

SIX- AXIS INERTIAL SENSOR MODULE

1.DESCRPTION

The SC7I22 is an inertial measurement unit (IMU) with high sensitivity and low power dissipation, featuring three-axis accelerometer and three-axis gyroscope. It has full scale acceleration range of $\pm 2g/\pm 4g/\pm 8g/\pm 16g$, and the angular rate range of $\pm 125dps/\pm 250dps/\pm 500dps/\pm 1000dps/\pm 2000dps$, and it can flexibly measure external acceleration and angular velocity. The accelerometer output data rate is optional from 0.78HZ to 1.6kHz, and the gyroscope output data rate is optional from 25HZ to 3.2kHz. The normal operating temperature range is -40°C to $+85^{\circ}\text{C}$.

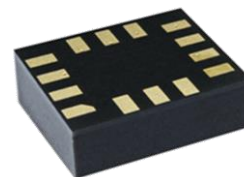
It communicates with MCU through I²C/SPI interface, the acceleration measurement data can be accessed in interrupt mode or inquiry mode. INT1 and INT2 provide many auto-detected interrupt signals which are suitable to many motion detection fields, interrupt source include 6D/4D orientation detection interrupt signal, free fall detection interrupt signal, sleep and wake up detection interrupt signal, single/multi click detection interrupt signal, step counting function interrupt signal, lifting function interrupt signal, OIS function interrupt signal and temperature detection interrupt signal.

A high-precision calibration module and LDO circuit are available within the IC to accurately compensate the sensor's offset error and gain error and for more stable at different voltages. A self-test capability allows the user to check the function of the sensor in the final application, eliminating the complex turntable test.

SC7I22 can be widely used in smartphones, drones, game controllers, various Internet of Things and intelligent hardware systems. It supports mainstream operating systems, realizes WeChat recording and action screenshots, and provides various algorithm support for drones, game controllers, VRs and ARs.

2.FEATURES

- ◆ Supply voltage, 1.71V to 3.6V
- ◆ Overall joint low-power mode, 399uA
- ◆ Overall joint high-performance mode 927uA
- ◆ 16-bit data output (accelerometer and gyroscope)
- ◆ Provide SPI and IIC serial interfaces
- ◆ Embedded temperature sensor
- ◆ 6D/4D orientation detection
- ◆ Tilt/Angle detection



LGA-14-3x2.5x1.0-0.5

3.APPLICATIONS

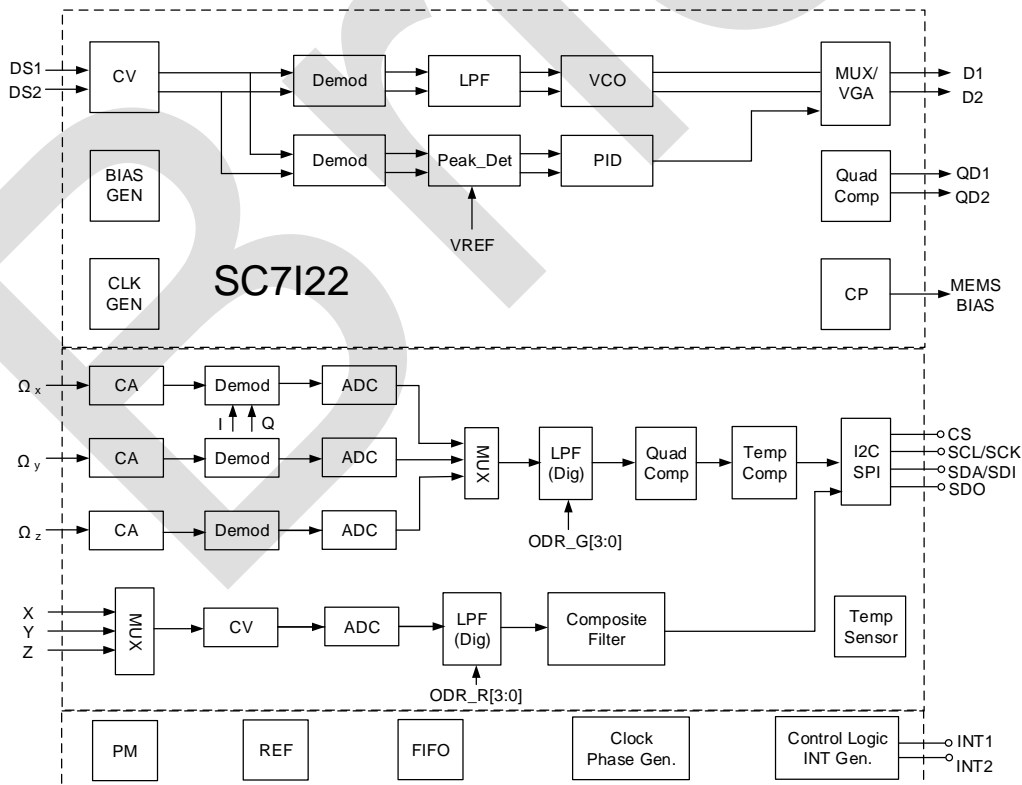
- ◆ AR/VR
- ◆ Mobile and tablet devices
- ◆ Smart wearable device
- ◆ Head-mounted device
- ◆ Angle detection equipment
- ◆ Image rotation scene
- ◆ Knock detection scenario
- ◆ Active detection equipment
- ◆ 9D direction detection
- ◆ Gesture recognition
- ◆ Vibration detection and compensation
- ◆ Indoor navigation/pedestrian route tracking/positioning
- ◆ 3D Scanning/Indoor Mapping/SLAM
- ◆ Virtual reality game
- ◆ Fly Mouse /game controller
- ◆ IOT application scenarios
- ◆ optical stabilization of the camera equipment
- ◆ toy drone

- ◆ Static and motion detection
- ◆ Sleep and motion detection
- ◆ Free fall detection
- ◆ Single/Multi click detection
- ◆ Sensor Time
- ◆ OIS (ODR=6.4kHz)
- ◆ Programmable interrupt generator
- ◆ Embedded programmable step counting function
- ◆ Embedded programmable lift detection function
- ◆ Embedded self test
- ◆ Embedded FIFO
- ◆ 10000g high shock survivability
- ◆ Comply with EU packaging and “Green” compliant

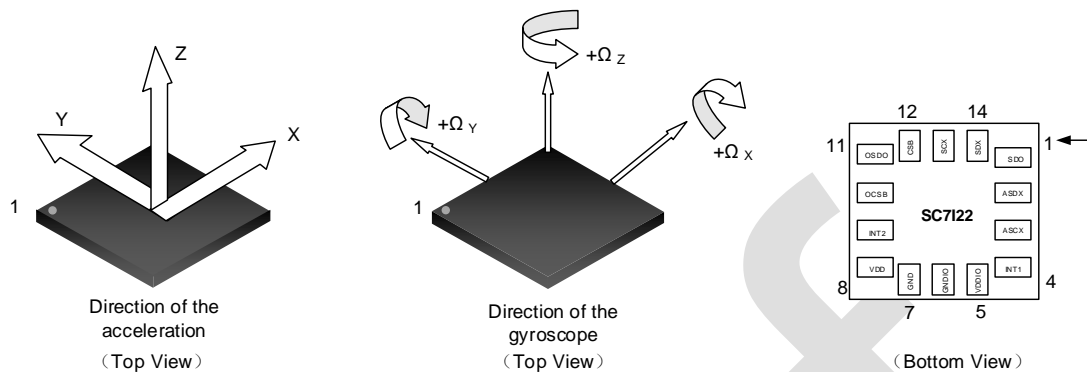
4. ORDERING INFORMATION

Part No.	Package	Marking	Hazardous Substance Control	Packing Type
SC7I22TR	LGA-14-3x2.5x1.0-0.5	7I22	Halogen free	Tape & Reel

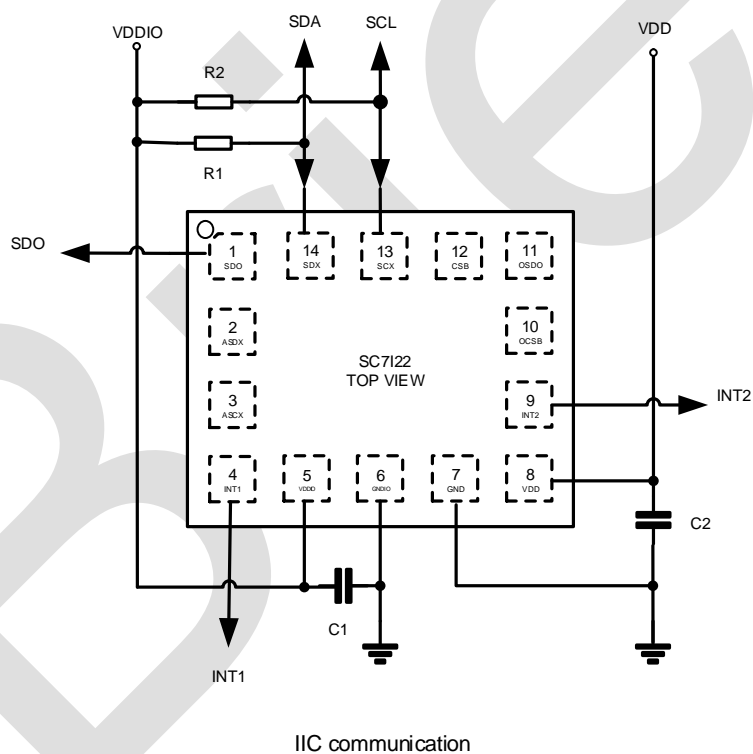
5. BLOCK DIAGRAM

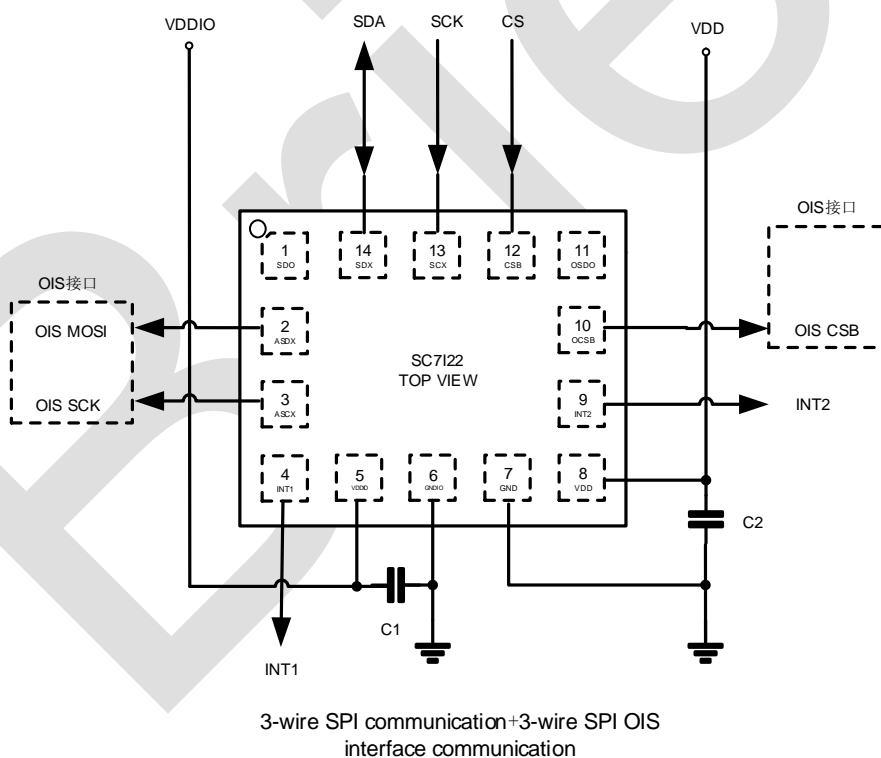
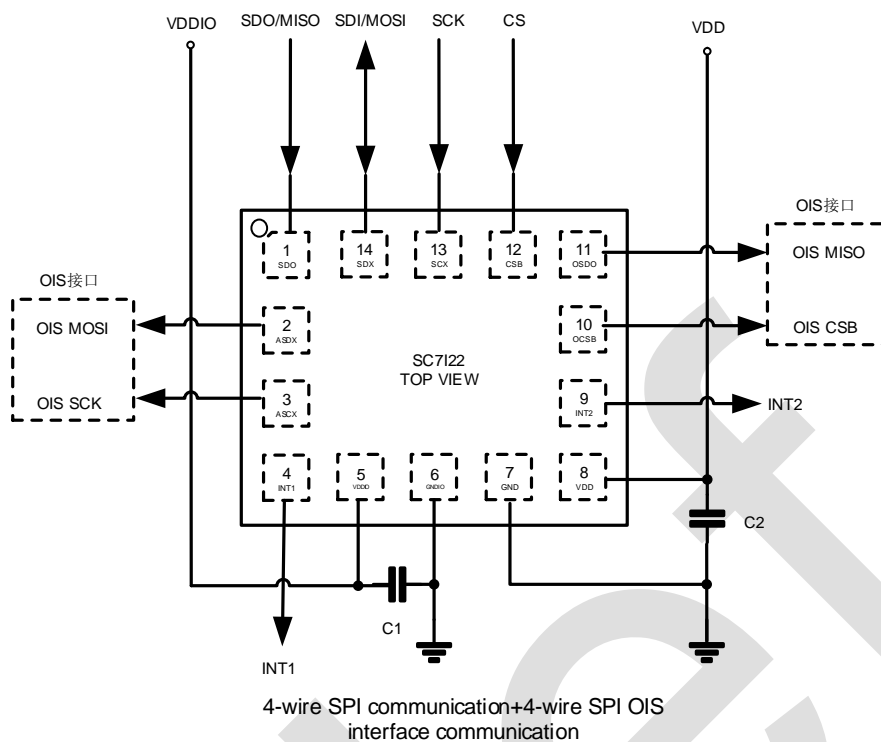


6. PIN CONFIGURATION



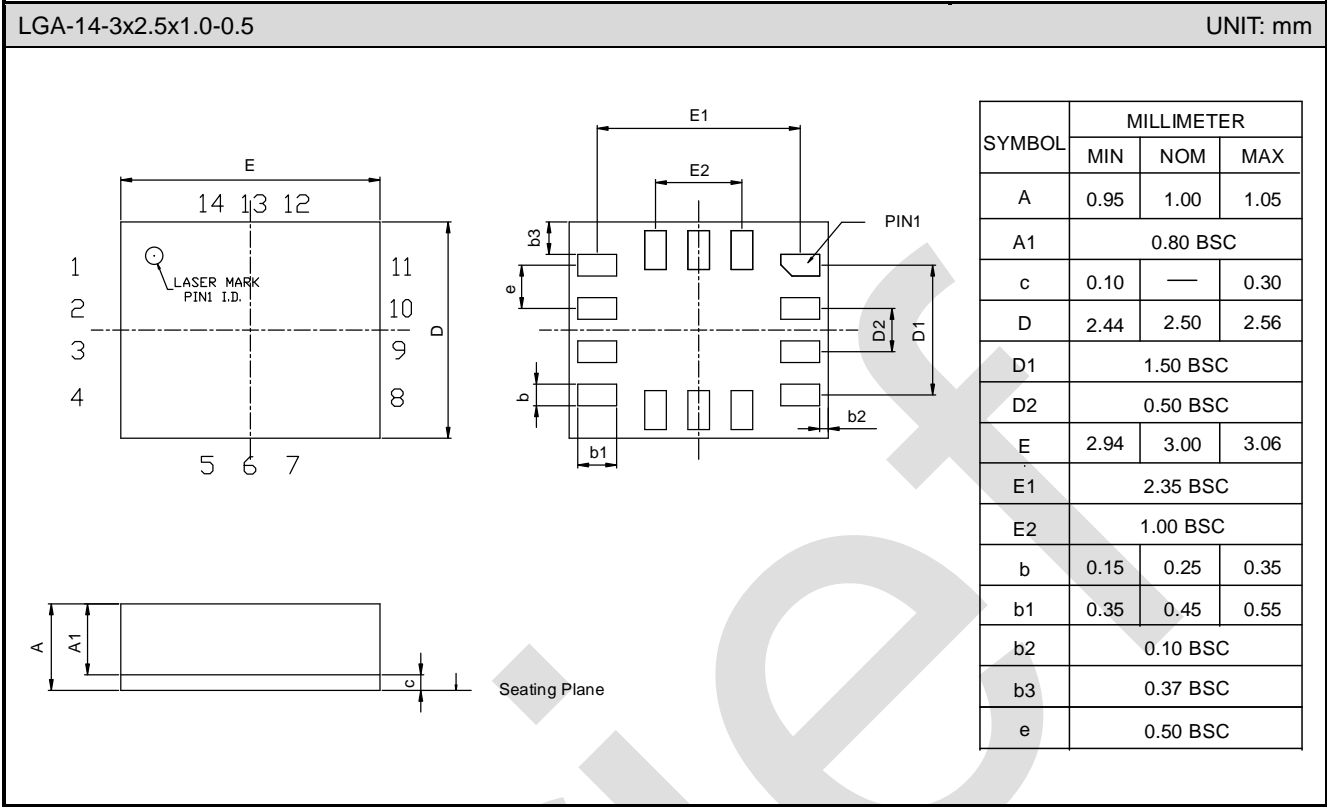
7. TYPICAL APPLICATION CIRCUIT





Note: The circuit and parameters are for reference only, please set the parameters of the real application circuit based on the real test.

8.PACKAGE OUTLINE



Important notice :

1. Silan reserves the right to make changes of this instruction without notice.
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