

## Product Brief

# Antenna aperture tuning solutions

Maximizing battery life and data rate for 3G/4G mobile devices

In a decade the mobile phones went from simple handheld telephone to supercomputing feature-full smartphone devices. This transformed the way we access and exchange information in a ubiquitous way. But all the new features, radios and huge processing power require always more space and more antennas on a small board. While antenna size shrunk, larger bandwidth of operation has been requested (LTE, WiFi, etc.) ultimately resulting in poor antenna performance. Antenna aperture tuning solutions are the necessary toolbox for smartphone vendors to make small but efficient antennas.

### Infineon antenna tuning solutions value

The antenna tuning devices based on Infineon's RF CMOS switch technology are designed for ultra-small size, high ruggedness in mismatch conditions, low parasitic and best linearity. Improved antenna efficiency directly translates into better signal quality, fastest data transmission and longer battery life. All devices offer generic GPIO interfaces for smooth antenna control and system integration.

### Key Benefits

- › Ultra small 1.5 x 1.1 mm
- TSNP-10-1 plastic package
- › Highest quality level
- › Improves TIS  
(Rx insensitivity to VSWR)
- › Improves TRP  
(Tx insensitivity to VSWR)
- › Higher flexibility in antenna form
- › Less system current consumption  
(PA) through optimized matching

### Applications

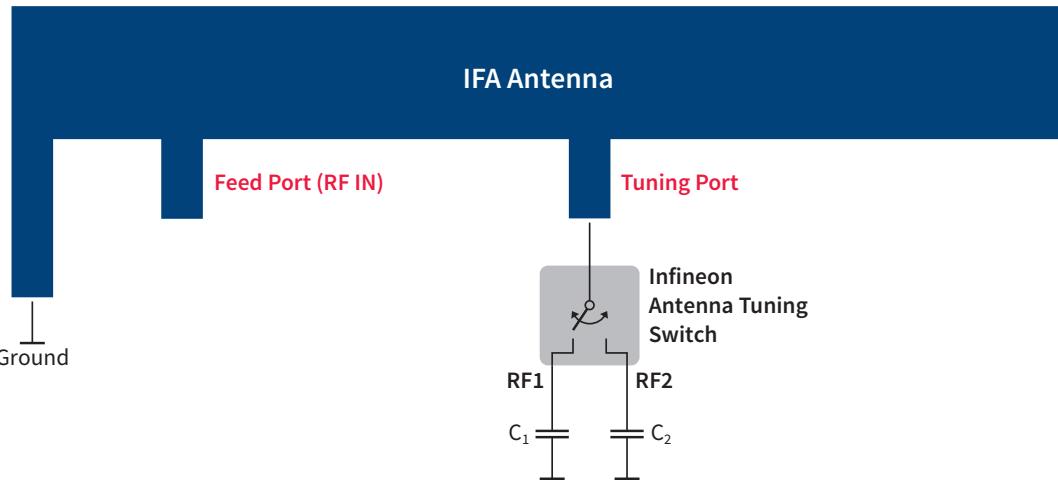
- › Smartphones, tablets and other mobile devices
- › Smart metering

| Product    | Product status | Switch type | Control interface | Frequency range<br>[GHz] | ON state<br>resistance ( $R_{ON}$ )<br>[ $\Omega$ ] | OFF state<br>capacitance ( $C_{OFF}$ )<br>[fF] | Max operating<br>voltage ( $V_{PK}$ )<br>[V] |
|------------|----------------|-------------|-------------------|--------------------------|---|--|--|
| BGSA12GN10 | Production     | SPDT        | GPIO              | 0.1 ... 5.0              | 1.6   | 120  | 36   |
| BGSA13GN10 | Production     | SP3T        | GPIO              | 0.1 ... 5.0              | 0.8 <sup>1)</sup>                                   | 120  | 36   |
| BGSA14GN10 | Production     | SP4T        | GPIO              | 0.1 ... 5.0              | 1.6   | 120  | 36   |

1) 1 port optimized for ultra-low 0.8  $\Omega$   $R_{ON}$

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## Infineon's antenna tuning devices with optimized form factor and design

The BGAXXGN10 ICs are provided in the smallest packages available on the market, which is critical for space limited applications with multiple LTE bands in the latest generation of smartphones and other portable devices. All products are shipped in a RoHS compliant plastic package with dimensions of only 1.5 mm x 1.1 mm which is 60 percent smaller in size compared to state-of-the-art CSP type devices on the market.

### Orderable part No.

- › BGSA12GN10E6327XTSA1
- › BGSA13GN10E6327XTSA1
- › BGSA14GN10E6327XTSA1

Published by  
Infineon Technologies AG  
85579 Neubiberg, Germany

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