



# RF solutions for the connected world

Pocket Guide 2021



[www.infineon.com/RF](http://www.infineon.com/RF)





Long battery lifetime



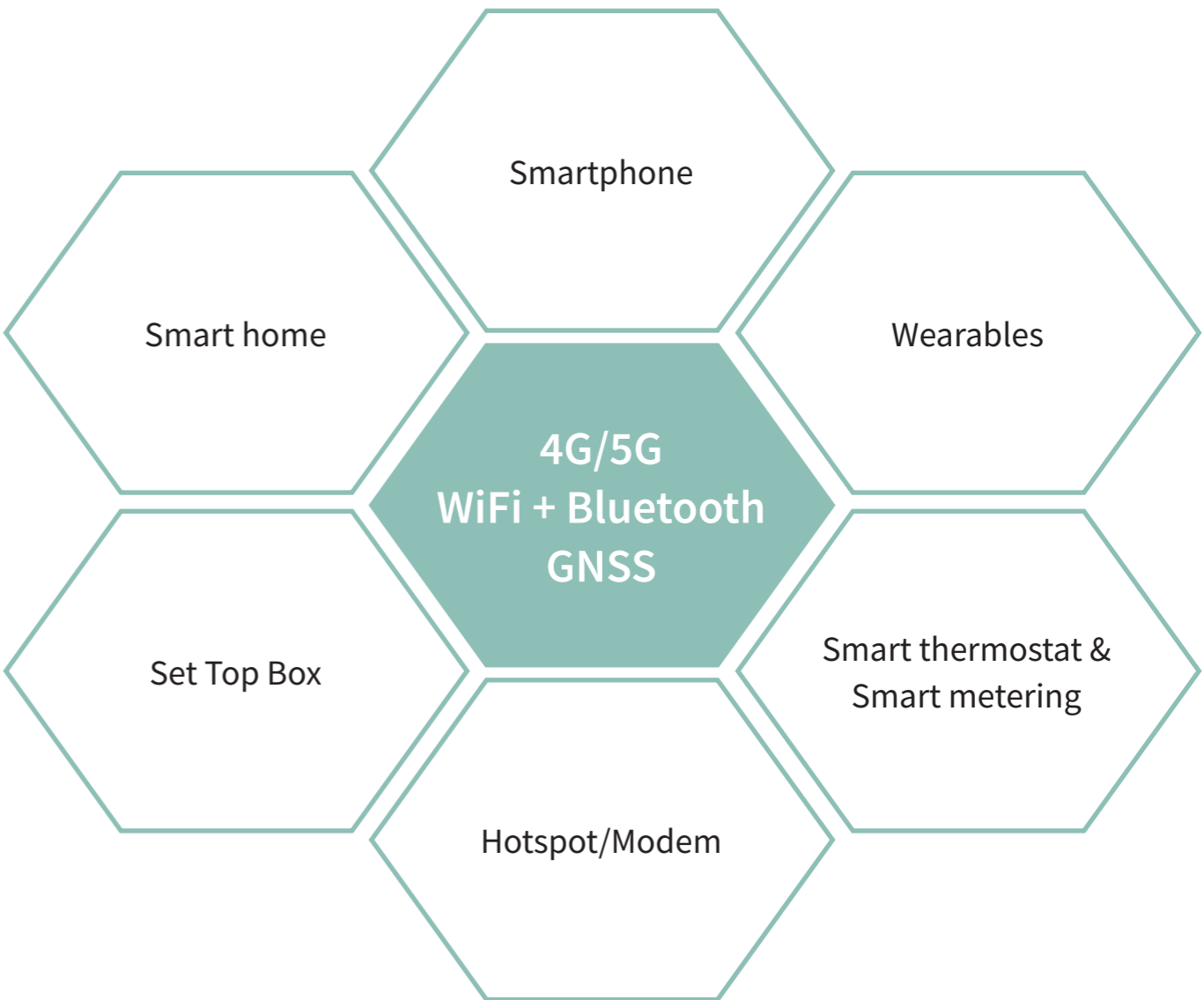
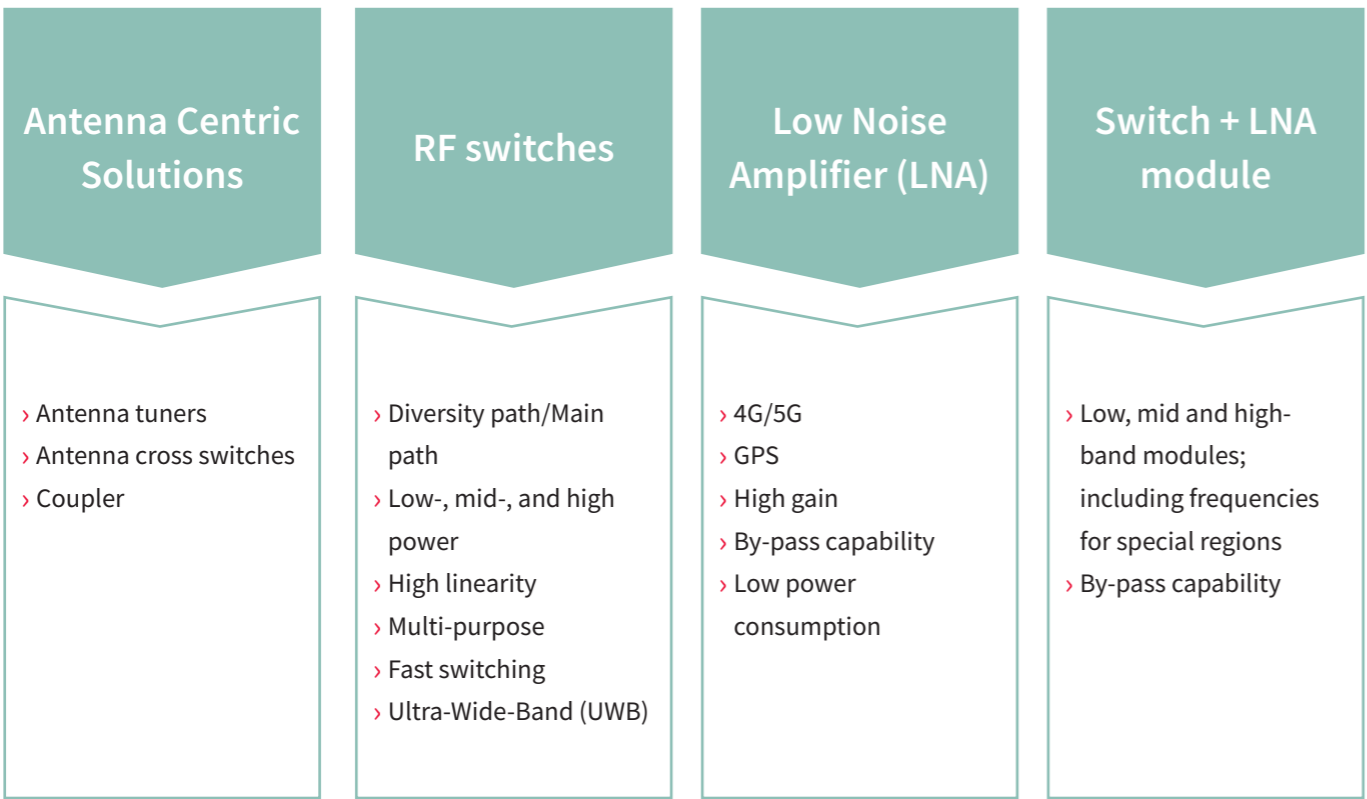
Fast data transmission



Strong signal everywhere

# Infineon RF mobile devices for fast, efficient, and reliable wireless communication

RF mobile product portfolio



# Antenna centric solutions



## Infinion antenna tuners for best antenna efficiency

Part number	Type	V <sub>RFmax</sub> <sup>1)</sup> [V]	R <sub>on</sub> [Ω]	C <sub>off</sub> [pF]	Control interface	Frequency (max.) [GHz]	Size [mm <sup>2</sup> ]
BGSA11GN10	2xSPST Series	36	1.0	250	2 GPIO	6.0	1.1 x 1.5
BGSA12GN10	SPDT Series	36	1.60	120	2 GPIO	6.0	1.1 x 1.5
BGSA12UGL8	SPDT Series	40	0.60	270	2 GPIO	6.0	1.1 x 1.1
BGSA14GN10	SP4T Series	36	1.60	120	2 GPIO	6.0	1.1 x 1.5
BGSA143GL10	SP4T Series/shunt	42	1.15	140	3 GPIO	6.0	1.1 x 1.5
BGSA143ML10	SP4T Series/shunt	42	1.15	140	MIPI 2.0	6.0	1.1 x 1.5
BGSA145GA10	SP4T Series	42	0.80	230	3 GPIO	6.0	1.1 x 1.5
BGSA145MA10	SP4T Series	42	0.80	230	MIPI 2.0	6.0	1.1 x 1.5
BGSA147ML10	SP4T Series/shunt	45	0.78	155	MIPI2.1	6.0	1.1 x 1.5
BGSA402ML10	4x SPST Shunt to ground	45	1.40	170	MIPI 2.1	6.0	1.1 x 1.5
BGSA20VGL8	2x SPST Shunt to ground	67	1.60	240	2 GPIO	6.0	1.1 x 1.1
BGSA20UGL8	2x SPST Shunt to ground	80	2.30	200	2 GPIO	6.0	1.1 x 1.1
BGSA142GN12	SP4T Series	72	1.75	110	3 GPIO	6.0	1.5 x 1.5
BGSA142MN12 (single VIO)	SP4T Series	72	1.75	110	MIPI 2.0	6.0	1.5 x 1.5
BGSA142M2N12 (VDD+VIO)	SP4T Series	72	1.75	110	MIPI 2.0	6.0	1.5 x 1.5

1) Maximum operating RF Voltage with electrical performances guaranteed over the lifetime of the product

Part number	Type	R <sub>on</sub> [Ω]	Capacitance steps	Capacitance range [ff] @1.8 GHz	Control interface	Frequency (max.) [GHz]	Size [mm <sup>2</sup> ]
BGSC2341ML10	SPDT+ RF C-tuner	0.8	8	0.26 – 2.0	MIPI 2.1	3.8	1.1 x 1.5



## Infinion coupler for RF calibration and power control

Part number	Type	IL@2.7 GHz [dB]	Max RF Input Power [dBm]	Control interface	Frequency (max.) [GHz]	Size [mm <sup>2</sup> ]
BGC100GN6	Coupler	0.2	36	GPIO	2.7	1.1 x 0.7



## Infinion high/low power cross switches for antenna swapping

Part number	Type	Power (max.) [dBm]	Frequency (max.) [GHz]	Size [mm <sup>2</sup> ]
BGSX22G5A10	DPDT	>36	6.0	1.1 x 1.5
BGSX24MU16	DP4T	>36	6.0	2.0 x 2.0
BGSX33MU16	3P3T	>36	6.0	2.0 x 2.0
BGSX44MA12	4P4T	<32	6.0	1.6 x 1.6
BGSX210MA18	DP10T	<32	3.8	2.0 x 2.4
BGSX212MA18	DP12T	<32	3.8	2.0 x 2.4



# RF switches



## Infineon RF switches with MIPI control interface

Part number	Type	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm <sup>2</sup> ]
BGS16MA12	SP6T	6.0	35	1.1 x 1.9
BGS18MA12	SP8T	6.0	35	1.1 x 1.9
BGS18MA14	SP8T	3.8	35	2.0 x 2.0
BGS14MA11	SP4T	6.0	35	1.1 x 1.5
BGS15MU14	SP5T	6.0	20	1.5 x 1.9

## Infineon high power/high linearity RF Switches

Part number	Type	Control interface	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm <sup>2</sup> ]
BGS12PL6	SPDT	GPIO	4.0	36	0.7 x 1.1
BGS12PN10	SPDT	GPIO	6.0	38	1.1 x 1.5
BGS14PN10	SP4T	GPIO	6.0	38	1.1 x 1.5
BGS12P2L6	SPDT	GPIO	6.0	38	0.7 x 1.1
BGS14MPA9	SP4T	MIPI	6.0	38	1.1 x 1.1

## Infineon multi-purpose switches SPDT/SP3T

Part number	Type	Control interface	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm <sup>2</sup> ]
BGS12SN6	SPDT	GPIO	6.0	32	0.7 x 1.1
BGS13SN8	SP3T	GPIO	6.0	32	1.1 x 1.1
BGS13S4N9	SP3T	GPIO	3.0	32	1.1 x 1.1

## Infineon fast speed RF switches <200 ns

Part number	Type	Control interface	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm <sup>2</sup> ]
BGS12WN6	SPDT	GPIO	9.0	32	0.7 x 1.1
BGS14WMA9	SP4T	MIPI	3.0	32	1.1 x 1.1

# Low Noise Amplifier (LNA)



## 4G/5G LNA to improve system sensitivity

Part number	Type	Gain <sup>2)</sup> [dB]	NF <sup>2)</sup> [dB]	Frequency [MHz]	Size [mm <sup>2</sup> ]
BGA7L1BN6 <sup>1)</sup>	With bypass	13.6	0.75	716 – 960	1.1 x 0.7
BGA7H1BN6 <sup>1)</sup>	With bypass	15.7	0.8	1805 – 2690	1.1 x 0.7
BGA5L1BN6 <sup>1)</sup>	With bypass	18.5	0.7	600 – 1000	1.1 x 0.7
BGA5M1BN6 <sup>1)</sup>	With bypass	19.3	0.65	1805 – 2200	1.1 x 0.7
BGA5H1BN6 <sup>1)</sup>	With bypass	18.1	0.7	2300 – 2690	1.1 x 0.7
BGAH1A10 <sup>1)</sup>	Gainstep	18.1 <sup>3)</sup>	1.1 <sup>3)</sup>	2300 – 2690	1.1 x 1.5
BGAV1A10 <sup>1)</sup>	Gainstep	18.0 <sup>3)</sup>	1.3 <sup>3)</sup>	3400 – 3800	1.1 x 1.5
BGAU1A10 <sup>1)</sup>	Gainstep	20.5 <sup>3)</sup>	1.7 <sup>3)</sup>	5150 – 5925	1.1 x 1.5
BGA9H1MN9	Gainstep	17.1	1.01	1400 - 2700	1.1 x 1.1
BGA9V1MN9	Gainstep	21.0	0.75	3300 - 4200	1.1 x 1.1
BGA9C1MN9	Gainstep	19.0	0.9	4400 - 5500	1.1 x 1.1

1) LNA with two gain modes (high-gain/low-gain); 2) Values in high-gain (HG) 3) Gain state: G0

## Infinion GNSS LNA



Part number	Type	Gain <sup>1)</sup> [dB]	NF <sup>1)</sup> [dB]	I <sub>cc</sub> [mA]	Size [mm <sup>2</sup> ]
BGA524N6 <sup>2) 3)</sup>	Low power	19.6	0.65	2.5	0.7 x 1.1
BGA824N6 <sup>2) 3)</sup>	High linearity	17.0	0.65	4.0	0.7 x 1.1
BGA123L4	Ultra low power	18.3	0.75	1.1	0.7 x 0.7
BGA855N6 <sup>2) 3)</sup>	High linearity	18.0	0.65	4.4	0.7 x 1.1
BGA123N6	Ultra low power	18.8	0.80	1.3	0.7 x 1.1
BGA125N6 <sup>2)</sup>	Ultra low power	19.7	0.85	1.4	0.7 x 1.1

1) Supply voltage at 1.8 V, with 0402 LQW inductor for matching; 2) GNSS Band L2/L5 applicable 3) Retuned with additional output matching solutions

# Switch + LNA modules



Part number	Control interface	Module type	Gain [dB]	NF [dB]	Frequency [GHz]	Size [mm <sup>2</sup> ]
BGM12LBA9	GPIO	SPDT + Bypass	13.3	0.7	0.7–1.0	1.15 x 1.15
BGM13HBA9	GPIO	SP3T + Bypass	15.0	0.85	1.8–2.7	1.15 x 1.15
BGM14HBA12	MIPI	SP4T + Bypass	18.0	0.8	1.8–2.7	1.1 x 1.5
BGM15LA12	MIPI	SP5T	17.5	0.1	0.7–1.0	1.1 x 1.9



# Support material

More detailed information on RF devices



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[www.infineon.com/mobiledevices](http://www.infineon.com/mobiledevices)

Datasheets/Application notes/Technical documents



[www.infineon.com/rf](http://www.infineon.com/rf)

Component libraries for RF devices

Infineon Technologies provides Component Libraries for part of its product portfolio. This ensures convenient customer access to the latest model versions and a seamless integration into our customer's circuit and system simulators.



[www.infineon.com/rfcomponentlibraries](http://www.infineon.com/rfcomponentlibraries)

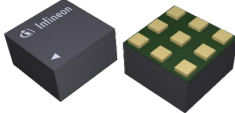
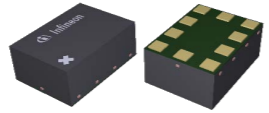
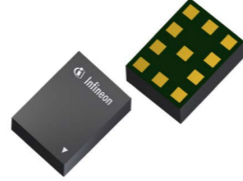
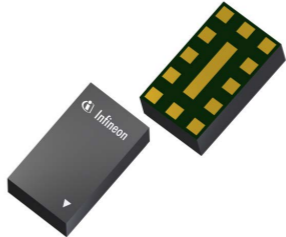
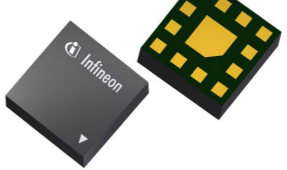
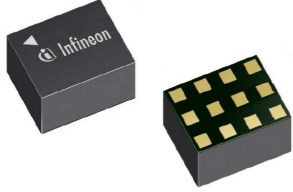
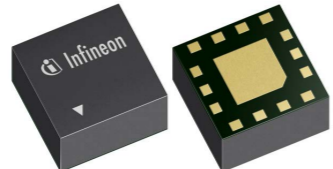
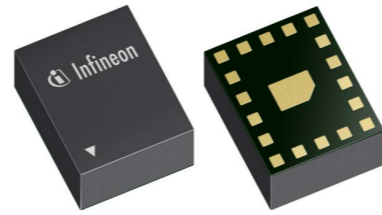
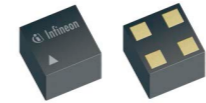
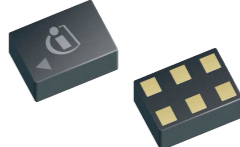
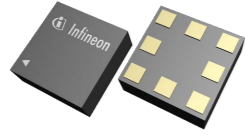
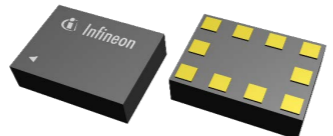

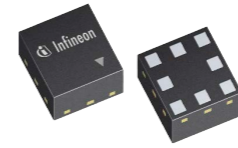


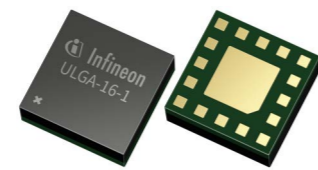


Evaluation boards



[www.infineon.com/rfevalboards](http://www.infineon.com/rfevalboards)



# Package information

ATSLP-9-3/-50		ATSLP-10-50/-51/-1/-3		ATSLP-11		ATSLP-12		ATSLP-12-12	
9	1.1 x 1.1 x 0.6	10	1.1 x 1.5 x 0.6	11	1.15 x 1.55 x 0.6	12	1.1 x 1.9 x 0.6	12	1.6 x 1.6 x 0.6
									
7:1		7:1		7:1		7:1		7:1	
ATSLP-12-13		ATSLP-14-7/-10		ATSLP-18-2/-3		TSLP-4		TSLP-6	
12	1.1 x 1.5 x 0.6	14	2.0 x 2.0 x 0.6	18	2.0 x 2.4 x 0.6	4	0.7 x 0.7 x 0.31	6	1.1 x 0.7 x 0.31
									
7:1		7:1		7:1		7:1		7:1	
TSLP-8		TSLP-10-2/-3		TSNP-6-2/-10		TSNP-8		TSNP-9/-10/-12	
8	1.1 x 1.1 x 0.39	10	1.1 x 1.5 x 0.39	6	1.1 x 0.7 x 0.38	8	1.1 x 1.1 x 0.38	9	1.1 x 1.1 x 0.38
									
7:1		7:1		7:1		7:1		7:1	
ULGA-14		ULGA-16		Package (JEITA-code)					
14	1.9 x 1.5 x 0.6	16	2.0 x 2.0 x 0.6	X	L x W x H				
				 PIN-Count  Scale 1:1					
7:1		7:1							
All dimensions in mm									



All products are available in green (RoHS compliant).

Footprints are recommendations only.

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