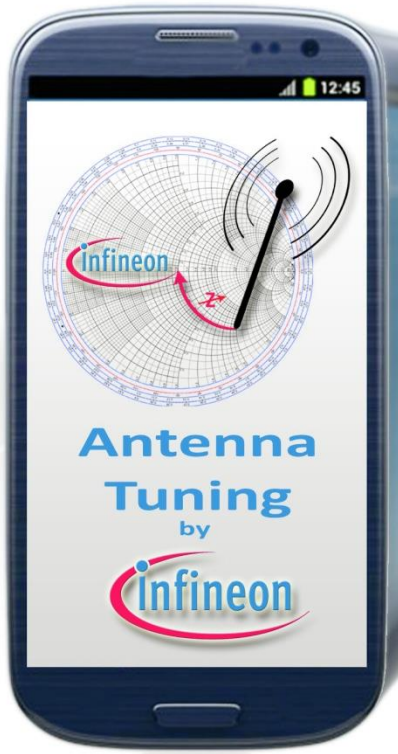
Antenna Tuning Solutions
for Smartphones & Tablets

Key Assets of Antenna Tuning

- ***Increased number of bands in Smartphones call for band specific optimized antenna matching***



- ***Improves TIS*** (=Total Isotropic Sensitivity)
  - Rx insensitivity to VSWR
- ***Improves TRP*** (=Total Radiated Power)
  - Tx insensitivity to VSWR
- ***Higher Flexibility*** *in Antenna Form Factors*
- ***Less system current consumption*** (PA) through optimized matching

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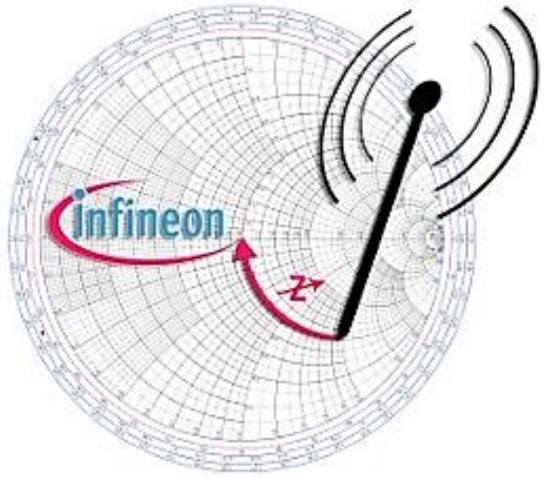
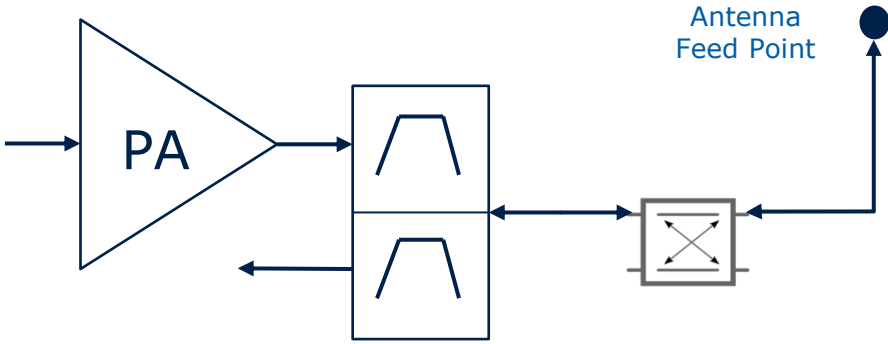
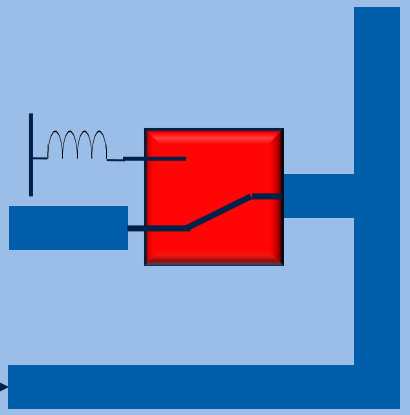
Principles of **Antenna Aperture Tuning** Smartphones & Tablets





Tuning Element

Antenna Aperture Tuning



Example

Purpose

Optimizes

- **Antenna Radiation Efficiency**
- **Antenna Radiation Pattern**

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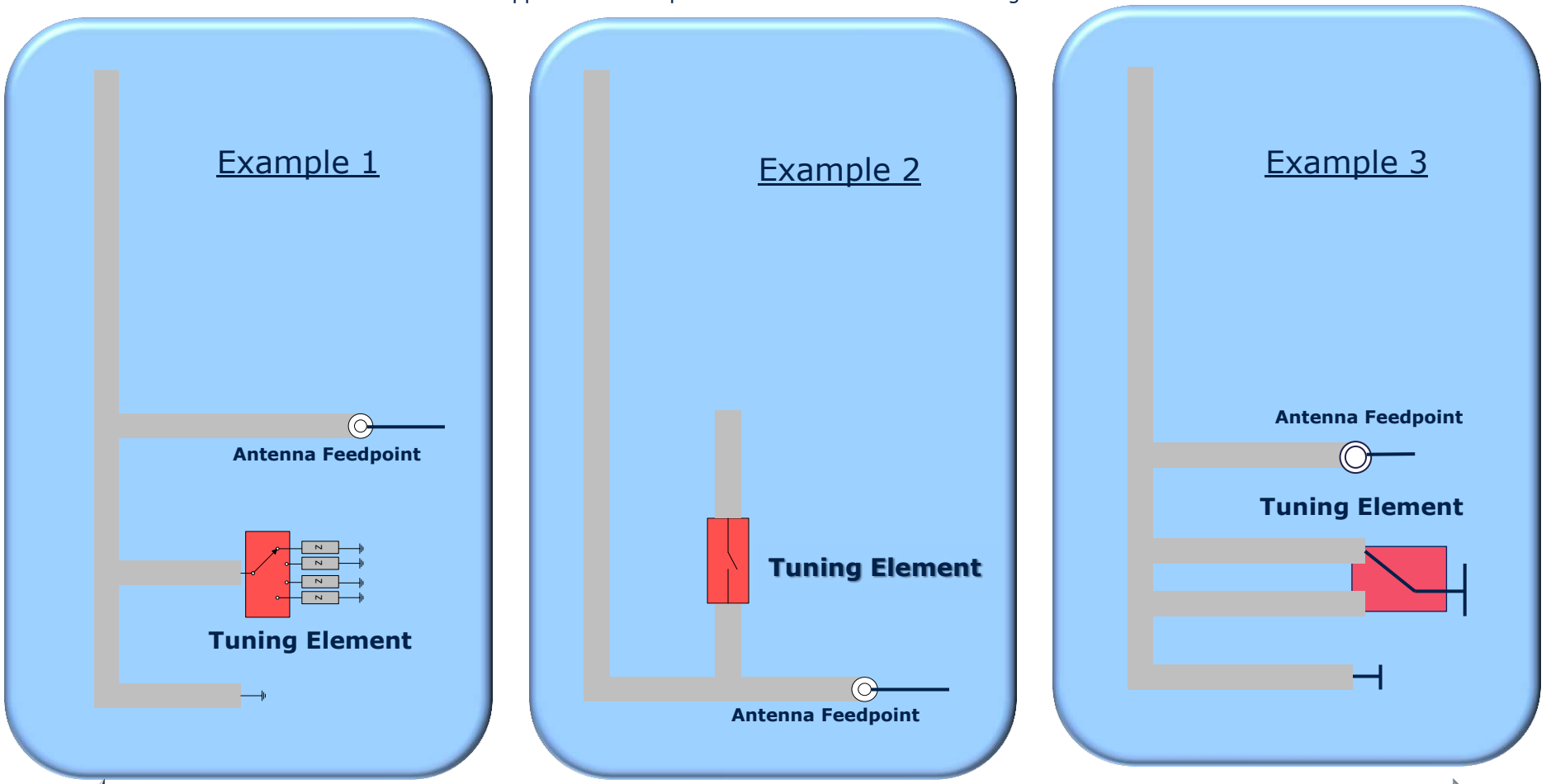
Antenna Aperture Tuning
Smartphone & Tablets

Typical **PIFA antennas**

Application examples are not limited to below configurations



High Power + High voltage **RF Switches**

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Antenna Aperture Tuning Switches
RF CMOS Technology

	Target data	*Target data*	*Target data*
	GPIO **SPDT** **BGSA12GN10**	GPIO **SP3T** **BGSA13GN10**	GPIO **SP4T** **BGSA14GN10**
Ron [Ω]	**1.6Ω**	**RF1 0.8Ω** **RF2 1.3Ω** **RF3 1.6Ω**	**1.6Ω**
Coff [fF]	**120 fF**	**RF1 240 fF** **RF2 145 fF** **RF3 120 fF**	**120 fF**
Effective Ron x Coff	**<200fs**	**<200fs**	**<200fs**
H2 @ Pout=25dBm	**-105dBc**	**-105dBc**	**-105dBc**
H3 @ Pout=25dBm	**-115dBc**	**-115dBc**	**-115dBc**
Packaging	Plastic **1.5 x 1.1mm²**		

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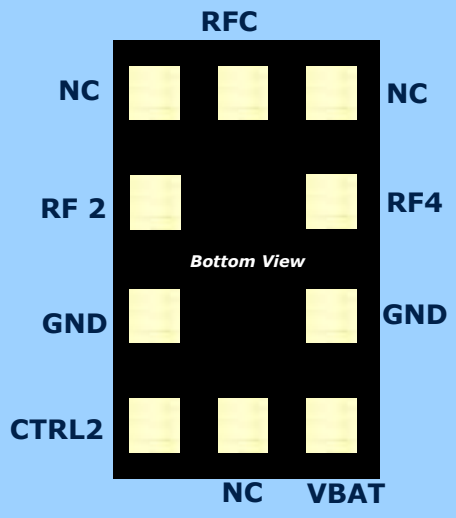
Highest Flexibility - **ONE SIZE FITS ALL**

Same Footprint & Pinout

GPIO Controlled Antenna Tuning Switches

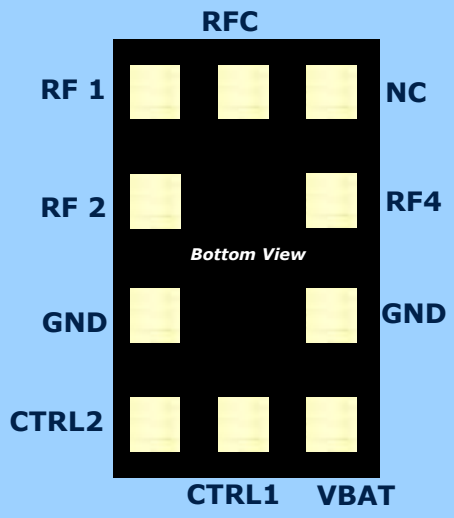
SPDT

BGSA12GN10



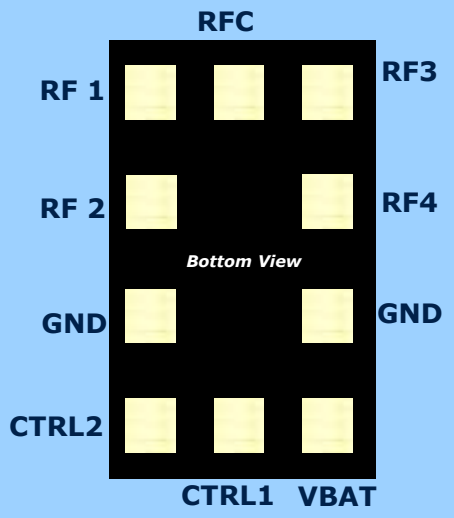
SP3T

BGSA13GN10



SP4T

BGSA14GN10



Full Compatibility

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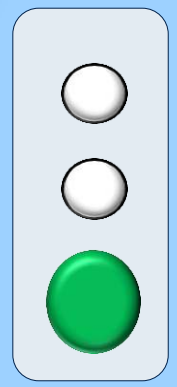
Superior Quality and Economy of Scale with **RF CMOS** in **Plastic Package**

TSNP10-1
1.5 x 1.1mm²

Quality Level
Drop tests

Final electrical test

High volume CMOS
In Plastic Package



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