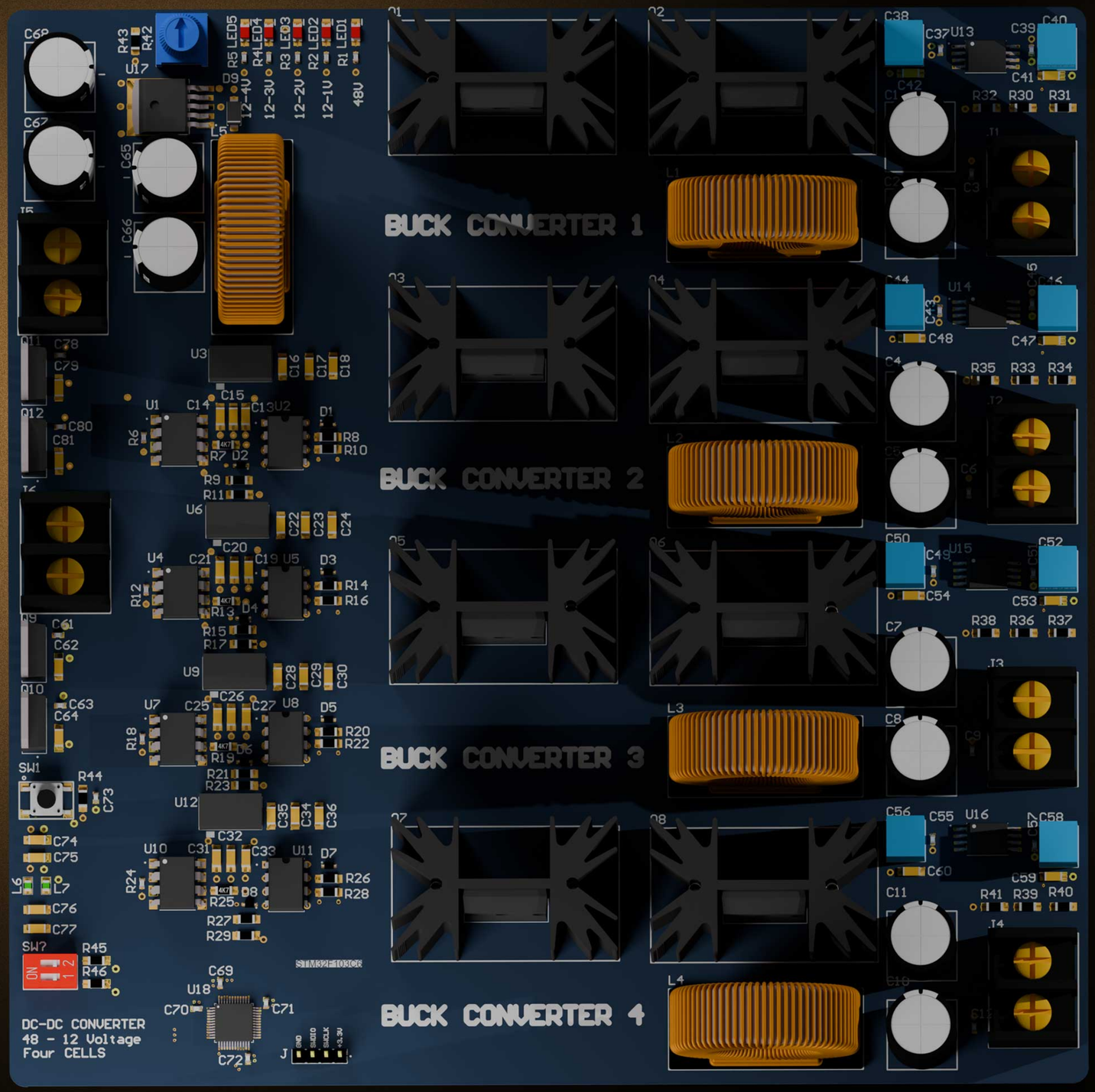
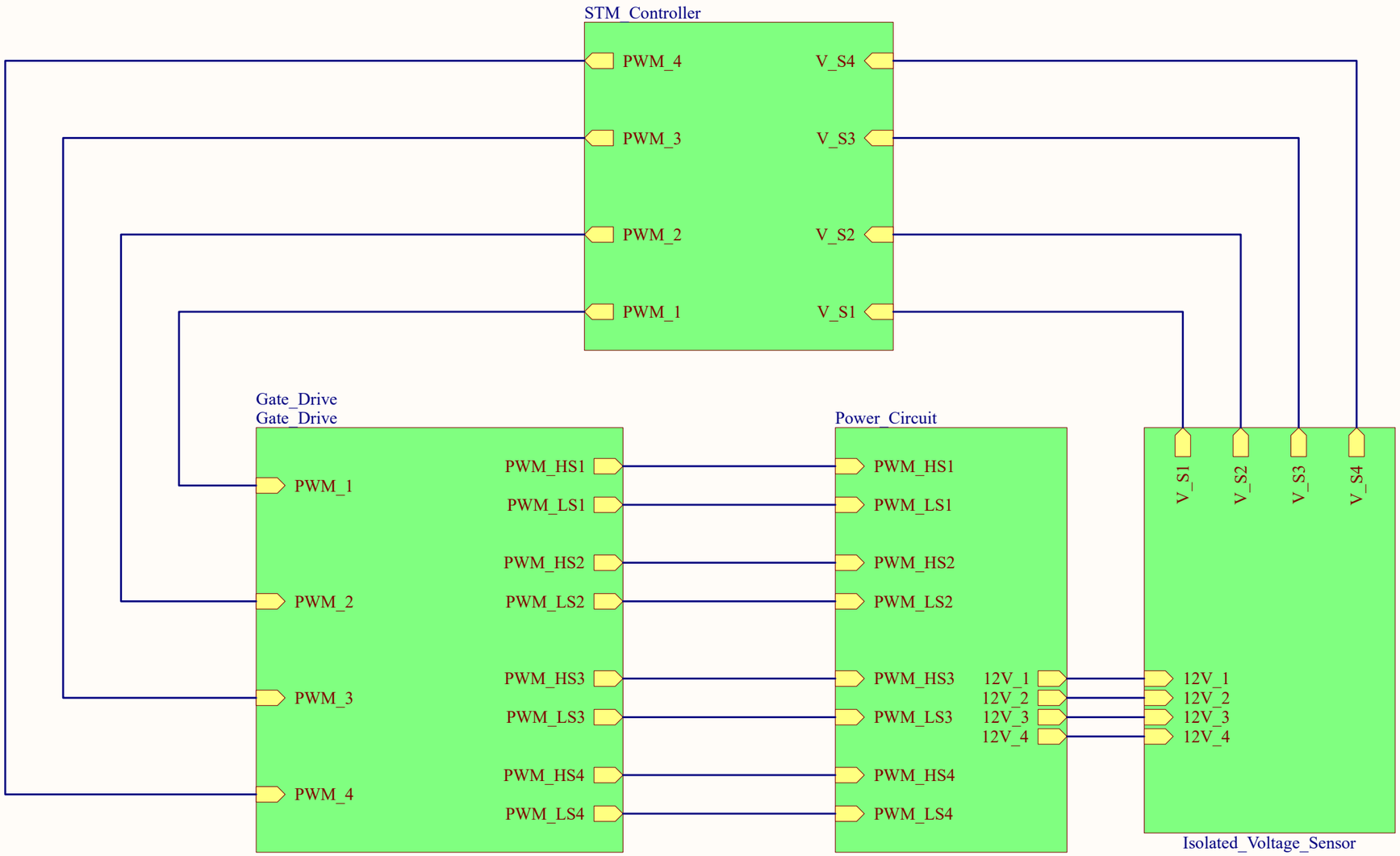
48-12V

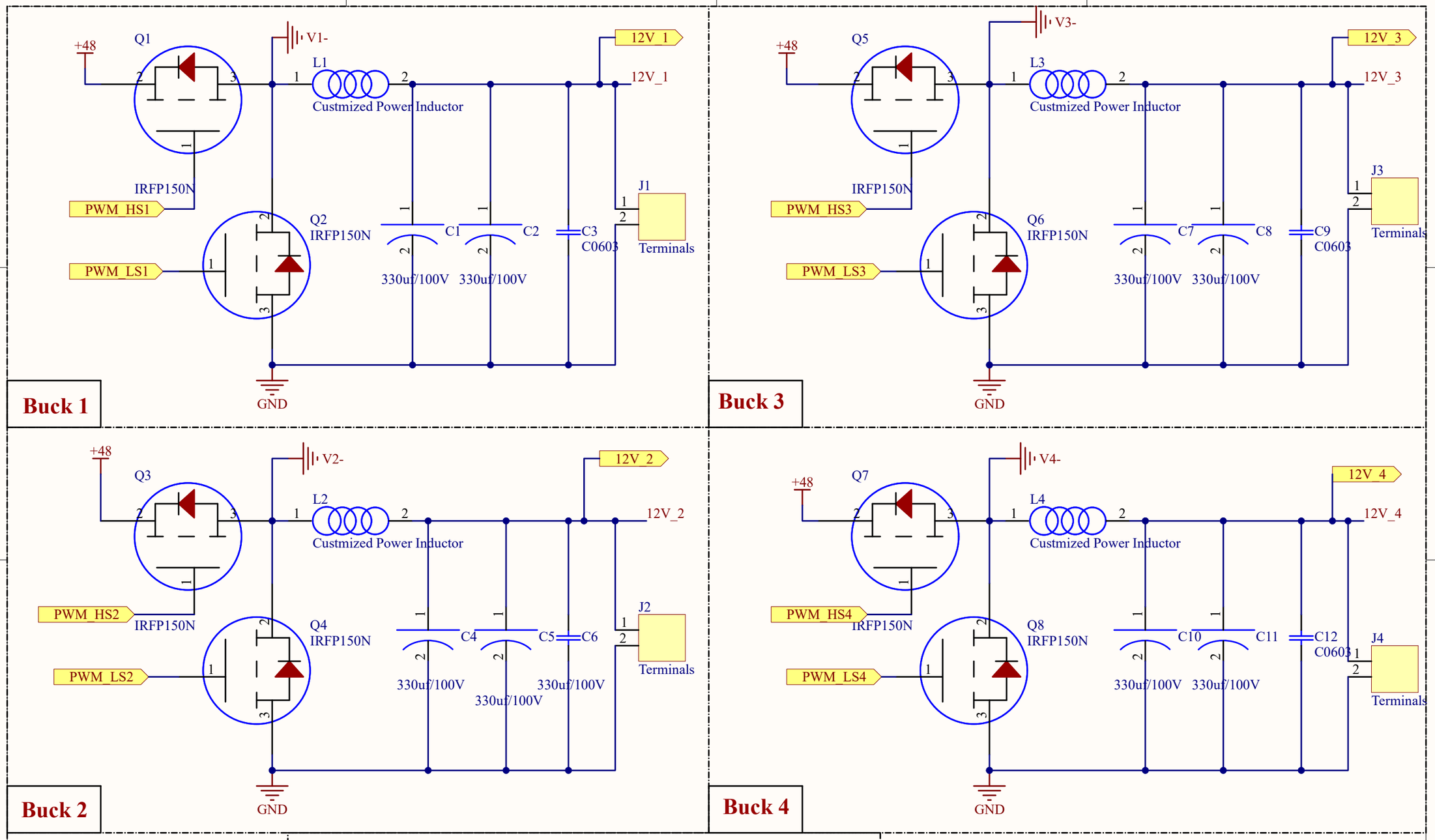
BUCK CONVERTER



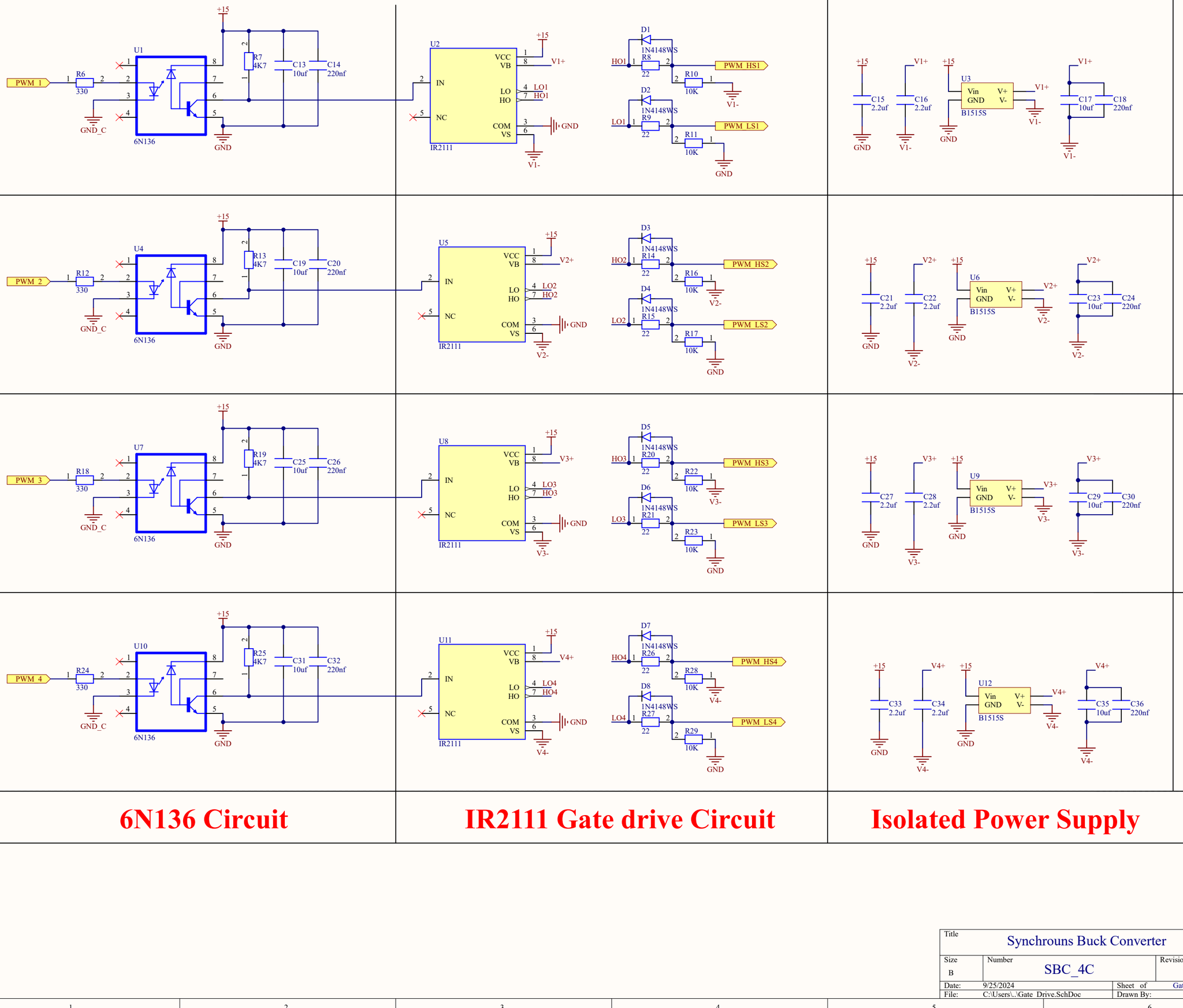
- Buck Converter 48-12V
- 4 Bucks in one board
  - output 12V
  - Max current 30A x 4 = 120A
- Controlling output using MCU STM32F103C6
- Isolation of MCU
- Output Voltage sensing



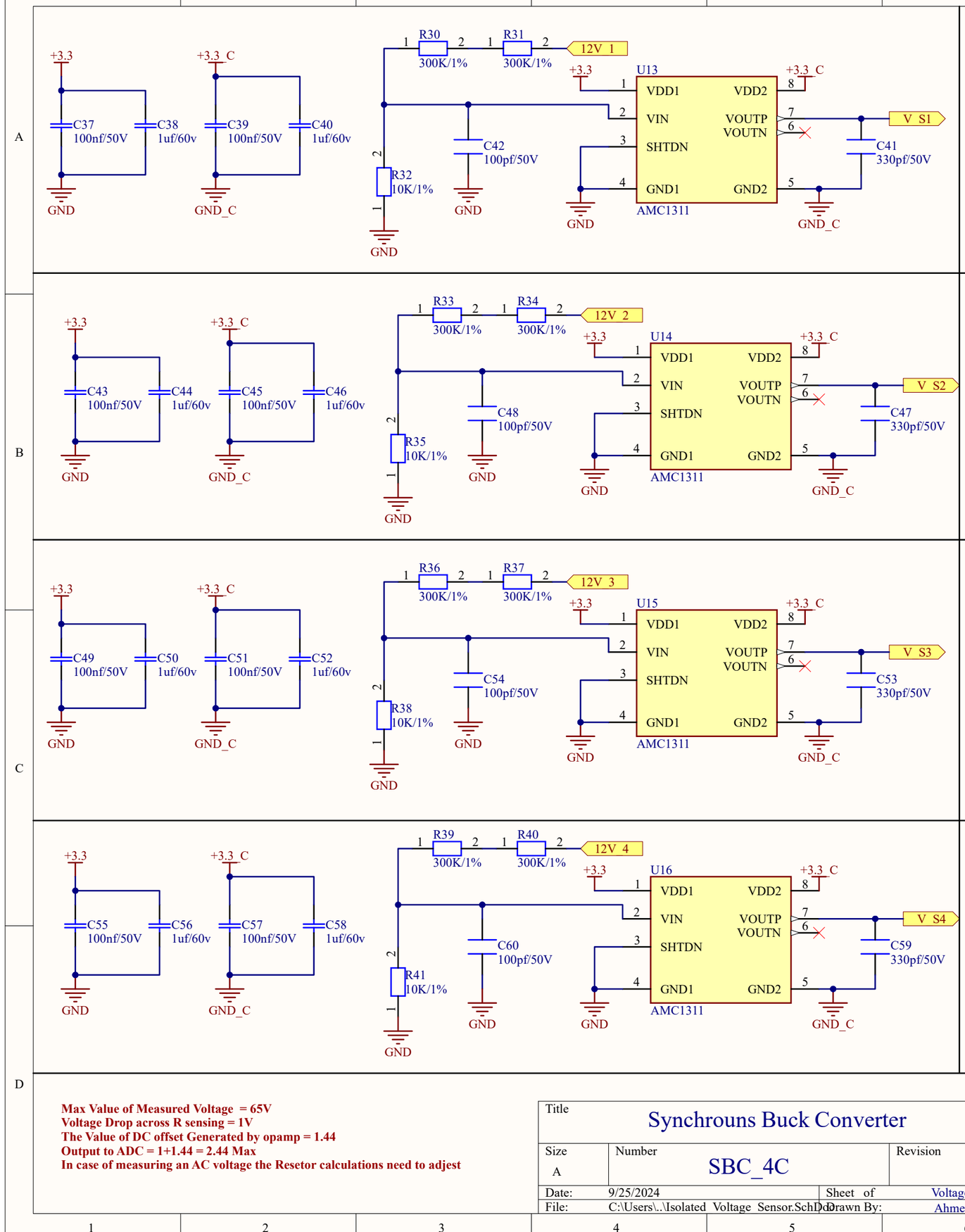
Title	Synchrouns Buck Converter		
Size: A	Number: SBC_4C		Revision: V1
Date: 9/25/2024		Sheet of	Master
File: C:\Users\..\Master.SchDoc		Drawn By:	Ahmed Aboeita



Title	Synchrouns Buck Converter	
Size: A	Number: SBC_4C	Revision: V1
Date: 9/25/2024	Sheet of	Power Circuit
File: C:\Users\..\Power Circuit.SchDoc	Drawn By:	Ahmed Aboeita

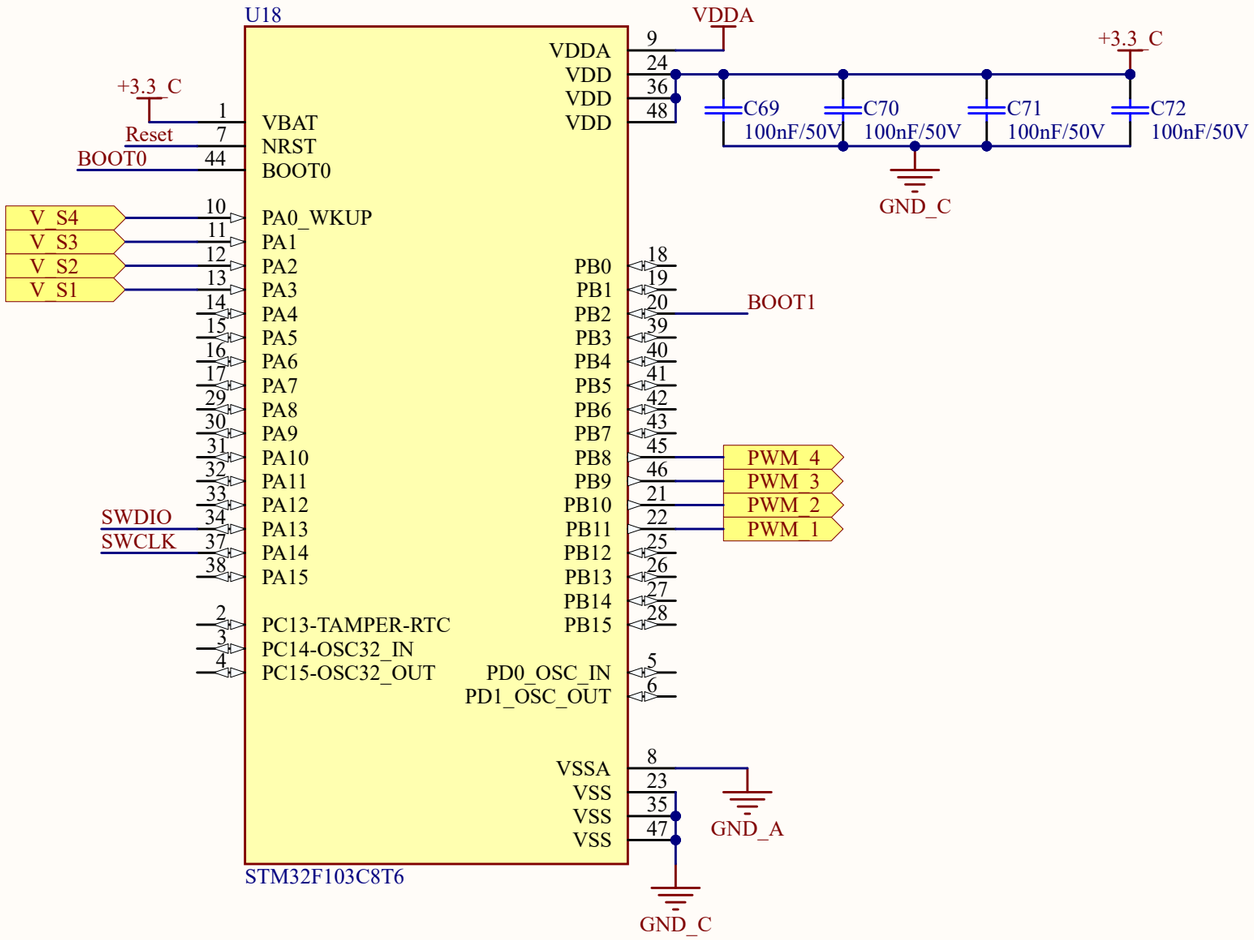


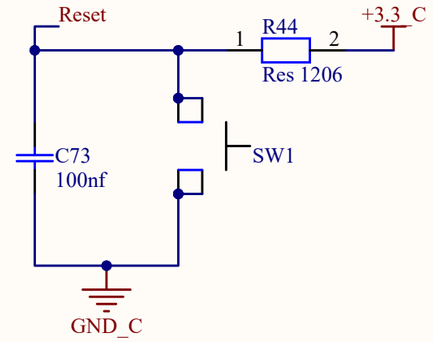
Title	Synchrouns Buck Converter
Size	B
Number	SBC_4C
Revision	V1
Date:	9/25/2024
Sheet of	Gate Driver Circuits
File:	C:\Users\..\Gate Drive.SchDoc
Drawn By:	Ahmed Aboeita

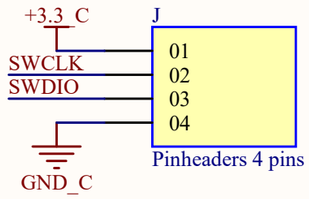


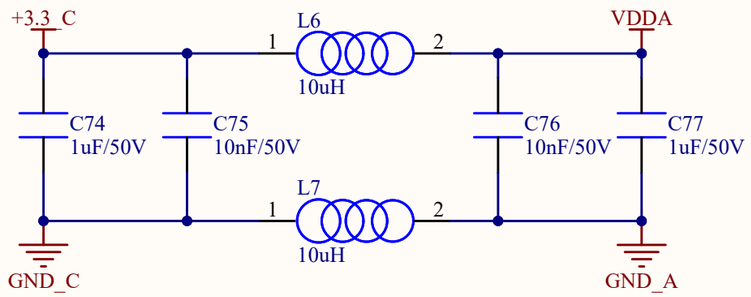
Max Value of Measured Voltage = 65V
Voltage Drop across R sensing = 1V
The Value of DC offset Generated by opamp = 1.44
Output to ADC = 1+1.44 = 2.44 Max
In case of measuring an AC voltage the Resetor calculations need to adjest

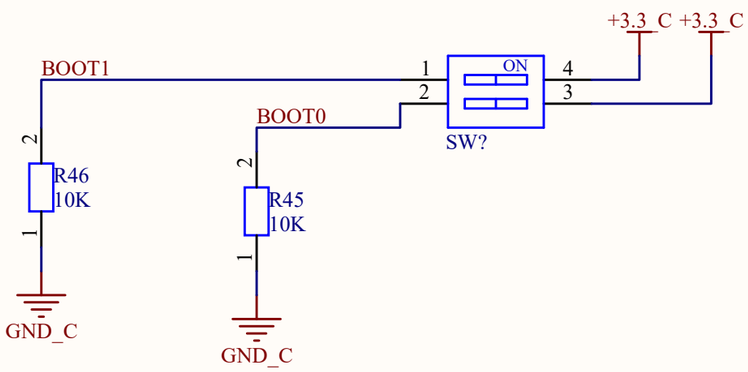
Title	Synchrouns Buck Converter		
Size: A	Number: SBC_4C		Revision: V1
Date: 9/25/2024		Sheet of	Voltage Sensors
File: C:\Users\..\Isolated Voltage Sensor.SchDoc		Drawn By:	Ahmed Aboeita



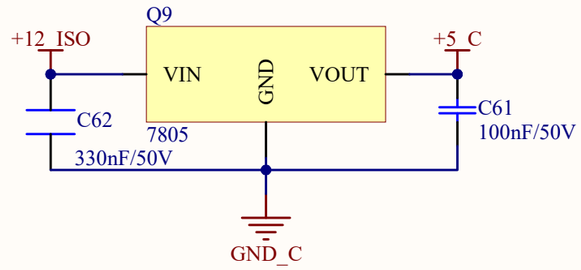






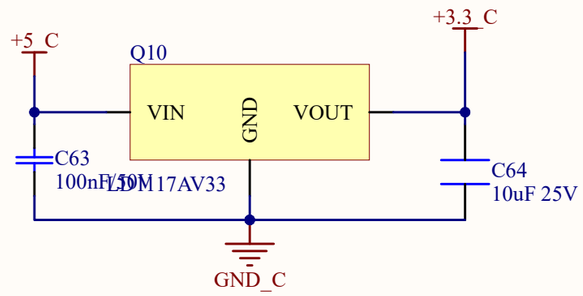


Title: Synchrouns Buck Converter		
Size: A	Number: SBC_4C	Revision: V1
Date: 9/25/2024	Sheet of STM	
File: C:\Users\..\STM Controller.SchDoc	Drawn By: Ahmed Aboeita	



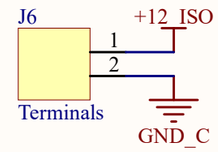
Convert The input 12V from Isolated Source To 5V

Linear Voltage Regulation



Convert The input 5V to 3.3V

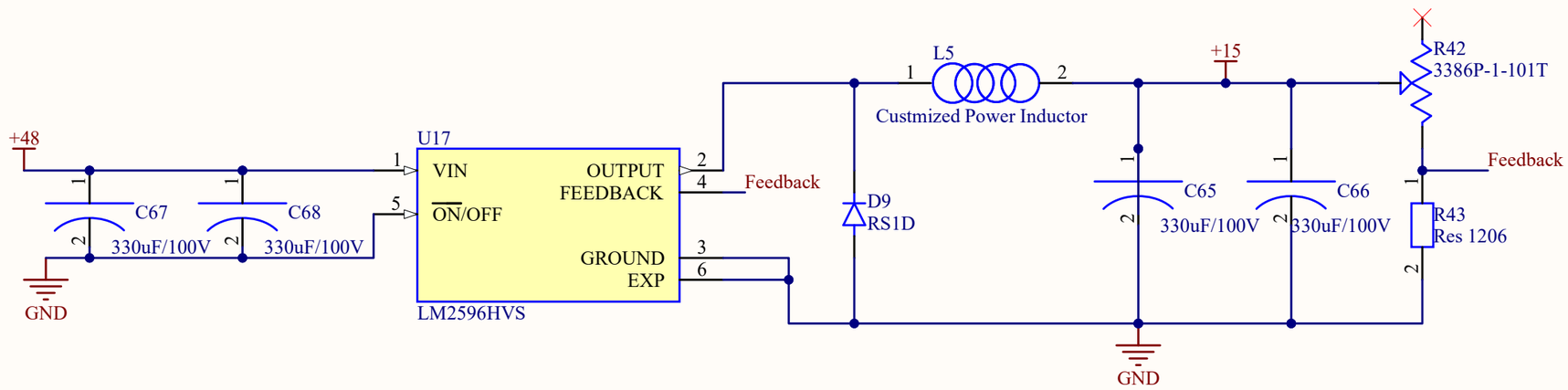
LDO - LOW Voltage dropout



Input 12V From Isolated Supply

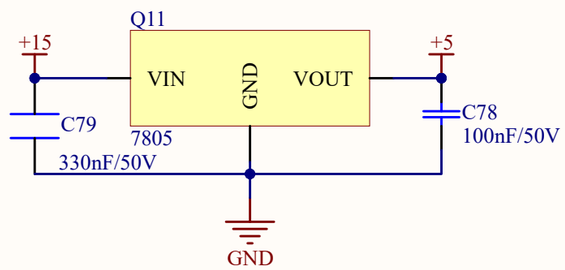
Recommended Flyback Converter

48V-12V



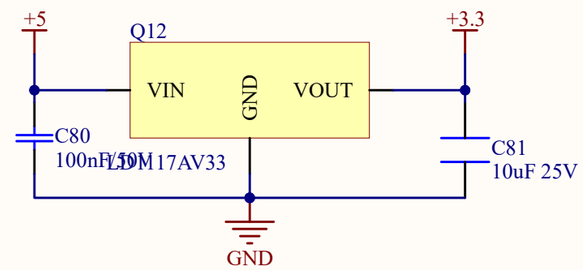
Convert The input 48V To 15V For Isolators and Gate drivers

Maximum Current 3A



Convert The input 12V from Isolated Source To 5V

Linear Voltage Regulation



Convert The input 5V to 3.3V

LDO - LOW Voltage dropout

Title	Synchrouns Buck Converter		
Size: A	Number: SBC_4C	Revision: V1	
Date: 9/25/2024		Sheet of	Power Supply
File: C:\Users\..\Power Supply.SchDoc		Drawn By:	Ahmed Aboeita