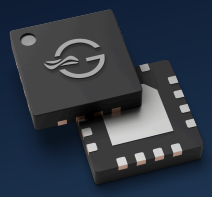
TAGORE

Asymmetric GaN T/R switch

TS8329K



An asymmetric GaN transmit / receive switch from 500 MHz to 8.5 GHz in a tiny 3 × 3 mm chip, with 100 W peak on transmit.

100 W
Peak on TX (50 dBm)

0.5–8.5 GHz
UHF to X-band edge

0.4 dB
TX insertion loss at 3 GHz

0.4 µs
Switching time

What it does for your design

- **Made for T/R and RX protection.** A low-loss transmit path and a well-isolated receive path in one tiny part.
- **Fewer parts, low power signature.** PIN diode switches need a large bill of materials to generate their bias, and that bias draws power. Here it is built in, under 1 mW: ideal for secure communications that need a low power signature.
- **Handles LTE peaks.** 42 dBm average with 10 dB PAPR LTE signals, and 40 dBm CW hot switching.
- **Wideband.** One part from 500 MHz to 8.5 GHz for 4G, 5G and radar.
- **Use the supply you already have.** One 2.6 – 5.5 V rail, no negative supply and no DC blocking capacitors.
- **Fast switching.** About 0.4 µs.

Key specifications

Parameter	Typical
Frequency range	500 MHz – 8.5 GHz
Insertion loss (TX / RX)	0.4 / 0.5 dB @ 3 GHz
RX isolation	38 dB @ 3 GHz
Power handling	50 dBm peak on TX
TX P0.1dB	42 – 44 dBm CW
Supply	2.6 – 5.5 V, no negative supply
Configuration	Asymmetric SPDT (TX / RX)
Switching time	0.4 µs
Package	16-pin QFN, 3.0 × 3.0 mm

Built for

4G and 5G systems · RX protection · Cellular infrastructure · Small cells · LTE relays and microcells · Radar

Why move from PIN diodes

A typical T/R switch today

PIN diodes, a bias network with many parts and separate protection for the receiver.

With the TS8329K

One 3 × 3 mm chip with a high-power TX path and a protected RX path, from one low-voltage supply.

Choose the right switch for your design

Part (click for datasheet)	Type	Power (CW)	Frequency	Package
TS8329K ↗	**SPDT, T/R**	**100 W peak**	**500 MHz – 8.5 GHz**	**QFN 3 × 3**
TS8028N ↗	SPDT, T/R	100 W · 500 W peak	500 MHz – 5.0 GHz	QFN 5 × 5
TS7226K ↗	SPDT	10 W	500 MHz – 7.0 GHz	QFN 3 × 3
TSX221K ↗	SPDT	10 W	500 MHz – 12 GHz	QFN 3 × 3

Need a small T/R switch up to 8.5 GHz? Choose the **TS8329K**. Need 500 W peaks? Choose the TS8028N. Need to reach X-band? Choose the TSX221K.

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/TS8329K.pdf

STEP 2

Order samples

TS8329K

TS8329K-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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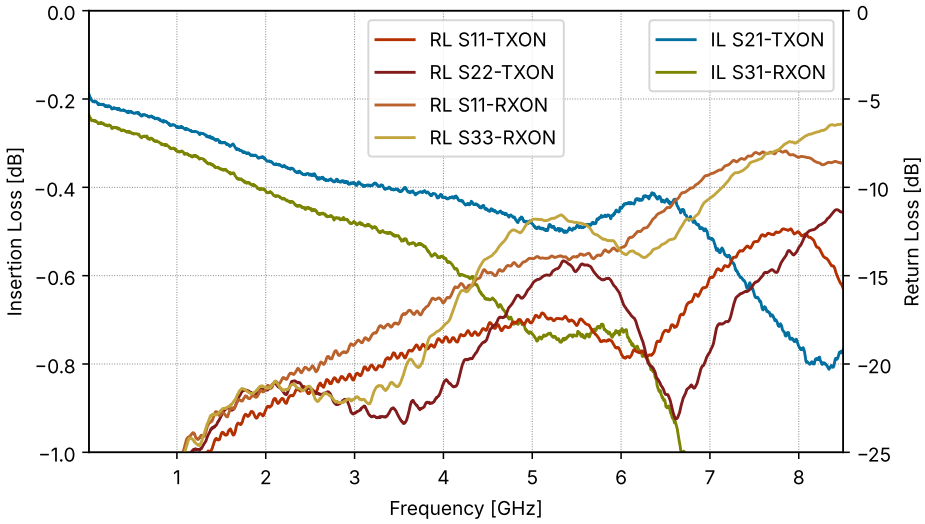
Typical performance

Measured curves from the TS8329K datasheet, T_A = 25 °C, 50 Ω.

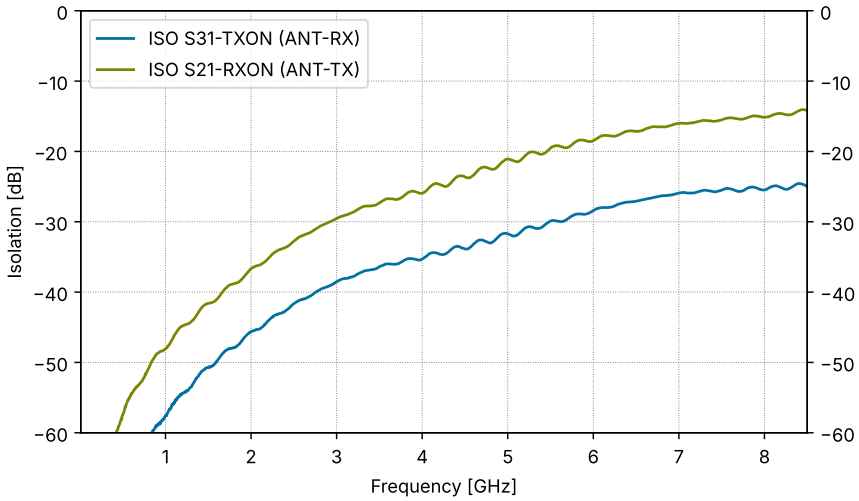
Insertion loss and return loss

ANT to TX and ANT to RX, unmatched



Isolation

ANT to RX and ANT to TX, non-active port



Typical values

Parameter	800 MHz	1.95 GHz	2.6 GHz	3.8 GHz	5 GHz
TX insertion loss (dB)	0.25	0.33	0.38	0.41	0.48
RX insertion loss (dB)	0.30	0.40	0.46	0.54	0.73
Isolation, ANT – TX (dB)	51	37	32	26	21

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TS8329K.pdf.

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