6-DOF XYZ-Axis Gyroscope and XYZ-Axis Accelerometer with Digital SPI Interface for Industrial Applications

Features

- Single package 6DOF component
- Cross-axis calibration enables better than 0.15 ° orthogonality error
- Gyro bias instability down to 0.5 °/h level
- Gyro noise density level down to 0.0003 °/s/√Hz
- Stable offset and sensitivity over full temperature range
- Excellent linearity and vibration performance
- Extensive self-diagnostics features
- ±300 °/s angular rate measurement range
- ±8 g acceleration measurement range
- −40 °C...+110 °C operating temperature range
- 3.0 V...3.6 V supply voltage
- SafeSPI2.0 interface with 20-bit data frame
- Data ready, timestamp index and SYNC functions for clock domain synchronization
- RoHS compliant robust SOIC housing
- Size: 12 mm x 14 mm x 3 mm (l x w x h), 24 pins

Applications

SCH16T is targeted at applications demanding high performance with tough environmental requirements.

Typical applications include:
- Inertial Measurement Units (IMUs)
- Navigation and positioning
- Machine control and guidance
- Dynamic inclination
- Robotic control and UAVs

<table>
<thead>
<tr>
<th>Measurement characteristics</th>
<th>Ωxyz</th>
<th>Accxyz</th>
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</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td>±300 °/s</td>
<td>±8 g</td>
</tr>
<tr>
<td>User Selectable Low Pass Filter</td>
<td>13, 30, 68, 235, 280 or 370 Hz</td>
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<tr>
<td>Sensitivity</td>
<td>1600 LSB/°/s (2.25deg/h)</td>
<td>3200 LSB/m/s²</td>
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<tr>
<td>Offset Temperature Dependency</td>
<td>±0.2 °/s</td>
<td>±7 mg</td>
</tr>
<tr>
<td>-40°C...+110°C (3σ)</td>
<td></td>
<td></td>
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<tr>
<td>Noise Density (Typ)</td>
<td>0.0006 °/s/√Hz</td>
<td>80 µg/√Hz</td>
</tr>
<tr>
<td>Bias Instability (Typ)</td>
<td>0.5 °/h</td>
<td>20 µg</td>
</tr>
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*Bottom of Allan Variance curve