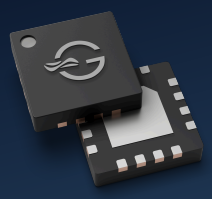
TAGORE

New: GaN driver transistor

# TA9010K

A 2 W GaN driver transistor from 20 MHz to 5 GHz in a tiny 3 × 3 mm package: the first stage your power amplifier needs.



**2 W**
Driver output power

**0.02–5 GHz**
HF to C-band

**20 dB**
Small-signal gain at 1 GHz

**45 %**
Efficiency (PAE) at 1 GHz

## What it does for your design

- **A matched driver for the TA9 family.** Drive the TA9110K – TA9410E power stages with a GaN part from the same family.
- **Wideband.** One device from 20 MHz to 5 GHz.
- **High gain.** 20 dB small-signal gain at 1 GHz, 15 dB at full power.
- **Efficient.** 45% power-added efficiency at 1 GHz keeps heat and battery drain down.
- **Standard supply.** 28 V operation, like the rest of the family.
- **Tiny footprint.** A 3 × 3 mm, 8-pin package.

## Key specifications

| Parameter | Typical |
|---|---|
| Frequency range | 20 MHz – 5.0 GHz |
| Output power | 2 W |
| Small-signal gain | 20 dB @ 1 GHz |
| Gain at P3dB | 15 dB @ 1 GHz |
| PAE at P3dB | 45% @ 1 GHz |
| Supply | 28 V typical |
| Package | 8-pin, 3.0 × 3.0 × 0.75 mm |

## Built for

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

## Why GaN for your driver stage

**Typical silicon or GaAs drivers**
Narrower bandwidth or lower supply voltage, so you need extra parts to cover several bands.

**With the TA9010K**
One small GaN part from 20 MHz to 5 GHz, on the same 28 V rail as your power stage.

## Choose the right GaN transistor

| Part (click for datasheet) | Type | Power | Frequency | Supply | Package |
|---|---|---|---|---|---|
| **TA9010K ↗** | **Driver** | **2 W** | **20 MHz – 5.0 GHz** | **28 V** | **QFN 3 × 3** |
| TA9110K ↗ | Transistor | 6 W | 30 MHz – 4.0 GHz | 28 – 32 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 a driver up to 5 GHz? Choose the **TA9010K**. Then pick the power stage: 6 W TA9110K, 12.5 W TA9210D or 20 W TA9310E.

## Get started

STEP 1

### Read the datasheet

Scan the code or visit
tagoretech.com/Product_Doc/TA9010K.pdf

STEP 2

### Order samples

**TA9010K**

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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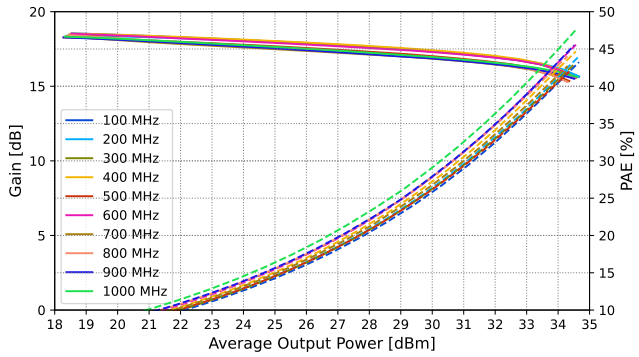
# Typical performance

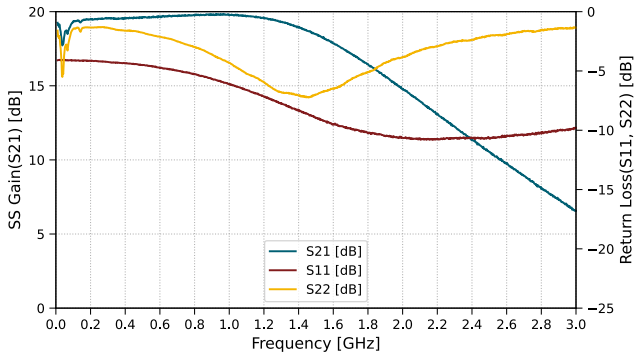
Measured curves from the TA9010K datasheet, $T_A$ = 25 °C, 50 Ω.

### Typical performance

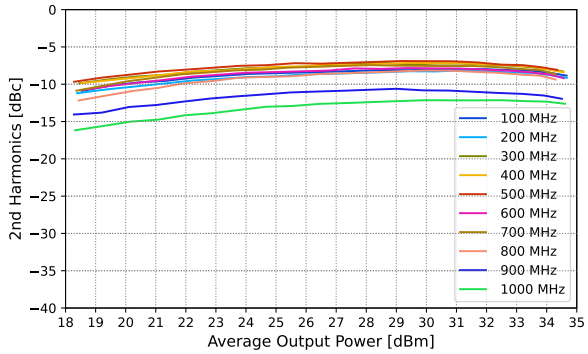
Measured on the standard evaluation board, 20 MHz to 5 GHz



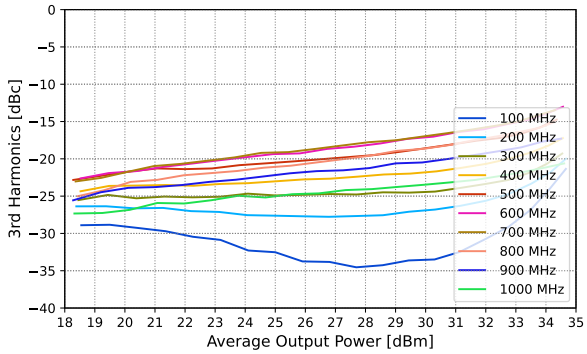

Gain and Power Added Efficiency




Small Signal S-parameter plots




H2 vs. Frequency




H3 vs. Frequency

# Typical values

| Parameter | 1 GHz |
|---|---|
| Small-signal gain (dB) | 20 |
| Gain at P3dB (dB) | 15 |
| PAE at P3dB (%) | 45 |

Full data, S-parameters and evaluation board details in the datasheet at tagoretech.com/Product_Doc/TA9010K.pdf.

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