SC1232AR3

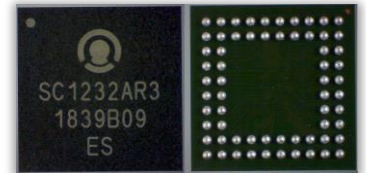## All-in-one Radar Sensor for Motion & Distance Detection

■ Overview

"Easy-to-use" & "All-in-one" 24GHz radar sensor enabling motion and distance detection without any external MCU calculations

SC1232AR3
1839B09
ES

Top view   Bottom view
SC1232AR3

■ Features

- **Easy to use**
  - System BoM can be reduced by "All-in-one" package radar sensor
  - Built-in autonomous motion/distance detection function enables only I2C/SPI connection for settings & result acquisition
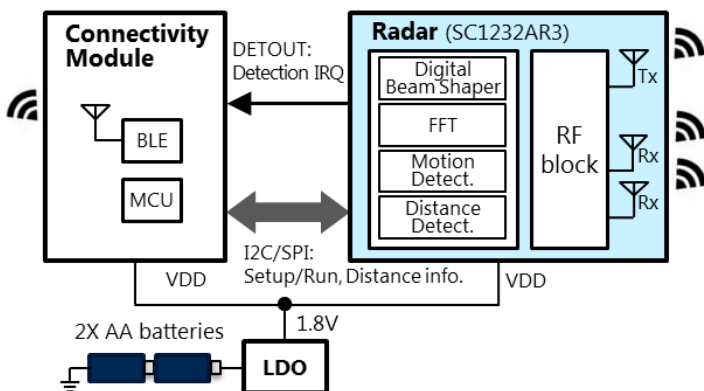- **Wide detection area**
  - Preferable detection area: 8m[*2] in front direction
  - 120deg / 95deg selectable FOV[*1][*2] with Digital beam shaper
- **Suited for battery operation**
  - 0.5mW average operating power consumption on human detection application[*3]
  - After sensor setup & run, MCU can sleep until something detected

■ Example System Configuration

Connectivity Module

BLE

MCU

DETOUT:
Detection IRQ

Radar (SC1232AR3)

Digital Beam Shaper

FFT

Motion Detect.

Distance Detect.

RF block

Tx

Rx

Rx

I2C/SPI:
Setup/Run, Distance info.

VDD

VDD

2X AA batteries

1.8V

LDO

(*1): Half distance angle
(*2): Detection area depends on environmental condition
(*3): in case of 0.1% duty cycle operation in Motion Detection mode
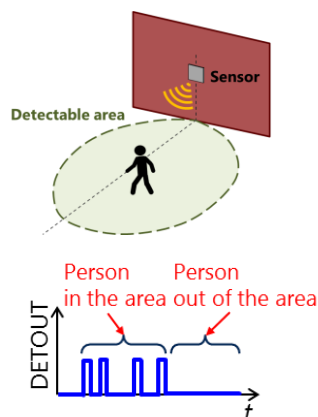
■ Applications

Smart Home

Security/Surveillance

Smart Devices

Home Appliances

■Reference Descriptions

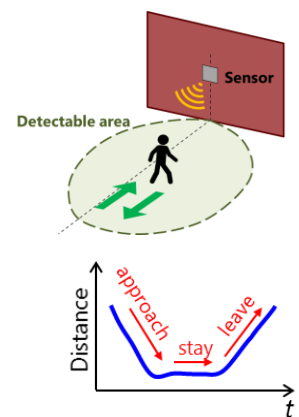| Frequency range	24.06 - 24.24GHz
Size, Package	Size: 9mm x 9mm x 1.18mm, BGA package, 0.8mm pitch, 64 pin
Supply voltage	1.8V
Power consumption	average 0.5mW[*3]
Operating package top temperature	-40 to 105°C
Output power	Tx EIRP (typ) 4.0dBm
Detection area	Preferable detection area: 8m[*2] in front direction 120/95° selectable FOV[*1] [*2]
Sensor output	Motion Detection result, Distance Detection result

■Example use case

1-1. Entry Motion Detection

Internal processing engine calculates & outputs **Motion Detection** (Entry Motion / Presence Detection) result through **DETOUT**
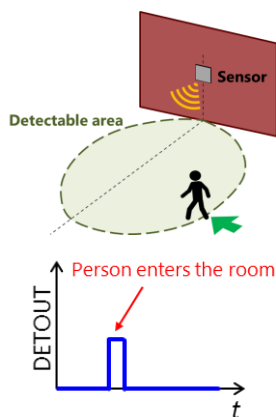
1-2. Presence Detection

2. Distance Detection

Internal processing engine calculates & outputs **Distance** to the moving objects through **I2C** or **SPI**

■Deliverables of the Evaluation kit

- SC1232AR3 evaluation kit hardware with USB cable (A to micro-B)
- Sensor library / Evaluation software (GUI)
- Related documents
    - Evaluation software (GUI) operation manual
    - API specification of control API
    - Application note (Sensor setting parameters / Sample C source for API)

Already available