

OKI electronic components

KGF2701

Wide-Band Amplifier

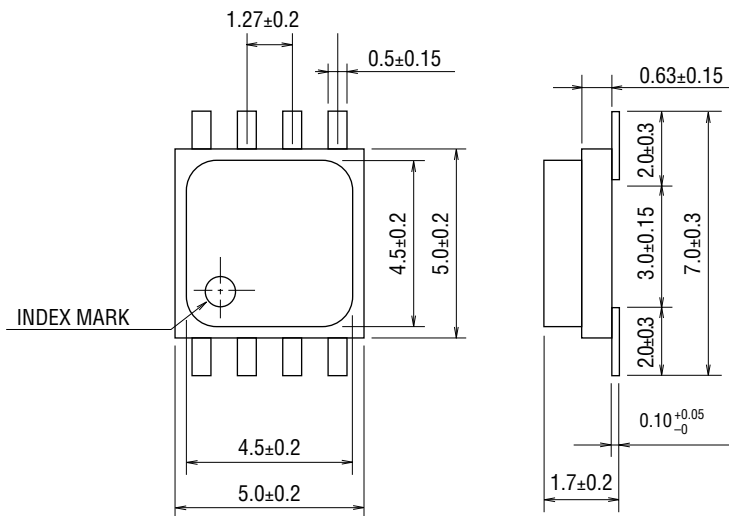
GENERAL DESCRIPTION

The KGF2701, housed in a SMD-type 8-pin ceramic package, is a two-stage amplifier that features flat and high gain over a wide range of frequencies, internal input and output matching, and high output power. The internally matched 50 Ω input and output eliminate external impedance-matching circuits. The KGF2701 is ideal as a medium-power amplifier in the frequency range of 0.8 GHz to 4 GHz.

FEATURES

- Flat gain property from 0.8 GHz to 4 GHz
- Input and output 50 Ω matched impedance
- Single power supply: 5 V (typ.)
- High linear gain: 16 dB (min.)
- High output power: 14 dBm (min.)
- Low noise: 4.5 dB (typ.)
- Package: 8PFP

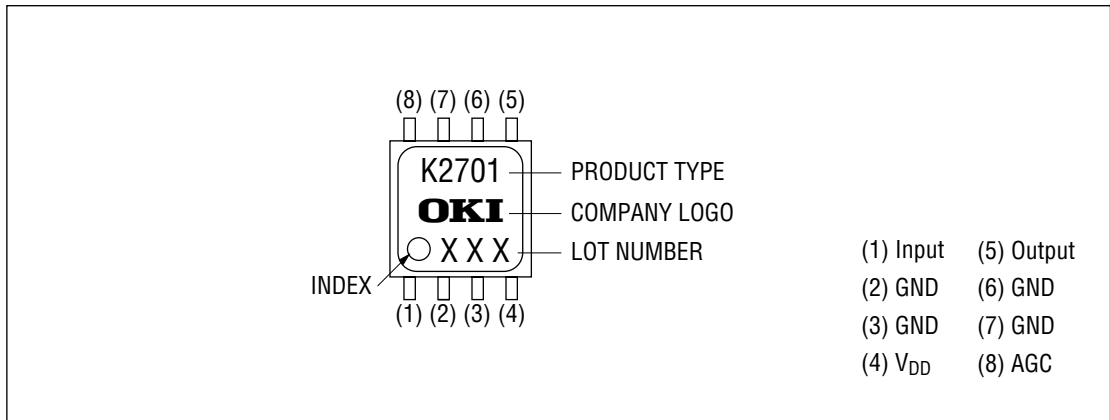
PACKAGE DIMENSIONS



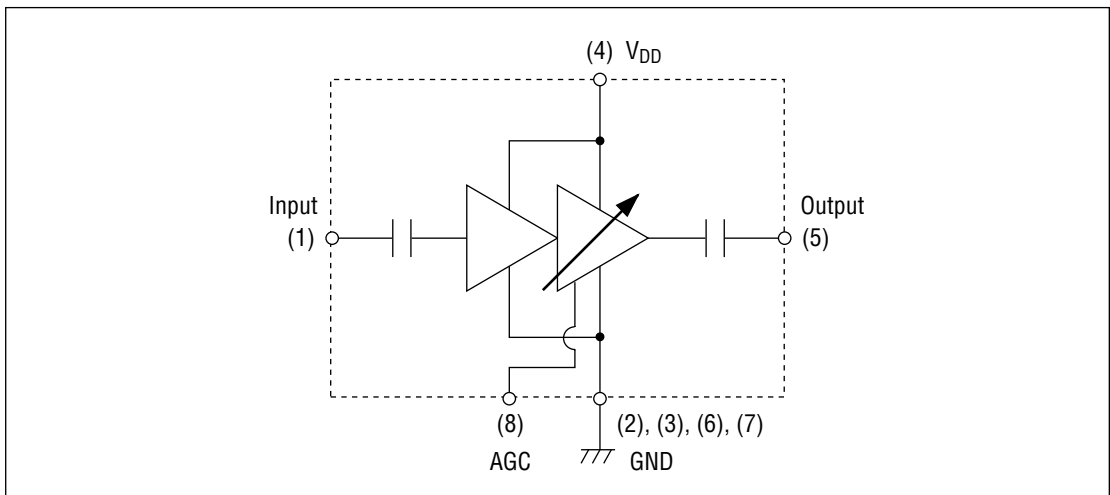
| | |
|---------------------|--------------------------------|
| Package material | Al ₂ O ₃ |
| Lead frame material | Fe-Ni-Co alloy |
| Pin treatment | Ni/Au plating |
| plate thickness | Au:1.0 μ m or more |

(Unit: mm)

MARKING



CIRCUIT



ABSOLUTE MAXIMUM RATINGS

| Item | Symbol | Condition | Unit | Min. | Max. |
|-------------------------|-----------|----------------------------|--------------------|------|------|
| Supply voltage | V_{DD} | $T_a = 25^{\circ}\text{C}$ | V | — | 8 |
| Input power | P_{IN} | $T_a = 25^{\circ}\text{C}$ | dBm | — | 6 |
| Total power dissipation | P_{tot} | $T_a = 25^{\circ}\text{C}$ | mW | — | 800 |
| Channel temperature | T_{ch} | — | $^{\circ}\text{C}$ | — | 150 |
| Storage temperature | T_{stg} | — | $^{\circ}\text{C}$ | -45 | 125 |

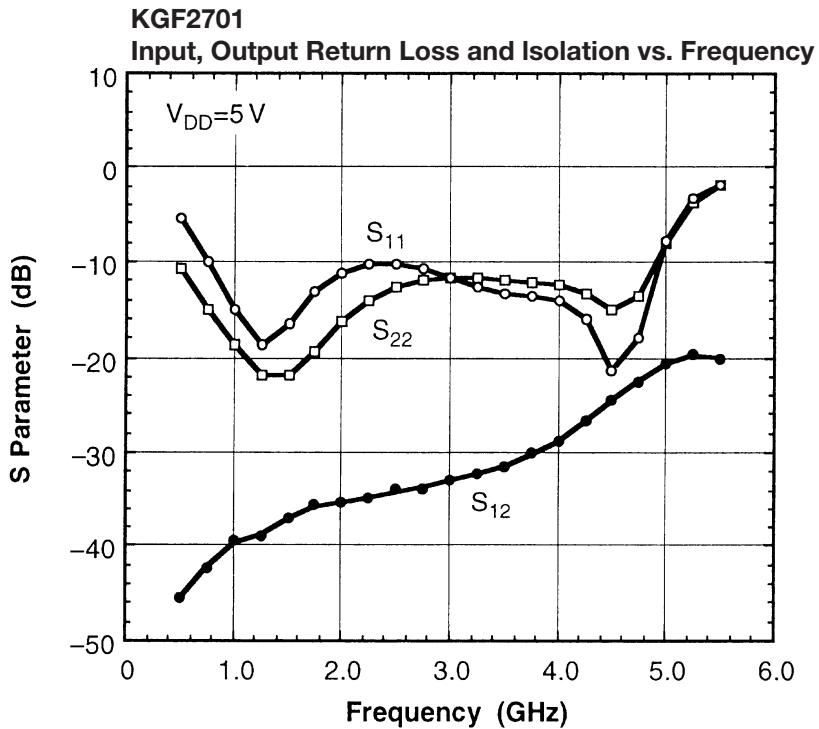
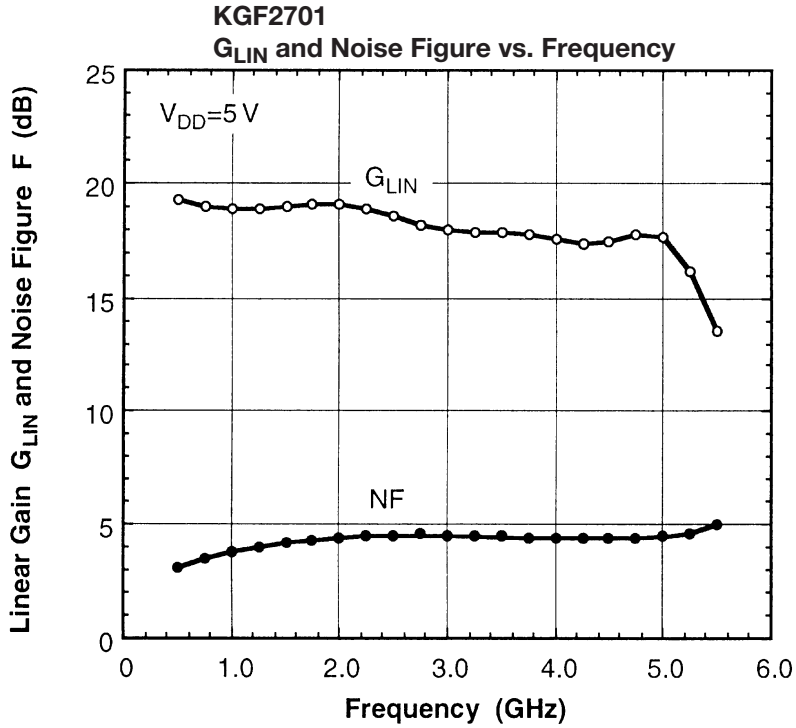
ELECTRICAL CHARACTERISTICS

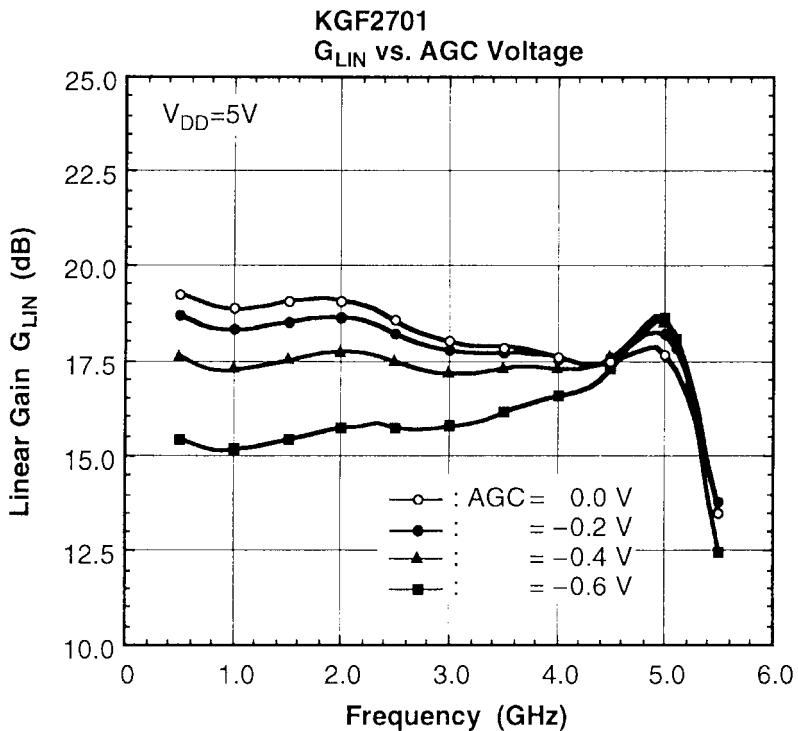
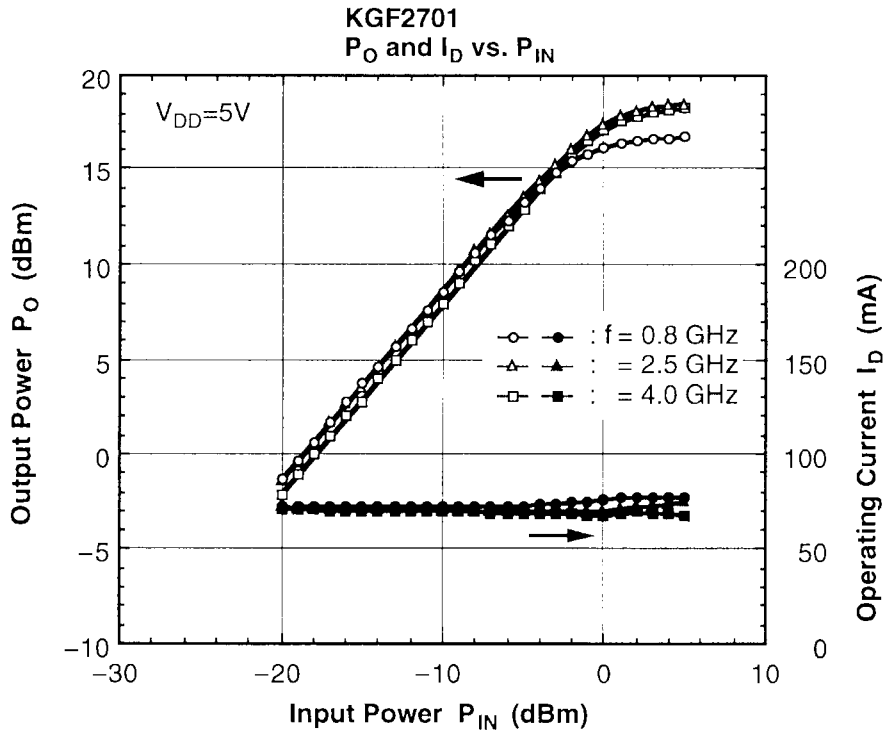
(Ta = 25°C)

| Item | Symbol | Condition | Unit | Min. | Typ. | Max. |
|-----------------------------|------------|--------------------------|-----------------------------|------|------|------|
| Operating current | I_{DD} | (*1), $P_{IN} = -20$ dBm | mA | — | 70 | 90 |
| Isolation | $ S_{12} $ | $f = 2.5$ GHz | dB | — | -30 | -25 |
| Linear gain | G_{LIN} | (*1), $P_{IN} = -20$ dBm | dB | 16.0 | 17.5 | — |
| Gain flatness | ΔG | $f = 0.8$ GHz | dB | — | 1.8 | 2.5 |
| Input return loss | $ S_{11} $ | $f = 2.5$ GHz | dB | — | -10 | -8 |
| Output return loss | $ S_{22} $ | $f = 4.0$ GHz | dB | — | -10 | -8 |
| Output power | P_{O1} | | dBm | 14 | 16 | — |
| Noise figure | F | (*1), $f = 2.5$ GHz | dB | — | 4.5 | — |
| Third-order intercept point | IP_3 | | dBm | — | 25 | — |
| Thermal resistance | R_{th} | Channel to case | $^{\circ}\text{C}/\text{W}$ | — | 55 | — |

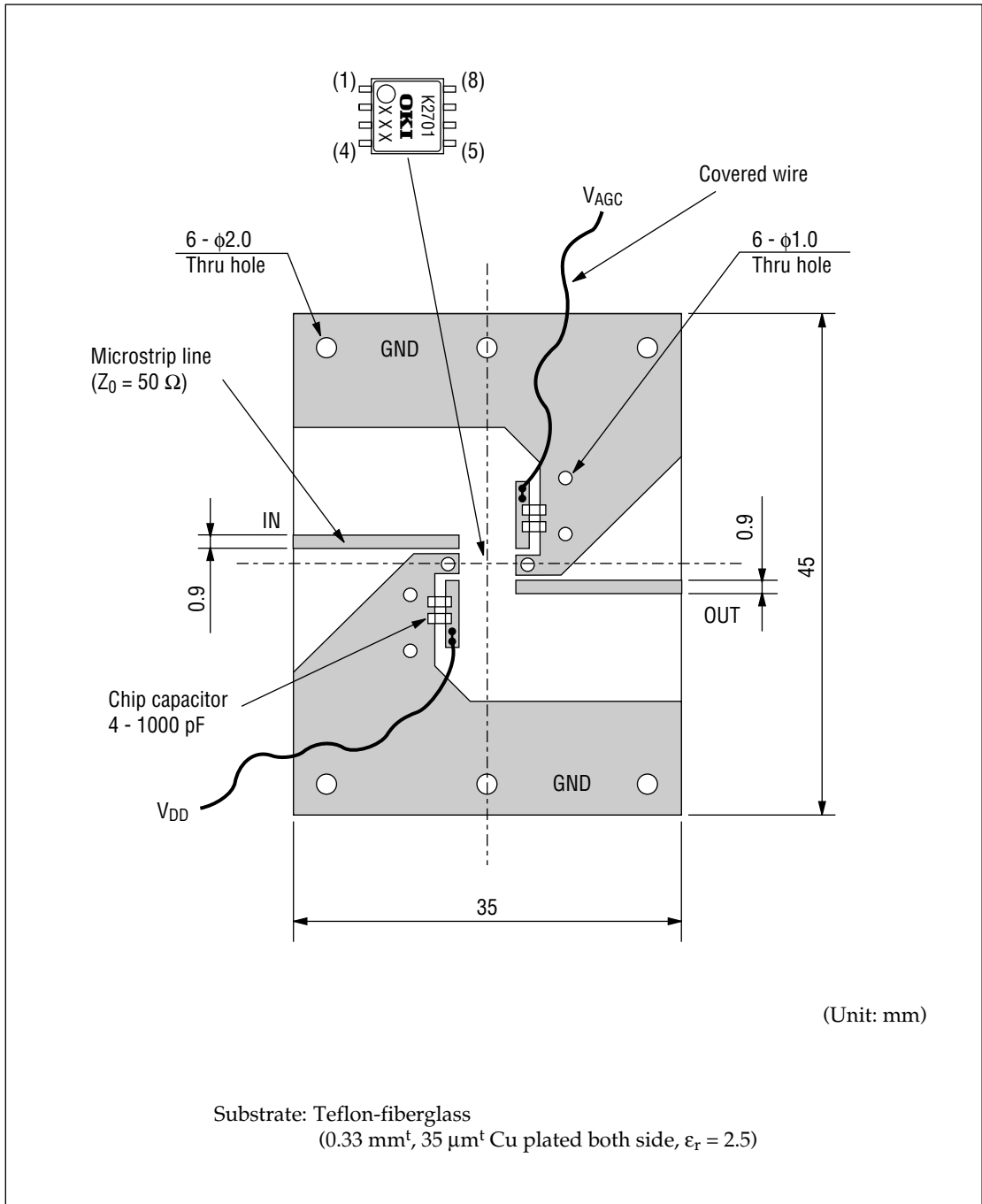
*1 Self-bias condition: $V_{DD} = 5.2$ V, $V_{AGC} = 0$ V

RF CHARACTERISTICS



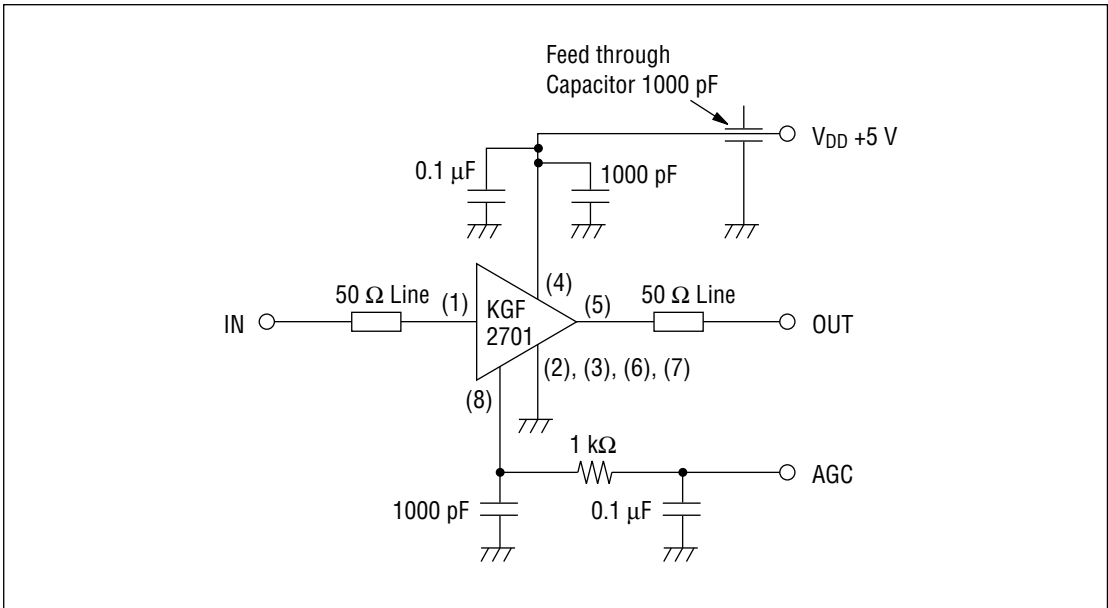


Test Circuit Board for KGF2701



Application Note

Example 1: Single-stage Amplifier with AGC



Example 2: Two-stage Amplifier

