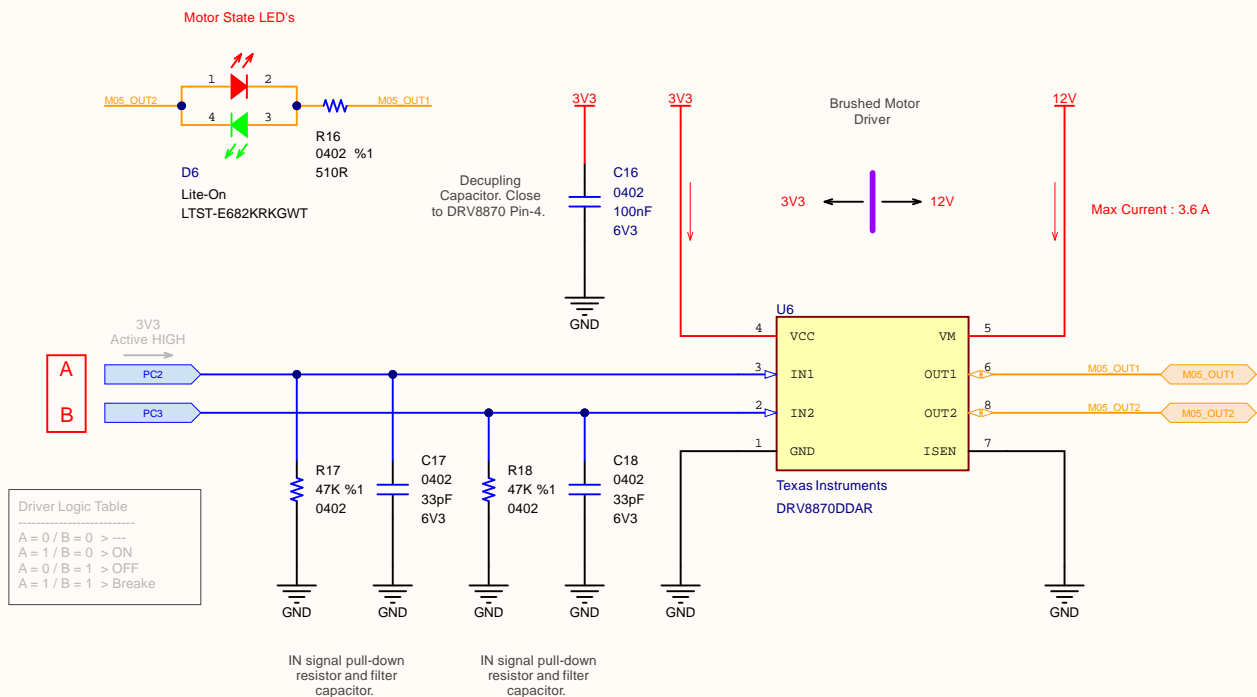
OVOO

Solenoid Driver 05



Title Solenoid 04 Driver			Ovoo Electronics		 <p>Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye</p>
Size: A4	Number: BA001	Revision: B151BA			
Date: 19.01.2021	Time: 16:43:48	Sheet 17 of *			
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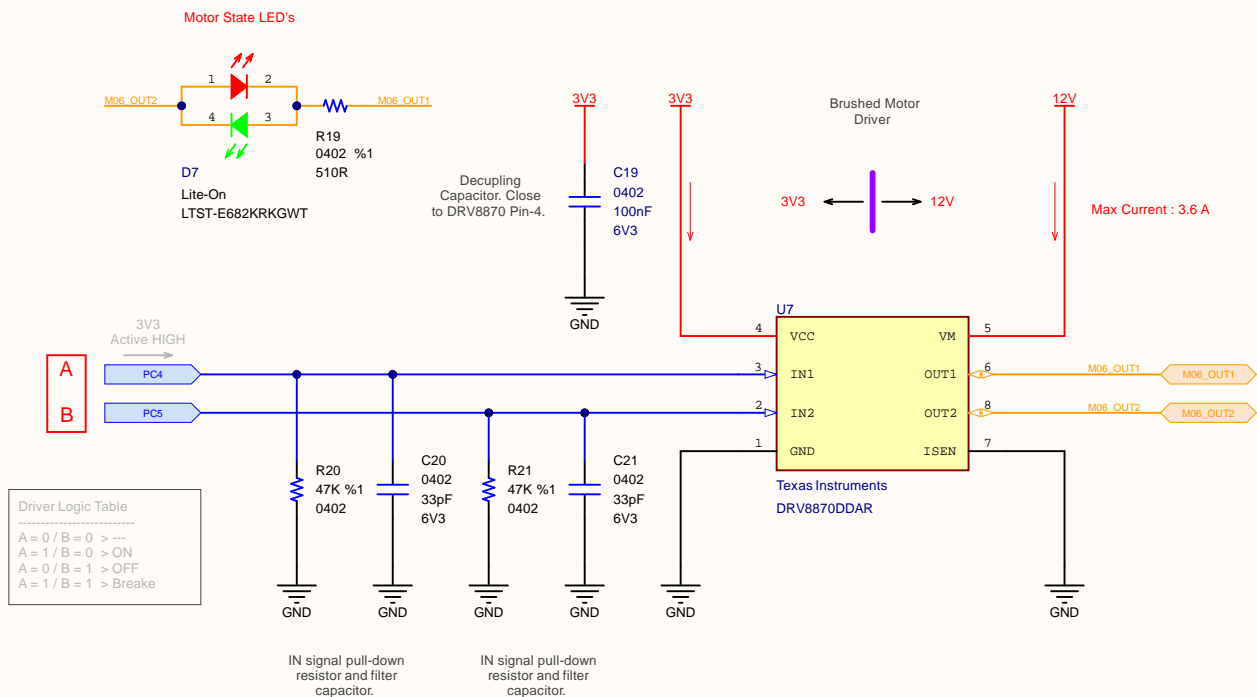
Solenoid Driver 06



Title Solenoid 05 Driver			Ovoo Electronics	
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Date: 19.01.2021	Time: 16:43:48	Sheet 18 of *		
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ovoo

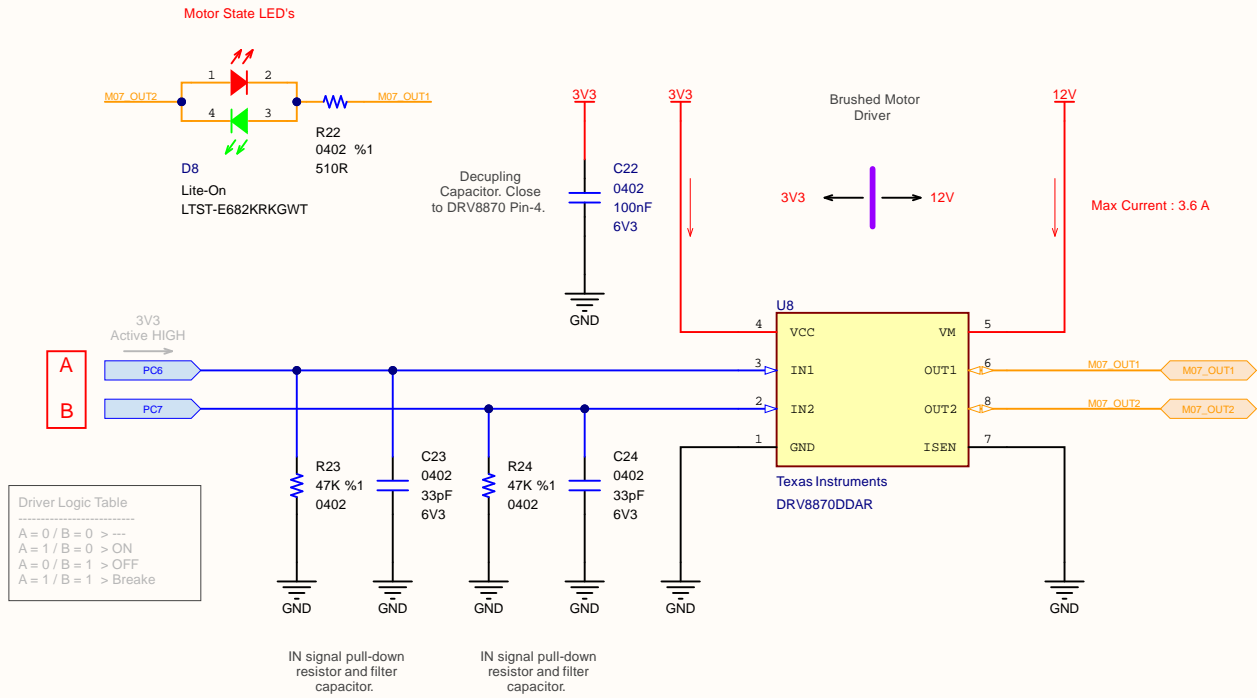
Solenoid Driver 07



Title Solenoid 06 Driver			Ovoo Electronics	
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Date: 19.01.2021	Time: 16:43:48	Sheet 19 of *		
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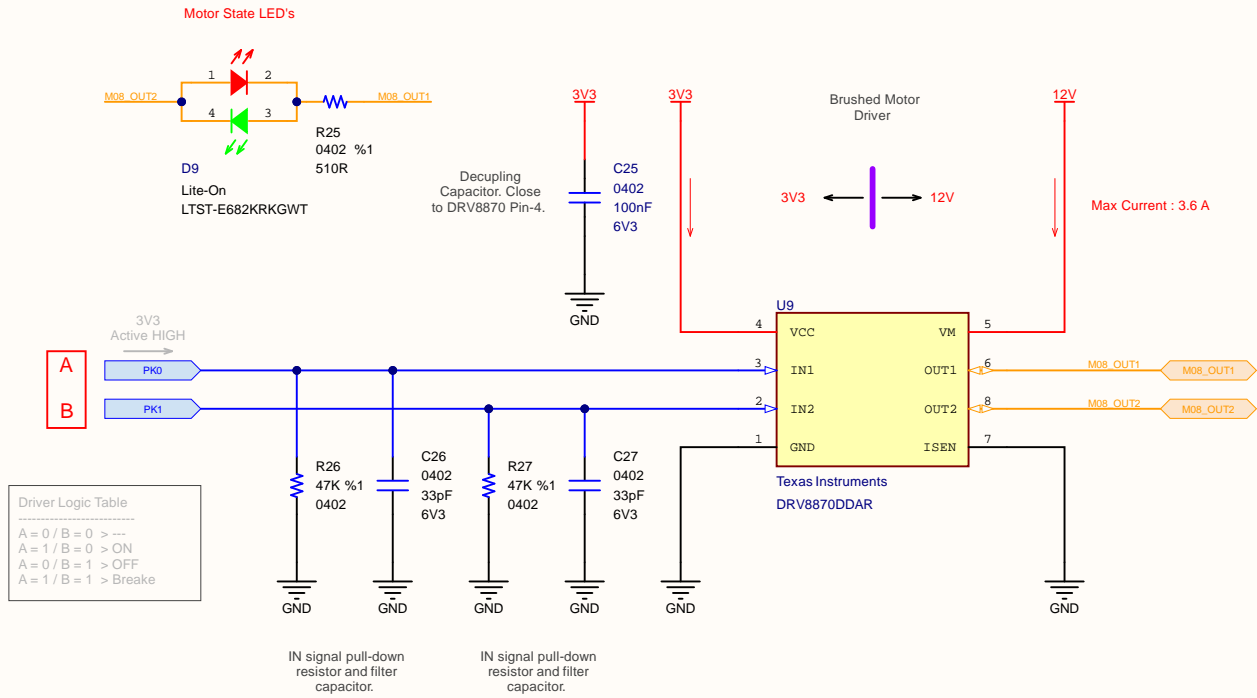
ovoo


Solenoid Driver 08



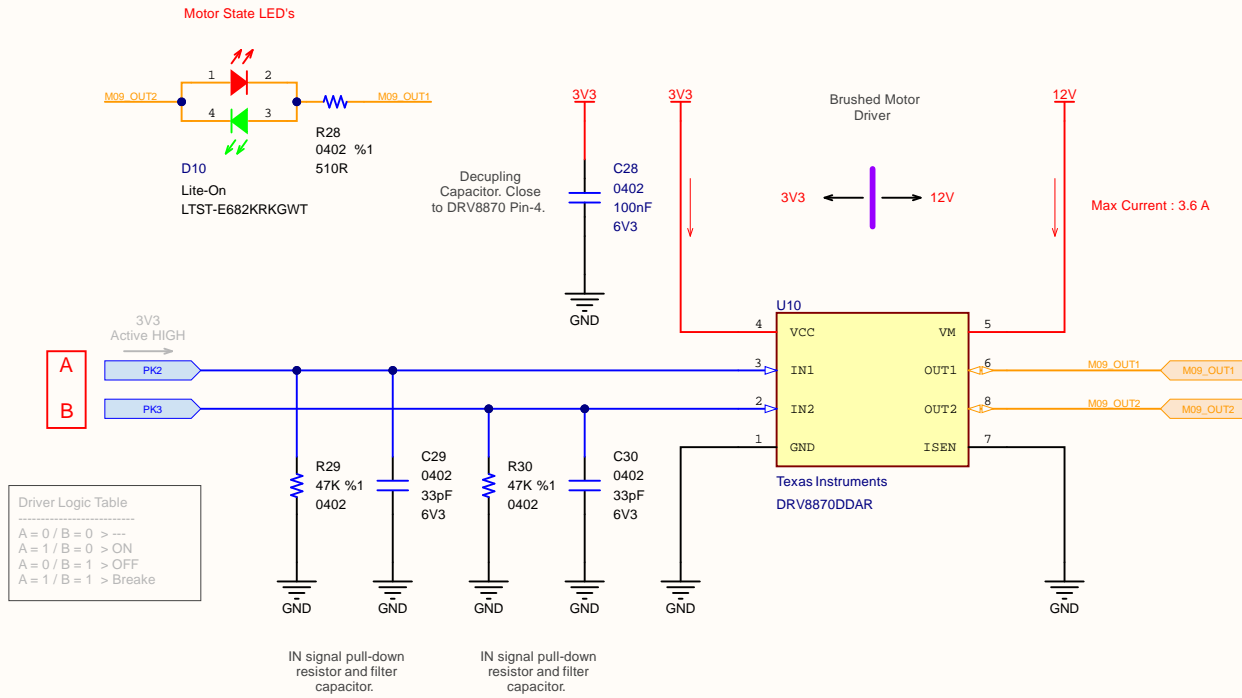
Title Solenoid 07 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 19.01.2021	Time: 16:43:48	Sheet 20 of *	
File: C:\Altium Projects\IP511\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 07 Driver.SchDoc			

Solenoid Driver 09



Title Solenoid 08 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No:19/6 Meram / Konya Türkiye		
Size: A4	Number: BA001	Revision: B151BA			
Date: 19.01.2021	Time: 16:43:48	Sheet 21 of *			
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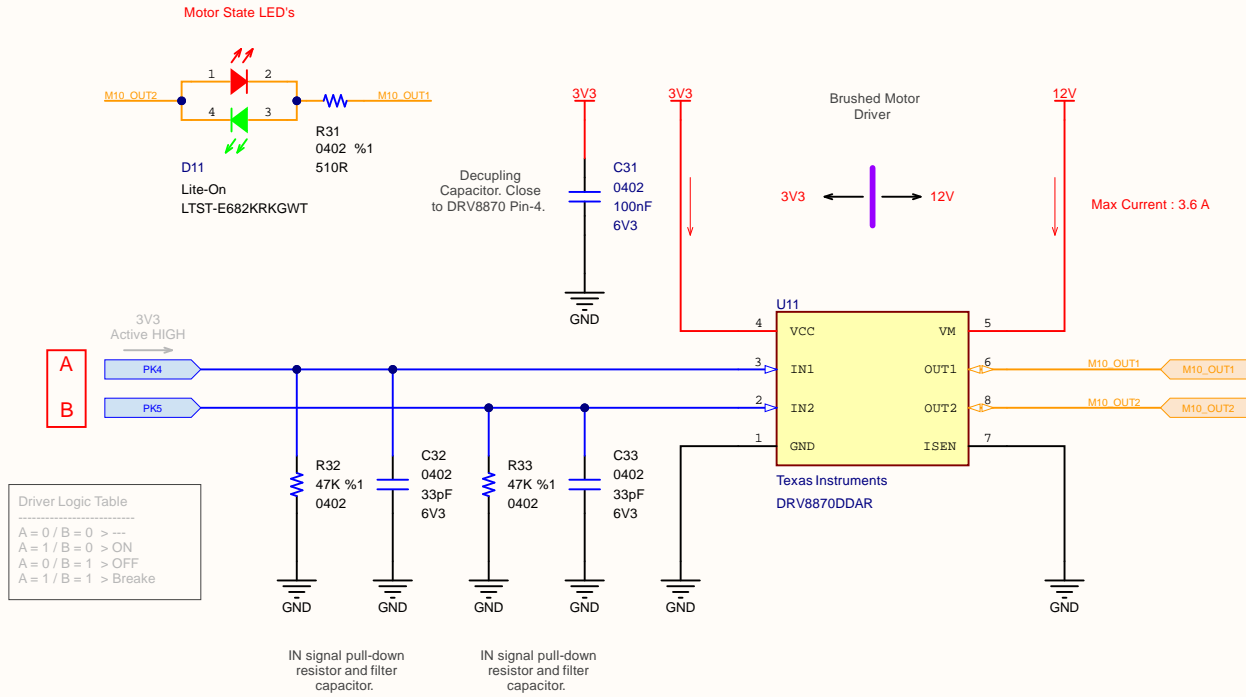
Solenoid Driver 10




Title Solenoid 09 Driver			Ovoo Electronics Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye
Size: A4	Number: BA001	Revision: B151BA	
Date: 19.01.2021	Time: 16:43:48	Sheet 22 of *	
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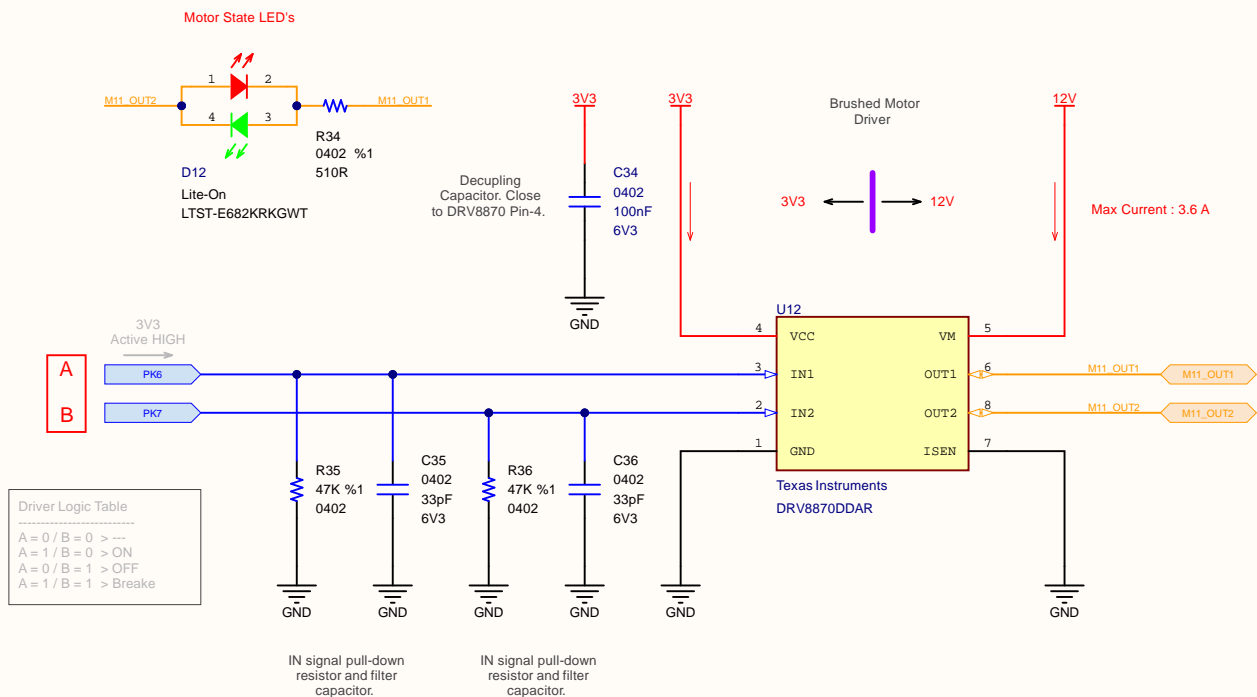


Solenoid Driver 11



Title Solenoid 10 Driver			Ovoo Electronics		
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Birgül Apt. No: 19/6 Meram / Konya Türkiye		
Date: 19.01.2021	Time: 16:43:48	Sheet 23 of *			
File: C:\Altium Projects\PS11\BA\Electronic\B151BA\Design Files\Schematic\Solenoid 10 Driver.SchDoc					

Solenoid Driver 12



Title **Solenoid 11 Driver**

Size: **A4**

Number: **BA001**

Revision: **B151BA**

Date: **19.01.2021**

Time: **16:43:48**

Sheet **24** of *****

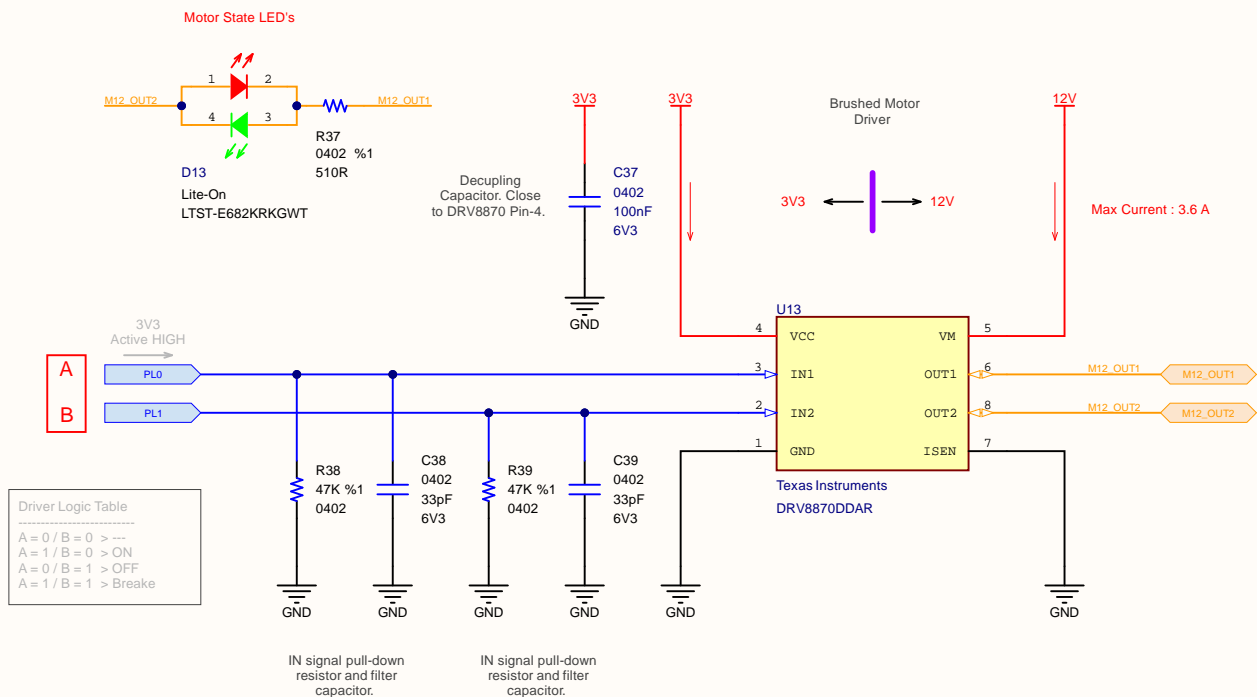
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Ovoo Electronics

Necip Fazıl Mah. Ortarmak Sok.
Bırgöl Apt. No: 19/6
Meram / Konya
Türkiye

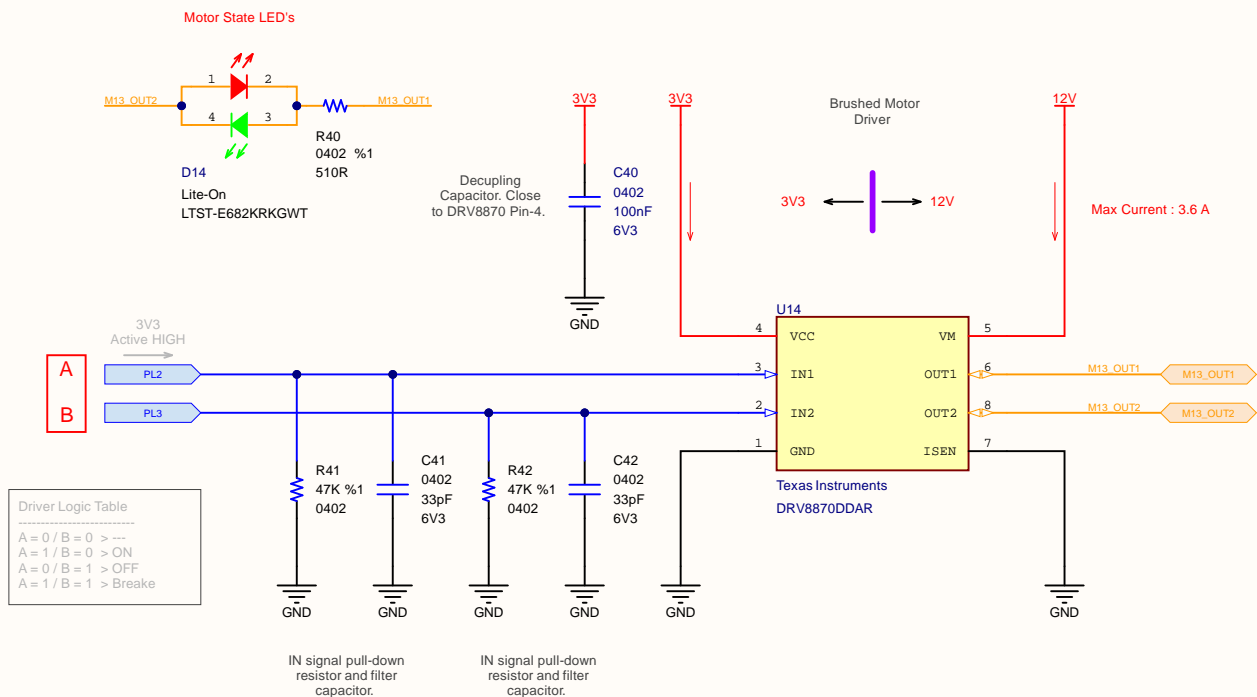
ovoo

Solenoid Driver 13



Title Solenoid 12 Driver			Ovoo Electronics		
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye		
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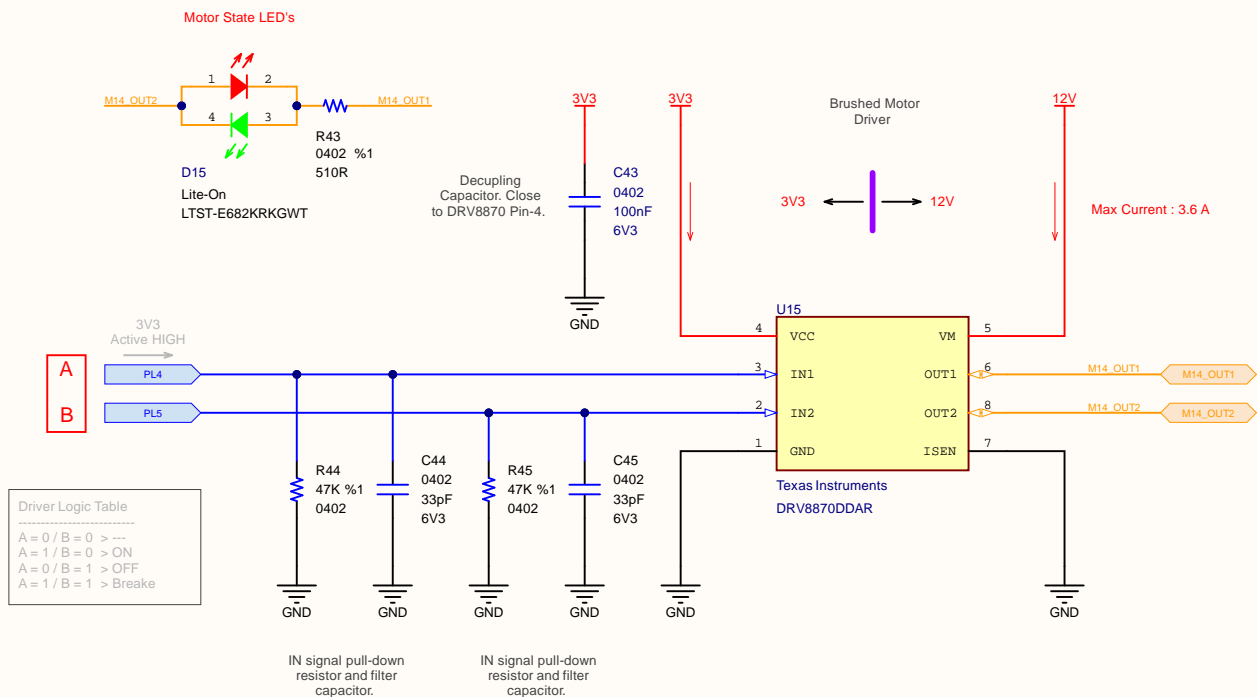
Solenoid Driver 14



Title Solenoid 13 Driver			Ovoo Electronics	
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Date: 19.01.2021	Time: 16:43:48	Sheet 26 of *		
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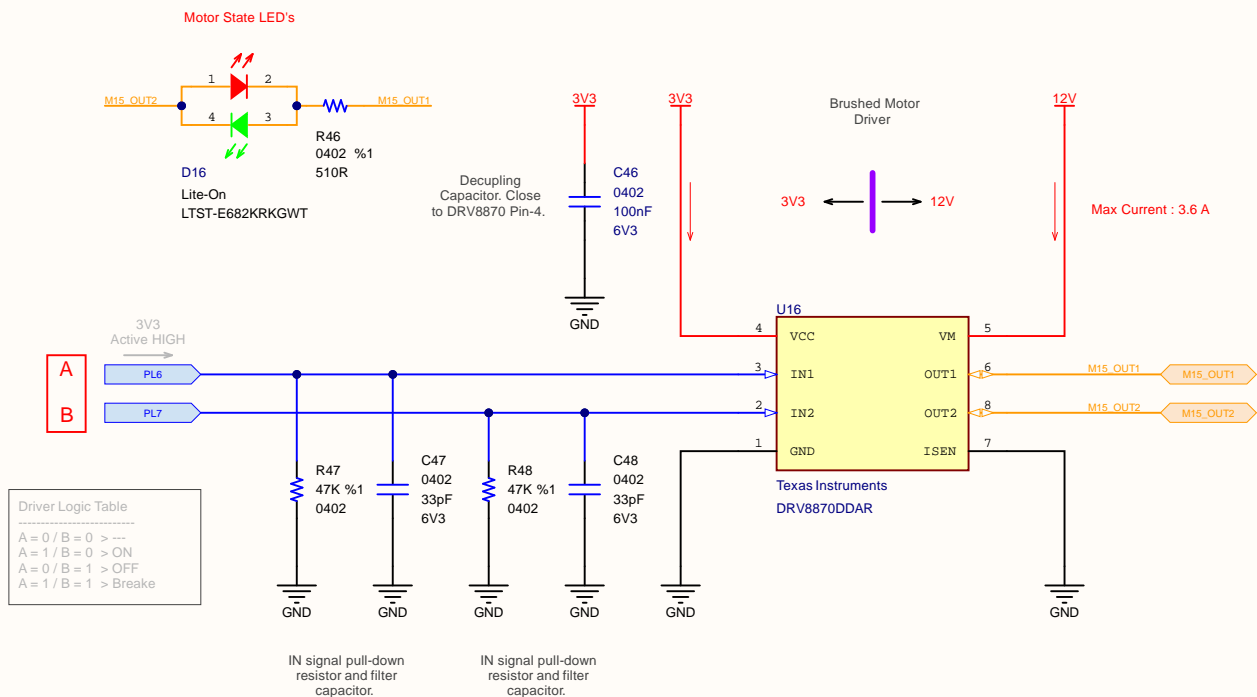
Solenoid Driver 15



Title Solenoid 14 Driver			Ovoo Electronics	
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Date: 19.01.2021	Time: 16:43:48	Sheet 27 of *		
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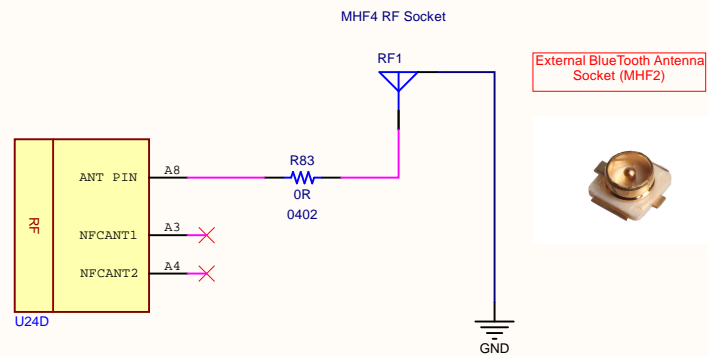
ovoo


Solenoid Driver 16

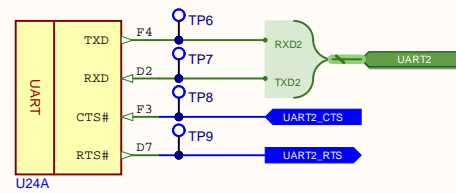



Title Solenoid 15 Driver			Ovoo Electronics	
Size: A4	Number: BA001	Revision: B151BA	Necip Fazıl Mah. Ortarmak Sok. Bırgöl Apt. No: 19/6 Meram / Konya Türkiye	
Date: 19.01.2021	Time: 16:43:49	Sheet 28 of *		
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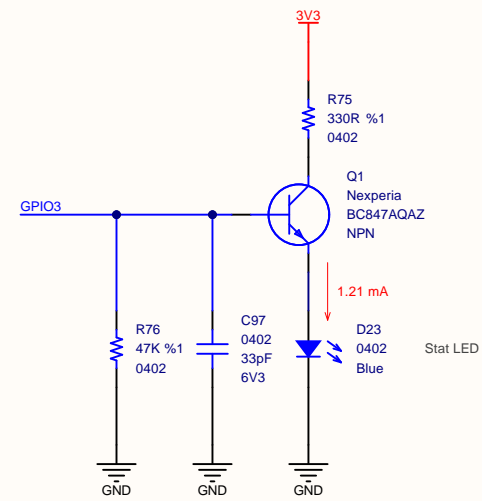
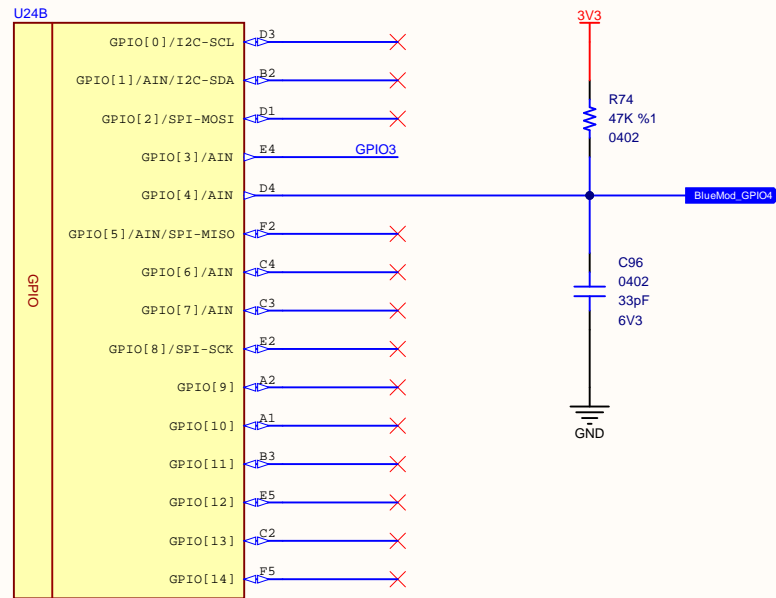
ovoo

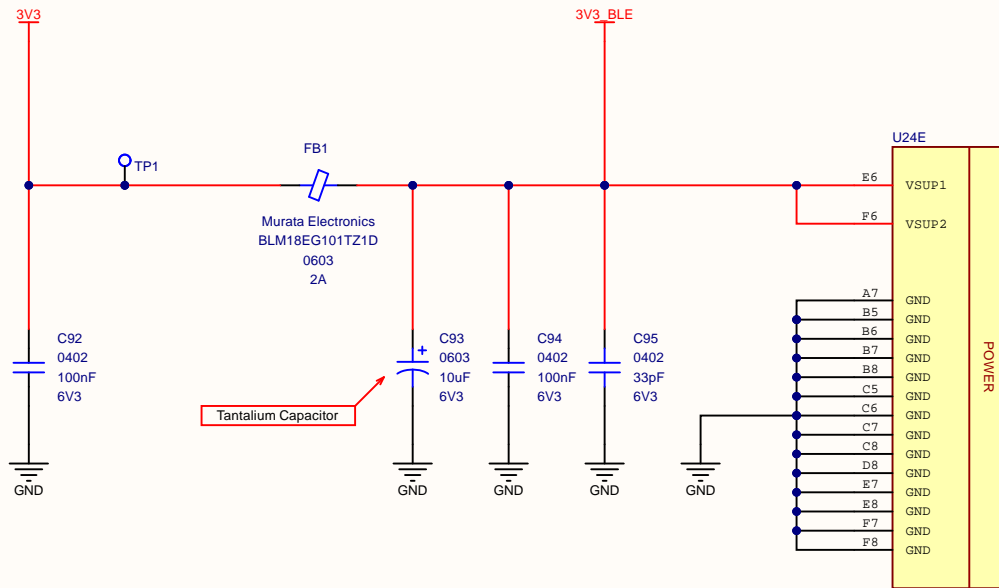


Title BlueMod+S50 Antenna			Ovoo Electronics Necip Fazıl Mah, Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: BA001	Revision: B151BA		
Date: 19.01.2021	Time: 16:43:49	Sheet of		
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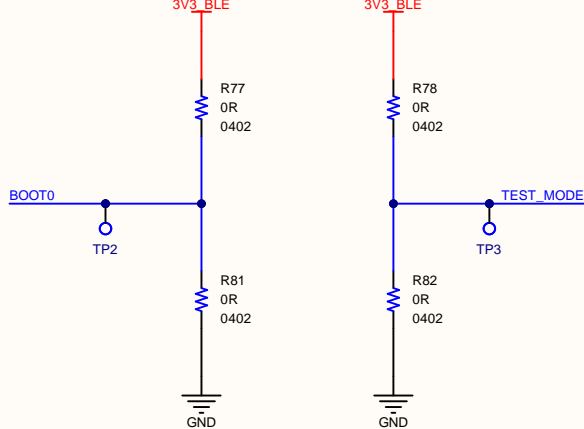
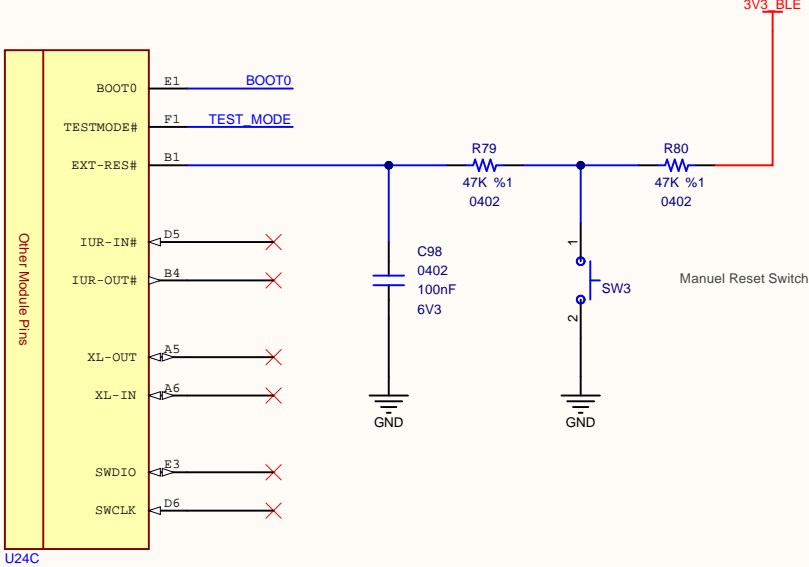


Title BlueMod+S50 Communication			Ovoo Electronics Necip Fazıl Mah, Ortarmak Sok. Bırgölü Apt. No: 19/6 Meram / Konya Türkiye	
Size: A4	Number: BA001	Revision: B151BA		
Date: 19.01.2021	Time: 16:43:49	Sheet of		
File: C:\Altium Projects\PS11\BA\Electronic\B151BA\Design Files\Schematic\BlueMod+S50 Communication.SchDoc				





MicroController Mode :
TestMode -> LOW
Boot0 -> HIGH



Test Mode - Boot0
LOW / LOW : Test Mode
LOW / HIGH : DTM (19200, 8N1)
HIGH / LOW : Firmware (115200, 8N1)
HIGH / HIGH : Bootloader