

# World's Lowest Power 9-Axis MEMS MotionTracking™ Device

### **GENERAL DESCRIPTION**

The ICM-20948 is the world's lowest power 9-axis MotionTracking device that is ideally suited for Smartphones, Tablets, Wearable Sensors, and IoT applications.

- 1/3 the power of existing 9-axis devices
- 3-axis gyroscope, 3-axis accelerometer, 3-axis compass, and a Digital Motion Processor™ (DMP<sup>TM</sup>) in a 3x3x1mm (24-pin QFN) package
- DMP offloads computation of motion processing algorithms from the host processor, improving system power performance
- Software drivers are fully compliant with Google's latest Android release
- EIS FSYNC support

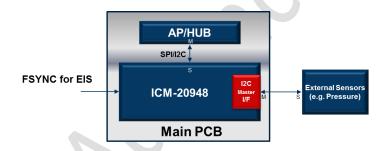
ICM-20948 supports an auxiliary I<sup>2</sup>C interface to external sensors, on-chip 16-bit ADCs, programmable digital filters, an embedded temperature sensor, and programmable interrupts. The device features an operating voltage range down to 1.71V. Communication ports include I<sup>2</sup>C and high speed SPI at 7MHz.

# **ORDERING INFORMATION**

PART	TEMP RANGE	PACKAGE
ICM-20948†	-40°C to +85°C	24-Pin QFN

<sup>†</sup>Denotes RoHS and Green-Compliant Package

#### **BLOCK DIAGRAM**



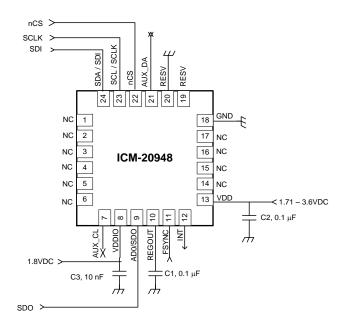
# **APPLICATIONS**

- Smartphones and Tablets
- Wearable Sensors
- IoT Applications

## **FEATURES**

- Lowest Power 9-Axis Device at 2.65mW
- 3-Axis Gyroscope with Programmable FSR of ±250dps, ±500dps, ±1000dps and ±2000dps
- 3-Axis Accelerometer with Programmable FSR of ±2g, ±4g, ±8g and ±16g
- 3-Axis Compass with a wide range to ±4900μT
- Onboard Digital Motion Processor (DMP)
- Android support
- Auxiliary I<sup>2</sup>C interface for external sensors
- On-Chip 16-bit ADCs and Programmable Filters
- 7MHz SPI or 400kHz Fast Mode I<sup>2</sup>C
- Digital-output temperature sensor
- VDD operating range of 1.71 to 3.6V
- MEMS structure hermetically sealed and bonded at wafer level
- RoHS and Green compliant

#### TYPICAL OPERATING CIRCUIT



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