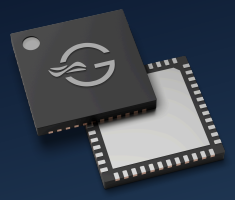
TAGORE

New: TDD receiver front end, switch + LNA

TSL8028N

A 100 W GaN switch and a two-stage LNA in one 5 × 5 mm chip: a complete TDD receiver front end from 2 to 5 GHz.



100 W
LTE average power (8 dB PAR)

2–5 GHz
S- and C-band

1.2 dB
Noise figure at 3.6 GHz

33 dB
Gain at 3.6 GHz

What it does for your design

- **Two parts in one.** A 100 W GaN switch and a low-noise amplifier in one package saves board space and design time.
- **Built to last.** 100 W LTE average power at 105 °C case temperature for the full lifetime.
- **Low noise, high gain.** 1.2 dB noise figure and 33 dB gain at 3.6 GHz.
- **Two gain modes.** High gain for weak signals, low gain (14 dB) for strong ones.
- **Low loss on transmit.** Only 0.3 dB transmit loss at 3.6 GHz.
- **Simple to drive.** A single 5 V supply and positive logic control.

Built for

4G and 5G TDD macro base stations · Small cells and cellular repeaters · Phased array radar · Satellite terminals, SDARS · Datalinks

Key specifications

Parameter	Typical
Frequency range	2.0 – 5.0 GHz
Gain (high / low mode)	33 dB / 14 dB @ 3.6 GHz
Noise figure	1.2 dB (high gain) @ 3.6 GHz
OP1dB / OIP3	21 dBm / 32 dBm
TX insertion loss	0.3 dB @ 3.6 GHz
Power handling	100 W LTE average (8 dB PAR)
Supply	5 V: 90 mA high gain, 4 mA power-down
Control	Positive logic
Package	32-pin QFN, 5.0 × 5.0 mm

Why use one front-end part

A typical TDD receiver today
A separate high-power switch, a limiter and a discrete LNA, each to buy, place and match.

With the TSL8028N
One 5 × 5 mm chip with the switch and LNA already matched together.

Choose the right switch for your design

Part (click for datasheet)	Type	Power (CW)	Frequency	Package
TSL8028N ↗	**Switch + LNA**	**100 W**	**2.0 – 5.0 GHz**	**QFN 5 × 5**
TS8028N ↗	SPDT, T/R	100 W · 500 W peak	500 MHz – 5.0 GHz	QFN 5 × 5
TS8029N ↗	SPDT, T/R	100 W · 631 W peak	500 MHz – 5.0 GHz	QFN 5 × 5
TS8329K ↗	SPDT, T/R	100 W peak	500 MHz – 8.5 GHz	QFN 3 × 3

Want the switch and LNA in one part? Choose the **TSL8028N**. Need only the switch? Choose the TS8028N or TS8029N.

Part numbers with an extra 0 have the charge pump disabled for ultra-quiet operation and need an external −18 V bias supply.

Get started

STEP 1
Read the datasheet
Scan the code or visit
tagoretech.com/Product_Doc/TSL8028N.pdf

STEP 2
Order samples
TSL8028N
TSL8028N-EVB · evaluation board
From DigiKey, Richardson RFPD or your TagoreTech representative.

STEP 3
Talk to an expert
Our applications team will help you design it in.
support@tagoretech.com

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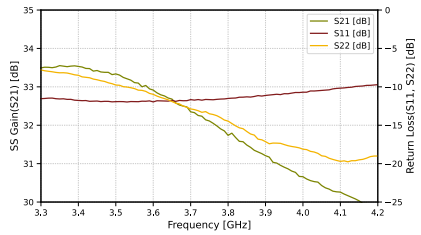
Typical performance

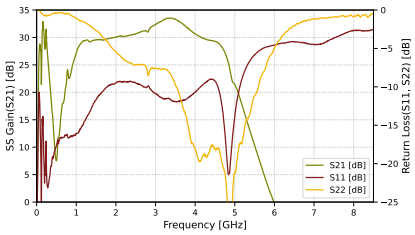
Measured curves from the TSL8028N datasheet, T_A = 25 °C, 50 Ω.

Receive gain and return loss

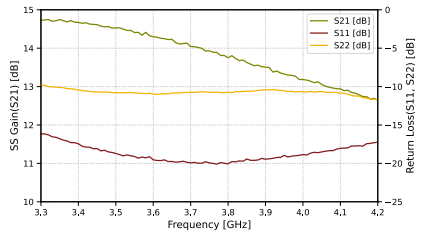
ANT to RX, high and low gain modes

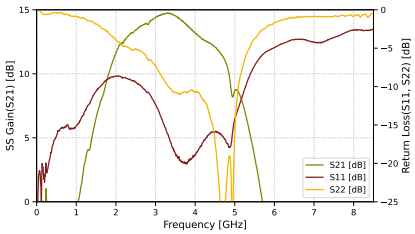


(a) High gain mode, narrowband.



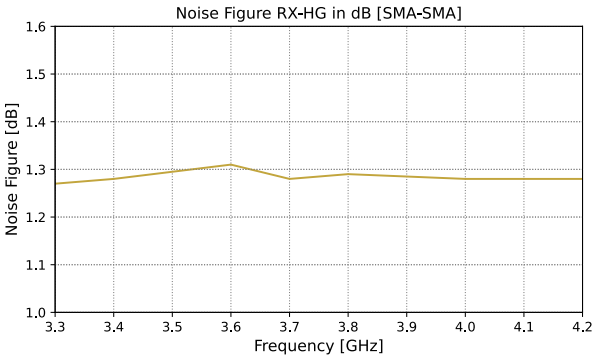
(b) High gain mode, wideband.

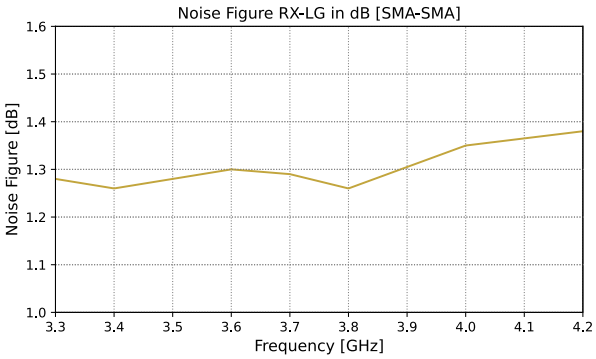




Noise figure

High and low gain modes





Typical values

Parameter	High gain	Low gain
Gain @ 3.6 GHz (dB)	33	14
Noise figure @ 3.6 GHz (dB)	1.2	1.1
Supply current @ 5 V (mA)	90	50

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TSL8028N.pdf.

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