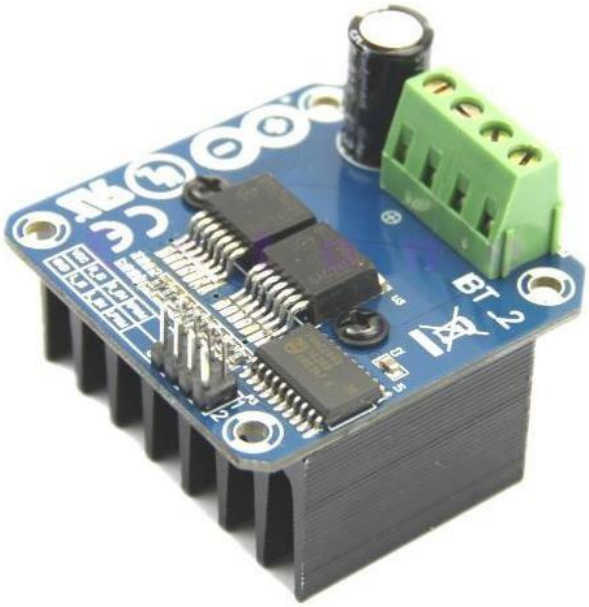
BTS7960 High Current 43A H-Bridge Motor Driver

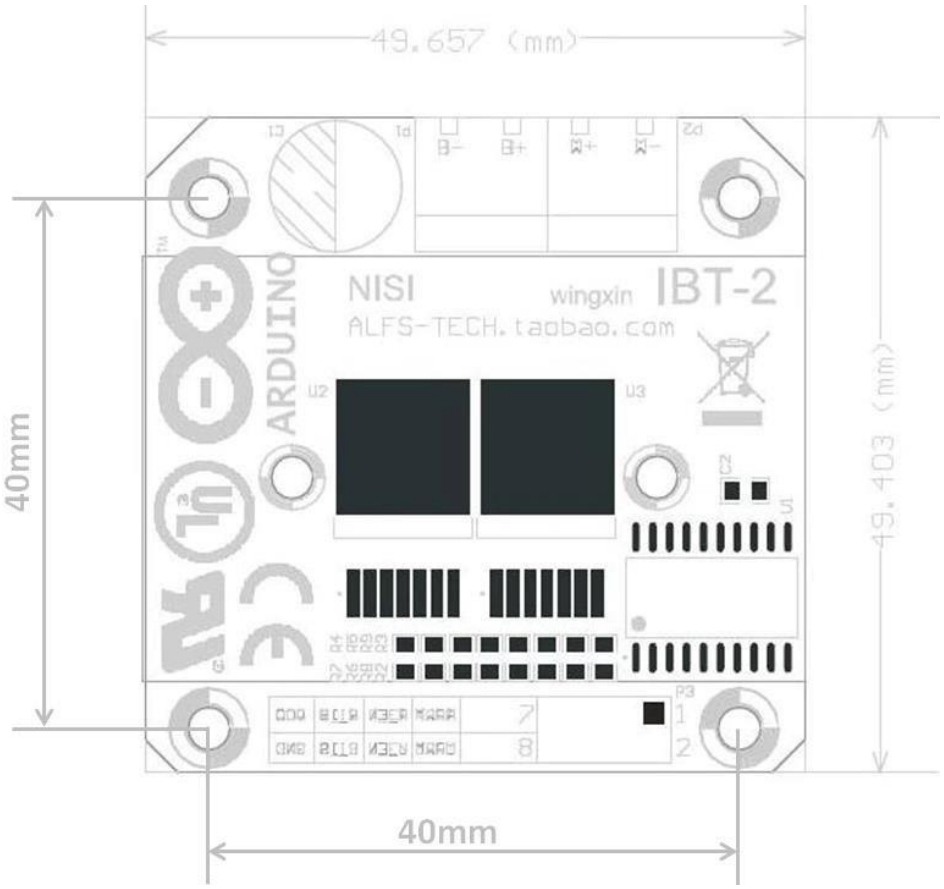
The BTS7960 is a fully integrated high current H bridge module for motor drive applications. Interfacing to a microcontroller is made easy by the integrated driver IC which features logic level inputs, diagnosis with current sense, slew rate adjustment, dead time generation and protection against over temperature, overvoltage, under voltage, overcurrent and short circuit. The BTS7960 provides a cost optimized solution for protected high current PWM motor drives with very low board space consumption.

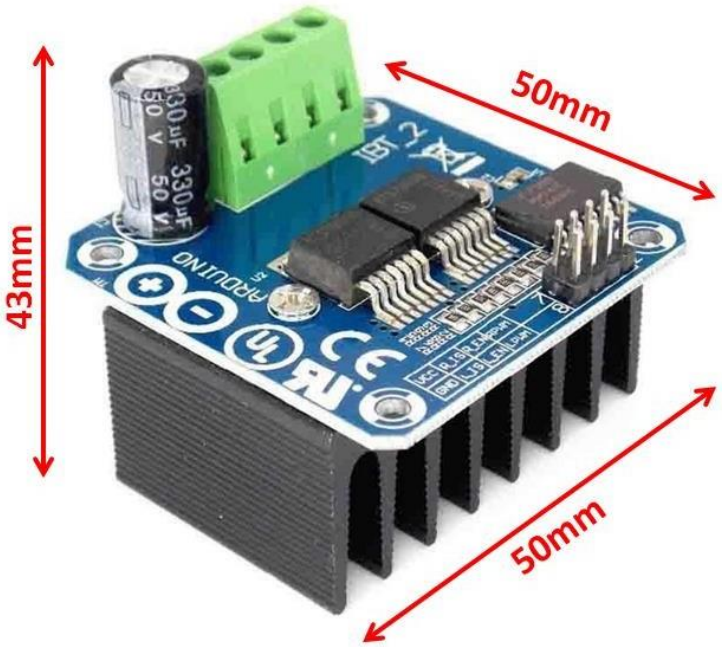


Brief Data:

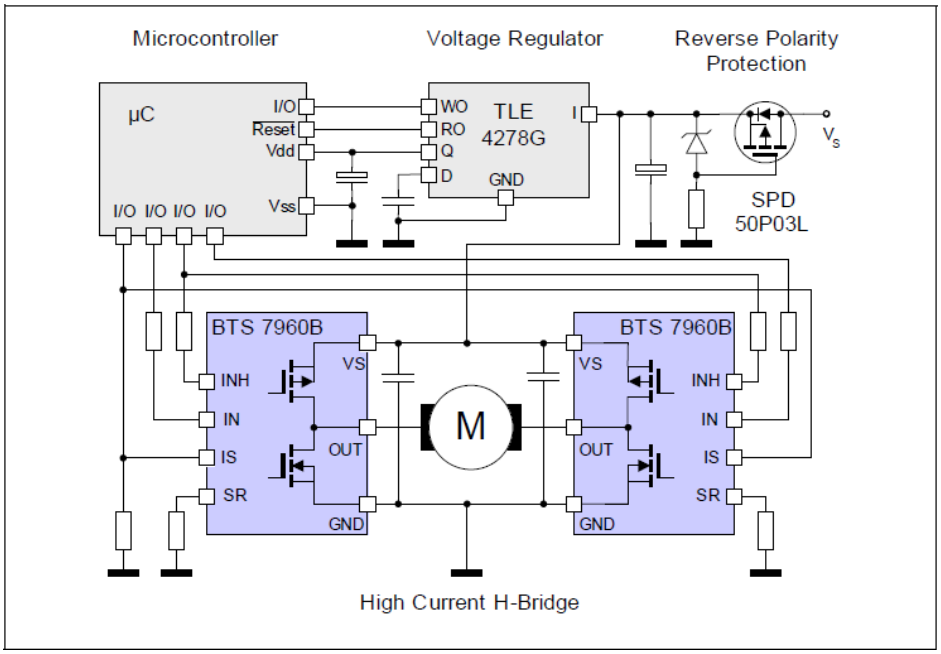
- Input Voltage: 6 ~ 27Vdc.
- Driver: Dual BTS7960 H Bridge Configuration.
- Peak current: 43-Amp.
- PWM capability of up to 25 kHz.
- Control Input Level: 3.3~5V.
- Control Mode: PWM or level
- Working Duty Cycle: 0 ~100%.
- Over-voltage Lock Out.
- Under-voltage Shut Down.
- Board Size (LxWxH): 50mm x 50mm x 43mm.
- Weight: ~66g.

Mechanical Dimension:

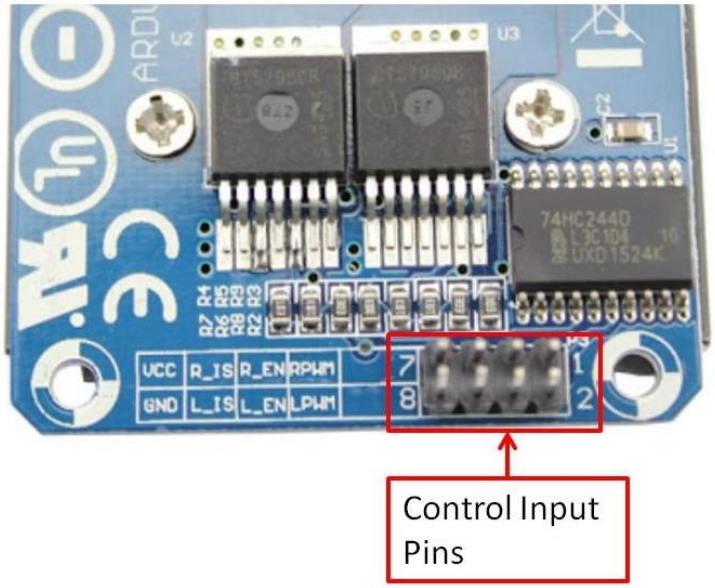




Schematic Diagram:

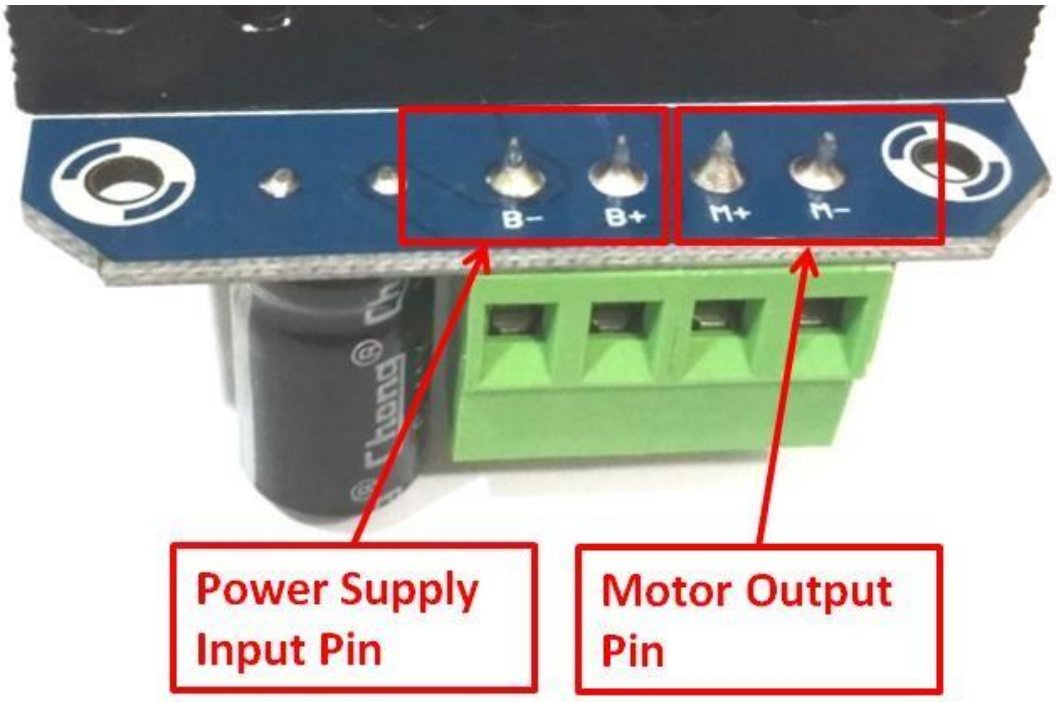


Control Input Pin Function:



Pin No	Function	Description
1	RPWM	Forward Level or PWM signal, Active High
2	LPWM	Reverse Level or PWM signal, Active High
3	R_EN	Forward Drive Enable Input, Active High/ Low Disable
4	L_EN	Reverse Drive Enable Input, Active High/Low Disable
5	R_IS	Forward Drive, Side current alarm output
6	L_IS	Reverse Drive, Side current alarm output
7	Vcc	+5V Power Supply microcontroller
8	Gnd	Ground Power Supply microcontroller

Motor Power Supply & Output Pin Assignment:



Pin No	Function	Description
1	B+	Positive Motor Power Supply. 6 ~ 27VDC
2	B-	Negative Motor Power Supply. Ground
3	M+	Motor Output +
4	M-	Motor Output -

Sketch Listing:

Upload the following sketch to Arduino board. Try to turn the potentiometer clock-wise and anti-clock-wise and observe how the motor turn.

```
/*================================================================================
//  Author      : Handson Technology
//  Project     : BTD7960 Motor Control Board driven by Arduino.
//  Description : Speed and direction controlled by a potentiometer attached
//      to analog input A0. One side pin of the potentiometer (either one) to
//      ground; the other side pin to +5V
//  Source-Code : BTS7960.ino
//  Program: Control DC motors using BTS7960 H Bridge Driver.
//================================================================================
//  Connection to the BTS7960 board:
//  BTS7960 Pin 1 (RPWM) to Arduino pin 5(PWM)
//  BTS7960 Pin 2 (LPWM) to Arduino pin 6(PWM)
//  BTS7960 Pin 3 (R_EN), 4 (L_EN), 7 (VCC) to Arduino 5V pin
//  BTS7960 Pin 8 (GND) to Arduino GND
//  BTS7960 Pin 5 (R_IS) and 6 (L_IS) not connected
*/

int SENSOR_PIN = 0; // center pin of the potentiometer

int RPWM_Output = 5; // Arduino PWM output pin 5; connect to IBT-2 pin 1 (RPWM)
int LPWM_Output = 6; // Arduino PWM output pin 6; connect to IBT-2 pin 2 (LPWM)

void setup()
{
  pinMode(RPWM_Output, OUTPUT);
  pinMode(LPWM_Output, OUTPUT);
}

void loop()
{
  int sensorValue = analogRead(SENSOR_PIN);

  // sensor value is in the range 0 to 1023
  // the lower half of it we use for reverse rotation; the upper half for forward
rotation
  if (sensorValue < 512)
  {
    // reverse rotation
    int reversePWM = -(sensorValue - 511) / 2;
    analogWrite(LPWM_Output, 0);
    analogWrite(RPWM_Output, reversePWM);
  }
  else
  {
    // forward rotation
    int forwardPWM = (sensorValue - 512) / 2;
    analogWrite(LPWM_Output, forwardPWM);
    analogWrite(RPWM_Output, 0);
  }
}
```