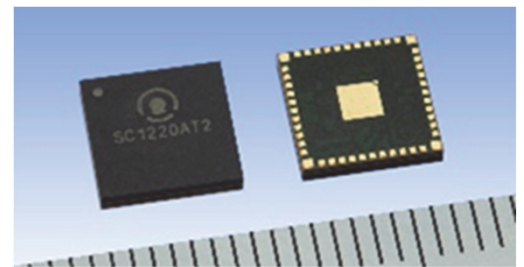


60GHz Radio-Wave Ranging Sensor

3D Detection Model SC1220AT2



SC1220AT2 is a low power CMOS 60GHz radar sensor device and available for 3D motion sensing.



SC1220AT2

■ Features

● 3Suited for 3D motion sensing

- 2 Tx and 2 x 2 Rx antennas detect azimuth / elevation angle, velocity and distance
- Wide bandwidth (6.8GHz max.) and high-accuracy linear chirp FMCW radar
- Sensing area example: up to 0.5m*¹ with < 1cm*² resolution (in case of palm gesture)

● Highly integrated device enabling easy hardware design

- Integrating antennas, radio, ADC, FIFO and SPI interface
- Enable to use reasonable PCB, less BOM and easy assembly
- Small package (7.0mm x 7.0mm, LGA package)

● Low power consumption

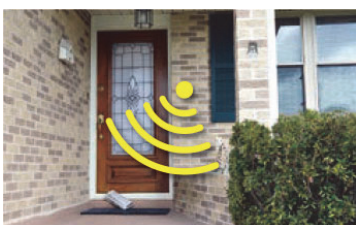
- 4-Level operation states (Shutdown, Deep Sleep, Light Sleep, Sensing)
- Intelligent power control sequencer managing flexible duty cycle operation
- 2.5mW average power consumption at palm gesture sensing*³

● 1: Depending on sensor configuration and environmental conditions

● 2: To be changed according to further study

● 3: In case of conditions that Socionext assumed

■ Applications



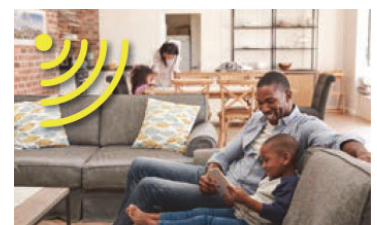
Detection of people at the front door
(use in a doorbell)



Detection of people to switch the liquid crystal
display of smart home appliances on and off

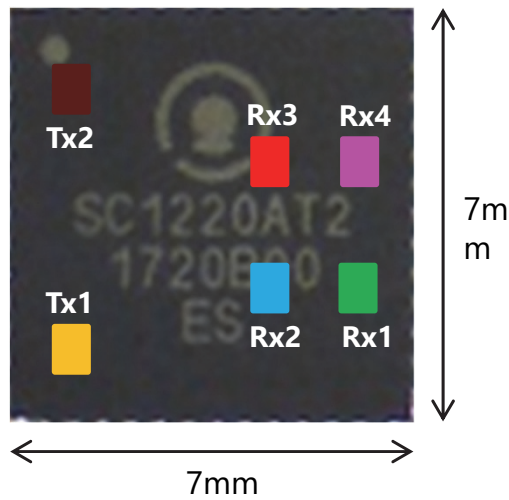


Gesture operations

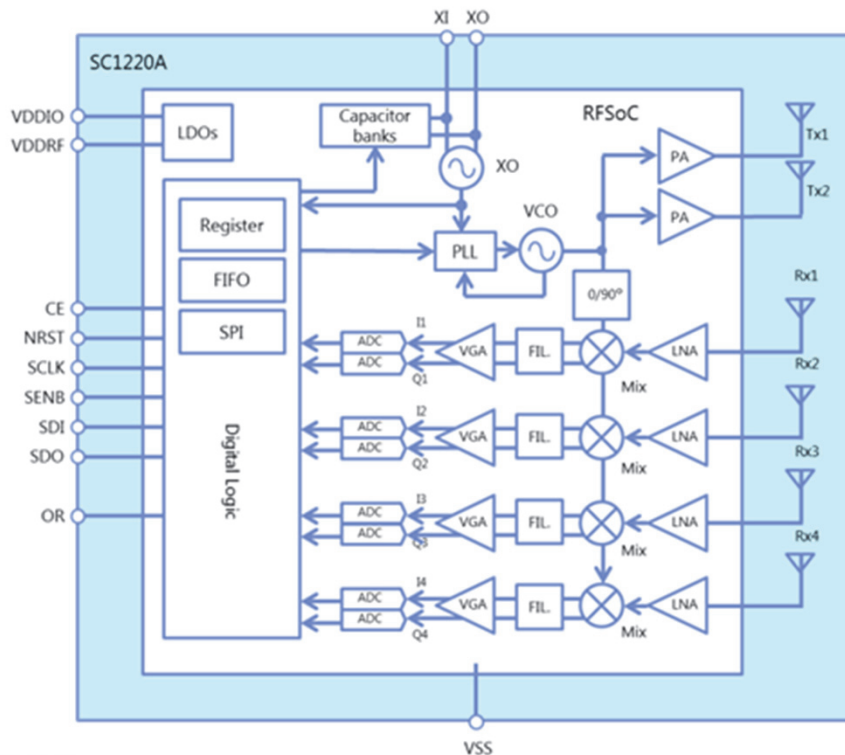


Detection of people in rooms such as the
living room(use in a smart thermostat)

■ Antenna Configuration



■ Block Diagram



■ Specifications

Radar mode	FMCW/FSKCW/CW
Power Supply	1.5V - 1.8V (core) / 1.8 - 3.3V (I/O)
Power Consumption	308mW (Peak power consumption) 2.5mW (0.5% duty cycle operation using deep sleep)
Transmitter	Frequency: 57.1 - 63.9GHz (6.8GHz bandwidth) EIRP: -7dBm
Receiver	Noise Figure: 12dB
Digital block	ADC (11bit 10MHz), FIFO (32KB), SPI/F (≤50MHz)
Temperature	-40 to 85°C

■ Evaluation Kit Deliverables

- SC1220AT2 evaluation kit hardware with USB cable
- Sensor driver/ library and 3D location sensing evaluation software (GUI)
- Related documents
 - Evaluation software (GUI) operation manual
 - API specification of control API
 - Application note (MATLAB and Sample C source for API)

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