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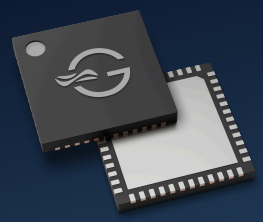
TagoreTech Inc

New

TS86436P

A GaN SP4T power switch that handles 200 W in one 7 × 7 mm chip. Replace a complete PIN diode circuit and save board space, power and design time, from 1 MHz to 1.32 GHz.



200 W
CW power (350 W peak)

1–1320 MHz
HF, VHF, UHF and L-band

0.35 dB
Insertion loss, 760–870 MHz

< 1 mW
Power use, single 2.6–5.25 V supply

What it does for your design

- **Use the supply you already have.** One 3.3 V or 5 V rail is all it needs. The built-in, ultra-quiet charge pump does the rest.
- **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.
- **Longer battery life.** Under 1 mW keeps handheld and manpack radios running longer.
- **Easy to control.** Two standard logic pins select any of the four paths.
- **Safe by design.** With power off, every port is shorted to ground.
- **One part, many bands.** Works unmatched up to 500 MHz and matches easily for bands up to 1.32 GHz.

Key specifications

Parameter	Typical
Frequency range	1 MHz – 1.32 GHz
Insertion loss	0.10 dB @ 30 MHz · 0.35 dB @ 500 MHz
Isolation	69 dB @ 30 MHz · 36 dB @ 1 GHz
Power handling	200 W CW · 350 W peak
P0.1dB	54 dBm CW
Supply	2.6 – 5.25 V, no negative supply
Control	2 CMOS pins (V1, V2)
Switching time	13 – 17 µs (t_{ON})
Package	48-pin QFN, 7.0 × 7.0 × 0.85 mm

Built for

Tactical and military radios · Private mobile and public safety radios · Cellular infrastructure, LTE relays and microcells · Satellite terminals · Link 16 and tactical data links · IFF · Filter banks and antenna selection

Why move from PIN diodes

A typical PIN diode SP4T today

Around 55 parts to buy, place and tune. A bias supply of up to about 200 V, around 2.5 W just to hold the switch, and roughly 300 mm² of board.

With the TS86436P

One 7 × 7 mm chip and two small capacitors. One low-voltage supply, under 1 mW, and the same performance on every board you build.

Choose the right switch for your design

Part (click for datasheet)	Type	Power (CW)	Frequency	Package
TS86436P ↗	**SP4T**	**200 W**	**1 MHz – 1.32 GHz**	**QFN 7 × 7**
TS8043N ↗ / TS80430N ↗	SP4T	100 W	1 MHz – 3.0 GHz	QFN 5 × 5
TS8541L ↗ / TS85410L ↗	SP4T	50 W	1 MHz – 4.3 GHz	QFN 4 × 4
TS86236P ↗	SPDT	200 W	1 MHz – 2.0 GHz	QFN 7 × 7

Need four paths at the full 200 W, up to L-band? Choose the **TS86436P**. Need to reach 3 GHz at 100 W? Choose the TS8043N. Only need two paths? 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/TS86436P.pdf

STEP 2

Order samples

TS86436P

TS86436P-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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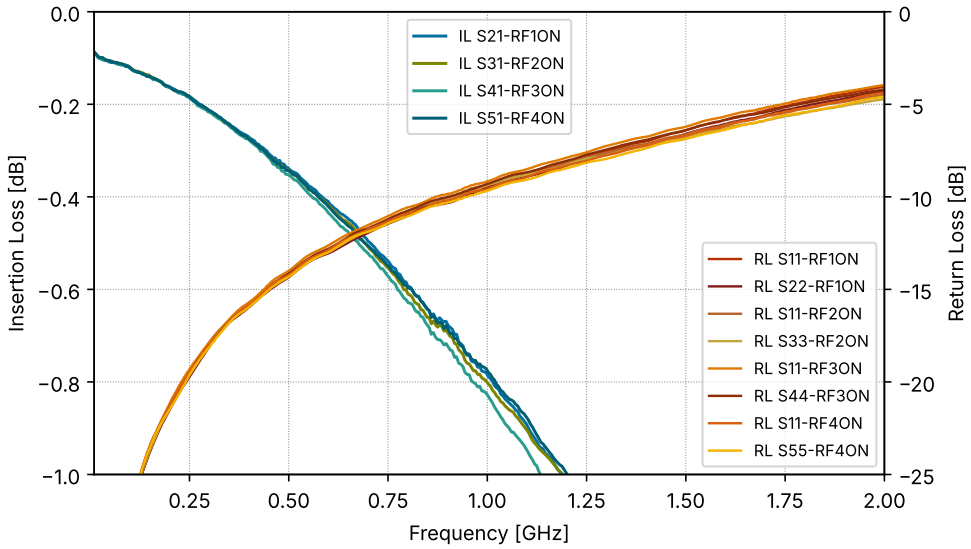
Typical performance

Measured curves from the TS86436P datasheet, T_A = 25 °C, 50 Ω.

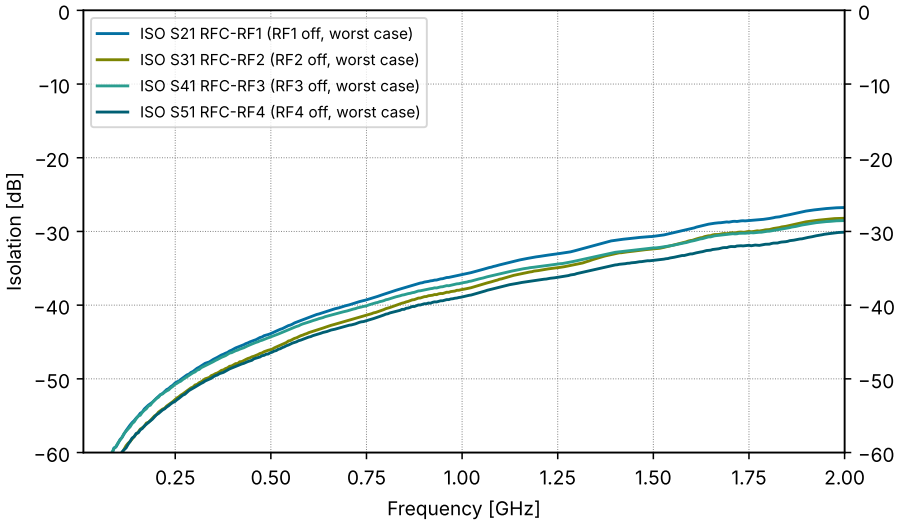
Insertion loss and return loss

RFC to RFx, unmatched



Isolation

RFC to the off ports



Typical values

Parameter	30 MHz	200 MHz	500 MHz	1 GHz
Insertion loss, unmatched (dB)	0.10	0.16	0.35	0.83
Isolation (dB)	69	53	—	36

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TS86436P.pdf.

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