



RF solutions for the connected world

Pocket guide 2024/25



Notebook



Sports watch



Wristbands



Hearables



Head-mounted
devices



Smart home



Tablet

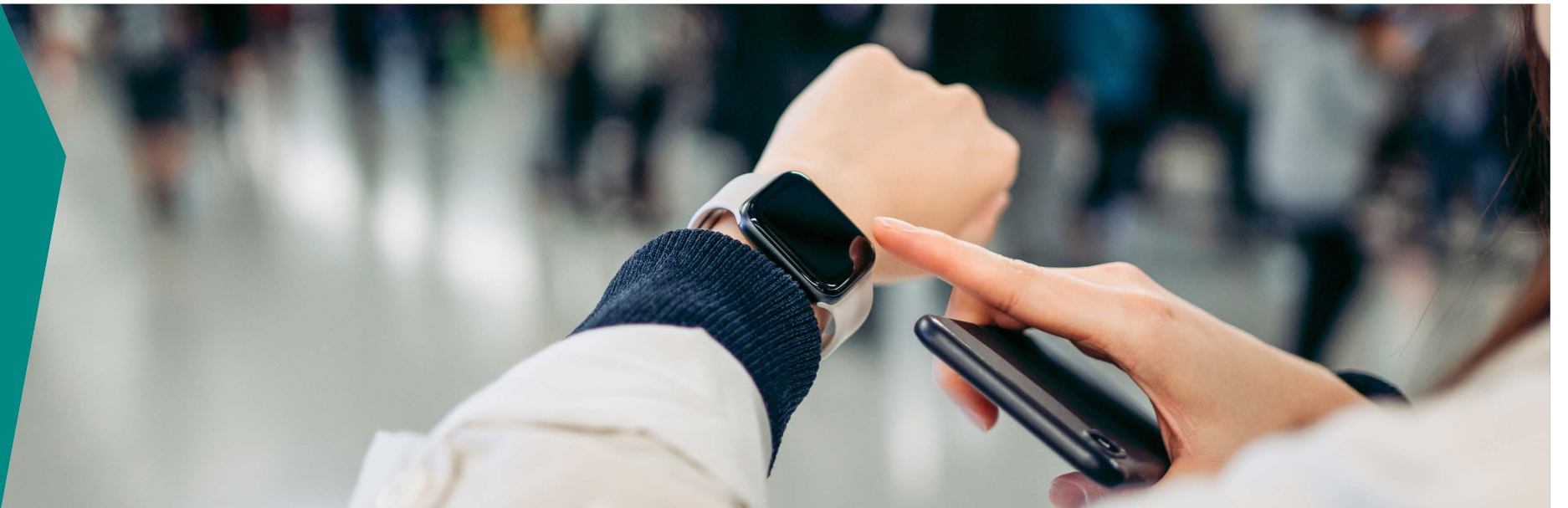


Smartphone

www.infineon.com/RF



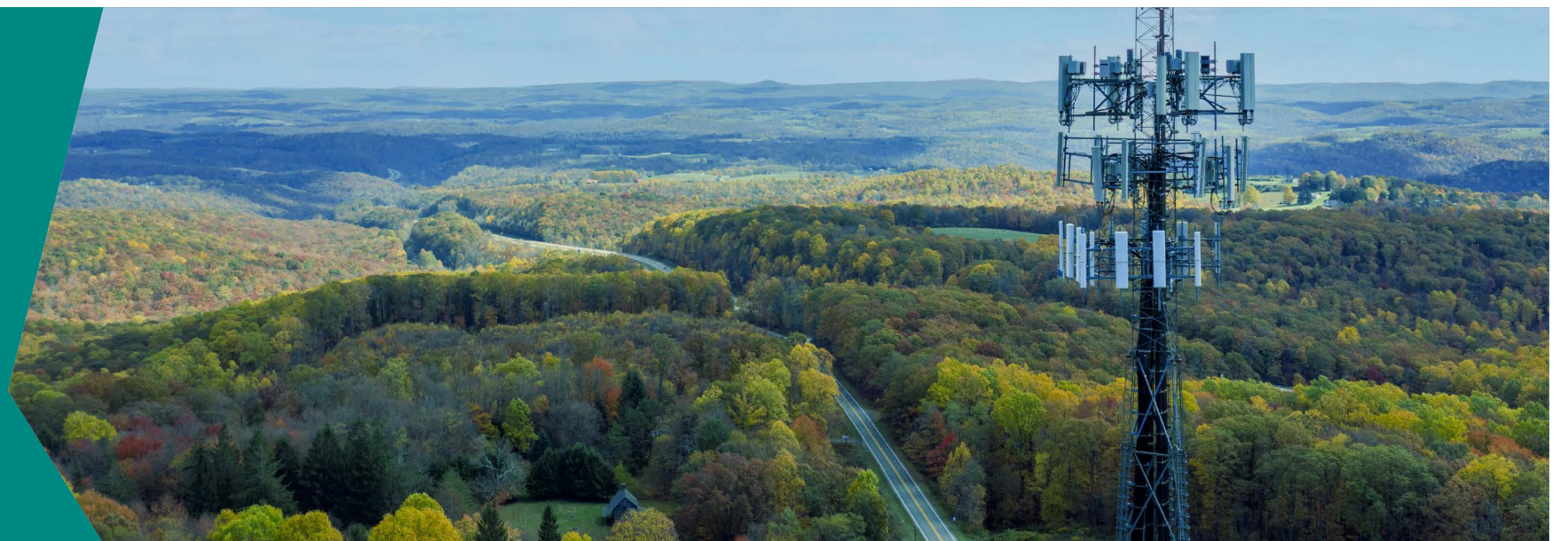
Long battery
lifetime



Fast data
transmission



Stable signal
everywhere



Infineon RF Mobile devices for fast, efficient, and reliable wireless communication

RF mobile product portfolio

Antenna centric solutions

▶

- Antenna tuners
- Antenna cross switches
- Coupler

RF switches

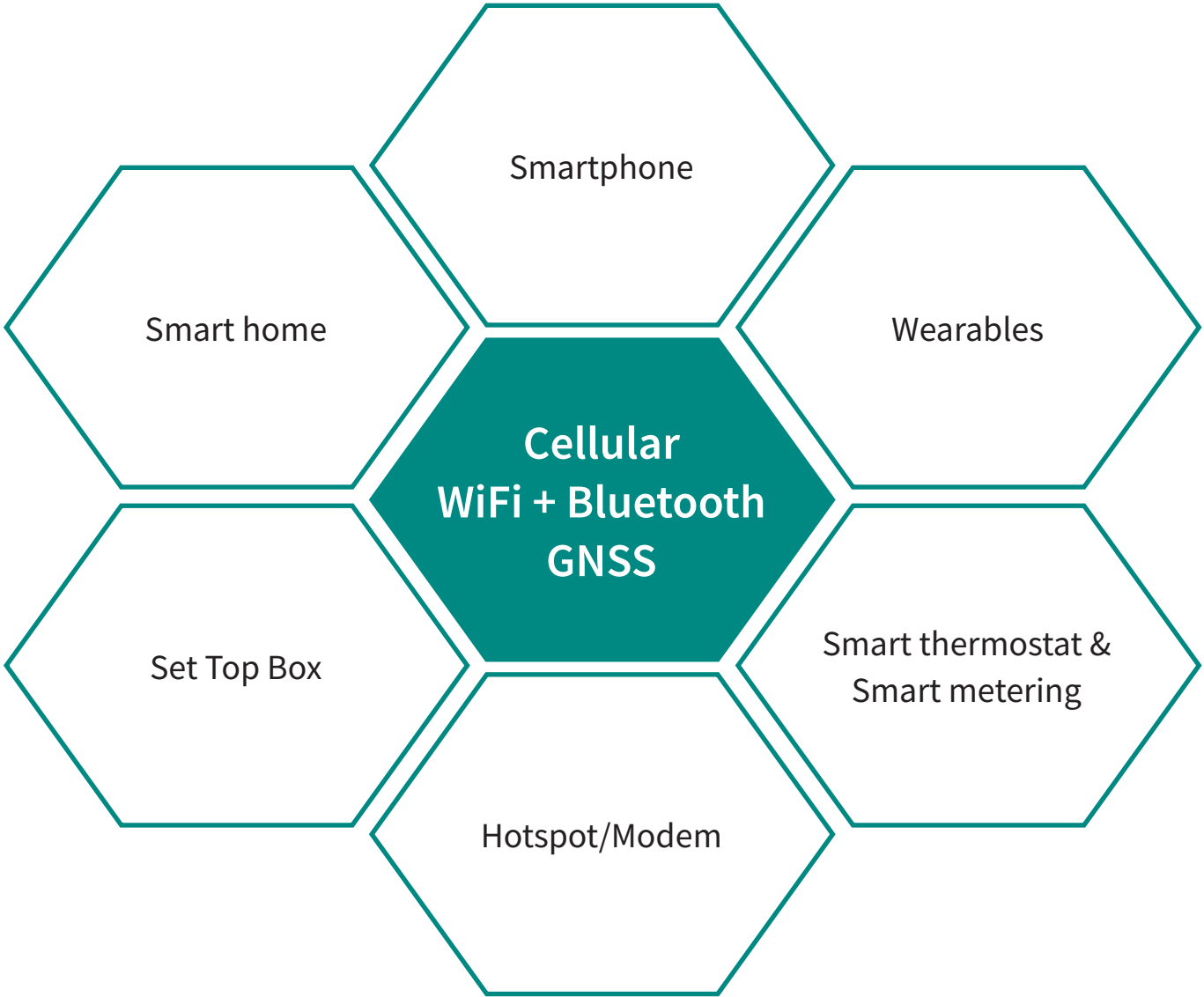
▶

- Diversity path/Main path
- Low and high power
- High linearity
- Fast switching
- WiFi, Ultra-wide-band (UWB)

Low Noise Amplifier (LNA)

▶

- LTE/5G
- GNSS/GPS
- GPS dual-band
- High gain
- By-pass capability



Antenna centric solutions

Infiniteon antenna tuners for best antenna efficiency



Part number	Type	V _{RFmax} ¹⁾ [V]	R _{on} [Ω]	C _{off} [pF]	Control interface	Frequency (max.) [GHz]	Size [mm ²]
BGSA11GN10	2x SPST series	36	1.0	250	2 GPIO	6.0	1.1 x 1.5
BGSA12GN10	SPDT series	36	1.6	120	2 GPIO	6.0	1.1 x 1.5
BGSA12UGL8	SPDT series	40	0.6	270	2 GPIO	6.0	1.1 x 1.1
BGSA14GN10	SP4T series	36	1.6	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
BGSA14M2N10	SP4T series	45	0.85	160	MIPI2.1	7.125	0.95 x 1.3
NEW! BGSA149M2N10	SP4T series	50	1.6	78	MIPI2.1	7.125	0.95 x 1.3
NEW! BGSA14M3N10	SP4T series	45	1.1	116	MIPI2.1	7.125	0.95 x 1.3
NEW! BGSA148MN10	SP4T series/shunt	45	0.8	155	MIPI2.1	7.125	0.95 x 1.3
NEW! BGSA149MN10	SP4T series/shunt	50	1.5	80	MIPI2.1	7.125	0.95 x 1.3
BGSA143ML10	SP4T series/shunt	42	1.15	140	MIPI 2.0	6.0	1.1 x 1.5
BGSA147ML10	SP4T series/shunt	45	0.8	155	MIPI2.1	7.125	1.1 x 1.5
BGSA144ML10	SP4T series/shunt	80	1.74	89	MIPI2.1	7.125	1.1 x 1.5
NEW! BGSA200ML9	2x SPST shunt to ground	50	1.4	157	2 GPIO/MIPI 2.1	8.25	1.1 x 1.1
BGSA20UGL8	2x SPST shunt to ground	80	2.3	200	2 GPIO	6.0	1.1 x 1.1
BGSA403ML10	4x SPST shunt to ground	48	0.98	205	MIPI 2.1	7.125	1.1 x 1.5
BGSA400ML10	4x SPST shunt to ground	85	2.0	165	MIPI 2.1	7.125	1.1 x 1.5

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

Part number	Type	R _{on} [Ω]	Capacitance steps	Capacitance range [fF] @1.8 GHz	Control interface	Frequency (max.) [GHz]	Size [mm ²]
BGSC2341ML10	SPDT+ RF C-tuner	0.8	8	0.27 – 2.00	MIPI 2.1	3.8	1.1 x 1.5



Infiniteon 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 ²]
BGC100GN6	Coupler	0.2	36	GPIO	2.7	1.1 x 0.7



Infiniteon multi-pole switches for antenna swapping

Part number	Type	Power (max.) [dBm]	Frequency (max.) [GHz]	Size [mm ²]
BGSX22G5A10	DPDT	>36	6.0	1.1 x 1.5
BGSX22G6U10	DPDT	>36	7.125	1.1 x 1.5
NEW! BGSX24MU16	DP4T	>36	5.0	2.0 x 2.0
NEW! BGSX24M2U16	DP4T	>36	7.125	2.0 x 2.0
NEW! BGSX33M5U16	3P3T	>36	7.125	2.0 x 2.0
BGSX44MU18	4P4T	>36	7.125	2.0 x 2.4





RF switches



Infiniteon high power/high linearity RF switches

Part number	Type	Control interface	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm²]
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
NEW! BGS14M8U9	SP4T	MIPI	7.125	38	1.1 x 1.1

Infiniteon fast speed RF switches <500 ns

Part number	Type	Control interface	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm²]
BGS12WN6	SPDT	GPIO	9.0	28	0.7 x 1.1
BGS13SN8	SP3T	GPIO	6.0	32	1.1 x 1.1

Infiniteon MIPI-controlled RF switches

Part number	Type	Frequency (max.) [GHz]	Power (max.) [dBm]	Size [mm²]
BGS14WMA9	SP4T	6.0	20	1.1 x 1.1
BGS15MU14	SP5T	6.0	20	1.5 x 1.9
BGS16MA12	SP6T	6.0	35	1.1 x 1.9

Low Noise Amplifier (LNA)



Infineon LNA Bank¹⁾

Part number	Gain [dB]	NF [dB]	IP _{-1dB} [dBm]	IIP ₃ [dBm]	Supply [V]	Freq. range [MHz]	Current [mA]	Package
NEW! BGM687U50	21.0 ²⁾	0.8 ²⁾	-16.8 ²⁾	-5.8 ²⁾	1.2 ... 1.8	600 – 2700	2.5 – 10.0 ²⁾	WF2BGA-50-1

1) Please visit [www.infineon.com/ cms/en/product/rf/low-noise-amplifier-lna-ics/4g-5g-lna/](#) for alternative devices 2) Programmable parameter by Gain Mode.

Infineon GNSS LNA¹⁾

Part number	Type	Gain [dB]	NF [dB]	Frequency [MHz]	Size [mm ²]
NEW! BGA535N6 (105°C)	Dual-band	18.8/21.0 ²⁾	0.60 ²⁾	1.1 – 1.6	0.7 x 1.1
BGA525N6	Dual-band	18.8/21.0 ²⁾	0.60 ²⁾	1.1 – 1.6	0.7 x 1.1
BGA524N6	Low power	19.6	0.55	1.5 – 1.6	0.7 x 1.1
BGA824N6	High linearity	17.0	0.55	1.5 – 1.6	0.7 x 1.1
BGA123L4	Ultra low power	18.2	0.75	1.5 – 1.6	0.7 x 0.7
BGA855N6	High linearity	17.8	0.60	1.1 – 1.3	0.7 x 1.1
BGA123N6	Ultra low power	19.0	0.80	1.1 – 1.3	0.7 x 1.1
BGA125N6	Ultra low power	19.5	0.85	1.1 – 1.3	0.7 x 1.1

1) Please visit [www.infineon.com/gnsslina](#) for alternative devices 2) Preliminary data (L1/L5 values, respectively)
3) Device designed especially for automotive use-cases supporting up to 105°C operating temperature

Single-band 5G/4G MMIC LNAs with bypass function¹⁾

Part number	Gain ³⁾ [dB]	NF ³⁾ [dB]	IP _{-1dB} ³⁾ [dBm]	IIP ₃ ³⁾ [dBm]	Supply [V]	Freq. range [MHz]	Current ³⁾ [mA]	Package
BGA9H1BN6²⁾	20.3/-4.5	0.60/4.6	-17/+5	-7/+22	1.1 ... 3.3	5.5/0.0006	2300 – 2690	TSNP-6-2
BGA5L1BN6²⁾	18.5/-2.7	0.70/2.7	-20/+2	-7/+11	1.5 ... 3.6	8.2/0.085	600 – 1000	TSNP-6-2
BGA5M1BN6²⁾	19.3/-4.7	0.65/4.7	-17/-2	-7/+6	1.5 ... 3.6	9.5/0.085	1805 – 2200	TSNP-6-2
BGA5H1BN6²⁾	18.1/-5.2	0.70/5.2	-17/-3	-7/+6	1.5 ... 3.6	8.5/0.085	2300 – 2690	TSNP-6-2
BGA7L1BN6²⁾	13.6/-2.2	0.75/1.8	-1/+6	+5/+18	1.5 ... 3.3	4.9/0.09	716 – 960	TSNP-6-2
BGA7H1BN6²⁾	11.0/-3.5	0.85/2.7	-1/+5	+5/+16	1.5 ... 3.3	4.3/0.09	1805 – 2690	TSNP-6-2
BGA729N6	16.0/-4.0	1.05/4.3	-15/4	-6/20	1.5 ... 3.3	6.3/0.55	70 – 600	TSNP-6-2

1) Please visit [www.infineon.com/5GLNA](#) for alternative devices 2) LNA with two gain modes (high-gain/low-gain) 3) Values in High-Gain (HG)/Low-Gain (LG) mode

[www.infineon.com/ltelna](#)
[www.infineon.com/gnsslina](#)



Single-band 5G/LTE-A MMIC LNAs¹⁾

Part number	Gain [dB]	NF [dB]	IP _{-1dB} [dBm]	IIP ₃ [dBm]	Supply [V]	Current [mA]	Freq. range [MHz]	Package
BGA7L1N6	13.0	0.9	-6	-1	1.5 ... 3.3	4.5	728 – 960	TSNP-6-2
BGA7M1N6	13.0	0.7	-3	7	1.5 ... 3.3	4.5	1805 – 2200	TSNP-6-2
BGA7H1N6	13.0	0.7	-4	6	1.5 ... 3.3	4.7	2300 – 2690	TSNP-6-2

1) Please visit [www.infineon.com/5GLNA](#) for alternative devices 2) LNA with two gain modes (high-gain/low-gain) 3) Values in High-Gain (HG)/Low-Gain (LG) mode

MIPI LNA with gain control for 5G

Part number	Gain [dB]	NF [dB]	IP _{-1dB} [dBm]	IIP ₃ [dBm]	Supply [V]	Current [mA]	Freq. range [MHz]	Package
BGA9H1MN9¹⁾	17.1 ²⁾	1.01 ²⁾	-14.6 ²⁾	-7.3 ²⁾	1.2 ... 1.8	1400 – 2700	–	TSNP-9-2
	14.6 ³⁾	1.01 ³⁾	-13.9 ³⁾	-7.1 ³⁾			–	
	13.0 ⁴⁾	1.34 ⁴⁾	-12.3 ⁴⁾	-4.9 ⁴⁾			3.5 ²⁾³⁾⁴⁾⁵⁾⁶⁾⁷⁾⁸⁾	
	10.5 ⁵⁾	1.53 ⁵⁾	-12.1 ⁵⁾	-4.9 ⁵⁾			–	
	7.3 ⁶⁾	1.92 ⁶⁾	-12.1 ⁶⁾	-5.1 ⁶⁾			–	
	-1.6 ⁷⁾	10.47 ⁷⁾	-0.4 ⁷⁾	9.7 ⁷⁾			3.2 ⁹⁾	
	-2.8 ⁸⁾	4.10 ⁸⁾	5.3 ⁸⁾	20.3 ⁸⁾			0.001 ¹⁰⁾	
BGA9U1MN9¹⁾	17.9 ²⁾	1.2 ²⁾	-19.0 ²⁾	-8.0 ²⁾	1.2 ... 1.8	5150 – 5850	–	TSNP-9-2
	15.1 ³⁾	1.2 ³⁾	-18.0 ³⁾	-7.0 ³⁾			–	
	12.2 ⁴⁾	1.35 ⁴⁾	-13.0 ⁴⁾	-2.0 ⁴⁾			4.5 ²⁾³⁾⁴⁾⁵⁾⁶⁾⁷⁾⁸⁾	
	9.3 ⁵⁾	1.45 ⁵⁾	-12.0 ⁵⁾	-1.0 ⁵⁾			–	
	5.9 ⁶⁾	1.8 ⁶⁾	-12.0 ⁶⁾	-1.0 ⁶⁾			–	
	-1.9 ⁷⁾	10.7 ⁷⁾	-1.0 ⁷⁾	9.0 ⁷⁾			3.5 ⁹⁾	
	-5.4 ⁸⁾	4.4 ⁸⁾	2.08)	19.0 ⁸⁾			0.002 ¹⁰⁾	
BGA9V1MN9¹⁾	21.0 ²⁾	0.75 ²⁾	-18.0 ²⁾	-6.0 ²⁾	1.1 ... 2.0	3300 – 4200	–	TSNP-9-2
	18.0 ³⁾	0.8 ³⁾	-17.0 ³⁾	-3.0 ³⁾			–	
	14.9 ⁴⁾	1.0 ⁴⁾	-16.0 ⁴⁾	-3.0 ⁴⁾			3.5 ²⁾³⁾⁴⁾⁵⁾⁶⁾⁷⁾⁸⁾⁹⁾	
	11.9 ⁵⁾	1.15 ⁵⁾	-16.0 ⁵⁾	-3.0 ⁵⁾			3.5 ²⁾³⁾⁴⁾⁵⁾⁶⁾⁷⁾⁸⁾⁹⁾	
	8.5 ⁶⁾	1.4 ⁶⁾	-16.0 ⁶⁾	-3.0 ⁶⁾			–	
	-2.7 ⁷⁾	11.0 ⁷⁾	1.0 ⁷⁾	8.0 ⁷⁾			–	
	-3.0 ⁸⁾	3.0 ⁸⁾	–	–			0.002 ¹⁰⁾	
BGA9C1MN9¹⁾	19.0 ²⁾	0.9 ²⁾	-17.0 ^{2) 10)}	-5.0 ²⁾	1.1 ... 2.0	4400 – 5500	–	TSNP-9-2
	16.0 ³⁾	0.95 ³⁾	-17.0 ^{3) 10)}	-5.0 ³⁾			–	
	12.5 ⁴⁾	1.3 ⁴⁾	-12.0 ^{4) 10)}	-1.0 ⁴⁾			3.5 ²⁾³⁾⁴⁾⁵⁾⁶⁾⁷⁾⁸⁾⁹⁾	
	9.6 ⁵⁾	1.45 ⁵⁾	-12.0 ^{5) 10)}	0.0 ⁵⁾			3.5 ²⁾³⁾⁴⁾⁵⁾⁶⁾⁷⁾⁸⁾⁹⁾	
	6.1 ⁶⁾	1.85 ⁶⁾	-12.0 ^{6) 10)}	0.0 ⁶⁾			–	
	-2.9 ⁷⁾	11.0 ⁷⁾	0.0 ^{7) 10)}	13.0 ⁷⁾			–	
	-3.1 ⁸⁾	3.1 ⁸⁾	8.0 ^{7) 10)}	–			0.00210)	

1) AN on request 2) Gain State: G0 3) Gain State: G1 4) Gain State: G2 5) Gain State: G3 6) Gain G4
7) Gain State: G5 8) Gain State: G6 9) Gain State: Bypass 10) Based on Preliminary datasheet

Support material

More detailed information on RF devices



<https://community.infineon.com>



www.infineon.com/mobiledevices

Datasheets/Application notes/Technical documents



www.infineon.com/rf

Evaluation boards



www.infineon.com/rfevalboards

Component libraries for RF devices

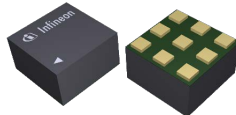
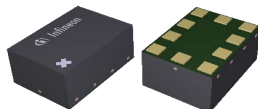
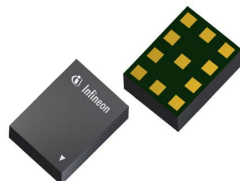
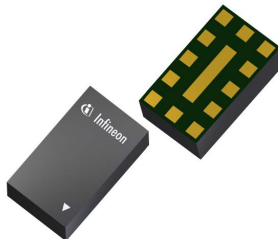
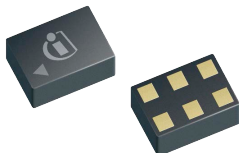
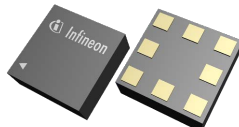
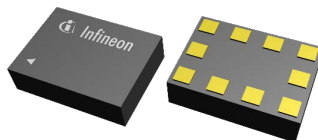
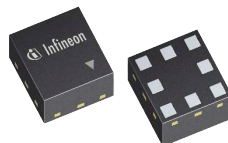
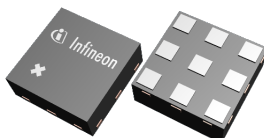
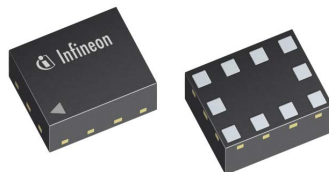
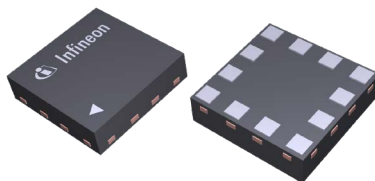
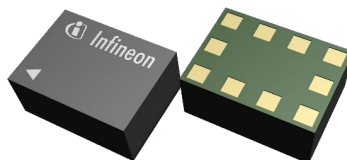
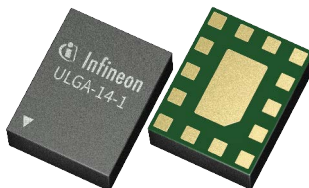
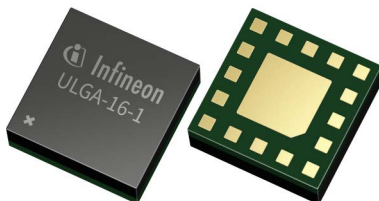
Infineon Technologies provides Component Libraries for part of its product portfolio. This ensures convenient customer access to the latest model versions and a seamless integration into our customer's circuit and system simulators.



www.infineon.com/rfcomponentlibraries



Package information

ATSLP-9			ATSLP-10			ATSLP-11			ATSLP-12			TSLP-4		
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		4	0.7 x 0.7 x 0.31	
														
7:1			7:1			7:1			7:1			7:1		
TSLP-6			TSLP-8			TSLP-10-2/-3			TSNP-6-2/-10			TSNP-8		
6	1.1 x 0.7 x 0.31		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	
														
7:1			7:1			7:1			7:1			7:1		
TSNP-9-2/-6			TSNP-10-1			TSNP-10-9			TSNP-12			ULGA-10		
9	1.1 x 1.1 x 0.38		10	1.1 x 1.5 x 0.38		10	0.95 x 1.3 x 0.35		12	1.5 x 1.5 x 0.38		10	1.1 x 1.5 x 0.60	
														
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			6:1			All dimensions in mm								
Footprints are recommendations only. For detailed information please refer to our datasheets or www.infineon.com/packages														

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