ICM-20689 Product Brief

High Performance 6-Axis MEMS MotionTracking™ Device in 4x4 mm Package

GENERAL DESCRIPTION

The ICM-20689 is a 6-axis MotionTracking device that combines a 3-axis gyroscope, 3-axis accelerometer, and a Digital Motion Processor™ (DMP) in a small 4x4x0.9 mm (24-pin QFN) package.

- Large 4K-byte FIFO to reduce 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
- Gyroscope programmable FSR of ±250dps, ±500dps, ±1000dps and ±2000dps
- Accelerometer with Programmable FSR of ±2g, ±4g, ±8g and ±16g
- EIS FSYNC support

The ICM-20689 includes on-chip 16-bit ADCs, programmable digital filters, an embedded temperature sensor, and programmable interrupts. The device features an operating voltage range down to 1.71 V. Communication ports include I^2C and high speed SPI at 8 MHz.

APPLICATIONS

- Mobile phones and tablets
- Drones
- Motion-based game controllers
- 3D remote controls for Internet connected DTVs and set top boxes, 3D mice
- Wearable sensors for health, fitness and sports

FEATURES

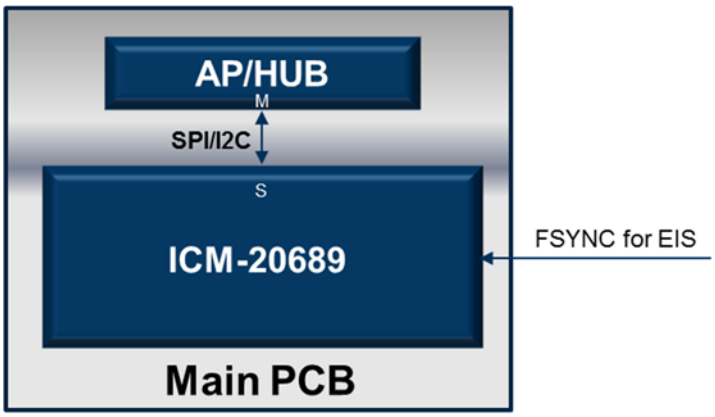
- User-programmable interrupts
- Wake-on-motion interrupt for low power operation of applications processor
- 4K-byte FIFO buffer enables the applications processor to read the data in bursts
- On-Chip 16-bit ADCs and Programmable Filters
- Host interface: 8 MHz SPI or 400 kHz Fast Mode I^2C
- Digital-output temperature sensor
- VDD operating range of 1.71 V to 3.45 V
- MEMS structure hermetically sealed and bonded at wafer level
- RoHS and Green compliant

ORDERING INFORMATION

PART	TEMP RANGE	PACKAGE
ICM-20689†	–40°C to +85°C	24-Pin QFN

†Denotes RoHS and Green-Compliant Package

BLOCK DIAGRAM



TYPICAL OPERATING CIRCUIT