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

**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**

**Applications**

- Smart Home
- Security/Surveillance
- Smart Devices
- Home Appliances

\(^{(1)}\): Half distance angle
\(^{(2)}\): Detection area depends on environmental condition
\(^{(3)}\): in case of 0.1% duty cycle operation in Motion Detection mode
Reference Descriptions

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

Example use case

1-1. Entry Motion Detection

1-2. Presence Detection

2. Distance Detection

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