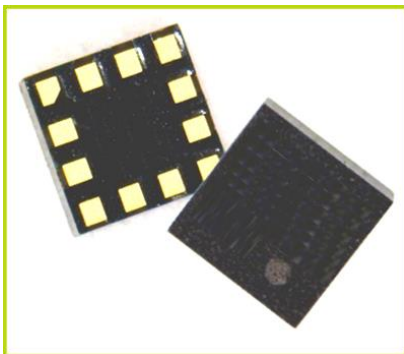


GENERAL DESCRIPTION

The MC3451 is a low-noise, integrated digital output 3-axis accelerometer with a feature set optimized for smartphones and smart watches. Applications include user interface control, gaming motion input, tilt function, gesture recognition, pedometer, display orientation, and power saving for handheld and wearable devices.

The MC3451 internal sample rate can be set from 0.25 to 256 samples / second. The integrated smart processing unit performs pedometer and gesture functions without any external components. The device also contains a 2K byte flexible first-in, first-out (FIFO) buffer to store data for access via the internal Smart Logic Unit or via the I2C interface to an external host processor.

The MC3451 is available in a 12-pin LGA package and is guaranteed to operate over an extended temperature range from -40°C to +85°C.



FEATURES

Range, Sampling & Power

- $\pm 2, 4, 8, 12$ or $16g$ ranges
- 8, 10 or 14-bit resolution
- Sample rate of 0.25 - 256 samples/sec
- Low standby current of $4 \mu A$
- $300 \mu A$ gesture mode typical current
- Integrated high-performance pedometer
- Integrated gesture processing unit

Event Detection

- Independent X,Y,Z Tap
- Any motion
- Gesture detect
- Low-noise architecture minimizes false triggering

Simple System Integration

- I2C interface, up to 400 kHz
- 2K byte flexible FIFO
- $2 \times 2 \times 0.93$ mm 12-pin LGA package
- Single-chip 3D silicon MEMS
- $<200 \mu g / \sqrt{Hz}$ noise
- RoHS and "Green" compliant



1 LEGAL

1. M-CUBE reserves the right to make corrections, modifications, enhancements, improvements and other changes to its products and to this document at any time and discontinue any product without notice. The information contained in this document has been carefully checked and is believed to be accurate. However, M-CUBE shall assume no responsibilities for inaccuracies and make no commitment to update or to keep current the information contained in this document.
2. M-CUBE products are designed only for commercial and normal industrial applications and are not suitable for other purposes, such as: medical life support equipment; nuclear facilities; critical care equipment; military / aerospace; automotive; security or any other applications, the failure of which could lead to death, personal injury or environmental or property damage. Use of the products in unsuitable applications are at the customer's own risk and expense.
3. M-CUBE shall assume no liability for incidental, consequential or special damages or injury that may result from misapplication or improper use of operation of the product.
4. No license, express or implied, by estoppel or otherwise, to any intellectual property rights of M-CUBE or any third party is granted under this document.
5. M-CUBE makes no warranty or representation of non-infringement of intellectual property rights of any third party with respect to the products. M-CUBE specifically excludes any liability to the customers or any third party regarding infringement of any intellectual property rights, including the patent, copyright, trademark or trade secret rights of any third party, relating to any combination, machine, or process in which the M-CUBE products are used.
6. Examples of use described herein are provided solely to guide use of M-CUBE products and merely indicate targeted characteristics, performance and applications of products. M-CUBE shall assume no responsibility for any intellectual property claims or other problems that may result from applications based on the examples described herein
7. Information described in this document including parameters, application circuits and its constants and calculation formulas, programs and control procedures are provided for the purpose of explaining typical operation and usage. "Typical" parameters that may be provided in M-CUBE data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. In no event shall the information described be regarded as a guarantee of conditions or characteristics of the products. Therefore, the customer should evaluate the design sufficiently as whole system under the consideration of various external or environmental conditions and determine their application at the customer's own risk. M-CUBE shall assume no responsibility or liability for claims, damages, costs and expenses caused by the customer or any third party, owing to the use of the above information.



is a trademark of M-CUBE, Inc.

M-CUBE and the M-CUBE logo are trademarks of M-CUBE, Inc.,

All other product or service names are the property of their respective owners.

© M-CUBE, Inc. 2017. All rights reserved.

