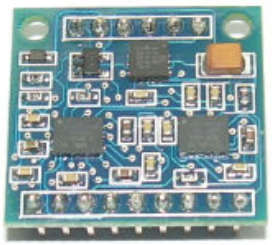
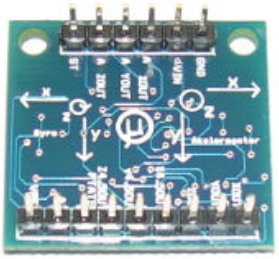
µCat-innova

Accelerometer-Gyro 6 axis AstonGP10D002

User's Guide





NOTES:

Product version: **Ver 1.0**

Document version: **Ver 1.0**

Description

AstonGP10D002 is a board composed for one Accelerometer ADXL335(3axis), two Gyros IDG-500 (2axis XY) and ISZ-500 (1axis Z).

The ADXL335 is a small, thin, low power, complete 3-axis accelerometer with signal conditioned voltage outputs. The product measures acceleration with a minimum full-scale range of ±3 *g*. It can measure the static acceleration of gravity in tilt-sensing applications, as well as dynamic acceleration resulting from motion, shock, or vibration.

The IDG-500 gyro uses two sensor elements with novel vibrating dual-mass bulk silicon configurations that sense the rate of rotation about the X- and Y-axis (in-plane sensing). This results in a unique, integrated dual-axis gyro with guaranteed-by-design vibration rejection and high cross-axis isolation. It is specifically designed for demanding consumer applications requiring low cost, small size and high performance.

The ISZ-500 is a state-of-the-art single-axis Z-gyroscope designed specifically for complex motion sensing in 3D-input devices and gaming controllers. The ISZ-500 gyroscope utilizes state-of-the-art MEMS fabrication with wafer-scale integration technology. This technology combines completed MEMS wafers and completed CMOS electronic wafers together using a patented and proprietary wafer-scale bonding process that simultaneously provides electrical connections and hermetically sealed enclosures.

Features ADXL335

3-axis sensing
Small, low profile package
4 mm × 4 mm × 1.45 mm LFCSP
Low power: 350 µA (typical)
Single-supply operation: 1.8 V to 3.6 V
10,000 *g* shock survival
Excellent temperature stability
BW adjustment with a single capacitor per axis
RoHS/WEEE lead-free compliant

Features IDG-500

Integrated X- and Y-axis gyros on a single chip
Two separate outputs per axis for standard and high sensitivity:
X-/Y-Out Pins: 500°/s full scale range
2.0mV/°/s sensitivity
X/Y4.5Out Pins: 110°/s full scale range
9.1mV/°/s sensitivity
Integrated amplifiers and low-pass filters
Auto-Zero function
On-chip temperature sensor
High vibration rejection over a wide frequency range
High cross-axis isolation by proprietary MEMS design
3V single-supply operation
Hermetically sealed for temp and humidity resistance
10,000 g shock tolerant
Smallest dual axis gyro package at 4 x 5 x 1.2mm
RoHS and Green Compliant

Features ISZ-500

Z-axis (yaw rate) gyro on a single chip
Two separate analog outputs for standard and high sensitivity:
Z-Out Pin: 500°/s full scale range
2.0mV/°/s sensitivity
Z4.5Out Pin: 110°/s full scale range
9.1mV/°/s sensitivity
Integrated amplifiers and low-pass filter
Auto-Zero function
On-chip temperature sensor
High vibration rejection over a wide frequency range
High cross-axis isolation by proprietary MEMS design
3V single-supply operation
Hermetically sealed for temperature and humidity resistance
10,000 *g* shock tolerant
Smallest single axis gyro package at 4 x 5 x 1.2mm
RoHS and Green Compliant

Total Features

1. Package size: 26x24.5×3.6mm
2. Consumption current average: Typ.14 mA
3. Supply voltage: 5 to 10 V

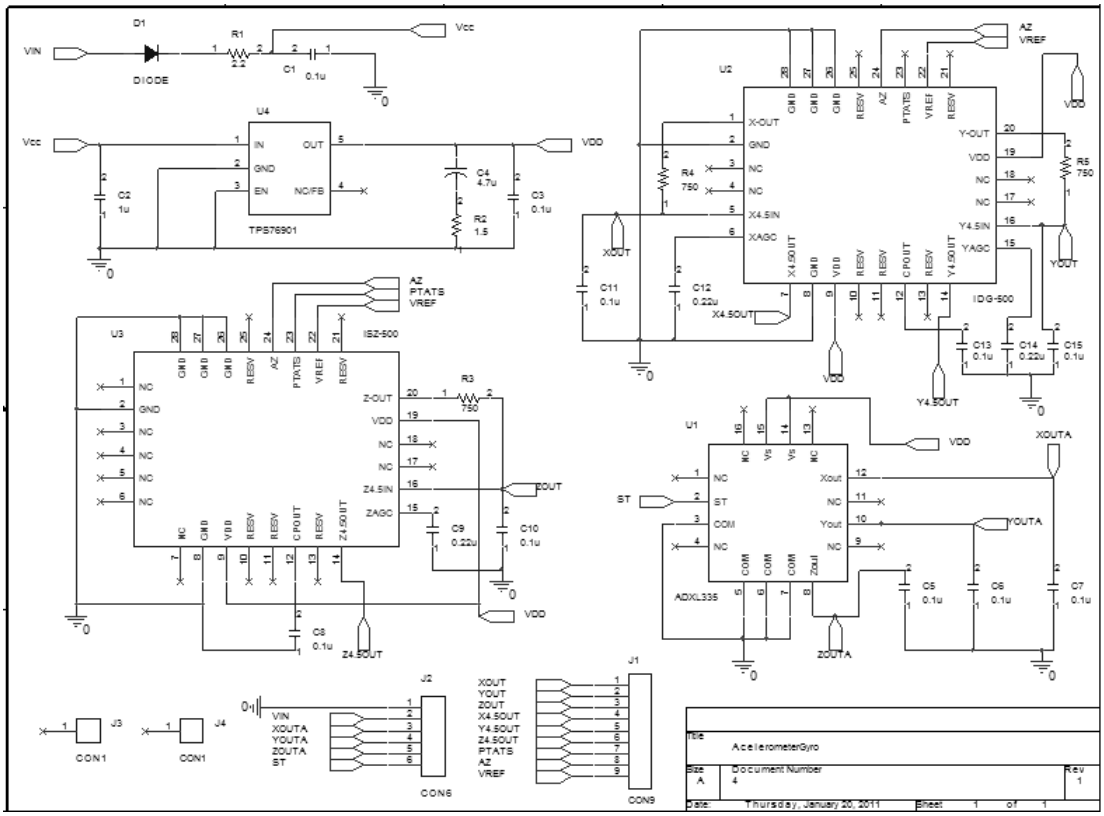
Protections

This device is protected for over tensions and invert power connection.

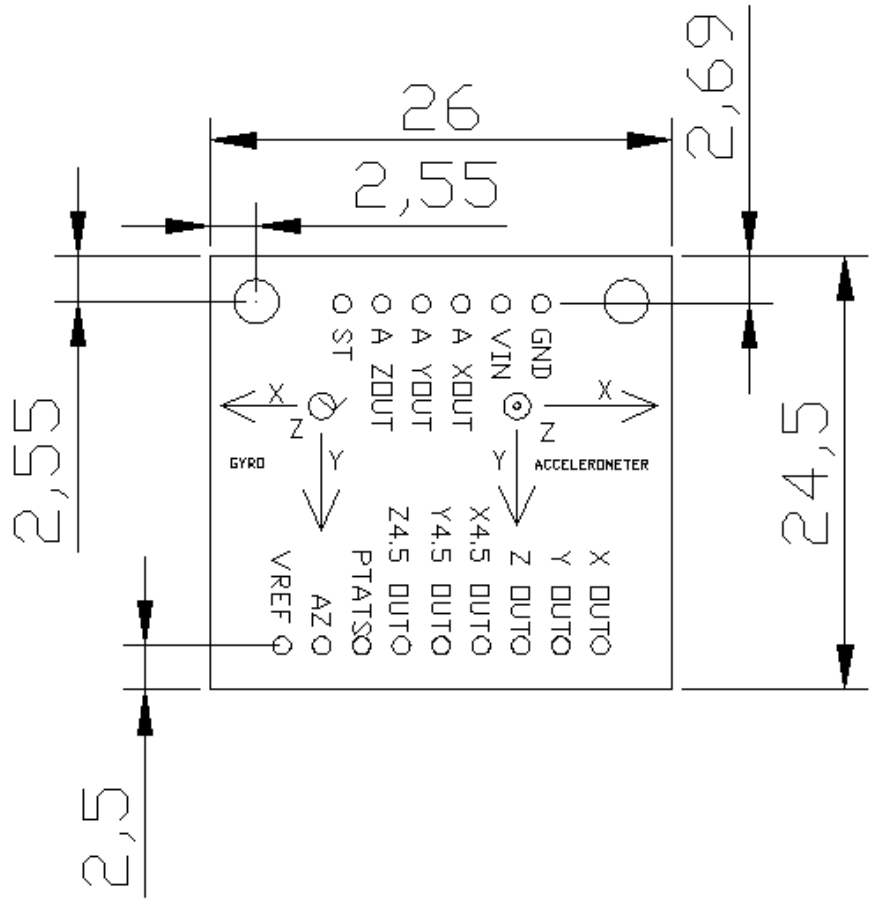
Applications

Cars, planes, boats

Block Diagram



Outline Dimensions



Dimensions in mm

Absolute Maximum Ratings (Ta=25□,VCC=5V)

Parameter	Symbol	Rating	Unit
Supply voltage	VCC	12	V
Operating temperature	Topr	0 to +85	℃
Storage temperature	Tstg	-20 to +85	℃

Recommended operating conditions

Parameter	Symbol	Conditions	Rating	Unit
Supply voltage	VCC		5 to 10	V

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