

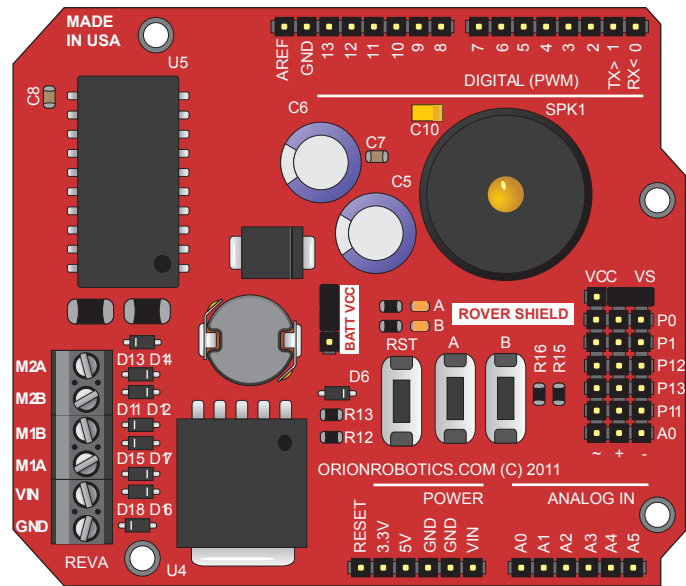
ORION

ROBOTICS

Rover Shield
Data Sheet

Feature Overview:

- 100% Arduino Compatible
- 2 Channel Motor Controller
- 2A Continuous, 3A Peak
- 3A Switching Regulator
- Speaker
- 3 LEDs
- 3 Buttons
- Servo Style Headers
- Reset Button



The Rover Shield

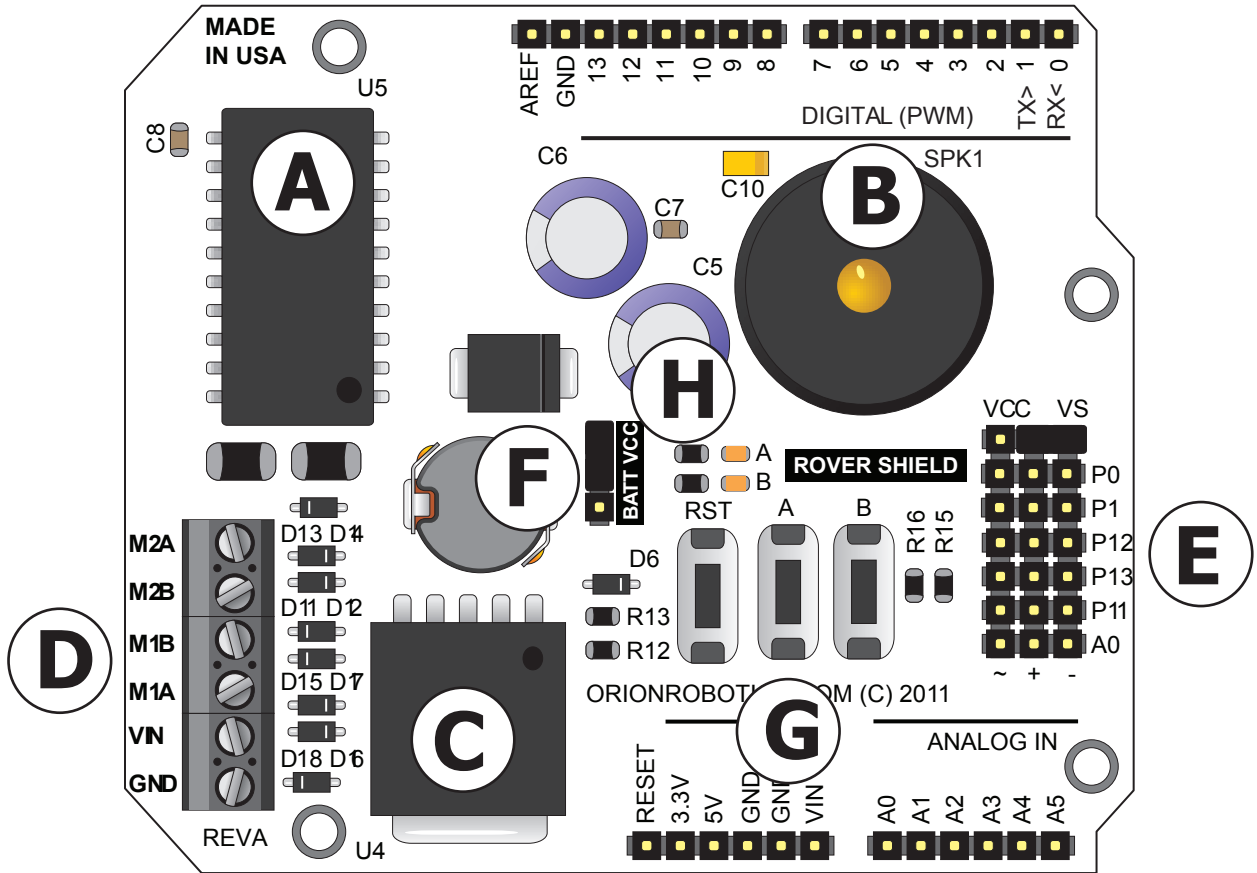
The new Rover Shield is a 100% Arduino compatible board. It was designed to drive 2 DC brushed motors. The Rover Shield can supply 2A continuous and up to 3A peak. The built in switching regulator provides up to 3A at 5V which can be used to drive geared motor packs like Tomyia. The Rover Shield includes user controllable speaker, 3 LEDs and 3 buttons. The motor and servo header power is user selectable from main battery or the on board switching regulator.

Documentation

Arduino is an open hardware and software platform. In keeping with that tradition we have included the schematics to this board at the end of this data sheet. All programming documentation is supplied by the Arduino community. The Arduino IDE and programming guides can be downloaded from <http://www.arduino.cc>

Arduino Libraries

An Arduino Library is available for download from the product description page. The Library demonstrates the control and features of the Rover Shield.



Board Overview:

- A - L298 Motor Driver
- B - User Controllable Speaker
- C - Switching Regulator
- D - Motor and Power Screw Terminals
- E - Servo Headers
- F - Motor Driver Power Source Jumper
- G - User Controllable Buttons
- H - User Controllable LEDs

Screw Terminals

The screw terminals are used to power the Arduino and the Rover Shield. GND is the power ground. VIN is the battery positive (+). The maximum battery voltage should not exceed 14V.

Battery Level

Battery level can be detected using the on board voltage divider. The main battery voltage level can be read from the Arduino analog pin A1. This feature can be used to protect a LiPo battery. The divider ratio is 4:1

Input Voltage	Divider	Analog Value
12V	3.02V	604
7.4V	1.86V	370
6V	1.51V	308

Servo Headers

There are 6 servo headers with a jumper to set the supply voltage VCC or VIN. The jumper is marked with VCC and VS. When VCC is selected (1-2) the center pins power will be supplied from the on board switching regulator. When VIN is selected (2-3) direct battery voltage is supplied to the center pins. The servo headers are labeled indicating which Arduino pin is connected.

LEDs, Buttons and Speaker

The LED will light when the corresponding pin is set HIGH:

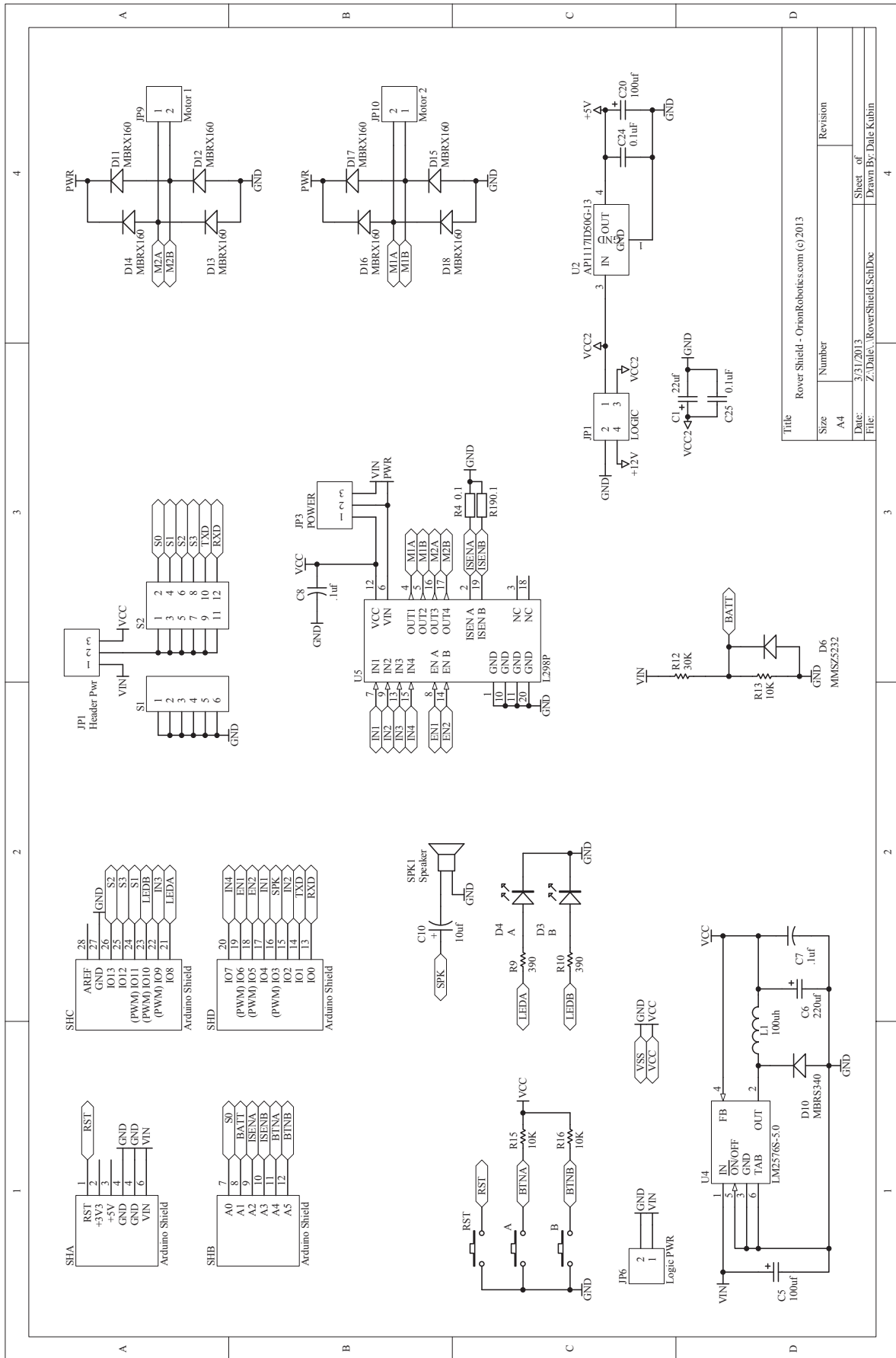
Feature	Pin
LEDA	P8
LEDB	P10

The buttons are pulled up with a 10K resistor to VCC. The corresponding pin will be read LOW when the button has been activated:

Feature	Pin
ButtonA	A4
ButtonB	A5

The speaker is controlled by P3 which is controlled by a standard Arduino Library command. The following is an example:

```
tone(3,1000,100); //plays 1000hz tone on speaker for 100ms
```



Title		Rover Shield - OrionRobotics.com (c) 2013	
Size	Number	Revision	
A4			
Date:	3/31/2013		Sheet of
File:	Z:\Data\...\RoverShield.SchDoc		Drawn By: Dale Kubin

Electrical Characteristics

Characteristic	Value (Units)
Main Battery (min - max)	6V - 14VDC
Servo Power (VS)	0V - 14VDC
I/O Voltages (Low / High)	0.0 V / 5.0V
I/O Logic	TTL
I/O Maximum Current	25 mA sink, 25 mA source Note: Total current for all pins should not exceed 90 mA sink and 90 mA source
Temperature Range	-40 to +125 C

Warranty

Orion Robotics Inc warrants its products against defects in material and workmanship for a period of 90 days. If a defect is discovered, Orion Robotics will, at our discretion, repair, replace, or refund the purchase price of the product in question. Contact us at support@orionrobotics.com. No returns will be accepted without the proper authorization.

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Discussion List

A web based discussion board is maintained at <http://www.orionrobotics.com>.

Technical Support

Technical support is made available by sending an email to support@orionrobotics.com. All email will be answered within 48 hours. Support is also available at our online discussion board <http://www.orionrobotics.com>. We are also available by phone.