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GODIYMODULES DRV2605L

GODIYMODULES DRV2605L Haptic Motor Driver Module User Manual

1. Introduction

The GODIYMODULES DRV2605L is a compact motor driver module designed specifically for controlling haptic feedback motors, such as vibration motors and buzzers. It is not intended for controlling stepper motors or standard DC motors. This module facilitates the integration of tactile effects into various projects, supporting both 3V and 5V power and logic levels.

2. Product Features

- Dedicated haptic motor driver (DRV2605L IC).
- Compatible with 3V and 5V power and logic systems.
- Compact dimensions: 18mm x 17mm x 2mm (0.7" x 0.7" x 0.1").
- Integrated I2C communication interface for precise control.
- Includes an IN/TRIG pin for direct trigger effects or analog audio input.

3. Setup and Pinout

This section details the pin connections required to integrate the DRV2605L module into your project. Refer to the image below for a visual representation of the pinout.



Image: DRV2605L Motor Driver Module with its pinout clearly labeled. The module is blue with a central chip and several surface-mount components. A row of header pins is shown below the module.

Pin Descriptions:

1. **VIN:** This pin provides power to the circuit board. It should be connected to the same power level as your microcontroller, typically 5V for Arduino-compatible boards.
2. **GND:** This is the common ground for both power and logic, and it is also the common ground for the I2C interface.
3. **SCL:** This is the I2C clock pin. Connect it to the I2C clock line of your microcontroller. This pin is compatible with both 3V and 5V logic circuits and includes an internal 10K pull-up resistor.
4. **SDA:** This is the I2C data pin. Connect it to the I2C data line of your microcontroller. This pin is compatible with both 3V and 5V logic circuits.
5. **IN/TRIG:** This is a versatile pin with an internal 10K pull-up resistor. It can be used for multiple purposes:
    - To read analog audio input, allowing the module to convert audio into tactile feedback.
    - To trigger pre-programmed haptic effects directly, bypassing I2C commands.

Ensure all connections are secure and correctly oriented before applying power to prevent damage to the module or connected components.

4. Operating Instructions

The DRV2605L module primarily operates via the I2C communication protocol, allowing a microcontroller to select and play various haptic effects. Alternatively, the IN/TRIG pin offers a direct method for triggering effects.

I2C Control Mode:

To use the I2C control mode, connect the SCL and SDA pins to your microcontroller's I2C bus. You will need to use a compatible library (e.g., Adafruit DRV2605 library for Arduino) to send commands to the module. These commands typically involve selecting an effect from the DRV2605L's internal library and then issuing a command to play it. The

DRV2605L supports a wide range of haptic effects, including various vibrations, clicks, and ramps.

IN/TRIG Pin Mode:

The IN/TRIG pin can be used for two main functions:

- **Audio-to-Haptic Conversion:** By feeding an analog audio signal into the IN/TRIG pin, the DRV2605L can analyze the audio waveform and generate corresponding haptic feedback. This is useful for creating immersive experiences where sound translates into touch.
- **Direct Trigger:** In this mode, a digital signal (e.g., a pulse from a microcontroller) applied to the IN/TRIG pin can directly activate a pre-configured haptic effect without requiring complex I2C commands. This simplifies control for basic haptic feedback applications.

Consult the DRV2605L datasheet or specific library documentation for detailed programming examples and effect selection.

5. Maintenance

The DRV2605L module is a robust electronic component designed for long-term operation. Minimal maintenance is required:

- Keep the module clean and free from dust and debris.
- Avoid exposing the module to extreme temperatures or humidity.
- Ensure proper ventilation if enclosed in a case to prevent overheating.
- Regularly check connections for looseness or corrosion, especially in projects subject to vibration.

6. Troubleshooting

If you encounter issues with your DRV2605L module, consider the following troubleshooting steps:

- **No Haptic Feedback:**
  - Verify power connections (VIN and GND) are correct and stable.
  - Check I2C connections (SCL, SDA) for proper wiring and ensure the microcontroller's I2C bus is active.
  - Confirm that the haptic motor is correctly connected to the module's motor output terminals.
  - Ensure your code is correctly initializing the DRV2605L and sending valid commands to play effects.
- **Weak or Incorrect Haptic Feedback:**
  - Check the motor's specifications to ensure it is compatible with the DRV2605L's output capabilities.
  - Review the selected haptic effect in your code; some effects are subtle.
  - Ensure the module is receiving adequate power.
- **I2C Communication Errors:**
  - Verify the I2C address of the DRV2605L (default is 0x5A).
  - Check for conflicts with other I2C devices on the same bus.
  - Ensure pull-up resistors are correctly configured (the module has internal ones for SCL/SDA).

If problems persist, consult online forums or the manufacturer's support resources for further assistance.

7. Specifications

Feature	Detail
Model	DRV2605L
Dimensions	18mm x 17mm x 2mm (0.7" x 0.7" x 0.1")
Item Weight	0.352 ounces
Power/Logic Compatibility	3V and 5V
Communication Interface	I2C
Included Components	1PCS DRV2605L Module
Batteries Required	No
Manufacturer	GODIYMODULES

8. Warranty and Support

For warranty information and technical support, please refer to the policies provided by your retailer or contact GODIYMODULES directly through their official channels. Keep your purchase receipt for any warranty claims.

9. Official Product Videos

No official product videos from the seller were found to be relevant or useful for inclusion in this manual.

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