

24GHz Sensing update

July 2017



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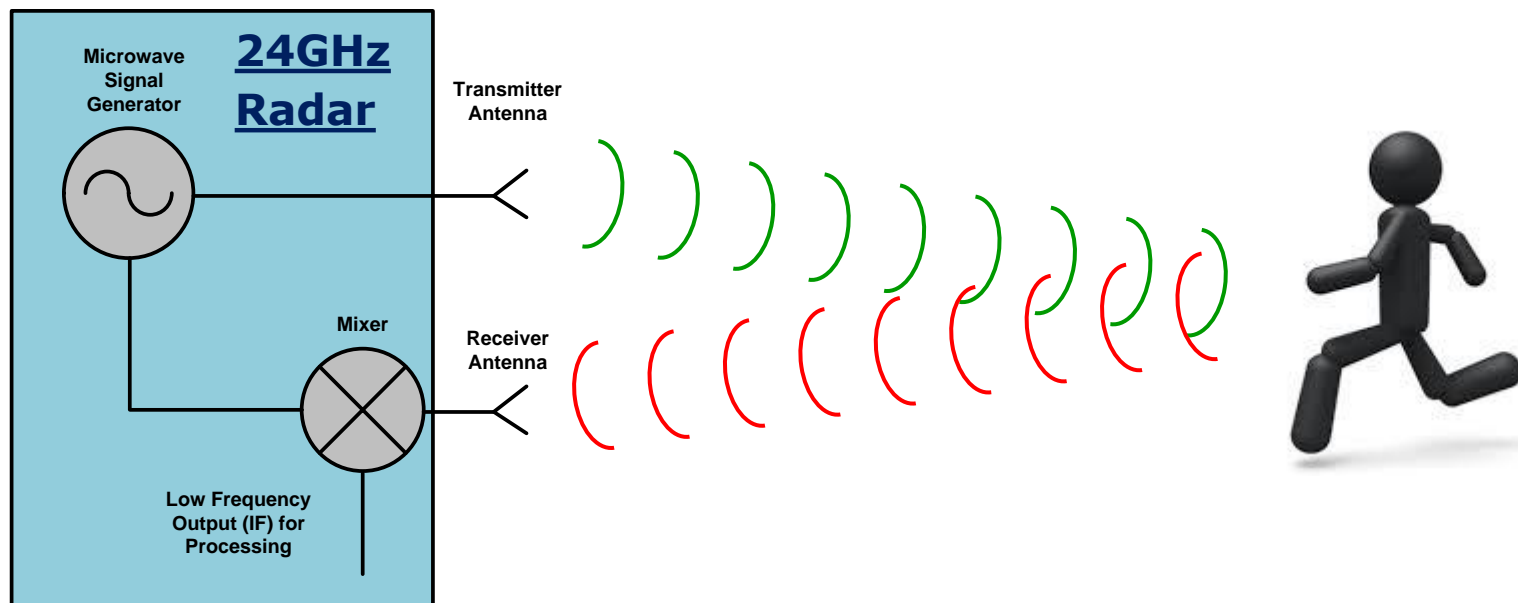
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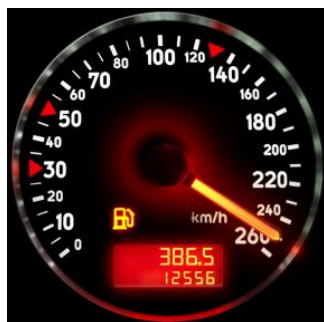
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What is 24GHz Radar?



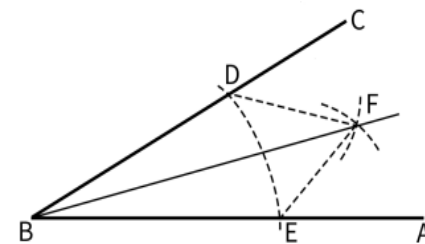
IF Output !!!



Speed



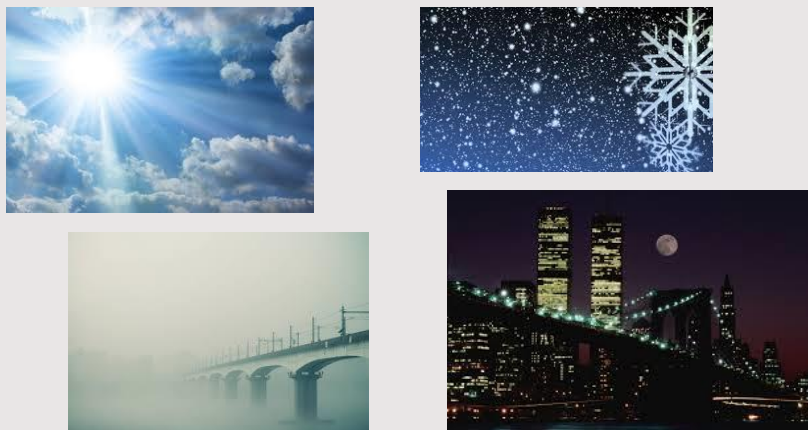
Distance



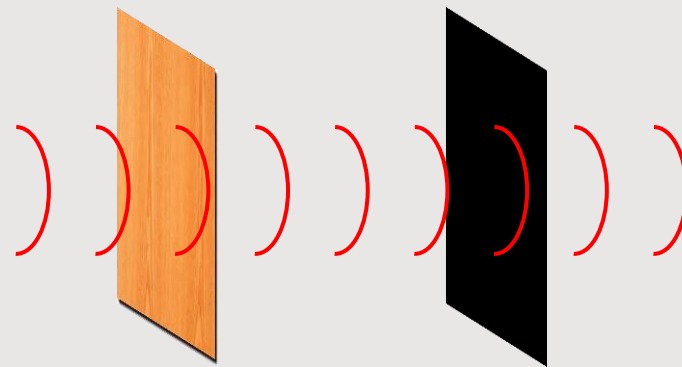
Angle

Why Radar Sensor?

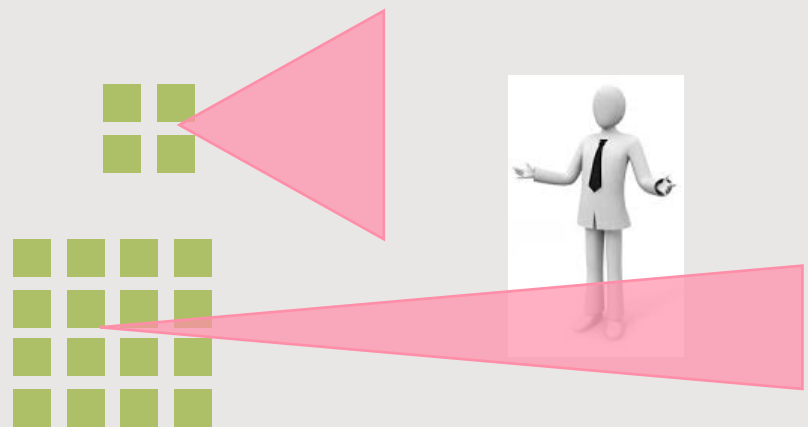
耐環境性能



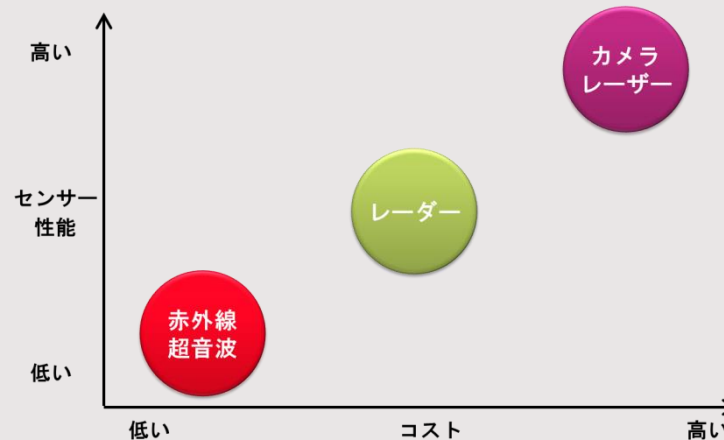
透過性



設計のFlexibility



Best Tradeoff



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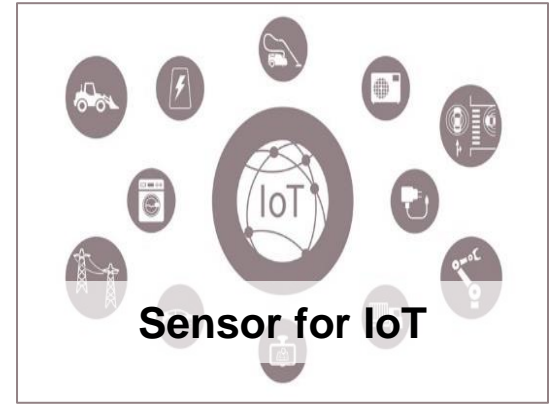
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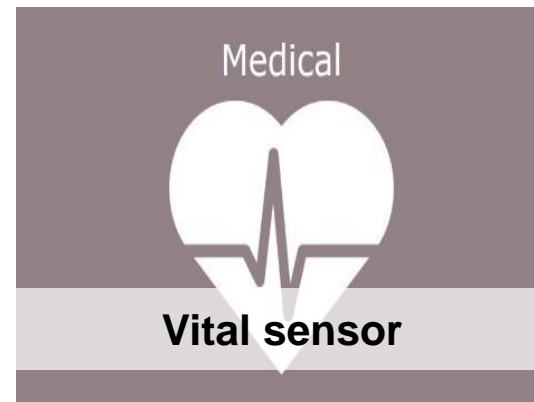


24 GHz key markets & use cases

Markets			
<p>Lighting</p>	<p>Home & building automation</p>	<p>Robotics</p>	<p>Multicopter</p>
Street & office lighting	Home automation	Robotics	UAV / Multicopter
<ul style="list-style-type: none">› Presence and motion detection	<ul style="list-style-type: none">› Presence and motion detection› Surveillance / security› HVAC control› Automatic Doors	<ul style="list-style-type: none">› Collision detection› Presence and motion detection› Sanitary› Lawnmower› Vacuum cleaner	<ul style="list-style-type: none">› Collision detection and avoidance› Landing sensor (Altimeter)› Height control
Industry 4.0, IoT, and UAV applications			

Target Application, Industrial 24GHz Radar





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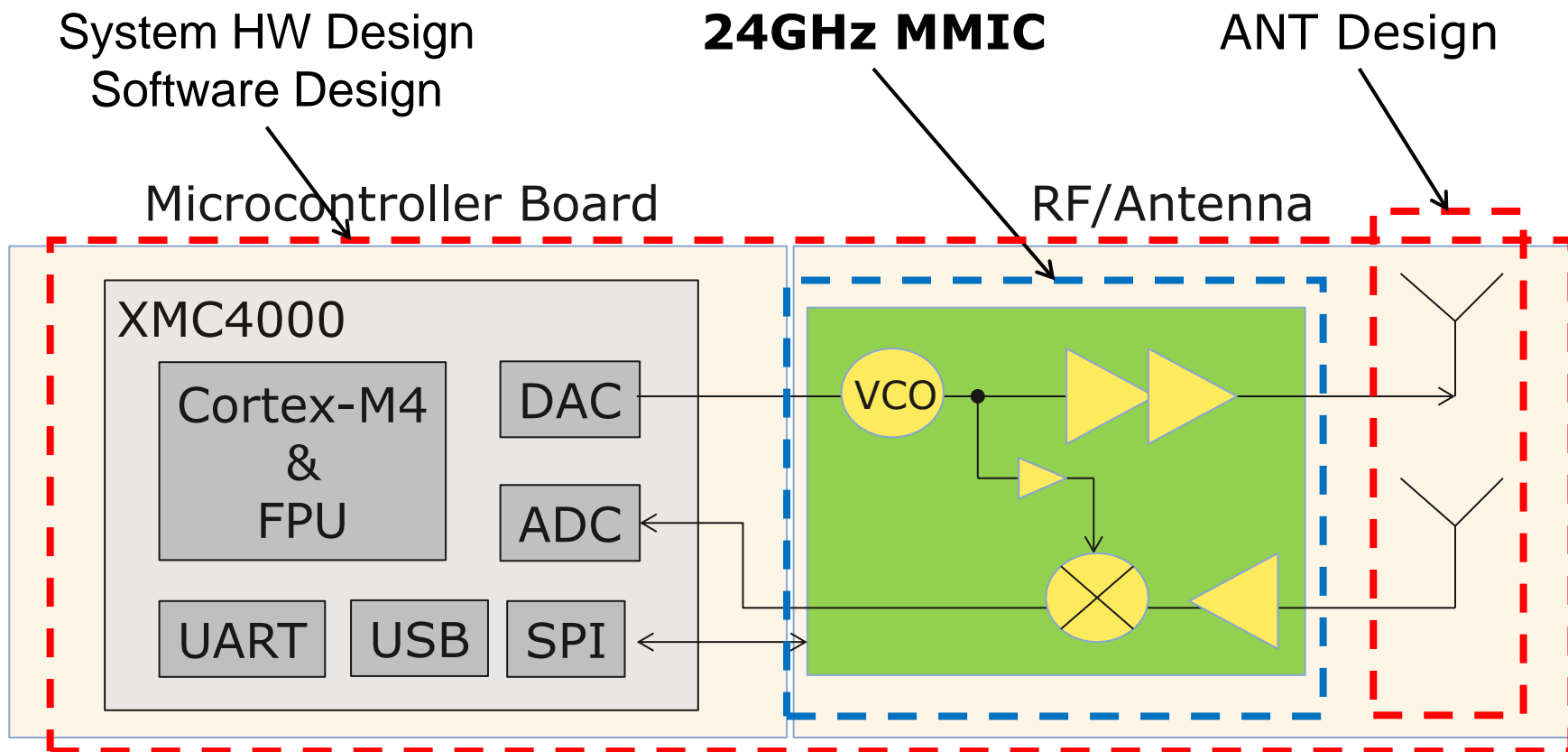
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24GHz Radar System



- Infineonの製品は24GHzMMICです。
- Radar System全体のサポートが必要なお客様には、System Design Houseをご紹介致します。

Product Portfolio, 24 GHz Industrial BGT24M/L

Industrial

2014	2015	2016
<p>BGT24MTR11</p> <ul style="list-style-type: none"> › Transceiver 1Tx+1Rx / IQ differential › VCO integrated, SPI › Power/temp sensor › <u>RF_{in} 24.0-26.0 GHz</u> › 500 mW @3.3 V › 4.5x5.5 mm -VQFN-32 <p>SiGe</p>		<p>BGT24LTR11</p> <ul style="list-style-type: none"> › Transceiver (1Tx+1Rx) › Single-ended › BITE › RF_{in} 24.0 – 24.25 GHz › 115 mW @3.3 V › 2.3 x 2.3 mm -TSNP-10 <p>SiGe</p> <p>Lower Power & Cost</p>
<p>BGT24MR2</p> <ul style="list-style-type: none"> › Twin receiver 2Rx/ IQ differential › <u>RF_{in} 24.0-26.0 GHz</u> › 300 mW @3.3 V › 4.5x5.5 mm -VQFN-32 		
<p>BGT24MTR12</p> <ul style="list-style-type: none"> › Transceiver 1Tx+2Rx / IQ differential › As TR11 › 700 mW @3.3 V › 4.5x5.5 mm -VQFN-32 		

Available

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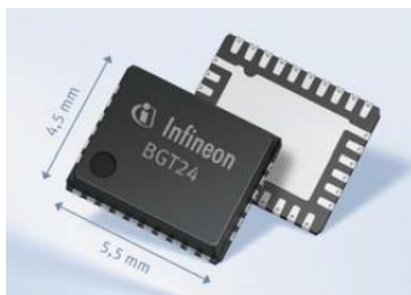
High Accuracy 24GHz radar solution

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Support

P2S Activity for 24GHz Radar in Infineon Japan

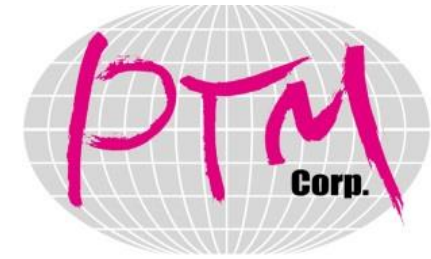
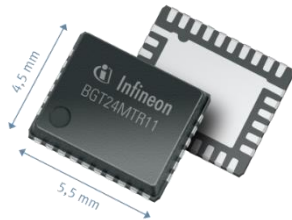
- Working to improve the measurement accuracy with 3rd party Design House partner
- Achieved higher accuracy than basic 24GHz approach in distance measurement, much better than 75cm
- Also achieved near field measurement, closer than 75cm
- Believes that 24GHz is the key technology to realize both high accuracy and low cost



Cooperate with PTM corp. and Sharp-Takaya for 24GHz Radar System Design



- › Radar MMIC Support (BGT24 series)



Define & Design support

- › Radar System Design
- › Radar SW Algorithm
- › Antenna Design



- › Radar HW/SW Design
- › Radar Module Production

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Collaterals and Brochures

- > Product Briefs
- > Selection Guides
- > Application Brochures
- > Presentations
- > Press Releases, Ads

> <http://www.infineon.com/24GHz>

Technical Material

- > Application Notes
- > Technical Articles
- > Simulation Models
- > Datasheets, MCDS Files
- > PCB Design Data

Evaluation Boards

- > Evaluation Boards
- > Demoboards
- > Reference Designs

> www.infineon.com/evaluationboards

Videos

- > Technical Videos
- > Product Information Videos

> www.infineon.com/mediacenter
> <https://www.youtube.com/watch?v=IZGYJ0DJ2UE>



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