



## Product Brief

# BGT24LTR11

## Ultra-low power sensing using new generation of 24GHz radar

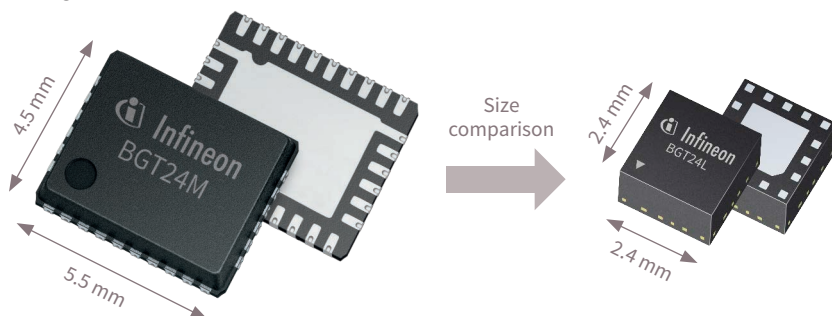
BGT24LTR11 is a Silicon Germanium radar MMIC for signal generation and reception, operating in the 24.0 GHz to 24.25 GHz ISM band. It is based on a 24 GHz fundamental voltage controlled oscillator (VCO). The device was designed with Doppler-radar applications in mind – as it is capable of keeping the transmit signal inside the ISM band without any external PLL – and may also be used in other types of radar such as FMCW or FSK.

Radar used in motion detection applications is superior to passive infrared technology by allowing precise measurement of object detection. Radar is also superior to camera based systems by allowing detection of the objects while keeping identities anonymous. There are multiple applications for using radar sensors to make your system smarter than the competition.

A built-in voltage source delivers a VCO tuning voltage which is proportional to absolute temperature (PTAT). When connected to the VCO tuning pin it compensates for the inherent frequency drift of the VCO over temperature thus stabilizing the VCO within the ISM band eliminating the need for a PLL/microcontroller. An integrated 1:16 frequency divider also allows for external phase lock loop VCO frequency stabilization.

The device is manufactured in a 0.18  $\mu\text{m}$  SiGe:C technology offering a cutoff frequency of 200 GHz. It is packaged in a 16-pin leadless RoHS compliant TSNP package.

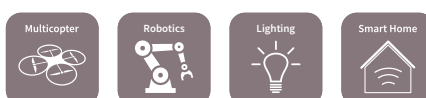
Package size reduction compared with BGT24MTR11



### Motion detection applications

- > Building and home automation (IoT)
- > Door opening and lighting
- > Robotics
- > UAV – drone altimeter

[www.infineon.com/24GHz](http://www.infineon.com/24GHz)



### Key features

- > 24GHz transceiver MMIC
- > Fully integrated low phase noise VCO
- > Built in temperature compensation circuit for VCO stabilization
- > Low power consumption
- > Fully ESD protected device
- > Single ended RF and IF terminals
- > 200 GHz bipolar SiGe:C technology B7HF200
- > Single supply voltage 3.3 V

### Benefits

- > Intelligent motion sensing
- > Precise measurement of object detection compared to PIR
- > Operates in harsh environments
- > Further enabler of IoT – type motion sensing applications
- > Smallest package in industry

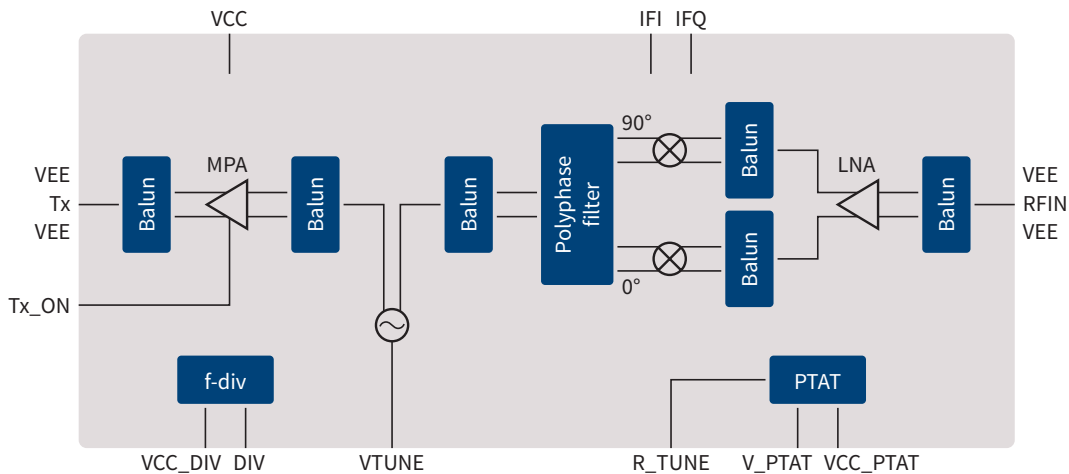
### Easy to use design tools

- > Chip evaluation board to perform basic measurements with the chip (EVAL\_BGT24LTR11\_BOARD)
- > Demo kit to get a feel for motion detection using 24GHz radar sensing (SENSE2GO)
- > Complete datasheets and applications notes available to kick start your design

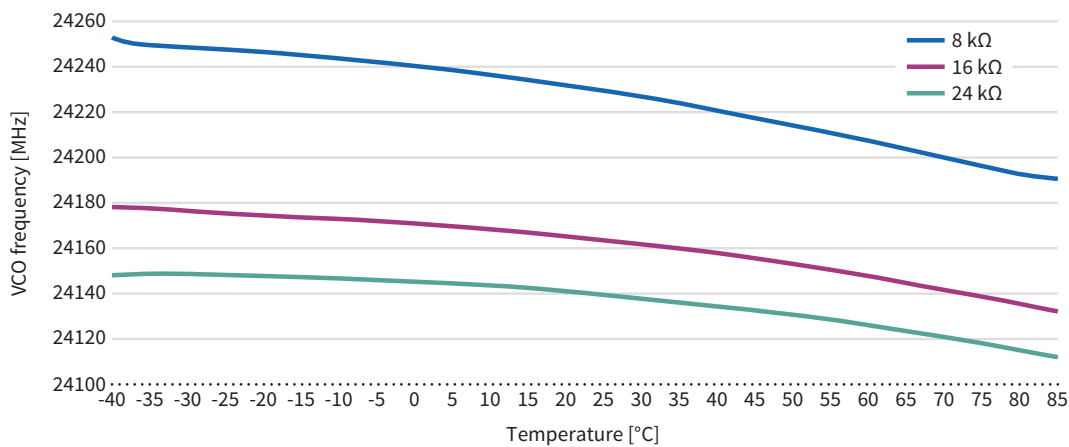
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## Block diagram



The VCO frequency is kept within the ISM band using the internal PTAT circuit, no external PLL or tuning circuitry required for frequency stabilization. The frequency band can be shifted using an external tuning resistor. Stable performance over wide temperature range.



Orderable part No.: BGT24LTR11N16 E6327

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