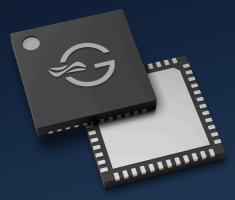
TAGORE

GaN SPDT radar switch

TS8728N



A GaN SPDT radar switch for 400 W pulses from 500 MHz to 4 GHz in one 5 × 5 mm chip. Built for L- and S-band radar.

400 W
Peak, 20% duty, 2 ms pulse

0.5–4 GHz
L- and S-band

0.39 dB
TX insertion loss at 3.55 GHz

0.75 µs
Switching time

What it does for your design

- **400 W pulses in 5 × 5 mm.** Handle long, high-power radar 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.** 0.39 dB at 3.55 GHz, so more power reaches the antenna.
- **Protects your receiver.** 38 dB isolation at 3.55 GHz between antenna and receive path.
- **Use the supply you already have.** One 2.6 – 5.25 V rail, no high-voltage bias.
- **Fast switching.** About 0.75 µs between transmit and receive.

Key specifications

Parameter	Typical
Frequency range	500 MHz – 4.0 GHz
TX insertion loss	0.27 dB @ 915 MHz · 0.39 dB @ 3.55 GHz
Isolation, ANT – RX	53 dB @ 915 MHz · 38 dB @ 3.55 GHz
Power handling	400 W peak (20%, 2 ms pulse)
TX P0.1dB	> 250 W CW @ 915 MHz
Supply	2.6 – 5.25 V
Configuration	Asymmetrical SPDT (TX / RX)
Switching time	0.75 µs
Package	32-pin QFN, 5 × 5 × 1.25 mm

Built for

L-band radar · S-band radar · IFF / SSR · Transmit / receive switching

Why move from PIN diodes

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

With the TS8728N
One 5 × 5 mm chip handles 400 W pulses from a single low-voltage supply.

Choose the right switch for your design

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

Need 400 W pulses up to S-band? Choose the **TS8728N**. Need 550 W at L-band? Choose the TS8729N.

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/TS8728N.pdf

STEP 2

Order samples

TS8728N

TS8728N-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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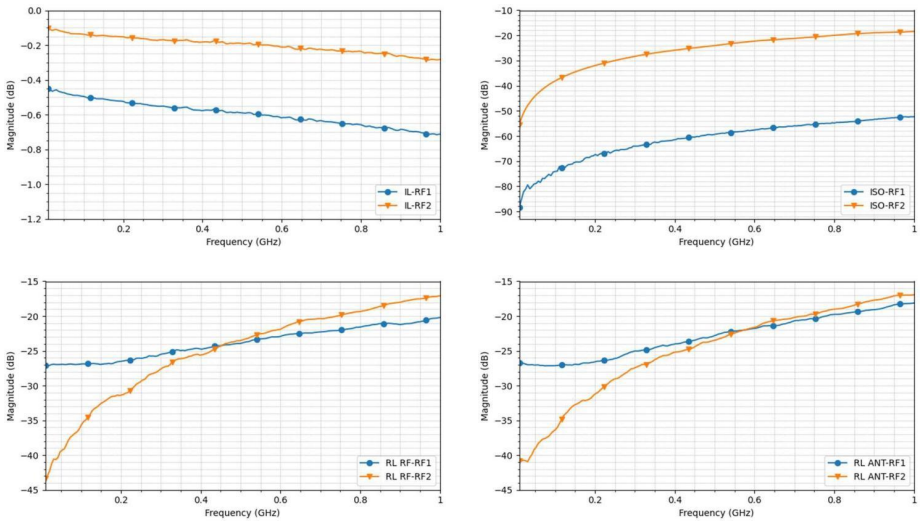
Typical performance

Measured curves from the TS8728N datasheet, T_A = 25 °C, 50 Ω.

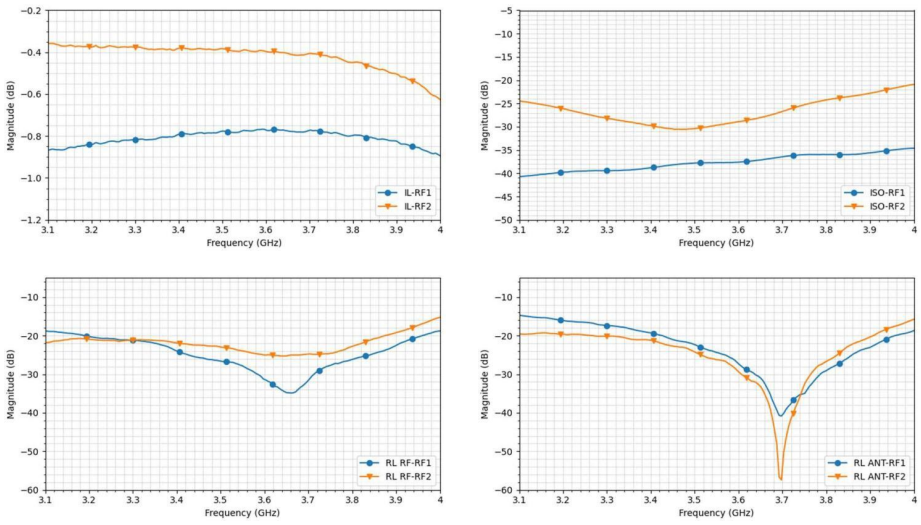
Typical characteristics, unmatched

Insertion loss, isolation and return loss



Typical characteristics, matched (3.3 – 3.8 GHz)

Insertion loss, isolation and return loss



Typical values

Parameter	915 MHz	3.55 GHz (matched)
TX insertion loss (dB)	0.27	0.39
RX insertion loss (dB)	0.69	0.77
Isolation, ANT – RX (dB)	53	38
Isolation, ANT – TX (dB)	19	27

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TS8728N.pdf.

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