

# MPU-6050 6-DoF accel + gyro breakout

Adafruit · MPN 3886 · category: imu

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## ELECTRICAL

Operating current (6 axes + DMP): **3.9 mA** · datasheet p.10

VLOGIC I2C reference (min option): **1.8 V** · datasheet p.7

Gyroscope operating current: **3.6 mA** · datasheet p.10

Gyroscope standby current: **5 µA** · datasheet p.10

Accelerometer normal operating current: **500 µA** · datasheet p.10

Accel low-power mode current @1.25Hz: **10 µA** · datasheet p.10

## PERFORMANCE

ADC resolution: **16-bit** · datasheet p.2

Gyro full-scale ranges (selectable): **±250, ±500, ±1000, and ±2000°/sec** · datasheet p.10

Accel full-scale ranges (selectable): **±2g, ±4g, ±8g, and ±16g** · datasheet p.7

Gyro sensitivity, ±250°/s FS (LSB/°/s): **131** · datasheet p.12

Accel sensitivity, ±2g FS (LSB/g): **16,384** · datasheet p.13

Digital Motion Processor (DMP) on chip: **Yes** · datasheet p.2

On-chip oscillator variation: **±1%** · datasheet p.7

Gyro ADC max sample rate: **8,000 samples per second** · datasheet p.25

Gyro ZRO settling from power-on (ms): **30** · datasheet p.12

Gyro total RMS noise, DLPF 100Hz (°/s-rms): **0.05** · datasheet p.12

Temp sensor sensitivity, untrimmed (LSB/°C): **340** · datasheet p.14

## INTERFACE

I2C fast mode speed: **400 kHz** · datasheet p.10

3.3V / 5V logic compatible: **Yes** · vendor page

FIFO buffer: **1024 Byte** · datasheet p.7

Auxiliary I2C master for external sensors: **Yes** · datasheet p.10

I2C slave address, AD0 low (binary): **b1101000** · datasheet p.33

External clock inputs (optional): **32.768kHz or 19.2MHz** · datasheet p.11

STEMMA QT / Qwiic connectors: **Yes** · vendor page

## MECHANICAL

Sensor package (bare IC): **4x4x0.9mm** · datasheet p.7

Breakout dimensions: **26.0mm x 17.8mm x 4.6mm** · vendor page

Breakout weight: **1.8 g** · vendor page

Mounting hole diameter: **2.5 mm** · vendor page

## ENVIRONMENT

Temperature range (spec conditions): **-40–85 °C** · datasheet p.12

Shock tolerance: **10,000g** · datasheet p.7

Storage temperature range: **-40–125 °C** · datasheet p.20

## COMPLIANCE

RoHS / Green: **RoHS and Green compliant** · datasheet p.11

Lead-free soldering: **Yes** · datasheet p.45

## GENERAL

VDD (bare IC): **2.375–3.46 V** · datasheet p.5

Gyro full-scale (max, °/s): **±2000** · datasheet p.7

Accel full-scale (max): **±16g** · datasheet p.7

## INDICATIVE PRICES

Adafruit: \$12.95 USD · as of 2026-08-22 · <https://www.adafruit.com/product/3886>

Prices are indicative and dated, captured only from vendors' machine-stated markup. Availability is never claimed.

## SOURCES — THE AUTHORITATIVE DOCUMENTS

TDK product page MPU-6050: [https://product.tdk.com/en/search/sensor/motion-inertial/imu/info?part\\_no=MPU-6050](https://product.tdk.com/en/search/sensor/motion-inertial/imu/info?part_no=MPU-6050)

MPU-6050 datasheet rev 3.4 (distributor-hosted copy): [https://www.cdiweb.com/datasheets/invensense/mpu-6050\\_datasheet\\_v3%204.pdf](https://www.cdiweb.com/datasheets/invensense/mpu-6050_datasheet_v3%204.pdf)

sha-256 9d3b698699d6d907790607223deb7d7e604d2597bd1fc97f586e18ce5dc9ef9f

Adafruit product page: <https://www.adafruit.com/product/3886>

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