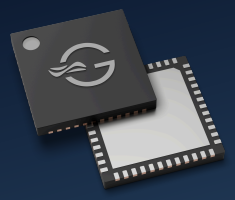
TAGORE

GaN SPDT radar switch

TS8729N



A GaN SPDT radar switch for 550 W pulses from 500 MHz to 2 GHz in one 5 × 5 mm chip. Built for L-band radar and high-power radios.

550 W
Peak, 20% duty, 2 ms pulse

0.5–2 GHz
UHF and L-band

0.19 dB
TX insertion loss at 800 MHz

40 dB
Isolation at 800 MHz

What it does for your design

- **550 W pulses in 5 × 5 mm.** Handle long, high-power pulses in a small, solid-state package.
- **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.
- **Low loss on transmit.** Only 0.19 dB at 800 MHz, so more power reaches the antenna.
- **Protects your receiver.** 40 dB isolation at 800 MHz between antenna and receive path.
- **Use the supply you already have.** One 2.6 – 5.5 V rail, no high-voltage bias.
- **Solid-state and silent.** No relays to wear out, switching in about 1.4 µs.

Key specifications

Parameter	Typical
Frequency range	500 MHz – 2.0 GHz
TX insertion loss	0.25 dB @ 915 MHz · 0.22 dB @ 1.3 GHz
Isolation, ANT – RX	52 dB @ 915 MHz · 47 dB @ 1.3 GHz
Power handling	550 W peak (20%, 2 ms pulse)
TX P0.1dB	> 300 W CW @ 915 MHz
Supply	2.6 – 5.5 V
Configuration	Asymmetrical SPDT (TX / RX)
Switching time	1.1 / 1.4 µs (RX / TX)
Package	32-pin QFN, 5 × 5 × 1.25 mm

Built for

L-band radar · High-power TX / RX transceivers · Tactical radios

Why move from PIN diodes

A typical high-power T/R switch today
PIN diodes or relays with a high-voltage bias network, many parts and power drawn all the time.

With the TS8729N
One 5 × 5 mm chip handles 550 W pulses from a single low-voltage supply.

Choose the right switch for your design

Part (click for datasheet)	Type	Power (CW)	Frequency	Package
TS8729N ↗	**SPDT**	**550 W peak**	**500 MHz – 2.0 GHz, radar**	**QFN 5 × 5**
TS8728N ↗	SPDT	400 W peak	500 MHz – 4.0 GHz, radar	QFN 5 × 5
TS86236P ↗	SPDT	200 W	1 MHz – 2.0 GHz	QFN 7 × 7
TS8021N ↗ / TS80210N ↗	SPDT	50 W	1 MHz – 5.0 GHz	QFN 5 × 5

Need 550 W pulses at L-band? Choose the **TS8729N**. Need to reach S-band? Choose the TS8728N. Need 200 W CW down to HF? Choose the TS86236P.

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/TS8729N.pdf

STEP 2
Order samples
TS8729N
TS8729N-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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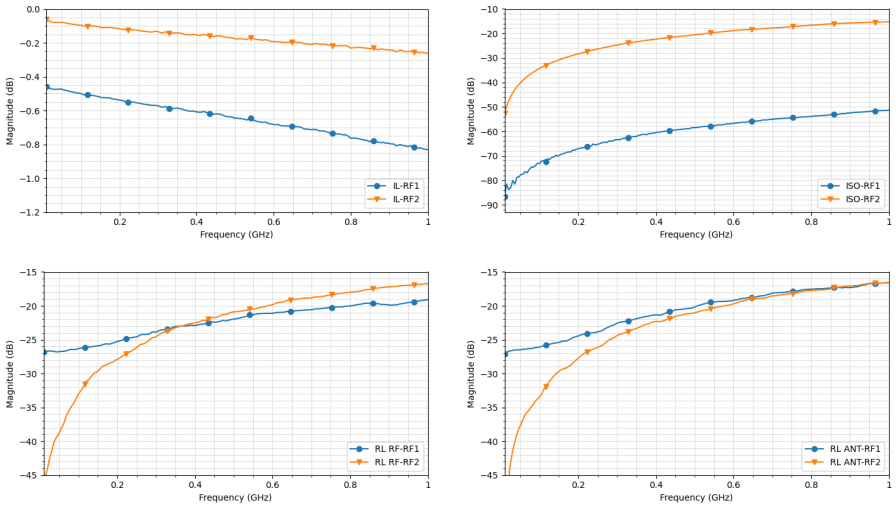
Typical performance

Measured curves from the TS8729N datasheet, T_A = 25 °C, 50 Ω.

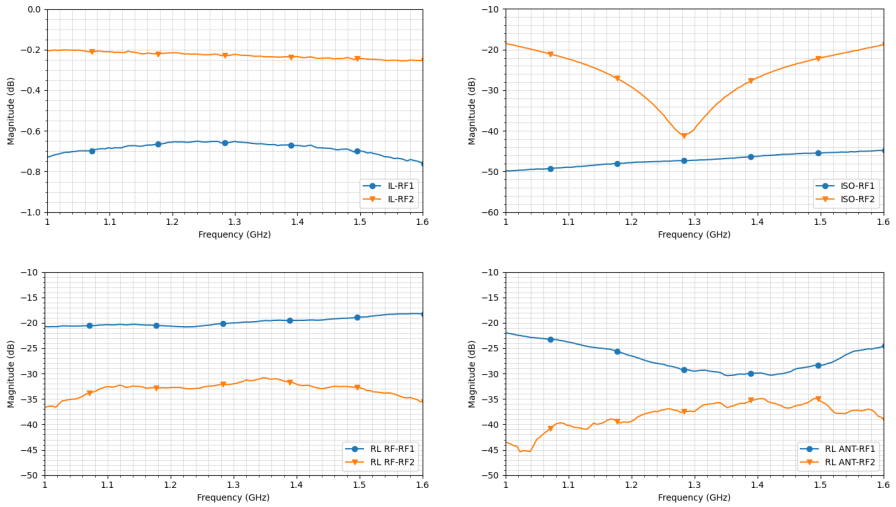
Typical characteristics, unmatched

Insertion loss, isolation and return loss



Typical characteristics, matched (1.0 – 1.6 GHz)

Insertion loss, isolation and return loss



Typical values

Parameter	915 MHz	1.3 GHz (matched)
TX insertion loss (dB)	0.25	0.22
RX insertion loss (dB)	0.80	0.65
Isolation, ANT – RX (dB)	52	47
Isolation, ANT – TX (dB)	15	39

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TS8729N.pdf.

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