SC1260AR3 is an extremely low-power, small size and intelligent all-in-one CMOS 60GHz radar sensor device with AiP (Antenna in Package), available for 3D (including 1D, 2D) sensing, and suitable for in-cabin sensing application. It contains a high-performance radar signal processing unit and detects the 3D position of moving objects and the presence of the objects in any specific area.

**Features**

- **High resolution 1D to 3D sensing**
  - 2-Tx and 4-Rx integrated antennas supporting TDM-MIMO operation realize 6x2 virtual antenna array
  - Wide bandwidth (6.8GHz max.) and high-accuracy linear chirp FMCW radar
  - Example of sensing target: infant lying in the child safety seat or persons sitting on the seat

- **Highly integrated device enabling easy hardware design**
  - Integrate radar signal processing unit (Distance/Angle/Presence detection), antennas, RF circuit, ADC, FIFO and SPI interface
  - Enable to use reasonable PCB, less BOM and easy assembly
  - Smallest package for all-in-one interior radio sensor (6.0mm x 9.0mm, BGA package)

- **Low power consumption reducing battery load**
  - 4-level operation states (Shutdown, Deep Sleep, Light Sleep, Sensing)
  - Intelligent power control sequencer managing flexible duty cycle operation realize <1mW averaging power consumption
  - Activate other device by integrated presence detection functionality

**Applications**

- Child Presence Detection
- Seat Occupant Detection
- Theft Prevention
- Touchless Gesture Control
The Products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements. All company names, brand names and trademarks herein are property of their respective owners.

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radar mode</td>
<td>FMCW (Frequency Modulated Continuous Wave)</td>
</tr>
<tr>
<td>Power supply</td>
<td>1.8V (RF) / 1.8V - 3.3V (I/O)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>0.7mW (Operation average) / 250mW (Operation maximum)</td>
</tr>
<tr>
<td>Transmitter</td>
<td>Frequency: 57.1 - 63.9GHz (bandwidth: up to 6.8GHz), EIRP (target): +3dBm</td>
</tr>
<tr>
<td>Receiver</td>
<td>Noise Figure: 12.5dB</td>
</tr>
<tr>
<td>Digital block</td>
<td>Radar signal processing (Range FFT, 3D location detection and Presence detection)</td>
</tr>
<tr>
<td>Temperature*1</td>
<td>-40 to 125°C</td>
</tr>
<tr>
<td>Sensor output</td>
<td>Range FFT, 3D position (X, Y, Z) detection result, Presence detection result</td>
</tr>
<tr>
<td>Qualification</td>
<td>AEC-Q100 Grade 2</td>
</tr>
</tbody>
</table>

*1: Operating Junction temperature  
*2: In case of 0.1% duty cycle operation

**Examples of the Evaluation kit**

- SC1260AR3 evaluation kit hardware
- Sensor driver/ library and sensing evaluation software (GUI)
- Related documents:
  - Evaluation software (GUI) operation manual
  - Application note (Sample C source for API)
  - Control API specification

[Image of Block Diagram]

**Example (Theft Prevention System)**

Activating camera device by presence detection result from SC1260AR3, system power consumption can be reduced.