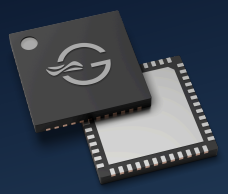
TAGORE

New

TS8546L

A GaN SP4T power switch for 50 W from 1 MHz to 4.5 GHz in one 4 × 4 mm chip, with 4 kV ESD protection on every RF port.



50 W
CW power (125 W peak)

4 paths
Single pole four throw

0.35 dB
Insertion loss at 1 GHz

4 kV
ESD protection on all RF ports

What it does for your design

- **Protected at every port.** 4 kV contact ESD protection (IEC 61000-4-2) on all RF ports, so you can drop external protection parts.
- **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.
- **Four paths at 50 W.** Antenna, band or filter selection at real transmit power in 4 × 4 mm.
- **Use the supply you already have.** One 3.3 V or 5 V rail. No negative supply and no DC blocking capacitors.
- **Wideband.** Works unmatched up to 3 GHz and matches easily up to 4.5 GHz.
- **Handles long pulses.** 49 dBm peak with 150 µs pulses at 20% duty cycle.

Key specifications

Parameter	Typical
Frequency range	1 MHz – 4.5 GHz
Insertion loss	0.35 dB @ 1 GHz · 0.80 dB @ 4.5 GHz
Isolation	30 dB @ 2 GHz · 18 dB @ 4.5 GHz
Power handling	50 W CW · 125 W peak
P0.1dB	47 dBm CW @ 800 MHz
Supply	2.6 – 5.25 V, no negative supply
ESD	4 kV contact, all RF ports
Switching time	3.4 µs (t_{ON})
Package	QFN, 4.0 × 4.0 mm

Built for

Private mobile and defence radios · Public safety handsets · Cellular infrastructure · Satellite terminals · Datalinks

Why choose the TS8546L

Typical high-power SP4T switches
Separate ESD protection parts at the antenna port, DC blocking capacitors and often a negative supply.

With the TS8546L
ESD protection on every RF port, no DC blocks and no negative supply. Just one low-voltage rail.

Choose the right switch for your design

Part (click for datasheet)	Type	Power (CW)	Frequency	Package
TS8546L ↗	**SP4T**	**50 W**	**1 MHz – 4.5 GHz, ESD on all RF ports**	**QFN 4 × 4**
TS8541L ↗ / TS85410L ↗	SP4T	50 W	1 MHz – 4.3 GHz	QFN 4 × 4
TS8441L ↗ / TS84410L ↗	SP4T	30 W	1 MHz – 5.0 GHz	QFN 4 × 4
TS8043N ↗ / TS80430N ↗	SP4T	100 W	1 MHz – 3.0 GHz	QFN 5 × 5

Need four paths at 50 W with built-in ESD protection? Choose the **TS8546L**. Need ultra-quiet operation? Choose the TS85410L. Need 100 W? Choose the TS8043N.

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/TS8546L.pdf

STEP 2
Order samples
TS8546L
TS8546L-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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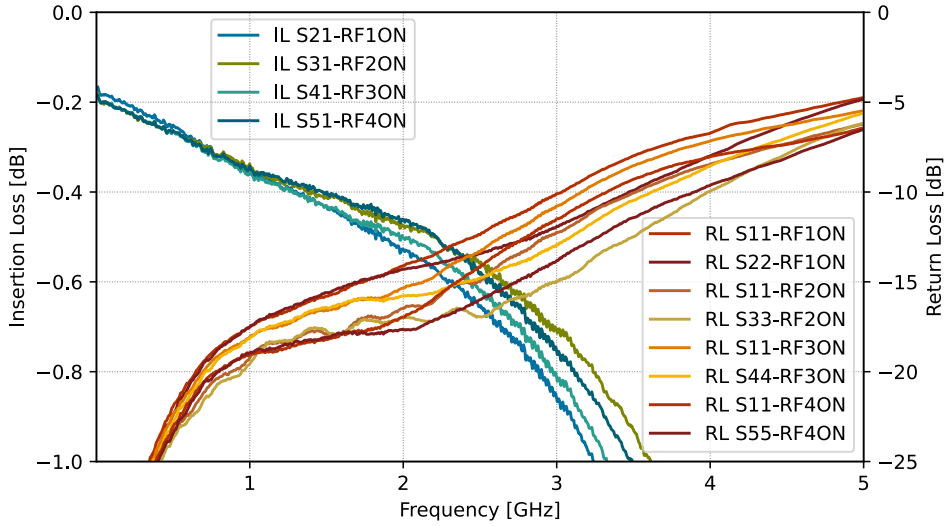
Typical performance

Measured curves from the TS8546L datasheet, T_A = 25 °C, 50 Ω.

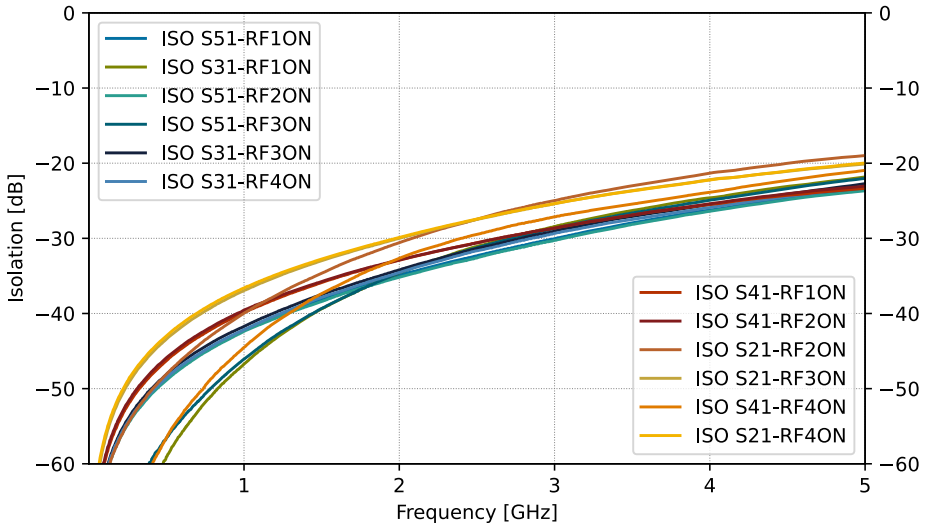
Insertion loss and return loss

RFC to RFx, unmatched



Isolation

RFC to the off ports, and between the RF ports



Typical values

Parameter	30 MHz	1 GHz	2 GHz	3 GHz
Insertion loss, unmatched (dB)	0.20	0.35	0.55	0.85
Isolation, RFC to off port (dB)	60	37	30	25

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TS8546L.pdf.

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