ANALOG ACCELEROMETER MODULE (MMA7361LC) – BM006

OPEN SOURCE HARDWARE MODULE

hardware made easy

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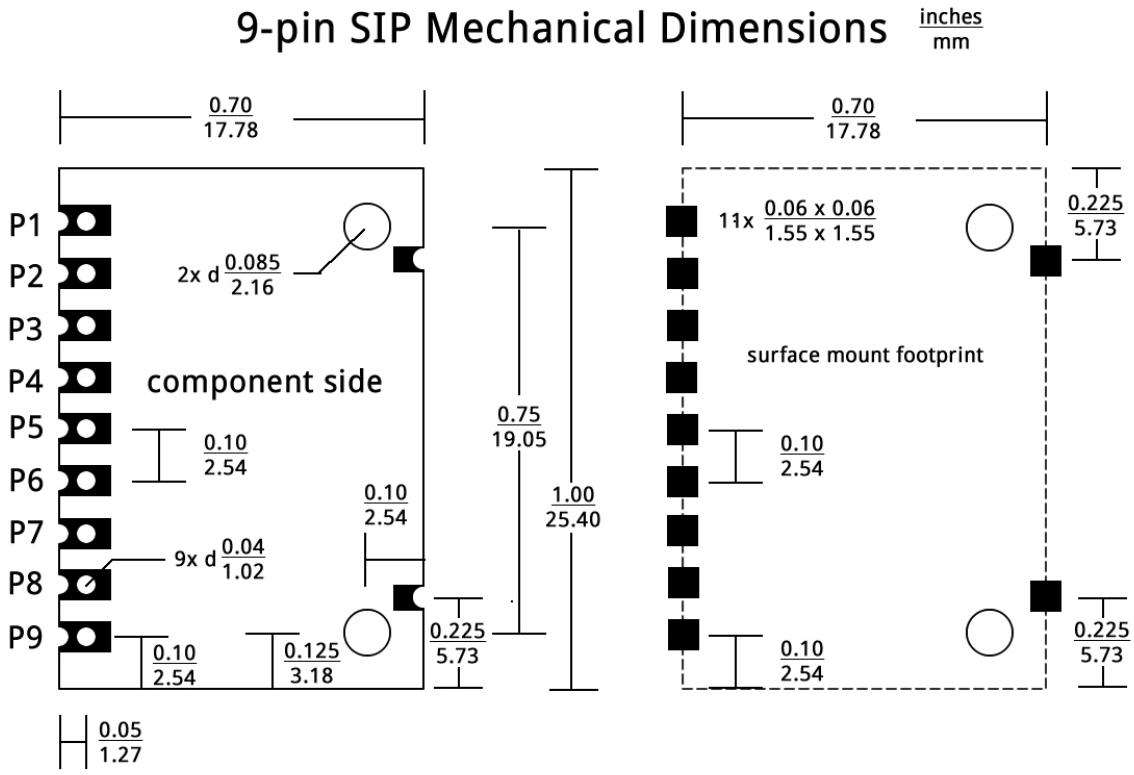
Product Description:

This breakout board carries a Freescale MMA7361LC analog accelerometer. It may be used to determine module orientation with respect to Earth's gravity by monitoring 3 analog outputs.

- Two sensitivity ranges
- Free-fall output detection
- 3 axis tilt information for position feedback

Dimensions:



Specifications:

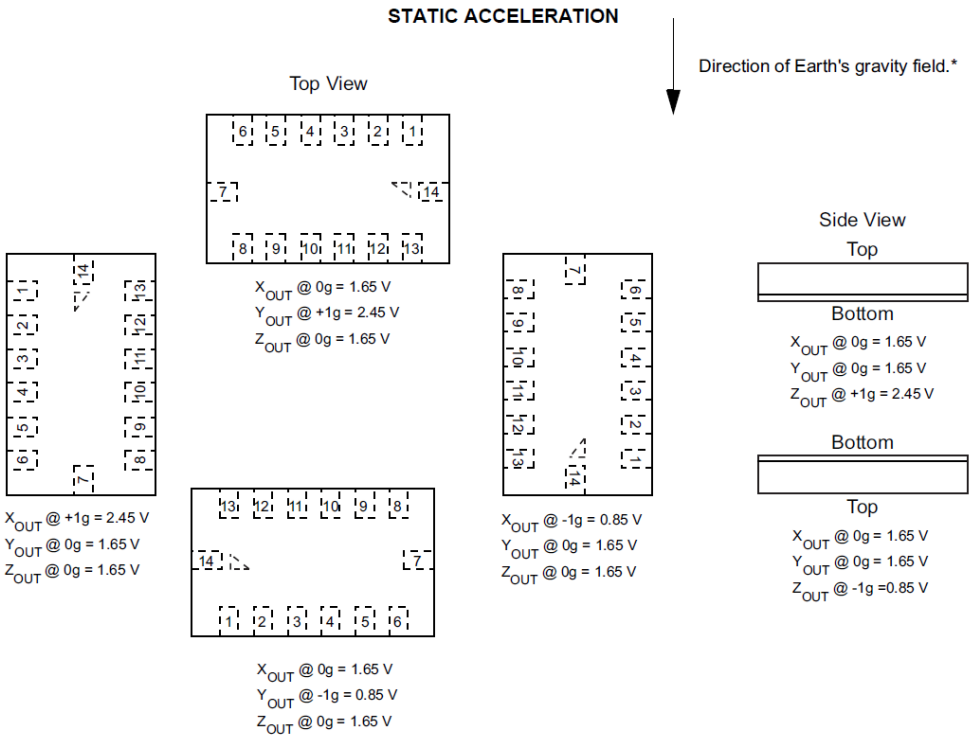
Characteristic	Min	Typ	Max	Unit	Notes
Operating voltage	4		24	V	VIN
Operating current		3.5		mA	Remove D1 from module to reduce to 600uA
Power up response time		2		mS	
Internal sampling freq.		11		KHz	
Operating temperature	-40		+85	°C	

Pin Functions and Notes

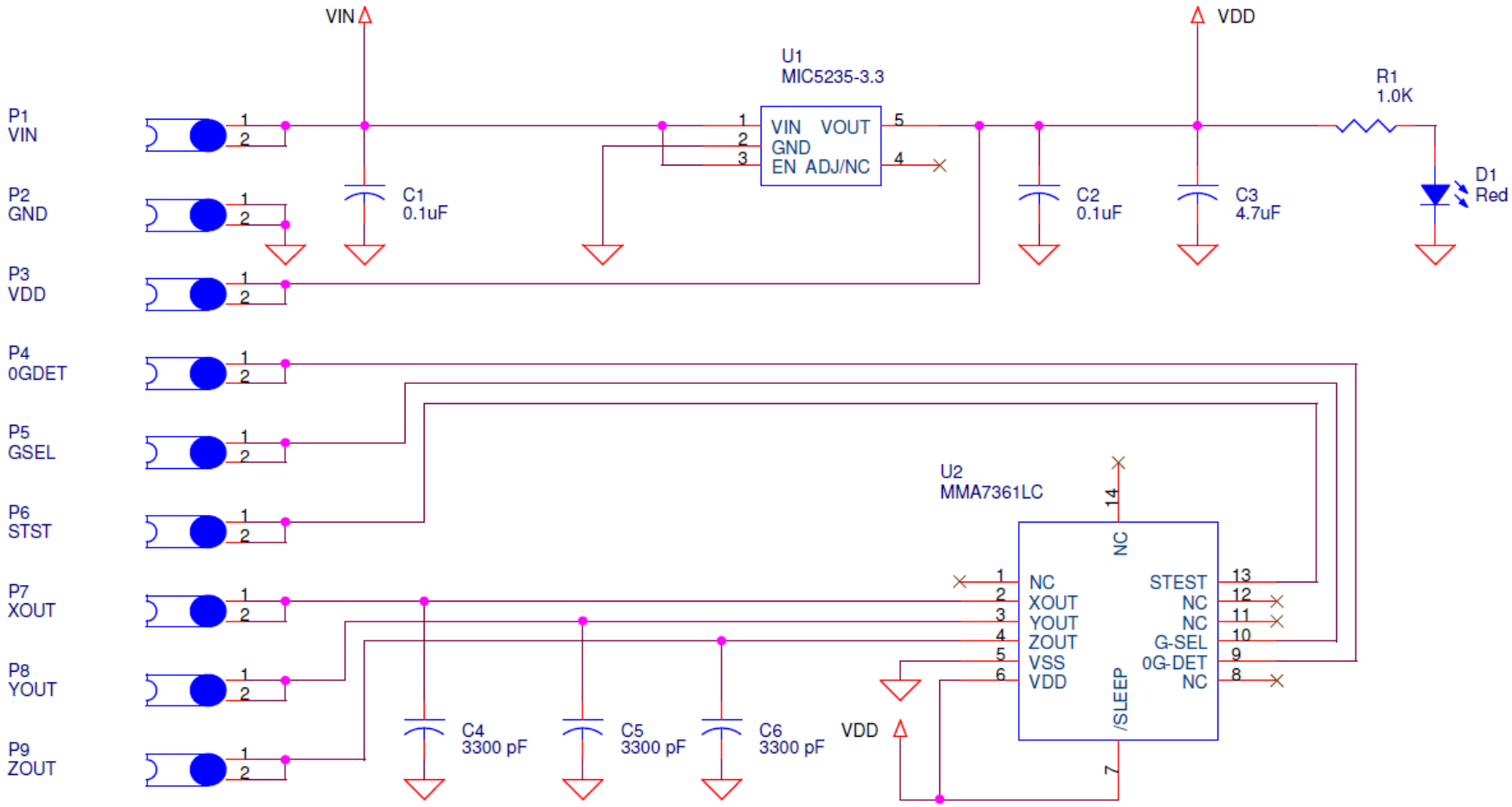
#	Name	Maximum Voltage	Notes
1	VIN	24V	Power input: Voltage supply for module.
2	GND	0V	Ground return for the power supply.
3	VDD	3.3V	Power output: 3.3V linear regulator output.
4	0GDET	3.6V	Logic output: Outputs a logic high when all three axes are at 0g.
5	GSEL	3.6V	Logic input: Allows the user to select between two sensitivities. 0 = 1.5g range; 800mV/g 1 = 6g range; 206mV/g
6	STST	3.6V	Logic input: can be used to self-test the device, see part datasheet for details.
7	XOUT	N/A	Analog output: can be used to determine the acceleration and orientation of the module in the X axis direction. Default is 800mV/g.
8	YOUT	N/A	Analog output: can be used to determine the acceleration and orientation of the module in the Y axis direction. Default is 800mV/g.
9	ZOUT	N/A	Analog output: can be used to determine the acceleration and orientation of the module in the Z axis direction. Default is 800mV/g.

User Notes/Tips

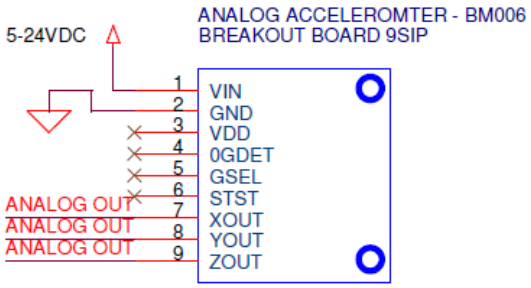
- For additional information on the MMA7361LC analog accelerometer visit Freescale's web site and review the datasheet.
- Visit www.solutions-cubed.com for application notes related to this module.
- The majority of the current this module draws is used to light the LED, D1. Removing this LED or its current limiting resistor (R1), will reduce the current by VDD-2/1000 mA.
- 10 MΩ or higher is recommended on XOUT, YOUT and ZOUT to prevent loss due to the voltage divider relationship between the internal 32kΩ resistor and the measurement input impedance.



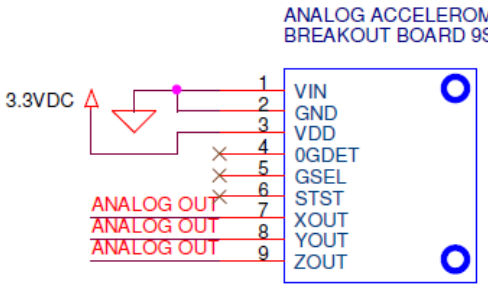
* When positioned as shown, the Earth's gravity will result in a positive 1g output.


VIN
VDD
U1
MIC5235-3.3
VIN VOUT
GND
EN ADJ/NC
R1
1.0K
D1
Red
P1
VIN
P2
GND
P3
VDD
C1
0.1uF
C2
0.1uF
C3
4.7uF
P4
0GDET
P5
GSEL
P6
STST
P7
XOUT
P8
YOUT
P9
ZOUT
U2
MMA7361LC
NC
XOUT
YOUT
ZOUT
VSS
VDD
/SLEEP
STEST
NC
NC
G-SEL
0G-DET
NC
C4
3300 pF
C5
3300 pF
C6
3300 pF
VDD

BASIC CONNECTIONS 5V SYSTEM



ALTERNATE CONNECTIONS 3.3V SYSTEM



USE THES CONNECTION IF THE ON-BOARD 3.3V REGULATOR IS NOT NEEDED.

ARDUINO CONNECTIONS