GENERAL DESCRIPTION

The IIM-42351 is a 3-axis accelerometer packaged in a small 2.5 mm x 3 mm x 0.91 mm (14-pin LGA) package.

The IIM-42351 includes multiple capabilities to enable easy, robust and accurate inertial and inclination measurements in Industrial applications:

- Low noise: 70 µg/√Hz
- Low power: 0.3 mA with all 3-axes delivering full performance
- Output data rate up to 8 kHz
- Highly accurate external clock input to increase ODR accuracy, reduce system level sensitivity error, improve measurement impacts from device to device variation.
- 2K-byte FIFO that can lower the traffic on the serial bus interface, and reduce power consumption by allowing the system processor to burst read sensor data and then go into a low-power mode
- Wake-on-motion interrupt for low power operation of applications processor
- Operating temperature range: -40°C to 105°C

The host interface can be configured to support I3C™ slave, I²C slave, or SPI slave modes. The I3C™ interface supports speeds up to 12.5 MHz (data rates up to 12.5 Mbps in SDR mode, 25 Mbps in DDR mode), the I²C interface supports speeds up to 1 MHz, and the SPI interface supports speeds up to 24 MHz.

The device features an operating voltage range from 3.6V down to 1.71V.

APPLICATIONS

- Tilt sensing
- Platform stabilization
- Robotics

FEATURES

- Digital-output X-, Y-, and Z-axis accelerometer with programmable full-scale range of ±2g, ±4g, ±8g and ±16g
- User-programmable interrupts
- I3C™ / I²C / SPI slave host interface
- Digital-output temperature sensor
- External clock input supports highly accurate clock input from 31 kHz to 50 kHz
- Small and thin package: 2.5 mm x 3 mm x 0.91 mm (14-pin LGA)
- 20,000g shock tolerant
- MEMS structure hermetically sealed and bonded at wafer level
- RoHS and Green compliant

TYPICAL OPERATING CIRCUIT

[Application Schematic (SPI Interface to Host)]

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>TEMPERATURE</th>
<th>PACKAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIM-42351†</td>
<td>-40°C to +105°C</td>
<td>14-pin LGA</td>
</tr>
</tbody>
</table>

†Denotes RoHS and Green-compliant package