

9.1 Application Information

The DRV8311 can be used to drive Brushless-DC motors. The following design procedure can be used to configure the DRV8311.

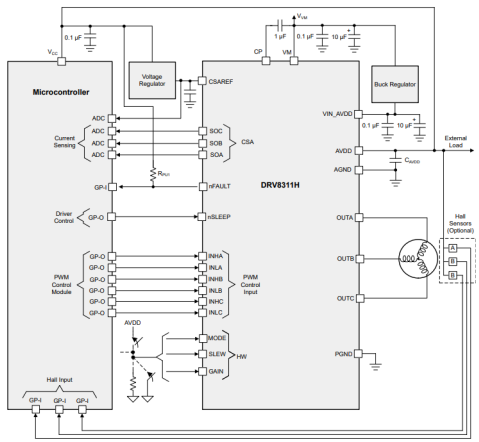
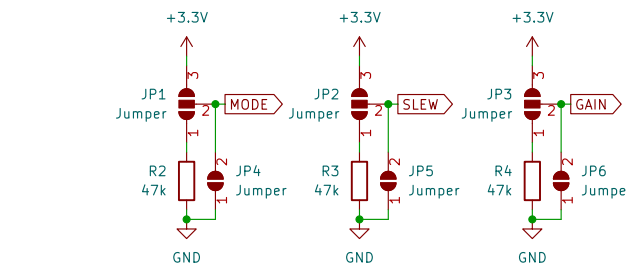


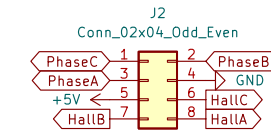
Figure 9-1. Application Schematic (DRV8311H)



FOUR-LEVEL INPUTS (GAIN, MODE, SLEW)

| Pin | Input mode 1 voltage | Tied to AGND | 0 | 0.21*AV DD | V |
|-----------------|---------------------------|--------------------------|-------------|------------|----|
| V _{L1} | Input mode 1 voltage | Tied to AGND | 0 | 0.21*AV DD | V |
| V _{L2} | Input mode 2 voltage | 47 kΩ +/- 5% tied to GND | 0.25*AV DD | 0.5*AVDD | V |
| V _{L3} | Input mode 3 voltage | Hi-Z | 0.606*AV DD | 0.757*AVDD | V |
| V _{L4} | Input mode 4 voltage | Tied to AVDD | 0.94*AV DD | AVDD | V |
| R _{PU} | Input pullup resistance | To AVDD | 48 | 70 | kΩ |
| R _{PD} | Input pulldown resistance | To AGND | 160 | 200 | kΩ |

| Option, cable and connection information | | | Connection | | |
|---|----------------------|---|------------|-----------------------|--------|
| Example product designation: 22145012BXR-3830 | | | No. | Function | Colour |
| Option | Type | Description | | | |
| 3830 | Connector | Standard cable with connector MOLEX Microfit 3.0, 43025-0800, recommended mating connector 43020-0800 | 1 | Phase C | yellow |
| | | | 2 | Phase B | orange |
| | | | 3 | Phase A | brown |
| | | | 4 | GND | black |
| | | | 5 | U _{DD} (+5V) | red |
| | | | 6 | Hall sensor C | grey |
| | | | 7 | Hall sensor B | blue |
| | | | 8 | Hall sensor A | green |
| 4337 | Gearhead combination | For combination with gearhead 20/1R | | | |



11.2 Layout Example

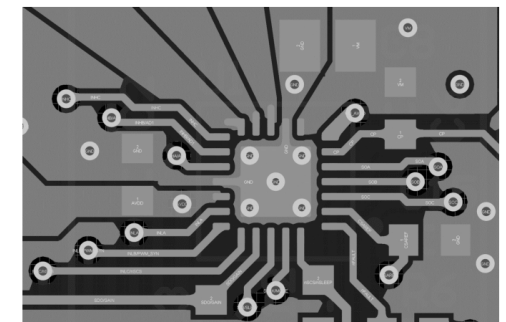


Figure 11-1. Recommended Layout Example for DRV8311

7.3 Feature Description

Table 7-1 lists the recommended values of the external components for the driver.

Table 7-1. DRV8311 External Components

| COMPONENTS | PIN 1 | PIN 2 | RECOMMENDED |
|------------------------|----------|--------------|--|
| C _{VM1} | VM | PGND | X5R or X7R, 0.1-μF, VM-rated capacitor |
| C _{VM2} | VM | PGND | ≥ 10-μF, VM-rated electrolytic capacitor |
| C _{VIN_AVDD1} | VIN_AVDD | AGND | X5R or X7R, 0.1-μF, VIN_AVDD-rated capacitor |
| C _{VIN_AVDD2} | VIN_AVDD | AGND | ≥ 10-μF, VIN_AVDD-rated capacitor |
| C _{CP} | CP | VM | X5R or X7R, 16-V, 0.1-μF capacitor |
| C _{AVDD} | AVDD | AGND | X5R or X7R, 0.7 to 7-μF, 6.3-V capacitor |
| R _{nFAULT} | AVDD | nFAULT | 5.1-kΩ, Pullup resistor |
| R _{SDO} | AVDD | SDO | 5.1-kΩ, Pullup resistor (Optional) |
| R _{MODE} | MODE | AGND or AVDD | Section 7.3.3.2 |
| R _{SLEW} | SLEW | AGND or AVDD | Section 7.3.3.2 |
| R _{GAIN} | GAIN | AGND or AVDD | Section 7.3.3.2 |
| C _{CSAREF} | CSAREF | AGND | X5R or X7R, 0.1-μF, CSAREF-rated capacitor |

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