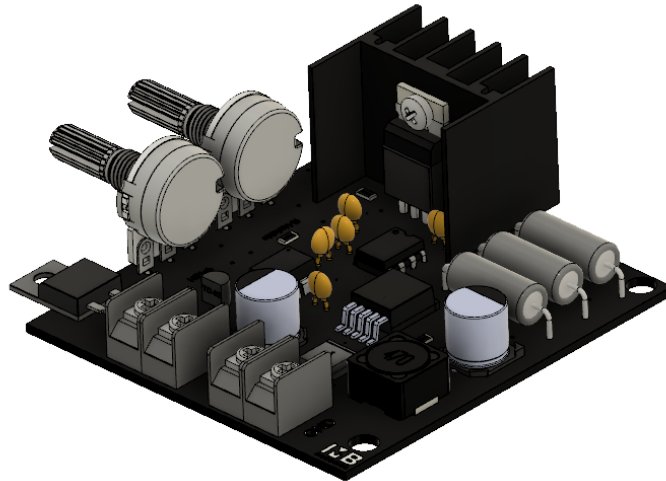


DYNAMIC BRAKE CHOPPER BOARD 48V 200W



Overview

Dynamic Brake chopper board, brake chopper 48 VDC 200 Watt is a brake chopper (also called shunt or regen board) that can be used with drivers with suitable inputs. It is used to consume the over energy that may occur in the DC bus while the electric motor slows down the load.

Brake Chopper 48VDC 200W is capable of delivering up to 200W of continuous power if adequate cooling is provided.

When the motor is used to actively slow down a load, electrical power will be regenerated. If the drives are supplied with a standard power supply (without recovery function), such regenerative duty points will cause an overvoltage in the DC circuit and therefore the drive or power supply will be turned off.

To prevent this from happening, a shunt circuit is required to burn this recovered energy.

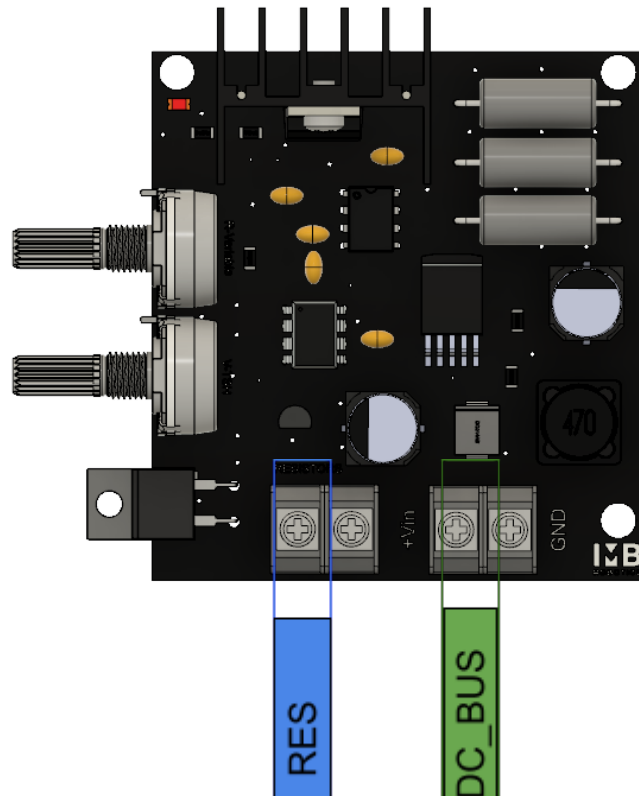
Technical Specifications

General features	
Standard Bus Voltage	48 VDC
Activation threshold voltage V_{th}^*	It can be adjusted between 50-57 V by the user.
Maximum Voltage	60 VDC
Rated continuous power	200 W, depending on cooling condition and duty cycle
Max. Power	200 Watt
Peak power application period***	500 μ s
Ambient temperature for power ratings	Room temperature (20 °C)
Maximum system temperature***	< 75 °C

***This voltage defines the voltage at which the first shunt starts to become active.**

*****The Brake Chopper can emit up to 200 W for periods of 500 μ s. Please ensure that the Brake Chopper is mounted on a suitable surface with a large enough volume to dissipate the heat generated.**

If the voltage level is above the Threshold Voltage, the shunts of the board will be activated.

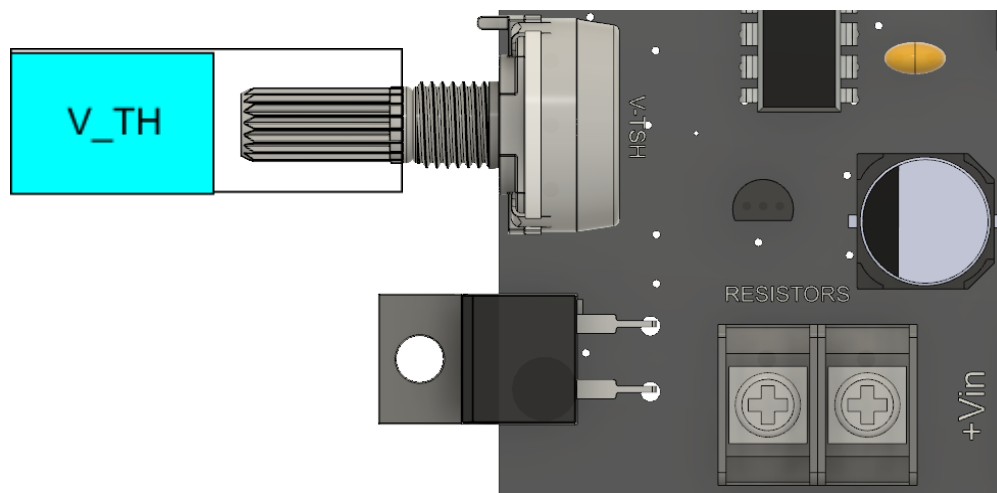


Placing The Module and Setting The Threshold Voltage

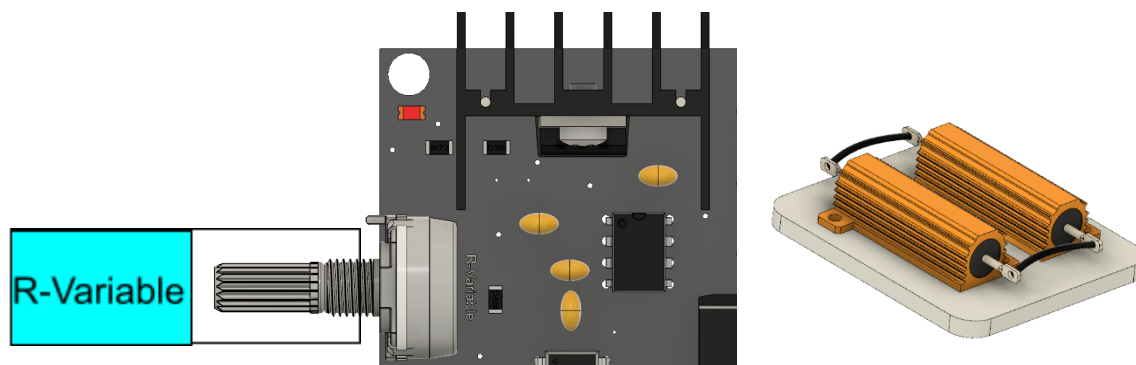
Install the resistor board connected to the brake chopper circuit in a suitable place with good cooling. Make sure the bottom is connected to a thermally conductive metal structure.

!!!An appropriate thermal conductivity is essential to ensure optimal performance. It is recommended to use silicone paste or a thermal pad.

Connect the brake chopper cables to the DC bus. The circuit must be connected in parallel to the driver boards. To set the threshold voltage, you can use the voltage adjustment potentiometer located on the top of the board: 50 - 57 VDC



If the regenerative energy generated in your system is specific, for example, the heat value that will be released can be limited by adjusting the wattage with the R-Variable pot for 100 Watts.



Connecting The Brake Chopper Board to The DC-BUS

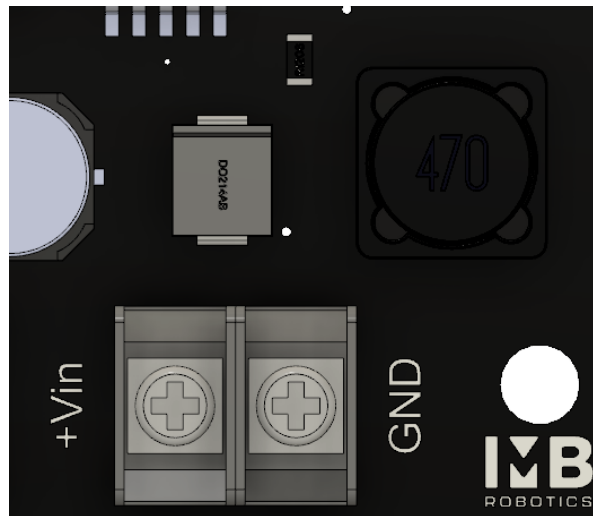
Suitable Cables

- V_IN, Red Core Cable, 14AWG
- GND, Black Core Cable , 14AWG

!! Use the appropriate cable lugs for secure connection.

Cable Assembly

Before connecting the cables, please pay attention to the correct polarity indicated by +/-.

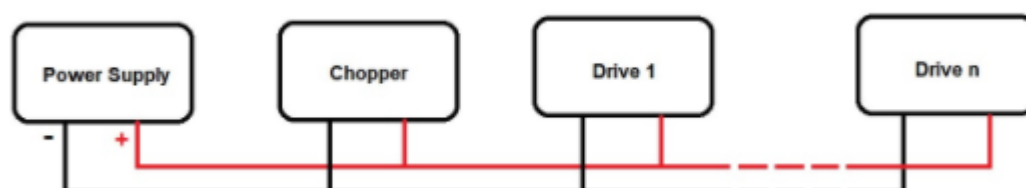


Multi-board Option

The required overall shunt power in a robotic system depends on many factors, including the robot's inertia, payload, number of axes, size and type of motors, trajectory, controller settings, braking and quick stop strategies etc. There is no universal rule of thumb indicating how many IMB Chopper Brake boards are required for a certain number of motors. Developers should compute the regenerative powers and energies in their robot's respective load cycle or measure these values in experiments.

Some practical guidelines to begin with:

If decelerations and loads are moderate, one Chopper 500 can cover the regenerated energy of several Drives. In many real-world applications, this is already enough, so one Chopper 500 per robot is often sufficient.



Attention

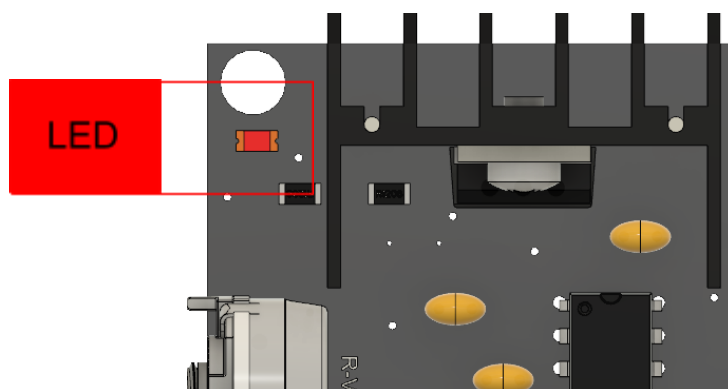
An undersized chopper system can lead to dangerous situations when the robot isn't able to decelerate as necessary.

Failure Safety Behavior

In the event that the power over the DC busbar exceeds the Peak Power or the shunts reach the temperature limits, the shunt is disabled to prevent the resistors from burning out. In this case, the DC bus bar will act as if no shunts have been installed. Thus, the DC bus voltage will continue to increase until the Driver's overvoltage protection is triggered.

LED

The red indicator on the card indicates that the brake chopper circuit is activated when the led is active.



Dimensions

