

Electronic Components

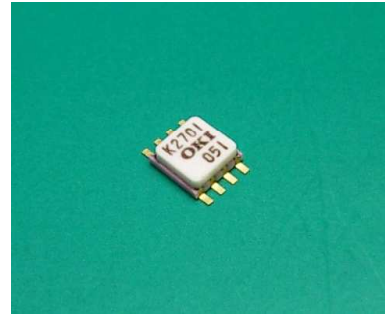
ODRKGF2701-05
Issue Date: Jan 20, 2005

KGF2701

Wide-Band Amplifier

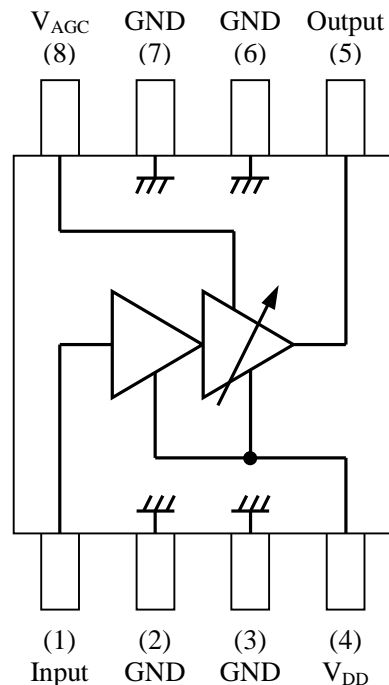
GENERAL DESCRIPTION

The KGF2701, housed in the SMD-type 8-pin ceramic package, is a two-stage amplifier that features flat and high gain over a wide range of frequency, internal input and output matching, and high output power. The internally matched 50Ω input and output eliminate external impedance-matching circuits. KGF2701 is ideal as a medium-power amplifier in the frequency range of 800MHz to 4000MHz.



FEATURES

- Flat gain property from 800MHz to 4000MHz
- Input and output 50Ω matched impedance
- Single power supply: 5V(typ.)
- High linear gain: >16dB
- High output power: >14dBm
- Low noise figure: 4.5dB(typ.)
- Package: 8-pin ceramic package (similar 8-pin SOP)



FUNCTION DIAGRAM

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Min	Max	Unit	Note
Supply Voltage	V_{DD}	$T_a=25^{\circ}\text{C}$	—	8	V	
Input Power	P_{IN}	$T_a=25^{\circ}\text{C}$	—	6	dBm	
Total Power Dissipation	P_{TOT}	$T_a=T_c=25^{\circ}\text{C}$	—	800	mW	
Channel Temperature	T_{CH}	—	—	150	$^{\circ}\text{C}$	
Storage Temperature	T_{STG}	—	-45	125	$^{\circ}\text{C}$	

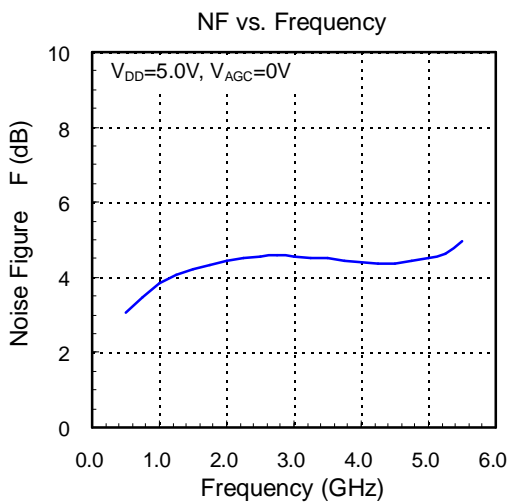
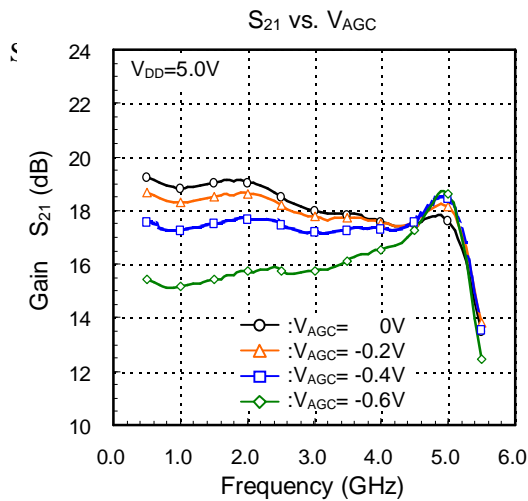
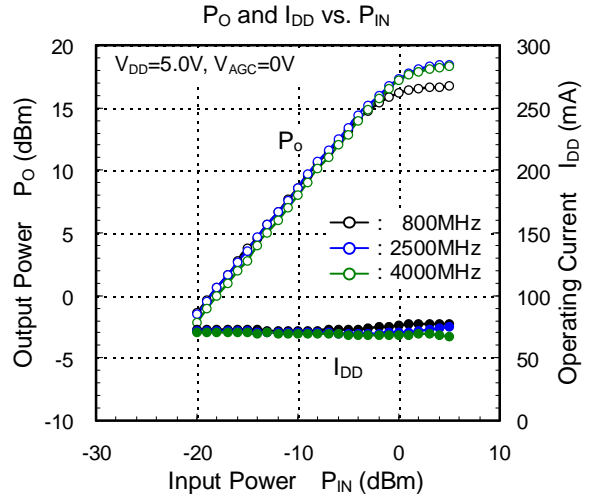
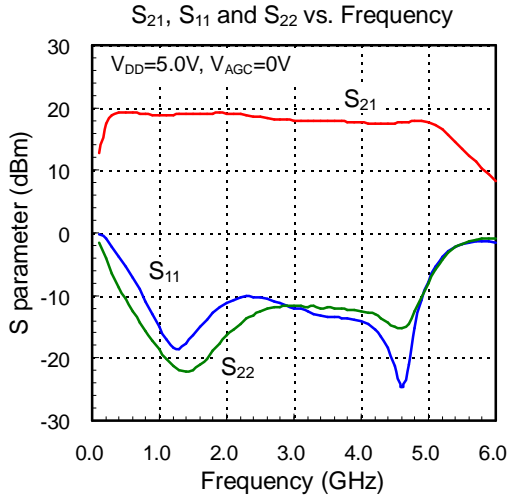
ELECTRICAL CHARACTERISTICS

(Ta=25°C)

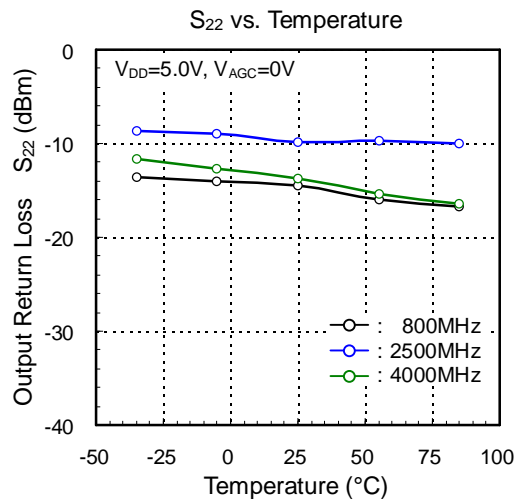
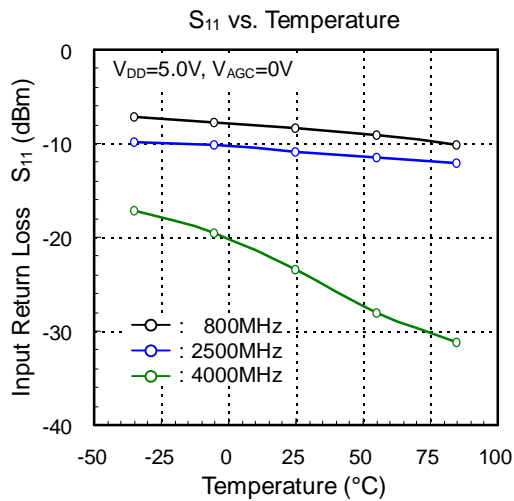
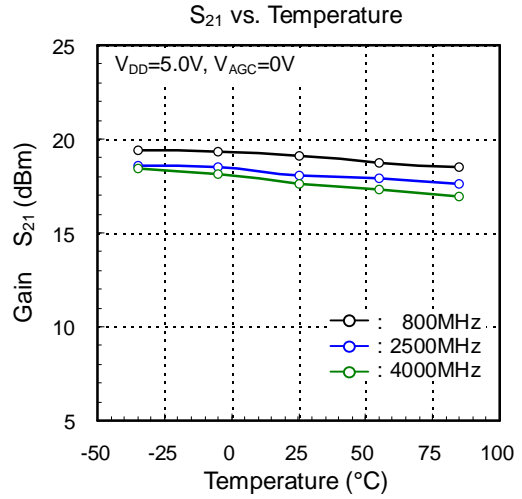
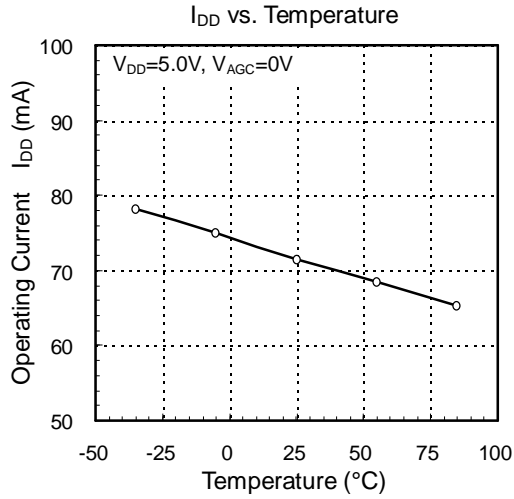
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating Current	I_{DD}	(*1), $P_{IN}=-20\text{dBm}$	—	70	90	mA
Isolation	S_{12}	$f=2500\text{MHz}$	—	-30	-25	dB
Linear Gain	G_{LIN}	(*1), $P_{IN}=-20\text{dBm}$	16.5	17.5	—	dB
Gain Flatness	ΔG	$f=800\text{MHz}$	—	1.8	2.5	dB
Input Return Loss	S_{11}	$f=2500\text{MHz}$	—	-10	-8	dB
Output Return Loss	S_{22}	$f=4000\text{MHz}$	—	-10	-8	dB
Output Power	P_{OI}		14	16	—	dBm
Noise Figure	F	(*1), $f=2500\text{MHz}$	—	4.5	—	dB
3 rd -order Intercept Point	IP_3		—	25	—	dBm
Thermal resistance	R_{th}	Channel to case	—	55	—	$^{\circ}\text{C}/\text{W}$

(*1): $V_{DD}=5.0\text{V}$, $V_{AGC}=0\text{V}$

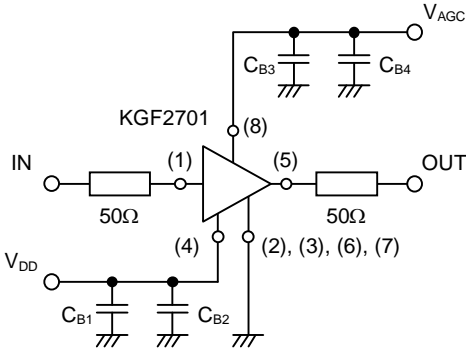
TYPICAL CHARACTERISTICS



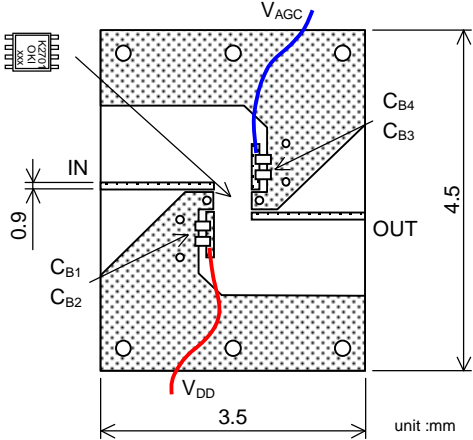
TYPICAL CHARACTERISTICS



Test circuit



Test board

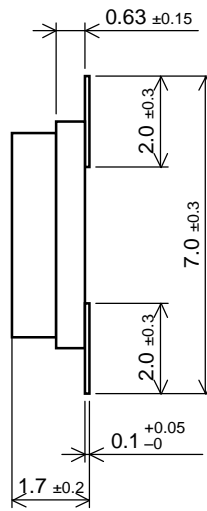
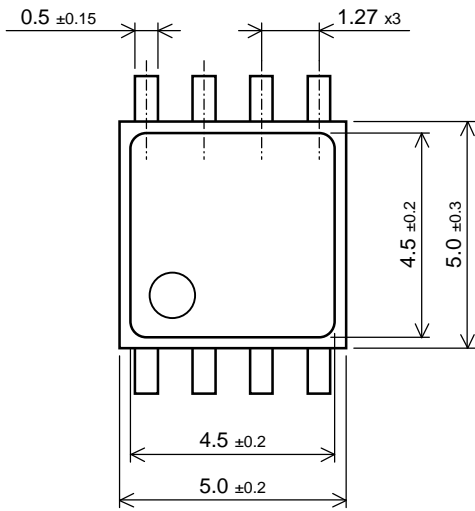


Substrate: Teflon (t=0.33mm, $\epsilon_r= 2.5$, Copper/Gold Cladding)
 $C_{B1} = 1,000\text{pF}$ $C_{B2} = 1,000\text{pF}$ $C_{B3} = 1,000\text{pF}$ $C_{B4} = 1,000\text{pF}$

PACKAGE

8-pin ceramic package (similar 8-pin SOP)

unit: mm

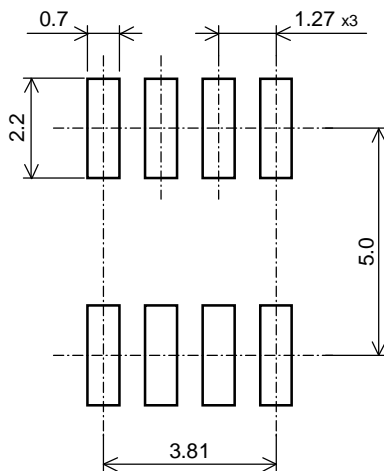


Pin Configuration

(1)	Input
(2)	GND
(3)	GND
(4)	V _{DD}
(5)	Output
(6)	GND
(7)	GND
(8)	V _{AGC}

Footprint

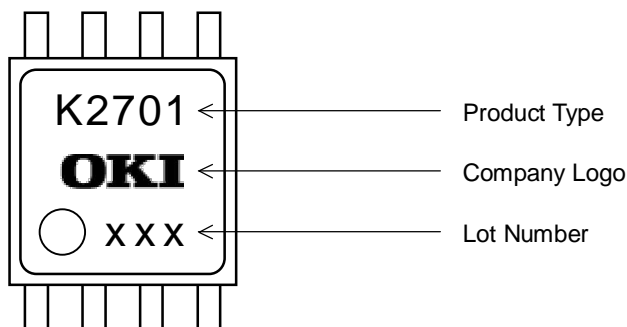
unit: mm



notes:

- 1) This footprint is an example. The size of footprint depends on accuracy of your moulder.
- 2) The mounting design should fully be considered in RF grounding and heat dissipation for the better RF performance of the product.
- 3) Vias are effective in a RF grounding and heat dissipation.

MARKING



SAFETY AND HANDLING INFORMATION ON GAAS DEVICES

Arsenic Compound (GaAs Devices)

The product contains arsenic (As) as a compound.

This material is stable for normal use, however, its dust or vapor may be potentially hazardous to the human body.

Avoid ingestion, fracture, burning or chemical treatment to the product.

- Do not put the product in your mouth.
- Do not burn or destroy the product.
- Do not perform chemical treatment for the product.

Keep laws and ordinances related to the disposal of the products.

NOTICE

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
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4. Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified operating range.
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