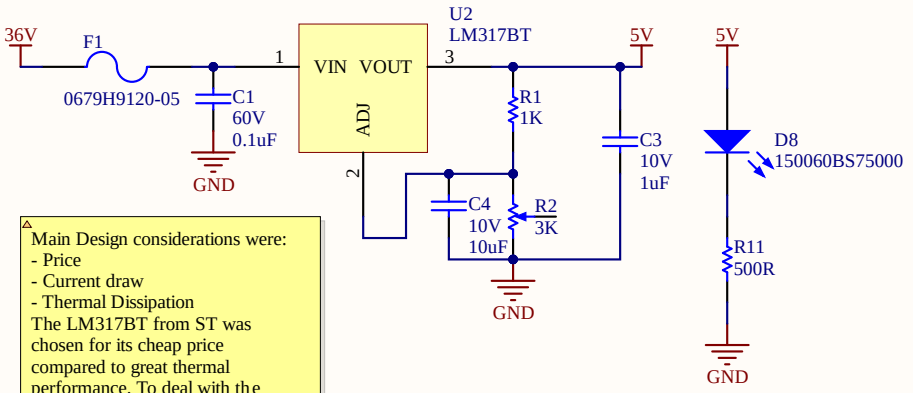
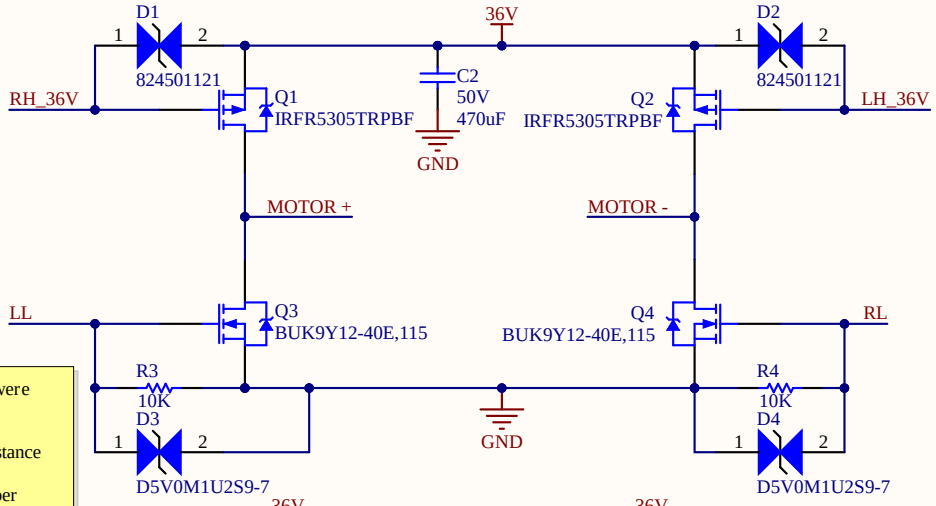
LINEAR REGULATOR



Main Design considerations were:
- Price
- Current draw
- Thermal Dissipation

The LM317BT from ST was chosen for its cheap price compared to great thermal performance. To deal with the power dissipation of the regulator, a sink should be attached

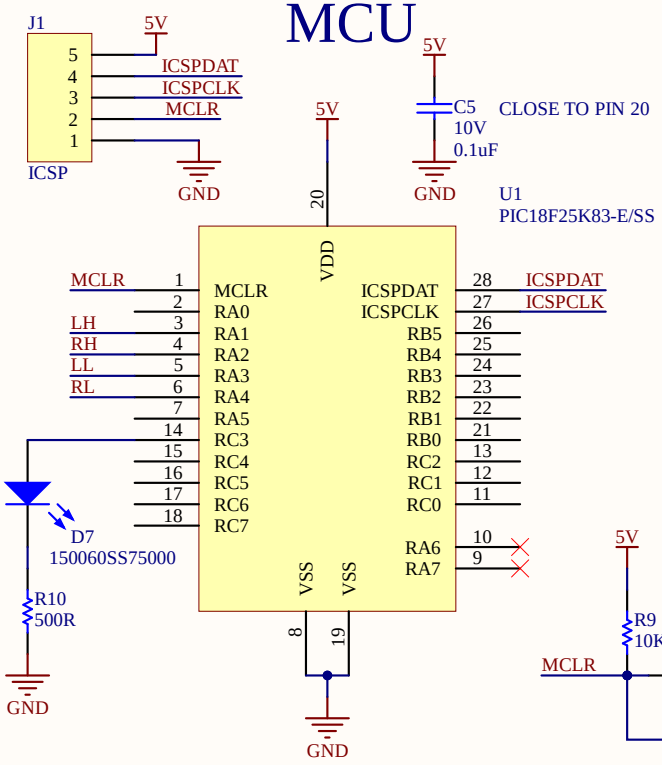
H-BRIDGE



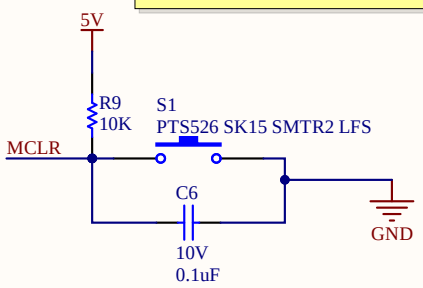
The MOSFETs for the H-bridge were chosen by:
- Rdson
- Junction to ambient thermal resistance
- Gate Charge

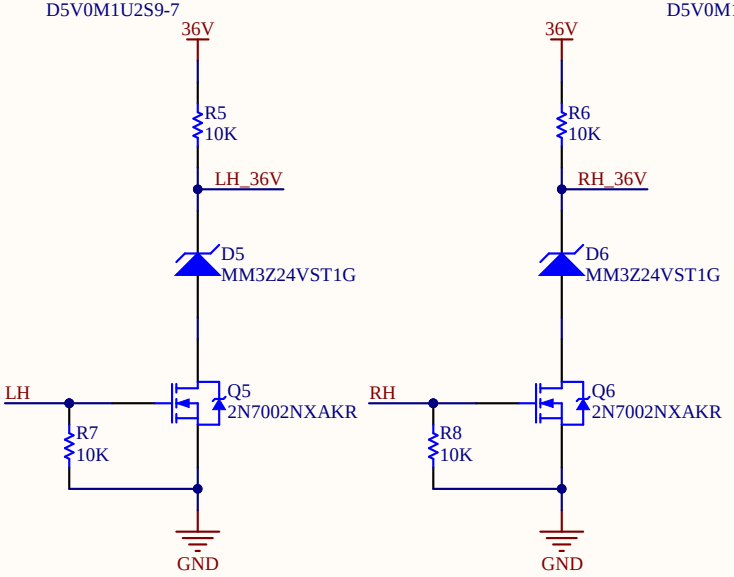
As these MOSFETs are smd, proper layout considerations such as copper regions should be taken into account. Also thermal jumpers exist as well to distribute the heat such as THJP0612ABT1

MCU



The Microcontroller was chosen out of the 5V microcontrollers to be able to do logic-level control on the low-side MOSFETs and be able to communicate with possibly multiple communication protocols depending on the one of most convenience. This microcontroller's peripherals are common across a majority of the pins, making layout much easier. Finally, the internal clock has a 1% accuracy making it good enough to not have the need of an external clock.





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File: C:\Users\..\Brushed DC.SchDoc		Drawn By: Alfonso Faria Espinoza