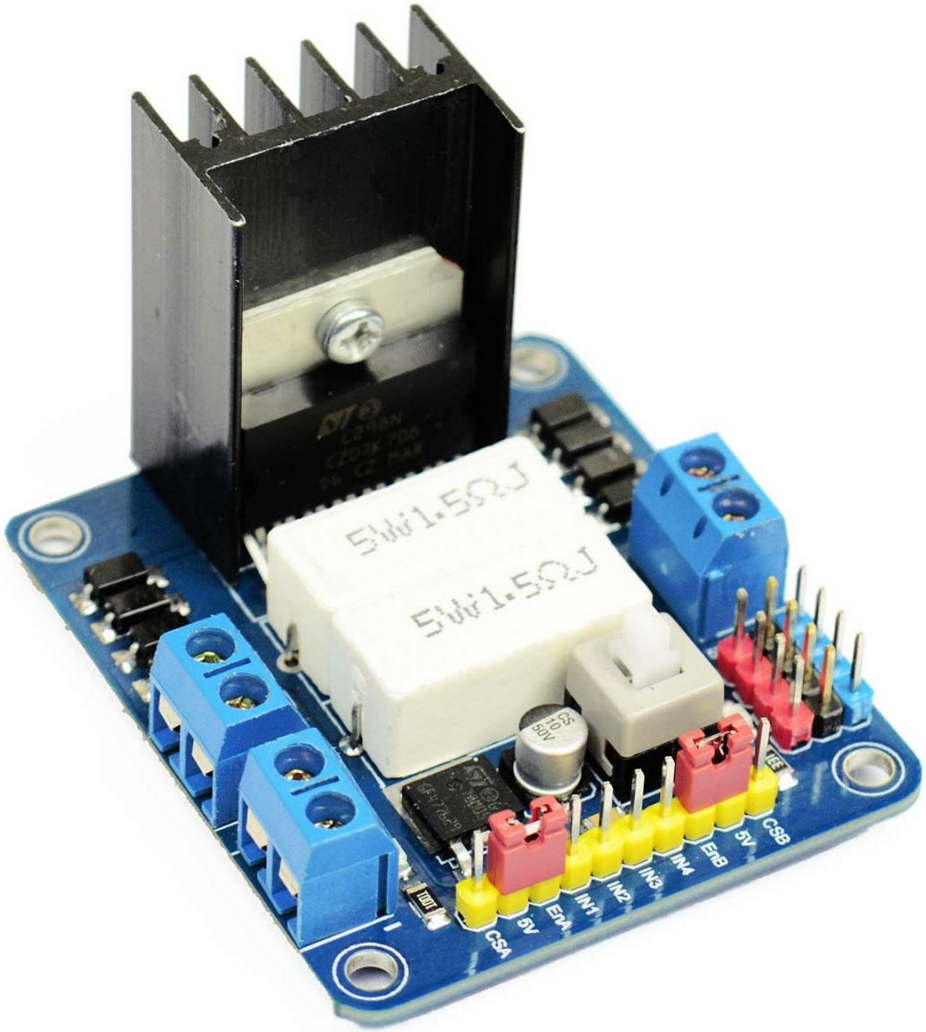
L298 DUAL DC MOTOR CONTROLLER



Features:

1. High quality L298N IC ensures maximum 2.5A current flow for each motor.
2. Big heat sink on L298N IC keeps it cool during high current operation.
3. Option to control speed and direction of both of the two motors.
4. Option to sense how much current each motor is drawing.
5. Enable switch for enabling / disabling the controller board.
6. On board 5V voltage regulator.
7. Power rails for GND, 5V and motor input voltage. This board can be used as a small power distribution board.
8. Power, enable and motor direction indicating LEDs.

Motor Connectors: Terminal block connectors for attaching DC motors. Connect two wires of your DC motor to OUT1 & OUT2 (Motor A). Two wires of another DC motor can be connected to OUT3 & OUT4 (Motor B).

Direction Indicator LEDs: They are located just beside the motor connectors. Indicates direction of motor rotation.

Motor Voltage Input: For providing supply voltage to the motors using wires. Be careful about the +ve and –ve polarity as connecting in reverse will permanently damage the L298 IC.

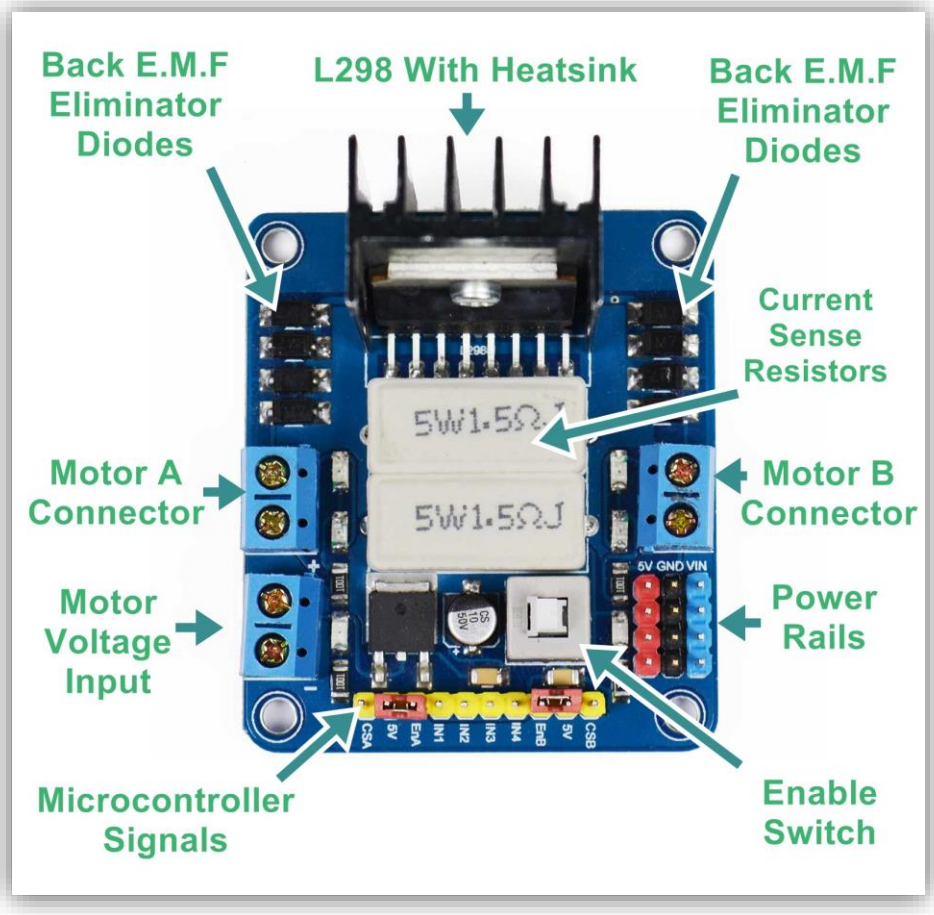
Enable LED & Enable Switch: to enable/ disable the L298 IC. The LED is placed just beside the enable switch and shows Enable/Disable status. When disabled, even if motor input voltage source is connected, the motors won't run.

Signal from Microcontroller: To receive control signals for the L298 IC. IN1 and IN2 are used for controlling direction of motor A. IN3 and IN4 are used for controlling direction of motor B. EnA and EnB are for controlling speed of motor A and motor B respectively. Both of the Enable pins (EnA and EnB) can be shorted with adjacent 5V pins using a computer jumper if motor speed control isn't needed. Moreover, CSA and CSB can be used to measure current drawn by motor A and motor B respectively.

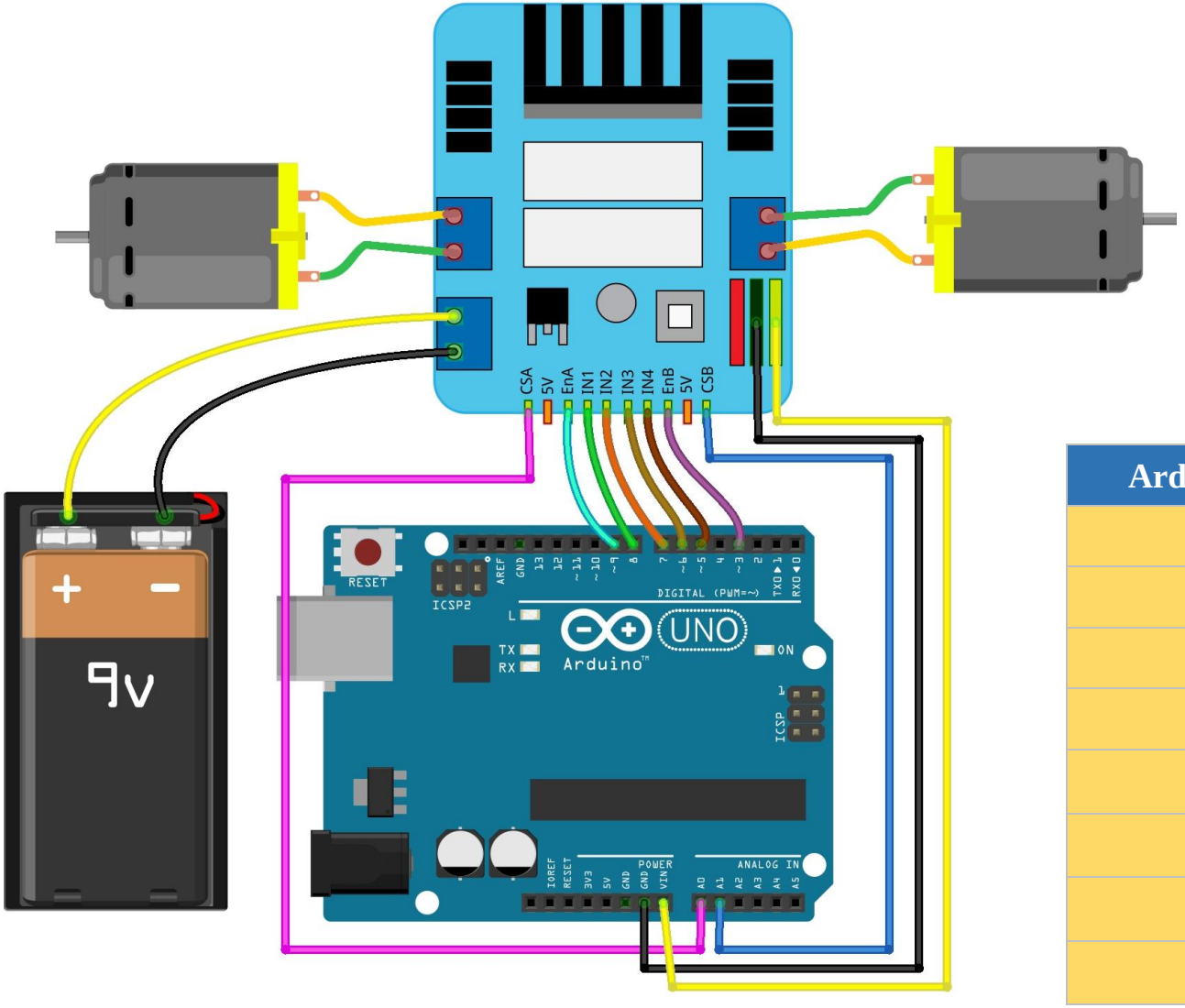
Back E.M.F Eliminator: These high speed diodes eliminate harmful back E.M.F or kickback from the motors.

Power Rails: 3 sets of power rails for Vin, 5V and GND. **Note that they are OUTPUT pins. Don't provide any input voltage to these pins.**

A Closer Look



Example Circuit Connection



Arduino pin	L298 Pin
9	ENA
3	ENB
8	IN1
7	IN2
6	IN3
5	IN4
A0	CSA
A1	CSB

TEST CODE

```
#define in1 8
#define in2 7
#define in3 6
#define in4 5
#define ena 9
#define enb 3

float CSA, CSB;

void setup()
{
  pinMode(in1,OUTPUT);
  pinMode(in2,OUTPUT);
  pinMode(in3,OUTPUT);
  pinMode(in4,OUTPUT);

  Serial.print(9600);
}

void loop()
{
  // Motor A in full speed
  digitalWrite(in1,HIGH);
  digitalWrite(in2,LOW);
  analogWrite(ena, 255);

  // Motor B in the opposite direction at half speed
  digitalWrite(in3,LOW);
  digitalWrite(in4,HIGH);
  analogWrite(enb, 127);

  // calculate current in mili ampere for motors
  CSA= (analogRead(A0)/1024)* 5000; // reading in milivolt
  CSA= CSA/1.5; // I= V/R;
  CSB= (analogRead(A1)/1024)* 5000; // reading in milivolt
  CSB= CSB/1.5; // I= V/R;

  Serial.print("Motor A Current= ");
  Serial.print(CSA);
  Serial.print("   ");
  Serial.print("Motor B Current= ");
  Serial.print(CSB);
  Serial.println("   ");
}
```