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 µm 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

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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.: BGT24LTR11N16E6327

Order Number: B132-I0329-V1-7600-EU-EC-P
Date: 08/2016