

Product Brief

24GHz radar chipset-family for automotive applications

The BGT24Axx family is the highest integrated and broadest portfolio of 24GHz band radar transceiver family currently in the market. It saves ~30% board space compared to discrete line ups. Infineon offers in total 5 different components. This document describes 3 out of 5 different components, the BGT24ATR11 which combines one transmit- and one receive channel, the BGT24ATR12 which comprises one transmit- and two receive channels, and the BGT24AR2, a chip with two receive channels, combinable with both chipsets to increase number of receiver channels.

The 24GHz radar is able to detect the movement and speed of any object in a confined space, thus widely used in security and anti-theft systems in factories, warehouses and private residences. In addition, the 24GHz automotive radar solution for ADAS (Advanced Driver Assistance Systems) may ensure driving assistance by perfectly combining the automotive microcontroller (AURIX™ family) and the radar sensor for measurement and calculation of distance between an obstacle and a vehicle, as well as a smart secure power chip that guarantees system stability.

In an car environment, energy efficiency becomes more and more important. At the same time, certain automotive quality regulations like AEC-Q100 have to be observed. Thanks to Infineon's new 24GHz radar product family BGT24Axx, these needs can now be addressed.

The high integration of the Infineon solution – transmit channel and receive channels on one chip – saves expensive PCB space and simplifies PCB design significantly. The standard (V)QFN package can be mounted in available SMT (Surface Mounted Technology) production lines at customers.

Applications for Mid-Range Radars (MRR) to Short-Range-Radars (LRR)

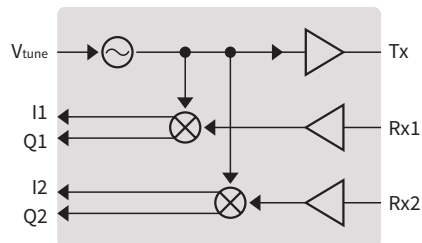
- > Lane Change Assistance (LCA)
- > Blind Spot Detection (BSD)
- > Collision Mitigation (CM)
- > Parking Aid (PA)
- > RCTA (Rear Cross Traffic Alert)
- > TSR (Traffic Sign Recognition)

Key features

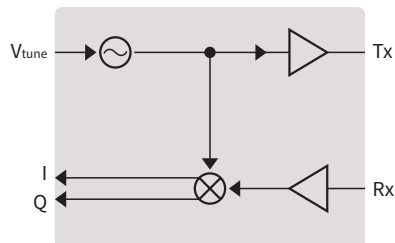
- > AEC-Q100 qualified
- > Ambient temperature range: -40 °C ~ +125 °C
- > Power consumption
- > Fully integrated transceiver, twin transmitter, quad or twin receiver solution on-chip
- > Fully integrated low phase noise VCO
- > Low noise figure
- > Switchable prescaler
- > On chip power and temperature sensors
- > Single supply voltage 3.3 V
- > Low power consumption
 - @ ATR12 – 690 mW,
 - @ ATR11 – 500 mW,
 - @ AR2 – 300 mW
- > PG-VQFN-32-9 leadless plastic package including Lead-Tip-Inspection (LTI) feature
- > Pb-free (RoHS compliant)

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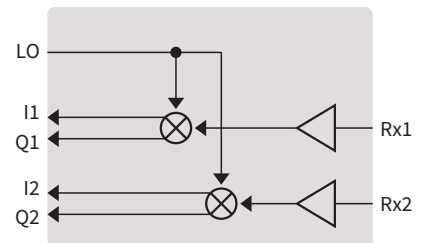
Block diagram BGT24ATR12



Block diagram BGT24ATR11



Block diagram BGT24AR2



Why Infineon's 24GHz solutions?

- > High integration and SMT package of multiple Tx/Rx system on-chip
 - Less PCB space required
- > Easy PCB design
- > Industry standard QFN-style package for mounting in standard SMT production lines
 - Existing customer production equipment, no special technologies are required
- > Complete radar portfolio for 24 GHz
 - Serving and supporting future ADAS requirements

Orderable part No.

- > BGT24ATR11
- > BGT24ATR12
- > BGT24AR2

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