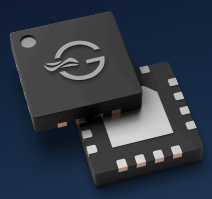
TAGORE

GaN power transistor

TA9110K

A 6 W GaN power transistor from 30 MHz to 4 GHz in a tiny 3 × 3 mm package, with up to 55% efficiency.



6 W
CW output power

0.03–4 GHz
HF to S-band

40 dBm
PSAT at 1 GHz

55 %
Efficiency (PAE) at 1 GHz

What it does for your design

- **Wideband with one match.** Cover 30 MHz to 4 GHz, or match the input and output for best power in your band.
- **Efficient.** 55% power-added efficiency at saturation means less heat and longer battery life.
- **High gain.** 17 dB small-signal gain at 1 GHz.
- **Tiny footprint.** 6 W from a 3 × 3 mm, 16-pin QFN.
- **Ready-made boards.** Evaluation boards for 30 – 512 MHz, 1.5 – 1.8 GHz, 3.3 – 3.8 GHz and more.
- **Standard supply.** 28 – 32 V operation.

Key specifications

Parameter	Typical
Frequency range	30 MHz – 4.0 GHz
Output power	6 W CW
Small-signal gain	17 dB @ 1 GHz
Large-signal gain	14 dB @ 1 GHz
PSAT	40 dBm @ 1 GHz
PAE at PSAT	55% @ 1 GHz
Supply	28 – 32 V
Package	16-pin QFN, 3.0 × 3.0 × 0.75 mm

Built for

Private mobile radio handsets · Public safety radios · Cellular infrastructure · Military radios

Why GaN for your power stage

Typical LDMOS or GaAs transistors
Narrow bands, so one design per band, and lower efficiency at high power.

With the TA9110K
One small GaN part covers HF to S-band with high efficiency.

Choose the right GaN transistor

Part (click for datasheet)	Type	Power	Frequency	Supply	Package
TA9110K ↗	**Transistor**	**6 W**	**30 MHz – 4.0 GHz**	**28 – 32 V**	**QFN 3 × 3**
TA9010K ↗	Driver	2 W	20 MHz – 5.0 GHz	28 V	QFN 3 × 3
TA9210D ↗	Transistor	12.5 W	30 MHz – 4.0 GHz	28 – 32 V	QFN 3 × 6
TA9310E ↗	Transistor	20 W	30 MHz – 4.0 GHz	28 – 32 V	DFN 5 × 6

Need 6 W in the smallest package? Choose the **TA9110K**. Need more power? Choose the 12.5 W TA9210D or 20 W TA9310E.

Get started

STEP 1

Read the datasheet

Scan the code or visit
tagoretech.com/Product_Doc/TA9110K.pdf

STEP 2

Order samples

TA9110K

TA9110K-EVB · evaluation boards

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 TA9110K datasheet, T_A = 25 °C, 50 Ω.

Gain and efficiency vs output power

30 – 500 MHz evaluation board

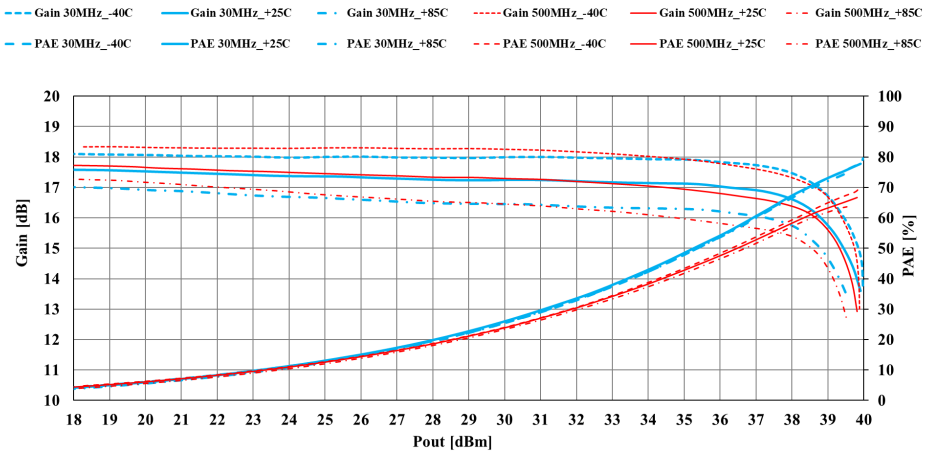
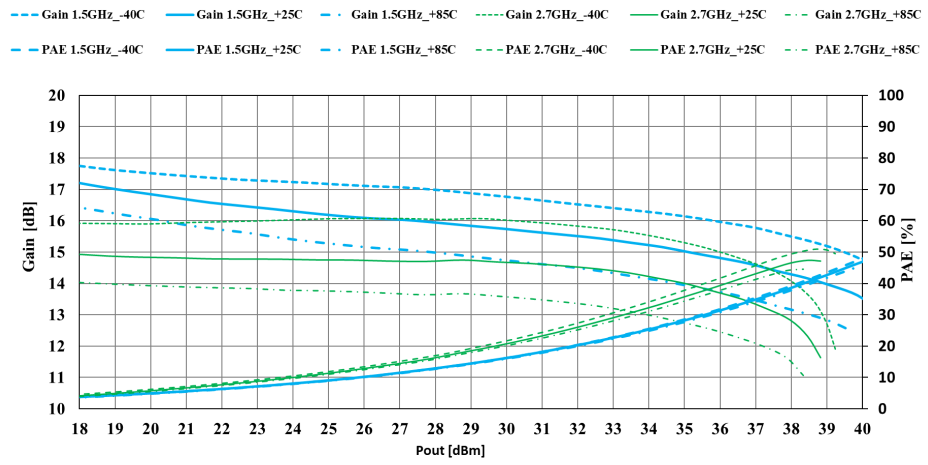


Figure 10.3.1 Gain and PAE vs P_{OUT} (30-500 MHz)

Gain and efficiency vs output power

1500 – 2700 MHz evaluation board



Typical values

Parameter	1 GHz
Small-signal gain (dB)	17
Large-signal gain (dB)	14
PSAT (dBm)	40
PAE at PSAT (%)	55

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TA9110K.pdf.

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