

# OKI electronic components

## KGF2701

### Wide-Band Amplifier

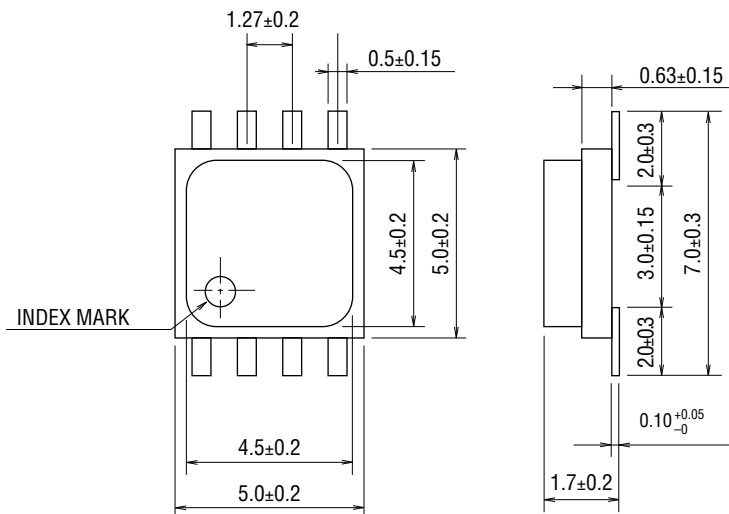
#### GENERAL DESCRIPTION

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  $\Omega$  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  $\Omega$  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

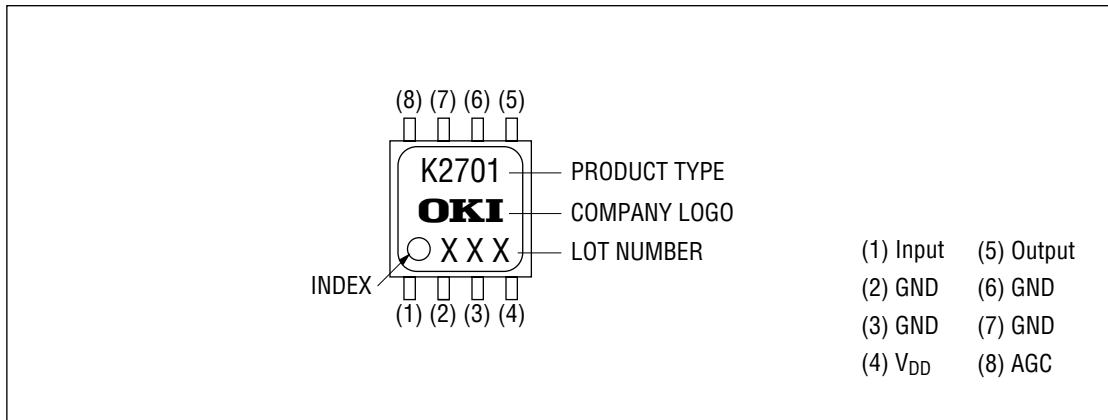
#### PACKAGE DIMENSIONS



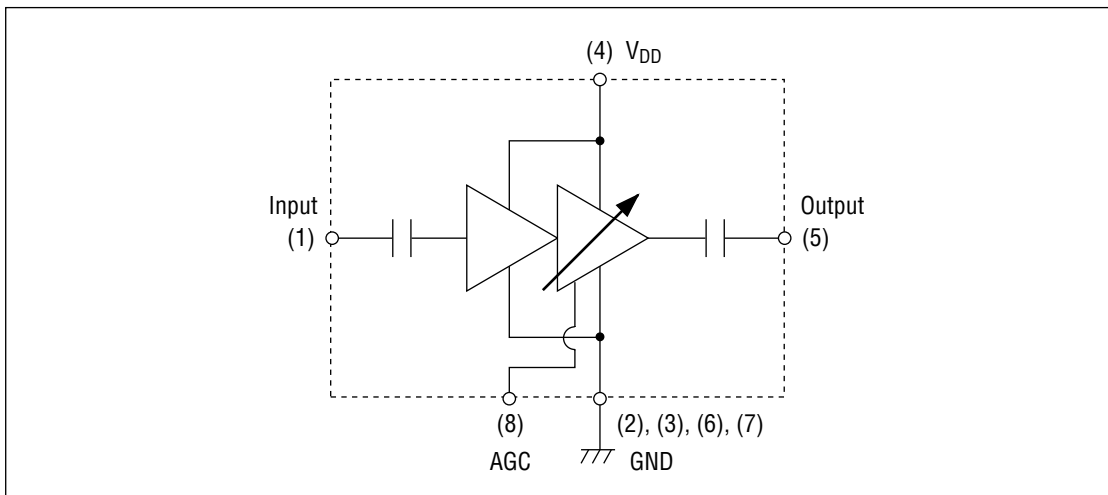
Package material	Al <sub>2</sub> O <sub>3</sub>
Lead frame material	Fe-Ni-Co alloy
Pin treatment	Ni/Au plating
plate thickness	Au:1.0 $\mu$ m or more

(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

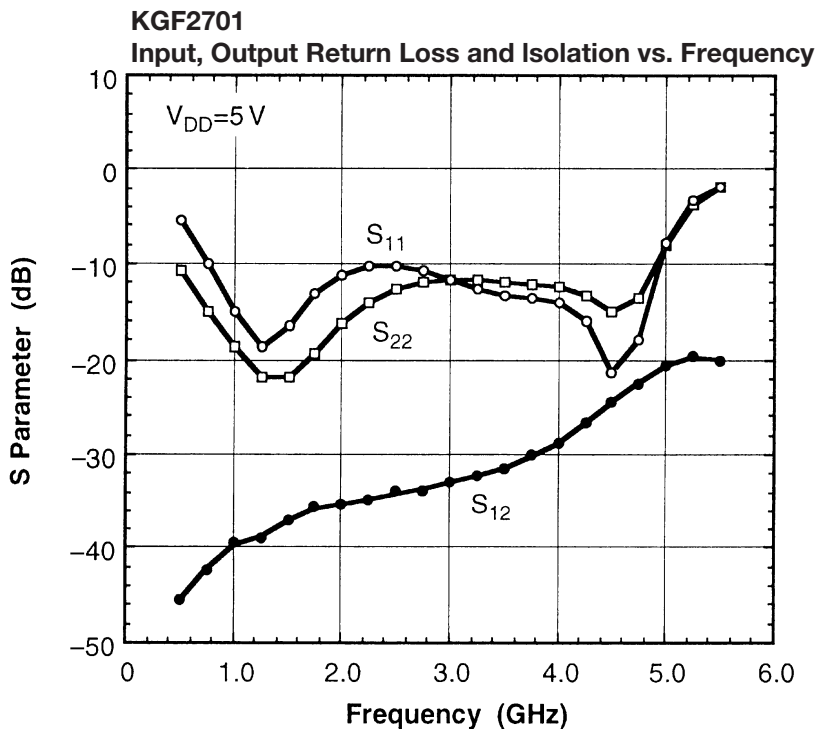
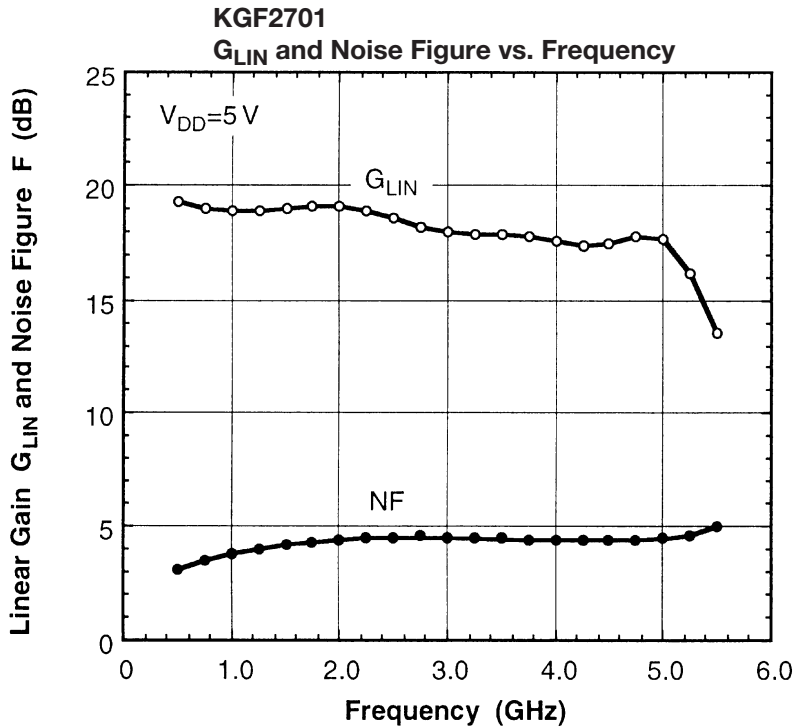
**ELECTRICAL CHARACTERISTICS**

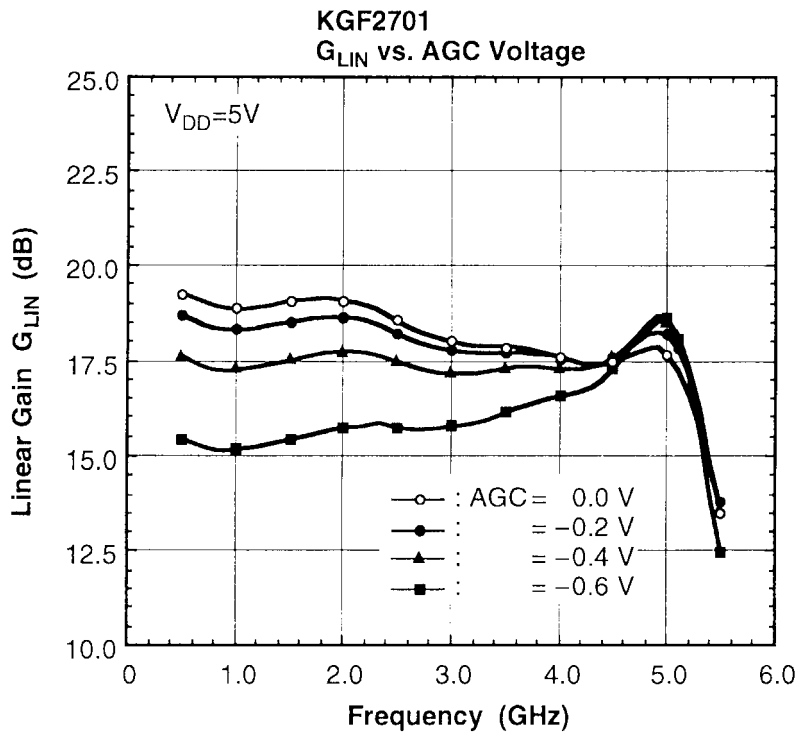
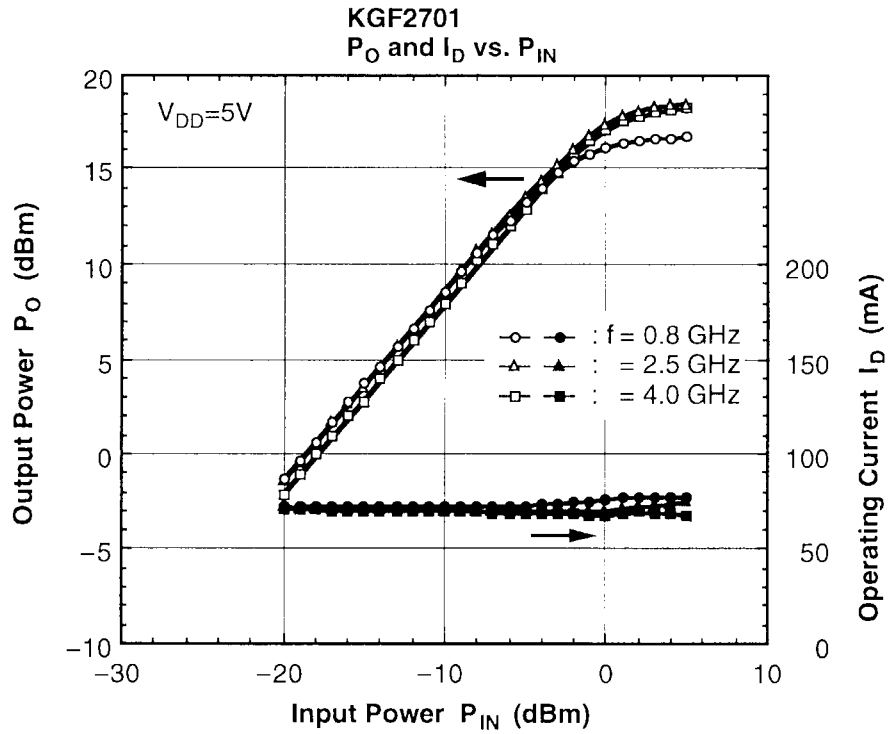
(Ta = 25°C)

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	$\Delta G$	$f = 0.8$ 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	—

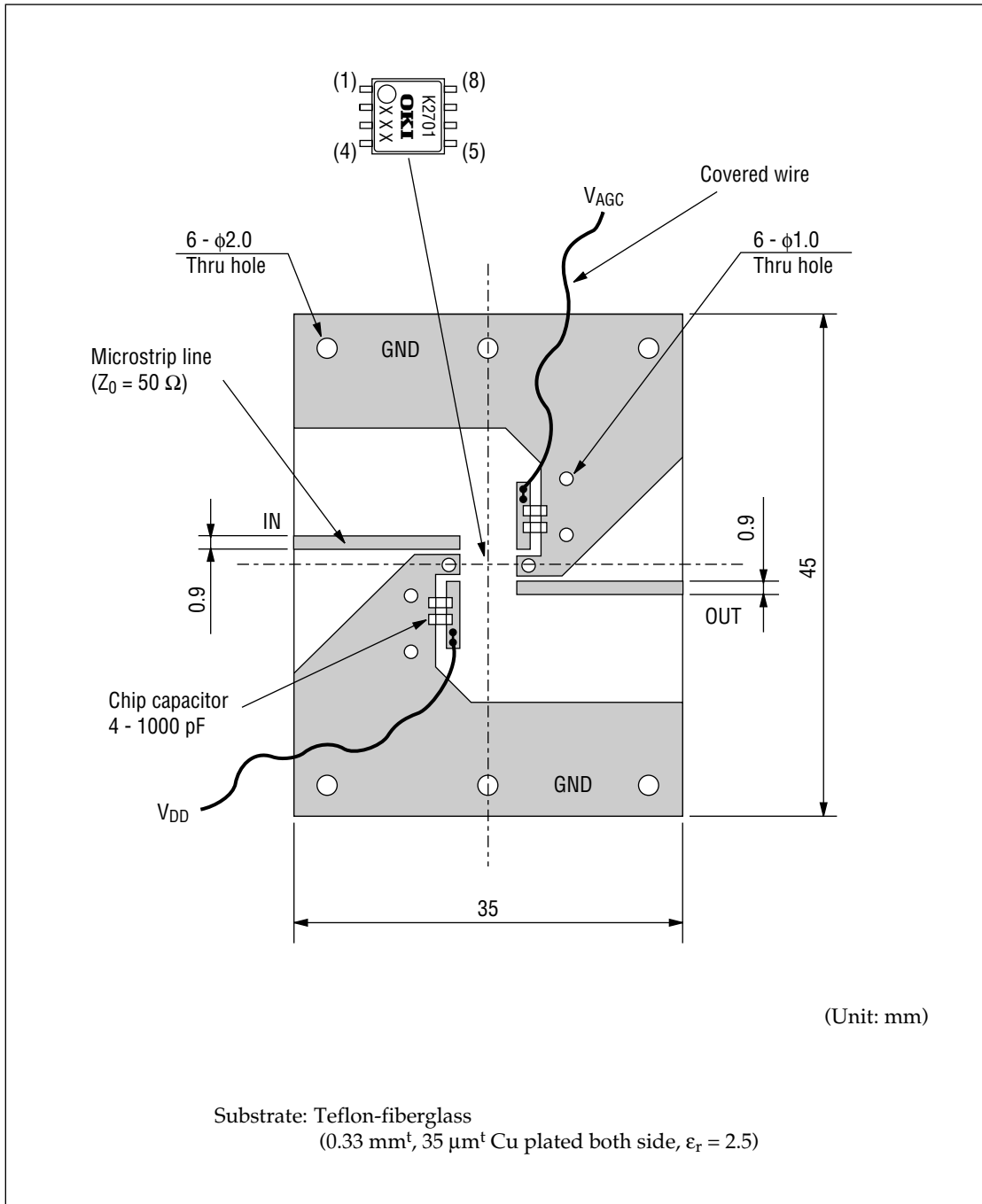
\*1 Self-bias condition:  $V_{DD} = 5.2$  V,  $V_{AGC} = 0$  V

RF CHARACTERISTICS



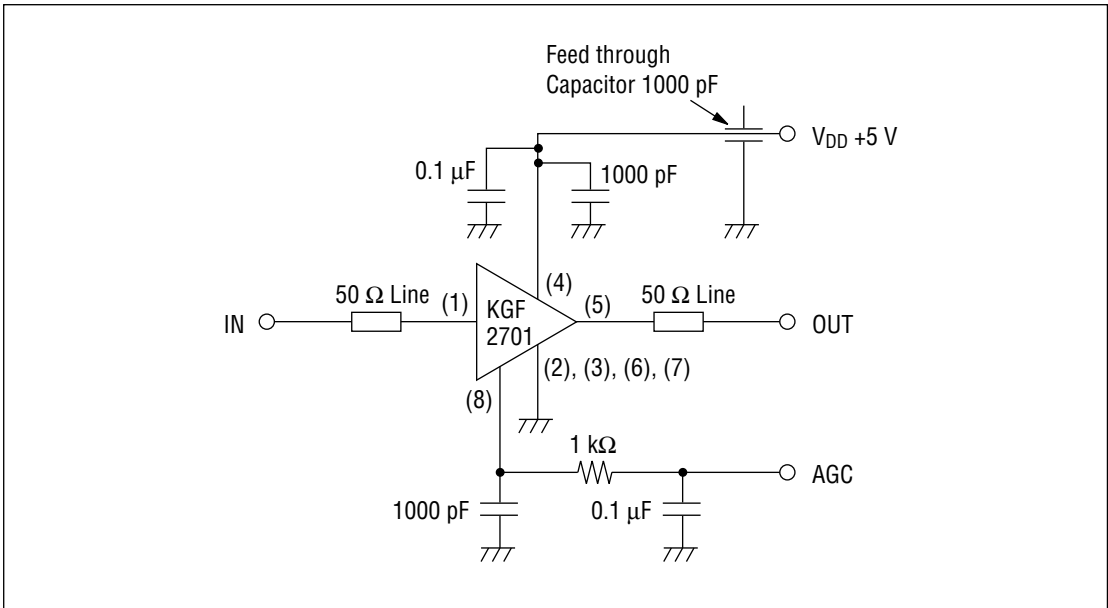


Test Circuit Board for KGF2701



**Application Note**

**Example 1: Single-stage Amplifier with AGC**



**Example 2: Two-stage Amplifier**

