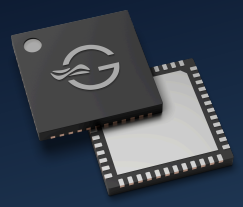
TAGORE

New

TS8361M

A GaN SP6T switch for 20 W from 1 MHz to 4 GHz in one 6 × 6 mm chip. Six paths for filter banks and band switching in high-power radios.



20 W
CW power

6 paths
Single pole six throw

0.42 dB
Insertion loss at 1 GHz

0.7 µs
Switching time

What it does for your design

- **Six paths, one part.** Switch a full filter bank or six bands with one chip instead of a tree of smaller switches.
- **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.
- **High linearity.** IIP3 of 71 dBm at 850 MHz keeps your signal clean at high power.
- **Use the supply you already have.** One 3.3 V or 5 V rail. The built-in charge pump makes the bias, no negative supply.
- **Wideband.** Works unmatched up to 3.5 GHz and with one simple match at the antenna port up to 4 GHz.
- **Every throw isolated.** Each path has a series and a shunt switch for clean isolation between bands.

Key specifications

Parameter	Typical
Frequency range	1 MHz – 4.0 GHz
Insertion loss	0.42 dB @ 1 GHz · 0.64 dB @ 3 GHz
Isolation	32 dB @ 1 GHz · 22 dB @ 3 GHz
Power handling	20 W CW
P0.1dB	44 dBm CW @ 800 MHz
IIP3	71 dBm @ 850 MHz
Supply	2.6 – 5.25 V, no negative supply
Switching time	0.7 µs (t_{ON})
Package	48-pin QFN, 6.0 × 6.0 mm

Built for

Filter banks and band switching · Private mobile and defence radios · Public safety handsets · Cellular infrastructure · Satellite terminals · Datalinks

Why use one SP6T

A switch tree today
Two or three smaller switches in cascade: more loss, more parts, more control lines and more board space.

With the TS8361M
One 6 × 6 mm chip selects any of six paths, with low loss and one low-voltage supply.

Choose the right switch for your design

Part (click for datasheet)	Type	Power (CW)	Frequency	Package
TS8361M ↗	**SP6T**	**20 W**	**1 MHz – 4.0 GHz**	**QFN 6 × 6**
TS8381M ↗	SP8T	15 W	1 MHz – 4.0 GHz	QFN 6 × 6
TS8242FK ↗ / TS82420K ↗	SP4T	10 W	1 MHz – 6.0 GHz	QFN 3 × 3
TS8541L ↗ / TS85410L ↗	SP4T	50 W	1 MHz – 4.3 GHz	QFN 4 × 4

Need six paths at 20 W? Choose the **TS8361M**. Need eight paths? Choose the TS8381M. Four paths are enough? Choose the TS8242FK, or the TS8541L for 50 W.

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/TS8361M.pdf

STEP 2
Order samples
TS8361M
TS8361M-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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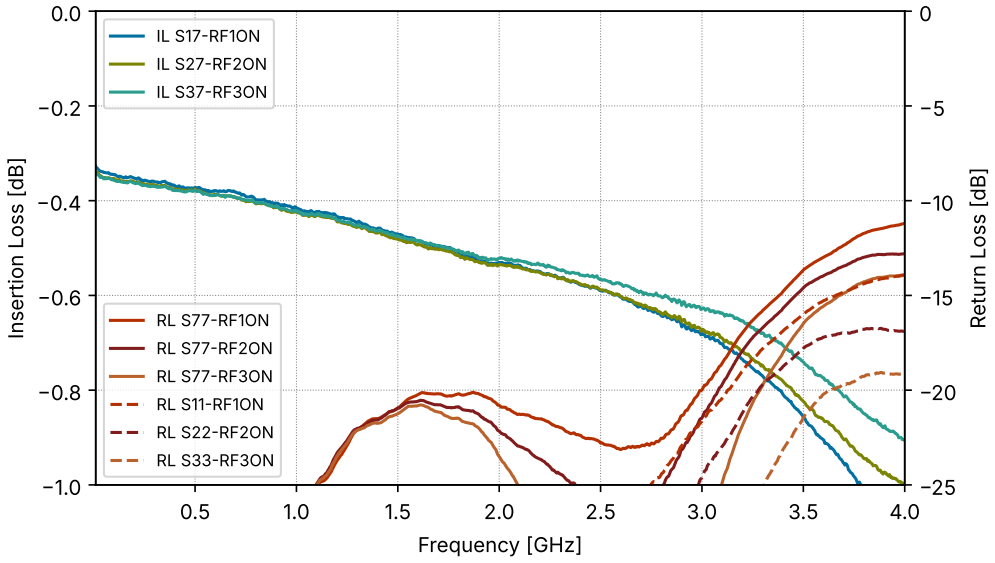
Typical performance

Measured curves from the TS8361M datasheet, T_A = 25 °C, 50 Ω.

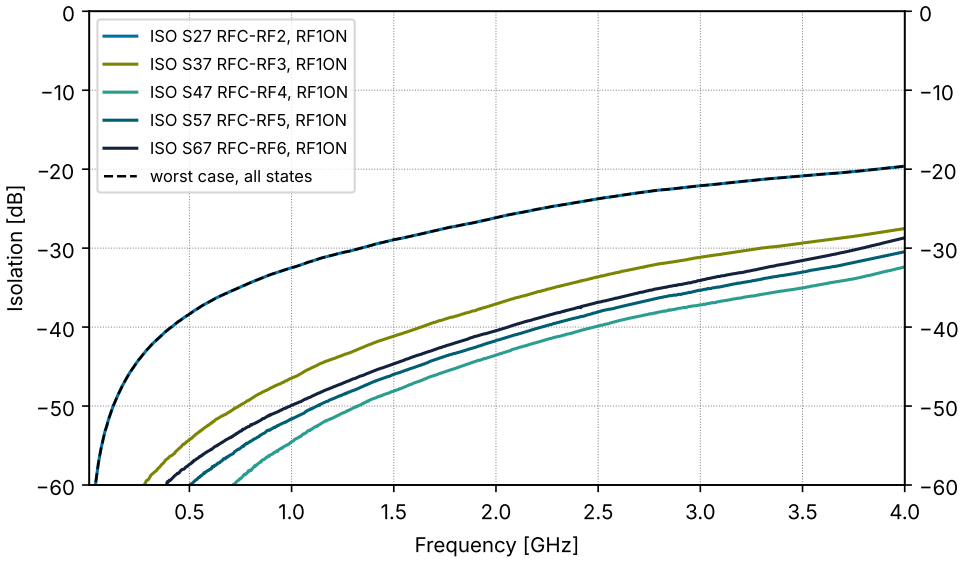
Insertion loss and return loss

RFC to RF1, RF2 and RF3, unmatched



Isolation

RFC to the off ports, RF1 on



Typical values

Parameter	30 MHz	1 GHz	2 GHz	3 GHz
Insertion loss (dB)	0.35	0.42	0.52	0.64
Isolation, RFC to off port (dB)	63	32	26	22

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TS8361M.pdf.

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