



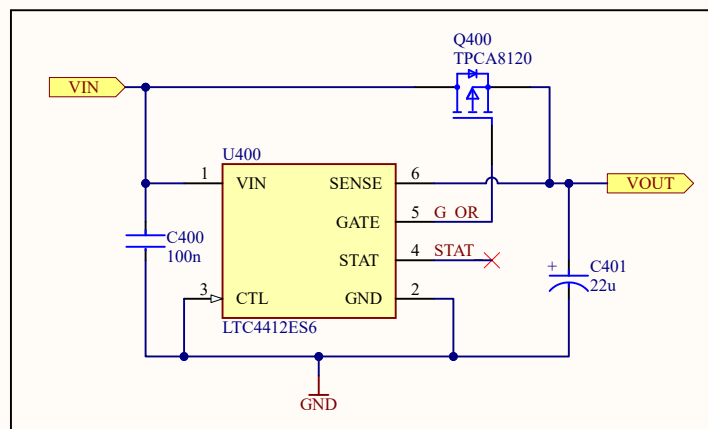


**MOSFET Selection**

If the MOSFET is grossly undersized, it can enter the saturation region and a large VDS may result. However, the drain-source diode of the MOSFET, if forward biased, will limit VDS. A large VDS, combined with the load current, will likely result in excessively high MOSFET power dissipation. Keep in mind that the LTC4412 will regulate the forward voltage drop across the primary MOSFET at 20mV if RDS(ON) is low enough. The required RDS(ON) can be calculated by dividing 0.02V by the load current in amps.

$\text{max\_Rds(on)} = 0.02\text{V}/5\text{A} = 4\text{m}\Omega$

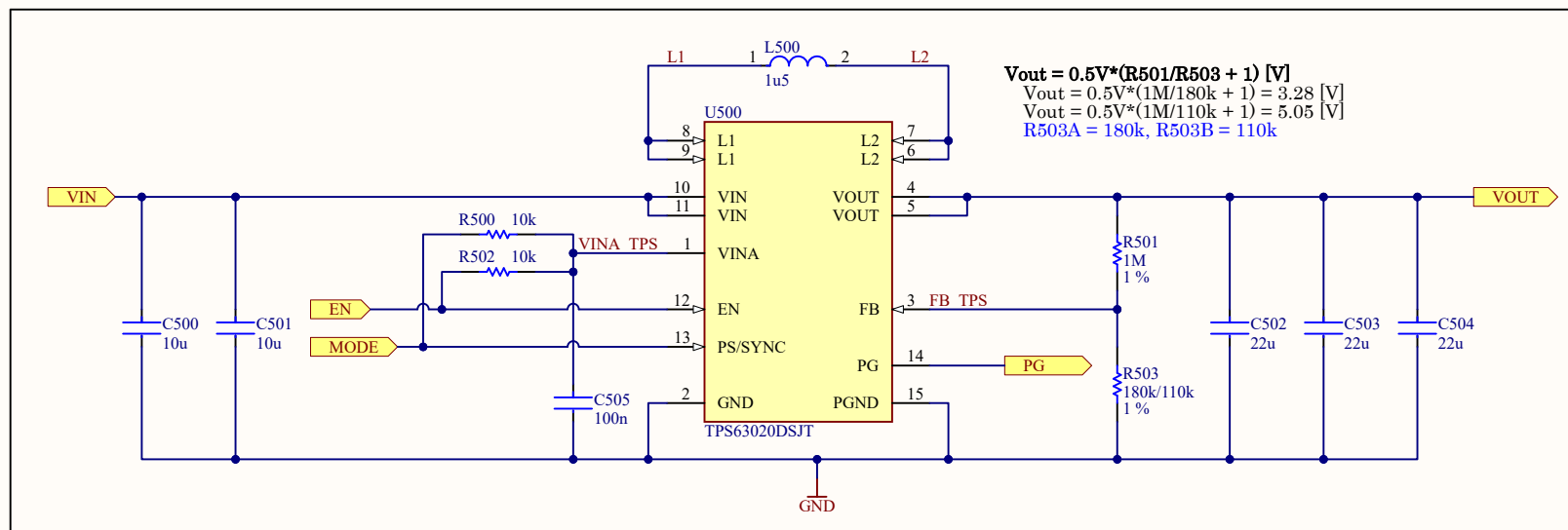
## Ideal diode 5A



The LTC4412 controls an external P-channel MOSFET to create a near ideal diode function for power switchover or load sharing. This permits highly efficient OR'ing of multiple power sources. When conducting, the voltage drop across the MOSFET is typically 20mV.

Title <b>Ideal diode</b>		
Size A4	Number	Revision <b>0.1</b>
Date:	5.22.2024	Sheet of EPS board
File:	E:\projects\...\ideal diode.SchDoc	Drawn By: Dominik Pluta

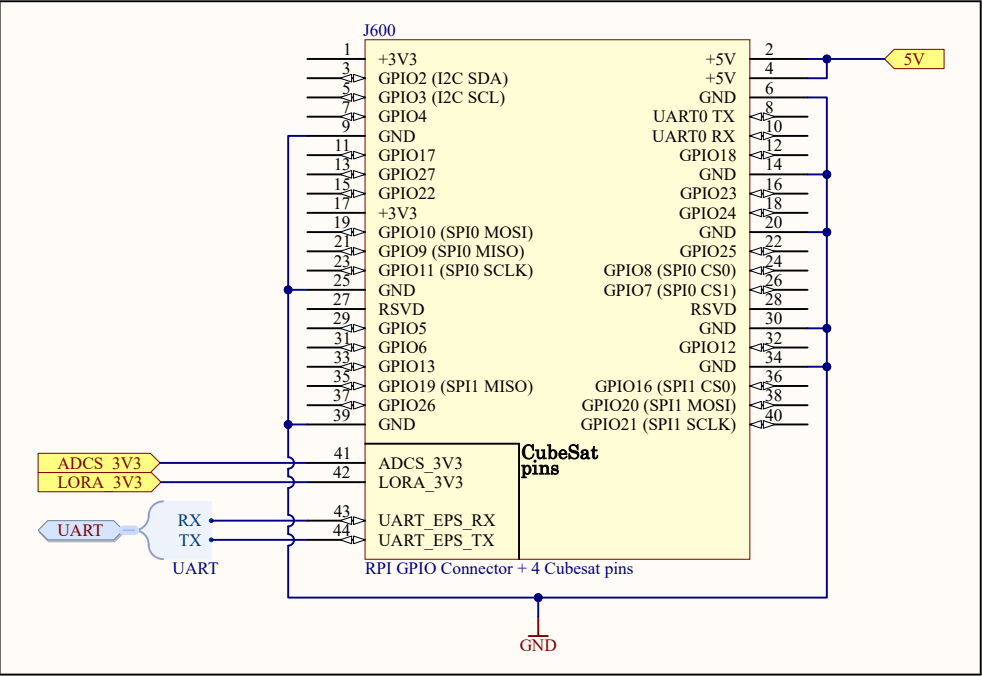
# Buck-Boost converter



PS/SYNC (Pin 13): can be used to select different operation modes. Power save mode is used to improve efficiency at light load. To enable power-save, PS/SYNC must be set low. If PS/SYNC is set low then power save mode is entered when the average inductor current gets lower then about 100 mA. At this point the converter operates with reduced switching frequency and with a minimum quiescent current to maintain high efficiency.

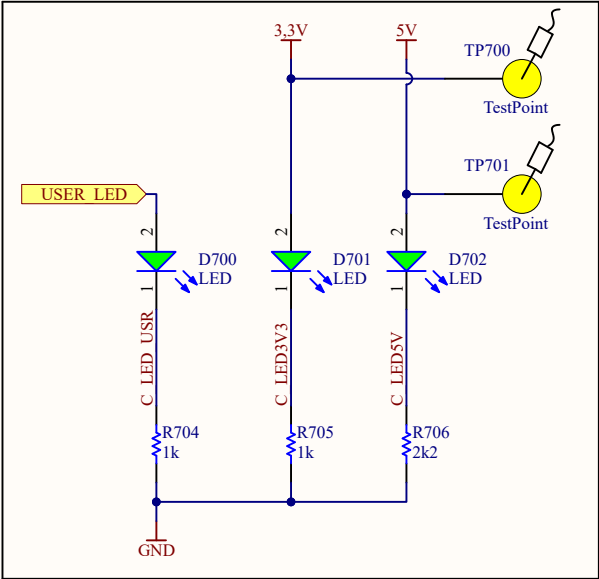
Title			<b>Buck-Boost Converter</b>	
Size	Number		Revision	
A4			<b>0.1</b>	
Date:	5.22.2024		Sheet of	EPS board
File:	E:\projects\...\buck boost.SchDoc		Drawn By:	Dominik Pluta

Board-to-board connector

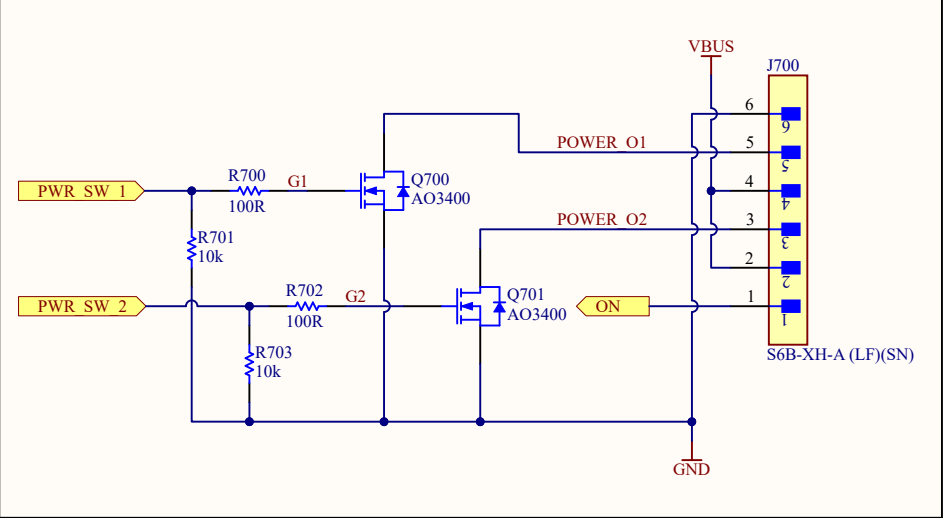


Title			Board-to-board connector
Size	Number	Revision	
A4		0.1	
Date:	5.22.2024	Sheet of	EPS board
File:	E:\projects\...\main_connector.SchDoc	Drawn By:	Dominik Pluta

LEDs



Output power stage and on/off (RBF)



Short pins 1 and 6 to power off the cubesat

Title			LEDs, connector	
Size	Number		Revision	
A4			0.1	
Date:	5.22.2024		Sheet of	EPS board
File:	E:\projects\...\peripherals.SchDoc		Drawn By:	Dominik Pluta