GENERAL DESCRIPTION

The IAM-20680HP is a 6-axis MotionTracking device for Automotive not-safety applications that combines a 3-axis gyroscope and a 3-axis accelerometer in a small 3x3x0.75mm (16-pin LGA) package. It also features a 4096-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. IAM-20680HP, with its 6-axis integration, enables manufacturers to eliminate the costly and complex selection, qualification, and system level integration of discrete devices, guaranteeing optimal motion performance.

The gyroscope has a programmable full-scale range of ±250 dps, ±500 dps, ±1000 dps and ±2000 dps. The accelerometer has a user-programmable accelerometer full-scale range of ±2g, ±4g, ±8g, and ±16g. Factory-calibrated initial sensitivity of both sensors reduces production-line calibration requirements.

Other industry-leading features include on-chip 16-bit ADCs, programmable digital filters, an embedded temperature sensor, and programmable interrupts. The device features I²C and SPI serial interfaces, a VDD operating range of 1.71V to 3.6V, and a separate digital IO supply, VDDIO from 1.71V to 3.6V.

APPLICATIONS

IAM-20680HP addresses a wide range of Automotive applications, including but not limited to:
- Navigation Systems Aids for Dead Reckoning
- Lift Gate Motion Detection
- Accurate Location for Vehicle to Vehicle and Infrastructure
- 360° View Camera Stabilization
- Car Alarm
- Telematics
- Insurance Vehicle Tracking

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>PART</th>
<th>AXES</th>
<th>TEMP RANGE</th>
<th>PACKAGE</th>
<th>MSL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAM-20680HP‡</td>
<td>X,Y,Z</td>
<td>-40°C to +105°C</td>
<td>16-Pin LGA</td>
<td>3</td>
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</tbody>
</table>

‡ Denotes RoHS and Green-compliant package
* Moisture sensitivity level of the package

FEATURES

- Digital-output X-, Y-, and Z-axis angular rate sensors (gyroscopes) with a user-programmable full-scale range of ±250dps, ±500dps, ±1000dps, ±2000dps and integrated 16-bit ADCs.
- Digital-output X-, Y-, and Z-axis accelerometer with a programmable full-scale range of ±2g, ±4g, ±8g, ±16g and integrated 16-bit ADCs.
- User-programmable digital filters for gyroscope, accelerometer, and temperature sensor
- Embedded Self-test
- Wake-on-motion interrupt for low power operation of applications processor
- Reliability testing performed according to AEC–Q100: PPAP and qualification data available upon request
- Final test at -40°C, 25°C, and 105°C
- Burn-in in production

TYPICAL OPERATING CIRCUIT

![Diagram of IAM-20680HP](image-url)